

Carnegie Mellon University  
Environmental Health and Safety  
Fire Safety Program

## Table of Contents

<b>Mission Statement</b> .....	3
<b>Scope and Authority</b> .....	3
<b>Fire Safety Program Goals and Services</b> .....	3
<b>Education, Training, and Community Outreach</b> .....	4
<b>Fire Safety Program, Guidelines, and Procedures</b> .....	5
<b>Plan Review</b> .....	7
<b>Fire Protection and Life Safety Systems</b> .....	8
<b>Fire Drills, Evacuation Maps and Evacuation Assistance</b> .....	9
<b>Permits</b> .....	10
<b>Fire Watch Management</b> .....	11
<b>Program Enhancement and Review</b> .....	11

## **Mission Statement**

The safety and well-being of every individual within the CMU community is a top priority for the university. Enterprise Risk Management supports a culture of safety and compliance through policies, programs, and initiatives that empower the community to take a proactive role in safety and to say something if they see something.

A culture of safety and compliance protects our community from harm, improves performance and productivity, helps ensure that policies and regulations are adhered to, mitigates negative risk, and is in alignment with the university's strategic mission of personal health and well-being.

## **Scope and Authority**

In accordance with the University's Environmental Health and Safety Authorization Policy, Environmental Health and Safety (EHS) has developed a comprehensive Fire Safety Program to carry out its fire safety roles and responsibilities. This document establishes a framework for the program and describes the services provided by the EHS Fire Safety Team at the Pittsburgh, PA campus.

## **Fire Safety Program Goals and Services**

The safety of the CMU community is a top priority of the university. As such, the university is committed to maintaining an environment and culture of safety through the EHS Fire Safety Program. The goal of the Fire Safety Program is to protect lives, property, and the continuity through the management and mitigation of fire risks. The services and resources provided by the Fire Safety Team in support of this goal include, but are not limited to:

- Providing fire safety education, training, and community outreach.
- Developing, implementing and maintaining fire safety guidelines, procedures, and programs.
- Performing inspections and assessments to evaluate compliance with applicable fire safety codes, standards, and regulations
- Identifying fire hazards, prioritizing risks, and coordinating process improvement opportunities.
- Reviewing plans and specifications for construction projects, renovation, and special events.
- Auditing fire protection and life safety systems for quality assurance.
- Facilitating building fire evacuation drills, managing emergency evacuation maps, and developing evacuation assistance plans.

- Issuing permits for hazardous work processes.
- Managing and coordinating fire watch program requirements.
- Providing support at fire incidents and assisting in the identification of root causes.

## **Education, Training, and Community Outreach**

To equip members of the CMU community with the knowledge and skills needed to maintain a safe environment, the Fire Safety Team conducts regular fire safety education, training, and community outreach events across the campus. To embrace advancements in technology and to accommodate the varying schedules of a busy campus population, the Fire Safety Team provides these services both online and in-person. Training classes and available sessions can be found by logging into [SciShield](#), the laboratory and safety inspection and training database.

### ***Fire Safety Best Practices Training***

Fire safety best practices training is designed to familiarize the university community with information on common fire hazards and fire code violations. This training is provided periodically based on interest or request. The training reviews electrical fire safety, heating-appliance fire safety, cooking fire safety, storage and housekeeping, smoking fire safety, emergency evacuation, and the maintenance of fire protection and life safety equipment. This training may also be customized to address the unique hazards contained within a specific building, area, or operation, based on the needs of the attendees.

Many of the topics within the fire safety best practices training are also presented by the Fire Safety Team as part of the CMUSafe Ambassador training program. This program is managed by the Disaster Recovery and Business Continuity (DRBC) Services Team and is available for any staff or faculty member who is interested in becoming a CMUSafe Ambassador.

### ***Fire Extinguisher Training***

Fire extinguisher training is designed to familiarize the university community with the various classification of fires, the types of fire extinguishers available, the procedures for using fire extinguishers, and a review of general fire evacuation procedures.

When conducted in-person, a “hands-on” practical skills session is available which provides attendees the opportunity to extinguish a simulated fire. When conducted online, participants are provided with a video that demonstrates the proper usage of a fire extinguisher. This training is required prior to engaging in activities where there is an increased risk of fire, including working in laboratories, utilizing laser cutters, and engaging in “hot work” such as welding and grinding.

## ***Custom Training Programs***

In addition to the Fire Safety Best Practices and Fire Extinguisher Training offered as standardized programs, the Fire Safety Team can develop user and application-specific training programs that are delivered based on the needs of our campus partners, such as fire safety for special events.

## **Fire Safety Program, Guidelines, and Procedures**

The Fire Safety Team is responsible for developing, implementing, and maintaining university programs, guidelines, and procedures addressing campus fire safety. As the need for new programs, guidelines, and procedures are identified, the Fire Safety Team will collaborate with campus colleagues to identify sustainable solutions that allow all parties to meet their goals and objectives while maintaining compliance with applicable regulations. Current programs, guidelines, and procedures can be found on the [CMU Environmental Health and Safety website](#) and include:

- **Cold Weather Fire Safety:** This document establishes expectations for the proper use of heat-producing devices used during cold weather.
- **Cooking Fire Safety:** This document establishes expectations for safe cooking.
- **Electrical Fire Safety:** This document establishes expectations for the proper use of electrical appliances and equipment.
- **Emergency Evacuation:** This document establishes expectations for evacuation during a fire emergency.
- **Fire Extinguisher Reference Guideline:** This document serves as an informational handout to review the different classifications of fire, the available types of fire extinguishers around campus, and steps to follow when utilizing a fire extinguisher.
- **Fire and Life Safety Assessment Program:** This document identifies the framework for conducting facility fire and life safety assessments as well as agreed upon roles and responsibilities of each campus partner.
- **Fire Protection and Life Safety Systems Impairment Guideline:** This document identifies the requirements for managing the impairment of a fire protection and life safety system, including what constitutes an impairment, actions to take during an impairment, and required notifications.

- **Fire Protection and Life Safety Systems: Roles and Responsibilities:** This document identifies agreed upon roles and responsibilities of each campus partner as related to the university's fire protection and life safety systems.
- **Holiday Fire Safety:** This document establishes expectations for fire safety during holidays.
- **Hot Work Program:** This document identifies the requirements for managing the hot work process, including what constitutes hot work and actions that must be taken to prevent fires during hot work.
- **Life Safety Equipment:** This document establishes expectations for ensuring life safety equipment remains accessible and operational.
- **Means of Egress:** This document establishes expectations for maintaining the means of egress.
- **Monthly Fire Extinguisher Inspection Checklist:** This checklist provides the criteria that should be assessed when conducting a monthly visual fire extinguisher inspection.
- **Smoking Fire Safety:** This document establishes expectations for the safe usage and disposal of smoking materials.
- **Social Gathering and Recreational Fire Safety:** This document establishes expectations for fire safety during social gatherings and other recreational events.

## Inspections and Assessments

To identify fire hazards and to help ensure compliance with the adopted fires codes and standards, the Fire Safety Team conducts various inspections and assessments throughout university housing, academic and administrative facilities on the Pittsburgh campus.

- **Facility Fire and Life Safety Assessments (FLSA):** These assessments are conducted at varying intervals based on occupancy type, known hazard or risk levels, recurring trends, established priorities, or at the discretion of EHS leadership. The assigned fire safety specialist will conduct a comprehensive walkthrough, covering both the interior and exterior of the facility, and documenting fire safety risks that are identified. A supporting "Facility Fire and Life Safety Assessment Program" document has been established and will be published in 2023 to guide this process.

- **Field Observations and Complaint Follow-Ups:** Outside of regularly scheduled fire and life safety assessments, the Fire Safety Team may observe or receive notification of fire hazards that require immediate attention. Upon identification of these hazards, the Fire Safety Team will work with the applicable campus partners to have the issue mitigated in an appropriate time frame based on the hazard type or level of risk which is further defined in the FLSA Program.
- **Hazardous Materials and Processes Reviews:** In collaboration with the EHS Laboratory and Research Safety Team, the Fire Safety Team conducts hazard reviews for laboratory processes and research as well as chemical storage and use. The results of these reviews are used to implement controls to effectively manage associated risks.
- **Shop and Makerspace Inspections:** In collaboration with the EHS Workplace Safety Team, the Fire Safety Team conducts inspections of shops and makerspaces, including performing dust hazard analyses of areas containing combustible dusts. Additional information regarding this process can be found in the [Student Shop Safety Program](#).
- **Third-Party Agency Inspections:** When a fire-related inspection is scheduled by a third-party agency, such as the Pittsburgh Bureau of Fire, Pittsburgh Department of Permits, Licenses and Inspection, or the university's property insurance provider, the Fire Safety Team serves as the university's liaison. The Fire Safety Team prepares requested documentation, attends the on-site inspection/walkthrough and coordinates a plan of correction with applicable stakeholders for any deficiencies that may be identified.

## **Plan Review**

### ***Campus Design and Facility Development (CDFD)***

The Fire Safety Team provides support to the Campus Design and Facility Development (CDFD) Department for construction and renovation plan review for structures owned and operated by the university. The Fire Safety Team provides internal review to help ensure projects and facilities are designed, constructed, and renovated in accordance with the International Building Code (IBC), International Fire Code (IFC), property insurance requirements, and industry best practices.

### ***Special Event Planning***

As members of the CMU community plan for special events, the Fire Safety Team also provides a plan review for each event to ensure an acceptable level of safety is maintained.

Examples of special events include, but are not limited to:

- Spring Carnival
- Sweepstakes (Buggy)
- Tartan Community Day
- Concerts
- Commencement
- Graduate and First Year Student Orientation

## **Fire Protection and Life Safety Systems**

### ***Quality Assurance***

To assist in protecting lives and property, the university's properties are equipped with various fire protection and life safety systems. These are building assets designed to detect the presence of fire, notify occupants of the need for evacuation, and/or suppress any fires that occur. Facilities Management Services (FMS) maintains ownership of these systems and are responsible for ongoing inspection, testing, and maintenance. To help ensure that the inspection, testing, and maintenance program adheres to applicable fire codes and standards, the Fire Safety Team conducts quality control audits of these systems and associated documentation.

The fire protection and life safety systems found on campus include, but are not limited to:

- Portable fire extinguishers
- Fire alarm systems
- Smoke control systems
  - Atrium exhaust
  - Zoned smoke management
  - Elevator and stairway pressurization
- Emergency Power Supplies
  - Emergency generators
  - Battery storage systems and uninterruptable power supplies
  - Illuminated exit signs and emergency lighting
- Water-based suppression systems
  - Wet pipe sprinkler systems
  - Dry pipe sprinkler systems
  - Pre-action sprinkler systems
  - Standpipe systems and fire hoses
  - Fire pumps
- Private fire service mains and hydrants



- Special hazard fire suppression systems
  - Halon 1301 systems
  - Clean agent systems
  - Carbon dioxide (CO<sub>2</sub>) systems
  - Dry chemical systems
  - Wet chemical systems
  - Explosion suppression systems
- Fire/smoke doors, fire/smoke dampers and other opening protectives
- In-building emergency radio communication systems
- Two-way area of refuge communication systems

### ***Fire Alarm System Monitoring***

While FMS maintains ownership of the university's fire alarm systems, the Fire Safety Team is responsible for managing the fire alarm system monitoring contract and associated equipment. This service is contracted with Guardian Protection which provides 24-hour monitoring of all fire alarm systems and dispatch of the fire department upon receipt of a fire alarm signal.

### **Fire Drills, Evacuation Maps and Evacuation Assistance**

Enabling occupants to safely and effectively evacuate during a fire or other emergency is a key component of the Fire Safety Program.

#### ***Fire Drills***

The Fire Safety Team conducts fire drills for university buildings as required by the International Fire Code. These take place annually for academic and administrative buildings and at the beginning of each semester for residential buildings. The purpose of a fire drill is to enable building occupants to familiarize themselves with emergency procedures, the location of emergency exits, and the sound of the fire alarm. Additionally, periodic fire drills enable the Fire Safety Team to monitor the timeliness and effectiveness of evacuations and detect technical problems with the fire alarm notification equipment.

The Fire Safety Team is responsible for sending out notification to building occupants about upcoming drills and scheduling required support services from FMS and/or the University Police Department (UPD). Data from these fire drills are also provided to UPD as part of the [Annual Security and Fire Safety Report](#).

## **Evacuation Maps**

The Fire Safety Team is responsible for the management of evacuation route maps posted throughout each campus building. These maps provide occupants with information on the location of emergency exits, assembly points, and various safety equipment.

*Note: The Fire Safety Team is currently in the process of implementing a multi-year plan to update, standardize, and increase accessibility to evacuation maps through the assistance of a third-party vendor.*

## **Evacuation Assistance**

When individuals who require assistance during fire evacuations choose to self-identify, the Fire Safety Team is available to assist in developing individualized evacuation plans for special accommodations, in collaboration with the university's Human Resources (HR) Disability Services (for staff and faculty) or the Office of Disability Resources (for students).

## **Permits**

The Fire Safety Team manages the approval process and issuance of required permits prior to the start of any work that may create a fire hazard or that is required by the fire code. This includes:

- Hot Work Operations, such as grinding and welding, that may serve as an ignition source in areas with combustible materials
- Dust-Producing Operations, such as core drilling and demolition, that may cause an unintended activation of a smoke detector
- Impairments, such as those impacting fire alarm systems and sprinkler systems, that may decrease or inhibit the performance of fire protection and life safety systems
- Outdoor Recreational Fire Pit Usage that may result in an uncontrolled fire if not managed appropriately

The goal of the permit system is to minimize the risk of fire and protect the university community and property from hazards associated with the work.

There are additional permits issued by the City of Pittsburgh that EHS maintains on an annual basis. Each permit is applied for and maintained through the OneStopPGH platform and include:

- Fire alarm system monitoring
- Combustible dust

- Hazardous materials
- Other operational permits (based on the specific products and processes contained within each building)

## **Fire Watch Management**

Any time a required fire protection or life safety system is impaired, a person must be assigned to fire watch. The Fire Safety Team manages these requirements and specifies when a fire watch is needed. A fire watch is defined as an individual who has the sole responsibility to patrol a designated area, look for signs of fire, notify the building occupants if there is a need to evacuate, and extinguish the fire as applicable. During the impairment of a fire protection and life safety system, the Fire Safety Team will ensure that warning signage is posted in the affected building, all required parties are notified, and that any interim life safety measures are taken.

## **Fire Incident Planning, Response and Investigation**

In collaboration with the DRBC Services Team, the Fire Safety Team develops fire response procedures and collects pre-planning data to support fire department response.

When on campus and available, the Fire Safety Team may respond to reported fire incidents to assist with building evacuation or to provide subject matter expertise to first responders about unique hazards found at the university. Where deemed necessary, the Fire Safety Team will also conduct internal investigations of fire incidents to identify root causes and implement measures to prevent the occurrence of similar incidents.

## **Program Enhancement and Review**

The services provided under the Fire Safety Program are subject to change based on expanding organizational missions, changes to legal and regulatory requirements, or identified trends requiring additional oversight and management. As the Fire Safety Program continues to expand, the Program shall be reviewed annually, or as needed, to identify improvements that are necessary to ensure a culture of safety.