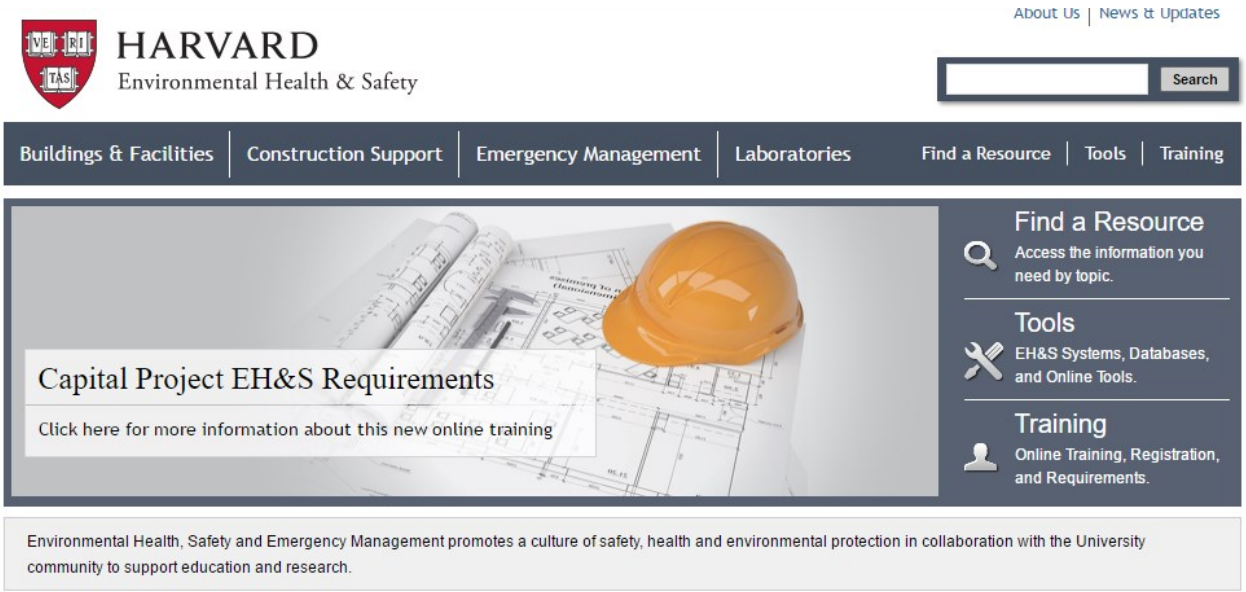
HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

FACILITY & BUILDING MANAGERS
ENVIRONMENTAL HEALTH & SAFETY REFERENCE GUIDE

Facility & Building Managers are required to have a wide range of working knowledge to operate their facilities safely and to meet the expectations of their various customers. The intent of this guide is to provide information on common facility related emergencies, as well as, guidance to insure compliance with OSHA, EPA , NFPA statues/regulations, and or Harvard University best practices.

The Department of Environmental Health & Safety is built on a model of service developed in collaboration with University partners and delivered through a tailored approach that addresses school and department specific preparedness, safety and compliance needs.

This guide will provide quick reference to the EH&S web sites, external resources, checklist and other helpful references. If you have any questions, please contact your Designated Safety Officer (DSO) or Environmental Health & Safety (EH&S) for assistance.



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ENVIRONMENTAL HEALTH & SAFETY (EH&S)

OUR ORGANIZATION

We support the University's mission of teaching and research by promoting a culture of safety, health, environmental protection, and emergency preparedness.

Our customers include students, faculty, and staff, as well as the broader community and environment around us. We strive to understand our customers and develop services specific to their needs in four primary areas – Buildings & Facilities, Laboratories, Emergency Management, and Project Support.

The challenge of providing these services requires us to operate as a cross-functional team, finding creative ways to provide service excellence and ensure compliance with laws, regulations, and University policies.

ENVIRONMENTAL SAFETY AND COMPLIANCE OFFICERS (ESCO'S)

Key components of the management structure include an Environmental Safety and Compliance Committee (ESCO), chaired by the Managing Director of EH&S and comprised of senior administrators from major schools and departments, EH&S, and a network of Environmental and Safety Compliance Officers (ESCOs).

ESCOs are appointed by the dean or vice-president of each operating unit to implement, manage and enforce environmental and safety programs. ESCOs act as the primary point of contact with EH&S and work closely with EH&S staff to identify local priorities and coordinate EH&S service delivery. The responsible unit is accountable for fines or penalties resulting from noncompliance, a model supported by the deans and University administration. Committees in which EH&S plays a leadership, management or strong supporting role include.

SAFETY COMMITTEES

In addition, EH&S staff participate in local safety committees established by various schools and departments (SEAS, FAS, HMS, SPH, etc.) These committees typically meet on a monthly basis and are used for information exchange, incident analysis, consensus building and compliance oversight.

EH&S is an active member of local and national groups engaged in regulatory reform, technical development and exchange.

REPORTING EMERGENCIES:

Life Threatening Emergencies: Medical, Fire, Police: CALL 911

Harvard University Police: (617) 495-1212

University Operations Center: (617) 495-5560

HMS/HSDM Control Center: (617) 432-1901

URGENT EVENTS

- **Accidents**
- **Medical Emergencies**
- **Evacuation of Facilities or Campus**
- **Security Threat**
- **Fire**
- **Floods**
- **Loss of Power**
- **Hazardous Material Release**
- **Uncontrolled Chemical Release**
- **Natural Gas Odor**

EMERGENCY MANAGEMENT

Emergency Management works with central departments, including the Harvard University Police Department (HUPD), Harvard Public Affairs & Communications (HPAC), University Health Services (UHS), and others to coordinate the University's emergency mitigation, planning, preparedness, response and recovery efforts.

Emergency Management provides direct support to Harvard's schools and departments in planning for and responding to emergencies. Emergency Management has designed an emergency structure that is scalable to the needs of the emergency. It consists of school and department Local Emergency Management Teams (LEMTs), Central Administration Emergency Support Functions (ESFs), and a University-wide Crisis Management Team (CMT).

During an emergency, Building Managers need to **Assess** - **Consult** - **Execute** the situation to help eliminate or mitigate the hazards.

ASSESS - CONSULT- EXECUTE

- ❑ **Coordinate** your emergency planning, preparedness and response efforts with your school or departments Local Emergency Management Team (LEMT) or Emergency Support Function (ESF).
- ❑ **Update** your building procedures (i.e. Fire, Loss of Power, Flood, Utility failure, etc.) in the Facilities Incident Notification System (FINS). Contact the University Operations Center at 617-495-5560 for support.
- ❑ **Register** for MessageMe at messageme.harvard.edu to receive emergency alerts from the University by text, voice and email.
- ❑ **Prepare** before severe weather events, prepare your facility by testing emergency equipment and systems, clearing debris, securing outdoor equipment, and closing windows and doors.
- ❑ **Emergencies** - establish a secure or safe area, block-off hazardous areas, keep tenants informed of facility/ safety issues, provide status updates to your LEMT/ESF and to the University Operations Center (617-495-5560). **Personal safety is most important. Exercise caution at all times.**
- ❑ **EH&S experts are available to 24/7** to support ongoing EH&S-related emergencies by calling University Operations Center (617-495-5560) or the EH&S main phone line (617-495-2060).

EMERGENCY ALERTS: www.harvard.edu/emergency **617-496-NEWS (6397)** messageme.harvard.edu

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ACCIDENT REPORTING & INVESTIGATIONS

Harvard University employees must complete an Injury/Illness Accident Report Form within 24 hours of a work related injury or illness. ALL work related injuries and illnesses must be reported.

Accident report forms can be obtained from Human Resources, your Supervisor; return Harvard Injury and illness/Accident report to your supervisor to complete and sign. Completed Harvard Injury/illness Accident reports are then submitted to Human Resources by the Supervisor. Human resources will forward a copy to the third party administrator and Environmental Health and Safety (EH&S) for review.

Harvard must report the following to the Federal Occupational Safety and Health Administration (OSHA):

- All work related **fatalities** within **8 hours**. Any work-related inpatient hospitalizations, amputations, or loss of eye must be reported within **24 hours.**
- Injuries and illnesses that involve one of the aforementioned must be immediately reported to the Operations Center (617-495-5560).
- Harvard EH&S will begin an initial investigation of the incident and make the appropriate notifications on behalf of the institution.

ASSESS - CONSULT- EXECUTE

- **911** should be called for **MEDICAL** and **FIRE** emergencies.
- All incidents that resulted in injury must be reported on the Harvard Injury/illness Accident report.
- Serious injuries/illnesses must be reported to the Operations Center **immediately after** contacting **911 or emergency personnel.**
- **Immediately report** work related Injuries/illnesses that involve a serious injury, any inpatient hospitalization of an employee, an amputation , the loss of an eye, or a fatality to the Operations Center.
- Contact EH&S for assistance with serious accidents/incidents investigations. In some case, it is important to safe guard the area of the accident, secure equipment and consult with EH&S.
- Ensure that all accidents/incidents that occur in your facility are promptly reported and investigated by filling out a Harvard Injury/Illness Accident report and submitting it to Human Resources.

AUTOMATED EXTERNAL DEFIBRILLATORS (AEDs)

EH&S, in collaboration with University Health Services (UHS), has developed an Automated External Defibrillator (AED) standard for Harvard's Schools and Departments to implement a Public Access Program (PAD).

EH&S provides services and on-line tools to assist in the development and maintenance of local AED programs. EH&S assists schools and departments with determining the number of AEDs needed, location to store the AED, coordinating the purchase of the AED and answer any technical questions the client may have.

AEDs are medical devices used during cardiac emergencies, and can be found in many Harvard buildings. Massachusetts General Law (M.G.L. Ch. 93, Section 78A) requires that AEDs be present in "health clubs" and athletic facilities. Harvard's AED program is not mandatory in non - athletic facilities, but if a facility does participate, it must adhere to the University policy.

ASSESS - CONSULT- EXECUTE

- If your facility has AEDs, you must comply with Harvard's AED program. Harvard's AED program follows the American Heart Association's (AHA) Public Access to Defibrillation (PAD) guidelines.
- **Medical oversight -** AED programs must have authorization from the AED Medical Director, located in University Health Services. The responsibilities of the Medical Director include; reviewing the purchase of all AEDs, submitting necessary records and information to local EMS offices, and conducting post incident reviews.
- **Inspections** - AEDs are required to be inspected on a monthly basis to ensure sufficient battery power, non-expired electrode pads, and the AED software is operating properly. A record of the inspection must also be maintained. Depending on your location and specific access controls, EH&S can conduct and track your monthly inspections.
- **Training** - At least one full time employee in your building or work area needs to maintain a current CPR/AED training certification to be compliant with PAD guidelines. The two most common training organizations are the American Red Cross and the American Heart Association-both training organizations meet the definition of qualified training.

FACILITIES & OCCUPATIONAL SAFETY GROUP

The Facilities and Occupational Safety group anticipates and plans for occupational, facility and life safety risks for planned and unplanned events at Harvard University.

Our focus is on the operation and maintenance of Harvard facilities, the safety of Harvard personnel, and the protection and compliance requirements of buildings and facilities. Technical expertise, management, and compliance information on OSHA, NFPA and other standards are provided to ensure the safety of all personnel.

Fire safety is an important aspect of these efforts. The prevention of fire requires the vigilance and care of all building occupants, building and facility management, trade personnel, and contractors. Our group, educates and heightens the awareness of students, staff, and facility managers about the importance of day-to-day safety and fire prevention measures.

COMMON FACILITY & BUILDING MANAGER ACTIVITIES OR EMERGENCY RESPONSES

- Fire Safety & Evacuation Plans
- Event Planning
- Service Contractor Safety
- Construction and Renovations
- Hazardous Building Materials
- Confined Spaces
- Electrical Safety - NFPA 70E - Lock Out/Tag Out
- Fall Protection
- Hazardous Waste Management
- Indoor Air Quality (IAQ)
- Floods
- Environmental Releases
- Pest Management
- Machine Shops
- Specialty Equipment (i.e. Laboratory Ventilation, Laboratory Equipment, Theater Equipment, Aerial Lifts, etc.)

FIRE SAFETY & EVACUATION PLANS

The prevention of a fire in a Harvard building or facility requires the vigilance and care of all building occupants, Building and Facilities Management, Trades personnel, and Contractors.

A critical component is to educate and heighten the awareness of students, staff, and facility managers about the importance of day-to-day fire safety and fire prevention measures.

Emergency preparedness requires that buildings meet particular fire safety requirements and maintain an up to date Emergency Evacuation Plan. All building occupants should be familiar with the evacuation procedures and whether or not they have any evacuation duties. Fire protection/prevention equipment such as extinguishers, fire doors, and sprinklers must be appropriately inspected and maintained.

ASSESS - CONSULT- EXECUTE

- Facilities are required to maintain an Emergency Evacuation Plan that has been customized for the building, and must provide occupants with evacuation procedures.
- A building must have trained evacuation monitors to assist with evacuation procedures.
- Evacuation maps must be current and posted throughout the facility.
- Disabled persons require special accommodations need to be developed in advance.
- Emergency Evacuation/Fire trifolds must be current. Evacuation procedures should be practiced during a regularly scheduled fire drill.
- Any storage of flammable/combustible liquids solids, or gases requires a permit.
- Obtain a flammable permit if storing flammables other than household products. Obtain a flammable license if flammable storage exceeds fire code or AHJ thresholds.
- Some doors (such as those in stairwells) are rated for fire protection and considered fire doors. Fire doors must be properly maintained, fire doors must NOT be propped open and the label on the inside edge of the door must be visible.
- Evacuation routes must provide clear access to exits.
- Regularly update/maintain the facility Emergency Evacuation Plan and evacuation maps; ensure that maps are posted by stairs/elevators and in assembly occupancies/locations. Changes must be communicated to all occupants.
- Provide occupants/contractors with Emergency Evacuation/Trifolds.

FIRE SAFETY & EVACUATION PLANS

ASSESS - CONSULT- EXECUTE

- **All fires in residential or dormitories must be report to EH&S,** this is a requirement of the Higher Education Opportunity Act.
- Train volunteer Evacuation Monitors (University Emergency Evacuation Training).
- Notify the Operations Center if you have a request by occupants for assistance or accommodations.
- Conduct an annual evacuation drill and assess effectiveness.
- Create a schedule for inspection and maintenance of fire prevention/protection equipment such as extinguishers, sprinklers, and fire doors.
- When painting doors, DO NOT paint over fire door rating label.
- Renew your flammable permits by **12/31** for Cambridge and **7/1** for Boston.

ROUTINELY INSPECT THE FACILITY TO ENSURE:

- Exit doors are fire doors and MUST NOT be propped open.
- No items are to be stored in a manner that obstructs egress routes. **NO storage in fire rated staircases.**
- Fire hazards that are identified must be corrected—maintain good housekeeping, eliminate combustible clutter, monitor storage in corridors, storage/recycling areas, electrical panels and mechanical rooms, inspect fire escapes, etc.
- Ensure that all fire equipment is in good condition and has been appropriately inspected, tested and is maintained.
- Battery pack emergency lighting is operations. Exit lighting properly illuminated.
- Exit routes are unobstructed, exit doors open freely outside to a public space.
- Educate all occupants on fire safety and emergency procedure. EH&S can assist with training and conduct inspections.

EVENTS & EVENT PLANNING

To ensure the smooth execution and safety of an event, event organizers must undertake careful planning and preparation. Most events at the University require advance notification and permitting by local building and fire officials. Fire and building code regulations range from crowd management to the types of decorations on display. Fire and Building codes govern these event planning requirements.

Due to risk of severe fire hazard consequences with large groups of people; events at Harvard buildings require pre-planning, layout/design review, advance notification, and permitting by local building/fire authorities having jurisdiction (AHJ).

What is a Crowd Manager Responsibilities

- Maintain clear paths of egress.
- Assure that the facility does not exceed its occupant load limit.
- Initiate a fire alarm if necessary, directing occupants to exits.
- Assure that exit announcements are made via an audible announcement prior to the start of each program or performance notifying occupants of the locations of exits to be used in emergencies.
- Complete the Fire and Building Safety Checklist daily prior to opening the facility to the public.

ASSESS - CONSULT- EXECUTE

- At a minimum, a Massachusetts Certified Crowd Manger must be designated for qualifying events with 100+ attendees.
- Every 3 years, the Crowd Manger must complete training.
- Crowd Manager must complete the Fire and Building Safety Checklist prior to opening the building to the public for each event day. Checklists must be kept onsite for at least one year and are subject to inspection by Fire Department officials.
- Fire and Building Safety Checklist consists of routine safety checks of existing fire alarm and fire protection systems, fire extinguishers, exits and exit signs, interior finish, means of egress, crowd control procedures and building occupancy limits.
- An announcement declaring exit locations must be given to audiences.
- Event sponsors must follow Harvard Fire and Life Safety Guidelines for Events.
- Food and Alcoholic beverages will require additional permitting/inspections.

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SERVICE CONTRACTOR SAFETY

All contractors must perform their work on campus in a safe and compliant manner to protect Harvard personnel, facilities and reputation. Harvard's expectations for service contractors are contained in the Service Contractor Safety Guide and should be referenced in contracts and service agreements.

1. Harvard managers and operations personnel can ensure a contractor is performing their work duties safely by performing a periodic visual inspection of their work.
2. Contractors and their employees who work on Harvard property must be trained, in accordance with OSHA regulations, as well as, any other applicable local, state and federal regulations.
3. Each trade or contractor is required to identify in writing the name of the Competent Person assigned to the project /job task. The Competent Person is responsible for inspection of the operations for which he/she is listed as the Competent Person, as well as identification and correction of hazards.

ASSESS - CONSULT- EXECUTE

- All service contractors must have the current revision of the Harvard University Service Contractor Safety Guide.
- When hiring contractors, the Harvard University Standard Form of Service Contract must be used.
- It is recommended that Contractors participate in the Contractor Safety Assessment Program (CSAP). This program, operated by a third party, allows the University to objectively assess the safety performance of its contracting partners and assists the project management team.
- All construction projects must identify and address all EH&S issues during the design and monitor the various phases of construction/renovations/demolition.
- Completed a "Building Hazardous Materials Profile." Work closely with your DSO and Project Managers.
- Ensure that all required plans and permits have been requested/completed (i.e. NFPA 241 Plan, MA DEP Permits, etc.).
- **Meet periodically with your contractors and conduct safety inspections of the work site with your contractor; monitor access to the area, housekeeping, hall ways, fire exits, storage, etc.**

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CONSTRUCTION & RENOVATIONS

Harvard expects that all contractors on its properties follow the guidelines contained in the Harvard University Service Contractor Safety Guide and/or the Construction Safety Standard. It is the building manager's responsibility to provide their contractors with these documents.

Building managers are responsible for ensuring that contractors adhere to the guidelines and perform their work in a safe manner. Periodic visual inspections of contractor work can help ensure safety and compliance. Contractors are expected to train, supervise, and direct their employees in a manner that protects Harvard students, faculty, employees, neighbors, and property.

EH&S provides a range of support to building managers undertaking construction, renovation, and demolition projects. This support gives access to staff with the expertise needed for input during the project's planning, design, bidding, and construction activities.

ASSESS - CONSULT- EXECUTE

- **Involve EH&S on your upcoming projects**. Provide design drawings to EH&S for review. EH&S will provide access to staff with the expertise to assist with project-related EH&S challenges (i.e. permitting, evaluating risks and other project impacts). EH&S provides project-specific support for construction and renovation projects at the University (for capital and non-capital projects).
- Environmental issues that may affect your project could include: hazardous materials (i.e. asbestos, lead, PCBs, etc.), soil management, air permitting, chemical use/storage and tanks, storm water or groundwater management during construction, etc.
- Complete the EH&S project checklists: Environmental Issues Questionnaire AND Construction Project Check-list.
- **Coordinate a hazardous materials survey of the space to be renovated** .
- For capital projects only: incorporate the EH&S Construction Standard into your project by referencing it in all contract documents; enroll the project in CSAP; and confirm the project has been established for substance abuse testing.
- Incorporate EH&S design specifications into your project by referencing them in all contract documents. Only use the Harvard University Standard Form of Service Contract developed by the Office of General Counsel when securing contracts.
- Schedule a pre-construction meeting with the awarded contractor to review EH&S requirements, expectations, and impacts. **Periodically evaluate contractors' work to ensure they are complying with EH&S requirements.**

HAZARDOUS BUILDING MATERIALS

Many building components (even modern ones) may contain regulated materials including asbestos, lead paint and polychlorinated biphenyls (PCBs) containing sealants. These materials are regulated by Local, State and Federal agencies.

Conduct a hazardous materials survey of the area to be disturbed prior to the start of work; Asbestos can be found in modern building materials. Lead based paint is typically in buildings built before 1978. PCB containing sealant can be found in buildings built before 1980.

Proper identification, notification, handling and disposal of regulated materials are required. Harvard has specific requirements for using pre-approved consultants for identification, abatement contractors for removal, and disposal facilities. Proper management of these materials are essential for worker safety and environmental protection.

ASSESS - CONSULT- EXECUTE

- **Involve EH&S on your upcoming projects**.
- Environmental issues that may affect your project could include: hazardous materials (i.e. asbestos, lead, PCBs, etc.), soil management, air permitting, chemical use/storage and tanks, storm water or groundwater management during construction, etc.
- Complete the EH&S project checklists: Environmental Issues Questionnaire and Construction Project Check-list.
- Schedule a pre-construction meeting with the awarded contractor to review EH&S requirements, expectations, and impacts. Periodically evaluate contractors' work to ensure they are complying with EH&S requirements.
- Building Managers must identify hazardous materials BEFORE conducting any invasive work. Have a Harvard approved vendor conduct a hazardous materials survey of the area to be disturbed prior to the start of work. **Building Management should notify EH&S BEFORE suspect PCB-containing materials (such as window caulking) are to be sampled or removed.**
- **In the event any Contractor encounters previously unidentified material that is reasonably believed to be a hazardous substance or condition, the Contractor shall immediately stop work in the affected area and immediately report the condition to the Facility/Building /Project Manager - notification of the Operations Center or EH&S may be required.**
- Building Managers must use Harvard approved Industrial Hygienists, Abatement Contractors, Waste Shipment Records and Disposal Facilities.
- Building Managers must keep records of hazardous materials identification and ensure proper notification, handling and disposal of these materials.

CONFINED SPACES

Harvard buildings often have regulated areas called "confined spaces", which are defined as so due to their configuration and hazards present. Many of these spaces contain facility equipment that require maintenance/repair (i.e. pits, shafts, chases, etc.).

OSHA mandates specific labeling and training requirements for a facility's confined spaces since their hazards (i.e. oxygen-deficient atmospheres, electrical shock, etc.) have seriously injured and killed workers.

TYPICAL UNIVERSITY CONFINED	
Sewer Ejector Pits	pH Neutralization Tanks
Storm Water Pits;	Underground Electrical Vaults
Chemical/Fuel Storage Tanks	Air Handling Units
Boilers	Manholes

A space is considered "confined" if it meets the following criteria:

It is large enough for an employee to enter and perform assigned work;

It has a limited or restricted means for entry or exit; and

It is not designed for continuous employee occupancy.

Certain confined spaces that present serious hazards to workers require a permit for entry and must be labeled as "Permit Required Confined Space".

ASSESS - CONSULT- EXECUTE

- Facilities must review their confined spaces. These spaces are then assessed/evaluated in conjunction with the facility manager and EH&S for specific hazards.
- Post danger signs with up-to-date hazard assessments on all confined spaces throughout the facility. Ensure that signage remains posted. Confined spaces must be labeled with the University confined space label and be listed in the University Confined Space Database.
- Altering a space or adding equipment can change its designation as a confined space and its hazard classification. A confined space could be reclassified as a "Permit Required" confined space.
- Training is required in order to enter a confined space. For permit-required confined spaces, a permit must be obtained and special procedures must be followed.
- Contractors should not access confined spaces unless trained and following the requirements of the Harvard University Service Contractor Safety Guide. Ensure that contractors have reviewed the University Contractor Safety Manual and have their own confined space entry program.
- Monitor ongoing maintenance, repair and renovation activities that require confined space entry and ensure that contractors have confined space training and follow appropriate safe work procedures.

ELECTRICAL SAFETY/70E/LOCKOUT TAGOUT

Harvard University buildings may contain sources of hazardous energy that must be isolated or de-energized in order to perform maintenance/repair activities. The most common of these hazardous energies is electricity, and NFPA's 70E sets the standard for all electrical work protection.

Other forms of energy may include mechanical, thermal, gravitational, chemical, pneumatic or hydraulic. Unexpected start-up or release of stored energy from building equipment can seriously injure or even kill workers.

It is crucial to ensure that hazardous energies are disabled, and then locked and/or tagged out when servicing or maintaining equipment. This will ensure that nobody accidentally re-energizes equipment while others are working on it.

Coordination of equipment and utility shut downs can be complex. Detailed planning, coordination and communication to occupants is required.

All contractors must be trained and document specific LOTO procedures/JHAs. Personal Protective Equipment (PPE) assessments, training and use must also be identified.

ASSESS - CONSULT- EXECUTE

- Ensure that contractors have reviewed the Harvard University Service Contractor Safety Guide.
- **Establish** a written lockout tagout program customized for your facility, with procedures for each piece of equipment. Complete equipment assessment forms and develop written procedures for equipment that needs to be locked/ tagged out.
- All equipment must be brought to a zero energy state, and then locked/tagged out before any maintenance or repair work is started.
- ALL personnel that perform lockout/tagout activities MUST be trained. Personnel must use their individually assigned locks and tags to lock and tagout equipment.
- Employees that will perform lockout/tagout procedures participate in lockout/tagout training annually. Verify that contractors have received lockout/tagout training through their employers.
- Ensure that all contractors that perform electrical work are licensed electricians. Do not permit any electrical work to be done without protective equipment.
- Verify that all electrical panels/equipment have an "arc flash" warning.

NEVER remove a lock or a tag from equipment if you did not put it on!

INDOOR AIR QUALITY (IAQ)

IAQ issues have gained increasing attention and should be a high priority for building managers. IAQ should be a priority when concerns are raised in regards mold growth, harmful vapors/emissions, and other issues that can seriously impact occupant health.

Maintaining indoor air quality within buildings is vital to the occupants' health. Proper design, construction, commissioning, and ongoing maintenance of building systems are necessary to provide a healthy and productive workplace.

The greatest factor contributing to indoor air quality is adequate ventilation, which in turn can help control odors, temperature, humidity (moisture buildup) and problematic issues associated with those variables.

Facility & Building Managers must monitor in maintaining indoor air quality; the goal is to operate buildings in a manner that meets established performance standards regarding ventilation, temperature, relative humidity, air quality, odor, noise, and lighting.

ASSESS - CONSULT- EXECUTE

- Establish complaint procedures and respond promptly to IAQ complaints.
- Buildings should be regularly checked for excess moisture buildups and mold growth. Regularly **scheduled** HVAC inspections and maintenance are required.
- **Certain building types have specific and dedicated ventilation requirements (i.e. laboratories), which may require additional testing, certifications, carefully monitoring and procedures for schedule and unscheduled shut downs.**
- Conduct a faculty-wide IAQ survey noting odors, unsanitary conditions, visible mold growth, staining, presence of moisture in inappropriate places, hazardous chemicals, potential soil gas entry, poorly maintained filters, overcrowding, personal air cleaners, uneven temperatures, blocked vents.
- Manage processes with potentially significant pollution sources such as: renovation and remodeling, painting, shipping and receiving and pest control. Review IAQ impacts of all renovation and construction projects to ensure adequate controls are instituted.
- Control moisture infiltration and building envelop integrity to prevent mold growth, particularly in basements. Dehumidify when necessary and respond promptly to floods, leaks and spills. Care should be taken to restrict the use of porous materials, such as carpeting in basements.
- Contact EHS for further investigation into IAQ complaints such as: ventilation assessments, moisture testing, and general air quality monitoring.

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FLOODS

A rapid response to flooding and leaks will prevent mold growth in most cases. If materials are thoroughly dried within 24 - 48 hours - mold growth is unlikely to occur.

Before any materials are removed, carefully complete a safety/hazard assessment before entering the space - there could be hidden electrical, chemical or hazards associated with equipment or building materials. Review your building specific Hazardous Building Materials documents: sample materials as necessary and coordinate clean up/remediation with EH&S. EH&S will notify the MA DEP for emergency notification waivers.

Prompt removal of standing water using pumps or wet vacuums. Aggressive drying of porous materials using any of the following methods: Large volume blowers with desiccant wheels, potable blowers, wet vacuums and large capacity dehumidifiers. In some cases a survey may also include testing moisture levels on surfaces or within materials using a moisture meter and measuring relative humidity to evaluate areas of potential condensation.

WHEN REPORTING FLOODS PROVIDE THIS INFORMATION IF POSSIBLE:	
What is the source of the water?	How much water is present?
How fast is water accumulating?	Is there sewerage involved?
Are any hazardous materials involved?	Is there any danger of property damage?
Are other utilities involved?	Asbestos contain materials?

You should request a basic assessment if any of the following conditions exist in your building.

- Known episodes of major leaks or flooding
- Visible mold growth inside the building
- Moldy or musty smells within the building
- Persistent reports of allergy-like symptoms that appear worse indoors

ASSESS - CONSULT- EXECUTE

- Immediately notify the University Operations Center (617.495.5560) or Longwood Operations Center (617.432.1901) of floods, back-ups, or leaking water.
- STAY AWAY—Assume flood water is dangerous until a qualified assessment is completed.
- Floor water may carry an electric current without visible signs.
- Flooding can contain hazardous materials or sewage (i.e. biohazard).
- Flooding can spread resulting in more damage if left uncontrolled.
- DO NOT use elevators during flooding.

FALL PROTECTION

Workers performing activities at heights of greater than four feet must be provided protection against falling. Every year, workers falling from heights are seriously injured - many of these injuries could have been prevented if adequate fall protection such as railings, barriers, body harnesses, connection devices and certified tie-off points had been provided.

ALL entry points to roof tops or fall hazard area must be signed with the appropriate warning signage. Access doors must be secured and or locked. Only employees/contractors trained to recognize fall hazards and properly use fall protection should work at heights.

Safe Work Distances

1. Minimum distance of 15 feet to the leading edge–travel within 15 feet will require fall protection.
2. Pathways must be clearly marked and employees must be trained.

Remember, Employees/Contractors must use fall protection when performing work at heights of 4 feet or greater.

ASSESS - CONSULT- EXECUTE

- Evaluate your facility to identify all possible fall hazards and ensure that the proper guards are in place - use guard rails, restricted access, etc. to prevent falls.
- Areas greater than 4 ft. in height require fall protection assessment.
- Areas greater than 4 ft. require fall protection by guard rails, barriers or certified tie off points.
- Only employees trained to recognize fall hazards and properly use fall protection should work at heights.
- Identify employees that perform work at a height greater than four feet—these employees must be provided with adequate controls or personal fall protection equipment.
- Train employees that may encounter falling hazards in the proper use/storage/inspection/ maintenance of fall protection equipment.
- Ensure that employees perform proper storage and maintain their equipment.
- Ensure that all contractors have reviewed the Harvard University Service Contractor Safety Guide.
- Fall protection equipment/devices (Active and Passive Fall Protection Systems) must be periodically inspected by 3rd party vendors/engineers. Maintain copies of all reports and corrective actions.

HAZARDOUS WASTE MANAGEMENT

Numerous facilities operations can generate wastes that must be controlled pursuant to state and federal regulations. Common facilities activities that generate regulated wastes include painting, cleaning, maintenance/repair, and operations that generate waste oil.

Certain wastes must be stored in closed containers labeled "Hazardous Waste" in a designated Satellite Accumulation Area (SAA). Other wastes, such as batteries, spent (intact) fluorescent bulbs, and other mercury-containing devices must be labeled as "Universal Waste."

Harvard University EH&S provides technical assistance, waste area inspections, and waste pick-up services for University buildings.

THE FOLLOWING ACTIVITIES MAY GENERATE HAZARDOUS WASTE:	
Maintenance operations	Metalworking
Photography processing	Laboratory operations
Facility mechanical systems	Athletic facilities/swimming pools
Grounds keeping/pesticide use	Healthcare
Vehicles	Machine Shops


UNIVERSAL WASTE
ACCUMULATION AREA

Bulbs- Fluorescent/ Compact Fluorescence | Batteries | Thermostats

STORAGE REQUIREMENTS

- Containers/boxes must be labeled as Universal Waste (contact EH&S (6-3322) or FMO Solid Waste/Recycling (5-3042) for labels).
- Mark label with date for start of accumulation in container (Maximum one-year storage).
- Containers/boxes should be in good condition and closed.
- For Removal:
  - If you contract with FMO Solid Waste Recycling (617)495-3042
  - If not, contact EH&S (617)496-3322 or an outside recycler.

ASSESS - CONSULT- EXECUTE

- Identify whether hazardous wastes that are generated at your facility.
- Never dispose of hazardous wastes or universal wastes in the regular trash.
- Hazardous Waste and Universal Waste Collection Areas must be inspected periodically.
- Establish appropriate storage areas with proper signage, and inspect them weekly.
- Anyone who generates waste chemicals (i.e. used oil, flammable paint, etc.) must complete the annual EH&S training that includes hazardous/universal wastes.
- Label hazardous and universal wastes appropriately.
- **Only trained EH&S personnel are authorized to sign a hazardous waste manifest** when waste is shipped offsite.
- Arrange for proper pick-up and disposal of hazardous and universal wastes, request waste supplies (labels, signs, etc.), and ask for technical assistance with sink disposal, waste identification, and compliance.

HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

OIL STORAGE/MANAGEMENT

Diesel fuel, lubricating oil, and other oils are often stored at Harvard University buildings for use in generators or other facilities equipment.

Since oils can pollute the waterways, the EPA regulates the storage of oil under Spill Prevention, Control and Countermeasure (SPCC) programs. As part of Harvard's SPCC program, facilities must keep an accurate inventory of oil storage and oil containing equipment, inspect items in the inventory, and implement spill control and mitigation measures such as maintaining spill containment supplies.

The SPCC program is intended to prevent oil from reaching the sewer and storm water systems via floor drains or other routes, and from reaching the environment for storage locations outside.

TYPICAL UNIVERSITY OIL CONTAINERS/EQUIPMENT INCLUDES:		
Underground/Aboveground Storage	Waste Oil/Grease Drums	Transformers
Trash Compactors	Elevators	Generators
Machine/Lubricating Oil Storage	Boilers	Kitchens

ASSESS - CONSULT- EXECUTE

- Facility managers must provide spill supplies where there is a risk of oil spills (i.e. garages, maintenance shops, etc.).
- Identify who is responsible for inspecting oil containers/equipment.
- Containers and oil-filled equipment with 55 gallons or greater of oil must be inspected and inventoried as part of the SPCC program. Tanks must be tested for integrity.
- All containers and equipment in the SPCC program must have adequate secondary containment; for example, oil drums should be placed on a spill containment pallet.
- Workers who handle oil or oil-filled equipment must receive annual SPCC training on how to identify leaks, respond to spills, etc.
- Stock and stage spill response/control supplies (such as absorbent material, brooms, drain covers) near sources of oil. Regularly inspect and replenish spill response/control supplies. Oil Storage/Use inventory to ensure its accuracy.
- **Contact EH&S immediately if any oil is released into the sewage system or environment.**

HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

WASTEWATER & STORM WATER

Discharges of wastewater into the municipal sewage or storm water systems are regulated by the Massachusetts Water Resources Authority (MWRA) and the Environmental Protection Agency (EPA).

Harvard EH&S maintains campus-wide permits from the EPA, DEP, and MWRA that regulate discharge from University facilities. This form of regulation ensures that no hazardous wastes/chemicals are discharged into a building's floor drains, sinks, or storm drains.

PROHIBITED DISCHARGES INCLUDE, BUT ARE NOT LIMITED TO:	
Mercury	Chemical/biological/radioactive wastes
Toxic liquids	Solids/viscous liquid capable of obstructing
Extremely hot liquids (>180°F)	Flammables
Oils/fats/greases	Pesticides

ASSESS - CONSULT- EXECUTE

- All wastewater systems must be properly permitted, maintained, and regularly inspected (some systems require monitoring and reporting).
- Wastewater pretreatment systems operating, maintenance, and calibration logs, as well as discharge reports, must be maintained for three years. Oil/water separator maintenance and sludge disposal records must be maintained for five years.
- Sinks in certain buildings are labeled with MWRA sink labels. Store chemicals/oil away from drains and sinks, and have appropriate spill response/mitigation equipment on hand.
- Perform an annual storm water inspection of your facility.
- Ensure that storm water BMPs are being completed and documented.
- Ensure the wastewater system is being properly maintained and that logs are being filled out.
- Inspect outdoor dumpsters near storm drains for leaks/spills.
- Inspect catch basins and arrange for cleaning if they are filled with debris (be sure to follow confined space procedures, if applicable).

AIR EMISSIONS

EH&S must account for a variety of emissions sources (i.e. combustion exhaust, refrigerant gases, cooling towers, etc.) to manage Harvard's air permits and regulatory reporting. Installation, modification, or removal of combustion units and other emission sources requires a notification to EH&S.

If there is any question about whether equipment/operations at your site must be inventoried for air emissions, EH&S will be able to assist.

TYPICAL UNIVERSITY EMISSION SOURCES INCLUDE:	
Fuel Burning Combustion Units (i.e. boilers, emergency generators, fire pumps, etc.)	Refrigeration Units with > 50 lbs. of refrigerant
Halon Fire Suppression Systems	Cooling Towers
Paint Spray Booths	Laboratory Fume Hoods

ASSESS - CONSULT- EXECUTE

- Equipment regulated as an air emission source must be maintained in accordance with manufacturer recommendations.
- Technicians must be licensed to work on CFC-containing equipment (i.e. refrigeration).
- Maintenance and service records must be maintained for 5 years, including: Inspection/testing records and results. CFC addition/removal, and Modification that alters emissions (changes input rating, etc.).
- Please notify EH&S prior to equipment installation, modification, removal, that may impact facility air emissions (implement a process ensure this happens).

MACHINE SHOPS

Machine shops in Harvard properties are subject to the Harvard University policies for safe equipment operation and shop supervision. Harvard policies outline the minimum safe work practice guidelines for faculty, students, researchers, and staff that may be working in a University machine shop.

All machine shops present in Harvard buildings must have a designated Shop Supervisor to ensure that all equipment has the proper safety controls in place and that all personnel are **trained** and performing work in a safe manner adhering to Harvard policy.

It is the responsibility of the Shop Supervisor to maintain and document the key elements of a Shop Safety Plan, including, but not limited to:

- Contact information for the facility manager and shop supervisor.
- A copy of the shop's policies and procedures.
- An inventory of machinery in the shop.
- Copies of standard operating procedures.
- A documented self-inspection process.
- A list of personnel authorized to use the shop.
- A copy of the personnel protective equipment assessment documented training program and records.

ASSESS - CONSULT- EXECUTE

- Access to Harvard machine shops must be controlled to prevent unauthorized personnel from entering.
- A Harvard-designated Shop Supervisor must be assigned to each machine shop in Harvard buildings.
- All potentially dangerous equipment must have proper machine guarding in place.
- No working alone is permitted in machine shops.
- Proper personal protective equipment (PPE) including safety glasses and close-toed shoes must be worn at all time inside machine shops.
- **All machine shop operators must have documented training records maintained by their shop supervisor**.
- Machine shops are inspected on a schedule by EH&S based on risk factors such as access, types of equipment, shop activities, etc.

CRANES/HOISTS

Work being done on Harvard buildings may require cranes and hoists - this work require special procedures and licensing in order to comply with state and federal regulations.

All operators of cranes/hoisting equipment (including forklifts) must be licensed by the Massachusetts Department of Safety (DPS) or be trained in a DPS-approved training program.

Hoisting equipment includes equipment that meets the following criteria:

- Capable of hoisting the load higher than 10 feet, Capable of lifting loads greater than 500 pounds or the capacity of the bucket exceeds 1/4 cubic yard capacity.

CRANES/HOISTING EQUIPMENT INCLUDES:		
Overhead Cranes	Skid or Front End Loaders	Overhead Hoists
Powered Industrial Lift Trucks	Forklifts	Lifting Devices
Powered Platforms	Electric or Air Driven Hoists	

ASSESS - CONSULT- EXECUTE

- Cranes/hoists are inventoried by Harvard EH&S.
- Only trained persons may operate cranes or hoisting equipment.
- A DPS-licensed operator must be present at all times when cranes/hoists are in use.
- Cranes/hoisting equipment must be inspected for defects monthly and before each use. Cranes/hoists must also be inspected in detail annually—this is generally by a 3rd party.
- Out of service cranes/hoisting equipment must be locked out.
- Only permit operation of cranes/hoists when a licensed operator is present.
- Ensure that inspections are being completed and properly documented on the inspection tag every month and before each use by trained operators.
- Make arrangements for an annual 3rd party inspection of cranes/hoists (EHS can assist)—this same inspection must occur before re-commissioning an out of service crane/hoist
- Update your crane/hoist inventory in EHSEM during the annual inspection.
- Apply a lock (single key) and tag to any crane/hoist taken out of service.
- Notify EHSEM when a crane/hoist is being decommissioned.

PEST MANAGEMENT

Diverse kinds of pests are unwanted but inevitable intruders in any facility. The Environmental Public Health program at EH&S strives to pursue evidence-based pest management strategies that seek to exclude, contain and suppress pests using modern integrated pest management (IPM) strategies.

Preferred methods to achieve these goals rely upon surveillance to detect problems early, engineering controls to reduce pest intrusion and dispersal, education and procedural modifications so that workers and occupants do not encourage pests, and use of products and methods that provide far more benefit than risk to personnel and the environment.

ASSESS - CONSULT- EXECUTE

- Development on site-specific integrated pest management plan (IPM).
- Integrate new construction and renovation procedures designed to minimize pest intrusion, harborage and dispersal.
- Pest complaints should be recorded and reported to pest control vendors without delay.
- Establish and maintain a logbook or other effective communication and tracking system for pest occurrences and interventions.
- Building occupants are to maintain their work areas to discourage pests.
- Familiarize yourself with the EH&S pest control vendor MOA.
- Inspect / service backwater flow valve on building waste line.
- **Weekly:** Add water / anti-desiccant to ALL floor drains.
- **Weekly:** Empty buckets / trash bins and other water-holding containers.
- **Quarterly**: Inspect building exterior and interior for pest access points and effect repairs.
- **Early summer**: Inspect and repair window screens.
- **Early & late summer:** Catch basins should be treated by licensed applicators with an approved mosquito larvicide when directed by EH&S.
- **Annually**: Ensure that childcare centers file an updated IPM plan to comply with MA Children and Families Protection Act.
- Instruct students and personnel to promptly report any pests or pest damage to your office. Alert your EH&S-qualified pest control vendor of the details. Notify EH&S and UHS if any personal injuries are reported.

PEST MANAGEMENT

ASSESS - CONSULT- EXECUTE

Facility Manager Checklist

- Instruct students and personnel to promptly report any pests or pest damage to your office. Alert your EH&S-qualified pest control vendor of the details.
- Ask your pest control vendor to create and update a 'punch list' detailing tasks to eliminate and mitigate pests. File work orders for repairs and close out tasks as quickly as possible.
- Ensure the pest control vendor actively monitors pests.
- Report unusual or unresolved pest issues to EH&S. Notify EH&S and UHS if any personal injuries are reported.
- Keep clean all floor drain, sink and shower traps.
- Schedule regular (biweekly) additions of water to every drain. Use an anti-desiccant in drains that will be unattended for a month or more.
- Ensure contractors have reviewed the University Contractor Safety Manual, and that they seal existing and newly created penetrations to exterior and interior walls, floors and ceilings.
- Alert personnel that pesticides are to be used **only** by the EH&S qualified vendor, and that pesticides must NOT be stored on site.
- Ensure foods and wastes are secured against pests, and wastes are collected frequently. Coordinate reduction, recycling and composting efforts with the Harvard recycling center.
- Frequently inspect all areas, but particularly basements, mechanical and storage spaces, for pest activity.
- Inspect door sweeps and window screens, and repair entrance doors, windows and loading docks to exclude pests.
- Survey the building perimeter and grounds for rodent burrows, wasp nests and bird roosts.
- Discourage students from moving used furniture – particularly mattresses and bed frames - into their rooms.

DRINKING WATER QUALITY

Building managers may receive a request for information about the safety or suitability of the drinking water in a specific building, or a complaint about changes in the water's appearance, odor or taste. At other times, building occupants may wish to consume tap instead of bottled water for sustainability, convenience or economic reasons.

The EH&S Environmental Public Health Program (EPH), in collaboration with Facilities Maintenance Operations (FMO), assists building managers interested in assessing the suitability of drinking the tap water within their buildings.

Local conditions within the building can have some impact on drinking water, and may cause the water's characteristics to differ from those of the supplied water. A series of assessment activities may be carried out to gather information about a building's drinking water, and corrective actions may be recommended if necessary.

TYPICAL FACILITY MANAGER RESPONSIBILITIES INCLUDE:

- Make arrangements for a cross connection survey of your buildings by a licensed Cross Connection Surveyor. EH&S will assist you with contact information. Plan to accompany the inspector for the duration of the survey, which will vary depending on the number of buildings.
- In cases where water testing is recommended, work with EH&S to determine which outlets should be sampled, and coordinate the timing of sampling with the vendor.
- Conduct outlet flushing and tag-out activities the night before sampling takes place.
- Initiate remediation steps or system modifications when indicated.

ASSESS - CONSULT- EXECUTE

- Contact the EH&S Environmental Public Health (EPH) program to initiate a drinking water quality assessment for your buildings by calling (617) 495-2102.
- In most cases, a building-wide cross connection survey will be recommended. This will be provided for you at no charge.
- Backflow prevention device testing records will be reviewed.
- A hazard analysis for laboratories and other hazardous systems may be specified
- When indicated, water samples may be tested for metals, bacteria or other parameters from representative outlets within the building.

DRINKING WATER QUALITY

FOR WATER EMERGENCIES

(DISCOLORATION, STRANGE ODOR, COLOR, OR INTERRUPTION OF SERVICE):

- Contact the University Operations Center at (617-495-5560)
- Report the problem with as much detail as possible.
- If notified that hydrant flushing is underway, be prepared to run water and flush toilets until water color clears after the flushing is finished. It may also be necessary to remove and rinse particles from faucet aerators. Hydrant flushing or temporary water shut-off and resumption after repairs are the most common causes of water discoloration. Discoloration from these activities is not harmful.
- Be prepared to supply bottled or boiled (bring water to a rolling boil for 1 minute) water for drinking, food preparation, mixing baby formula, making ice, washing food, manual utensil and equipment washing, rinsing and sanitizing, brushing teeth, or any other activity involving the consumption of water.
- Be prepared to discard any ice, juice, formula, stored water and uncooked foods that were prepared with tap water during the period of concern.
- Supply hand sanitizer for use after washing hands in bathrooms.
- Lock out/Tag out (i.e. "Do Not Drink") drinking fountains until the problem is resolved.
- Switch to the use of disposable paper and plastic dishware and utensils until a determination is made that the water is safe to use.
- If notified of a "boil water order", water should be boiled for 1 minute at a rolling boil prior to use.
- Lock out/Tag out (i.e. "Do Not Consume Ice") ice machines so they are not used for consumption. Empty, flush lines, clean, and sanitize ice machine interiors when water issue is resolved.
- Childcare Centers and Schools should use only bottled or boiled water for mixing infant formula, and washing, mixing sanitizing solutions for diapering areas and surfaces such as tabletops and toys.
- Adult employees should use a hand sanitizer after washing hands. Discontinue the use of water play tables. Follow DOE and DEEC guidance.

COMMUNICABLE DISEASE

The EH&S Environmental Public Health Program (EPH) works with University Health Services, FMO and Pest Control Vendors to provide services when specific communicable disease issues affect students on campus.

This may involve the investigation of building areas or grounds, disinfection of bathroom or living/ working spaces, arrangements for provision of separate housing accommodations, laundry services, or arrangements to provide meals to students who are not well enough to eat in the dining areas.

At times, Building Managers may be asked to facilitate access to student rooms or classrooms, or assist with arrangements to make alternate housing areas ready for use.

TYPICAL FACILITY MANAGER RESPONSIBILITIES INCLUDE:
- Notify roommates when housing areas will be cleaned or disinfected. Direct their questions or concerns to UHS.
- Provide custodial access to areas that require cleaning or disinfection.
- Communicate any concerns or problems with EPH and UHS.

ASSESS - CONSULT- EXECUTE

- Environmental Public Health (EPH) collaborates with UHS to determine when services are required.
- EPH and University Health Services (UHS) determine what procedures, disinfectants and PPE are necessary, based on the pathogen and potential routes of exposure.
- Building Managers may contact EPH directly should they have a communicable disease concern by calling (617) 495-2102, or the Harvard Operations Center at (617) 495-5560.
- Many student health issues may not be discussed with secondary parties due to confidentiality requirements. If there is a need to know about a certain issue, UHS will determine who may be notified.
- Contact EH&S Environmental Public Health Manager or Officer via the Operations Center at (617) 495-5560 for assistance/guidance.

FOOD SAFETY

Food Service Establishments are located in many Harvard buildings, and Facility & Building Managers may be responsible for the maintenance and repair of physical spaces within the establishment or larger building that impact these operations. Facilities & Building Managers may contact EH&S with any questions regarding the impact of the food service operation on the building structure or components.

Routine regulatory and EH&S Inspections of food establishments will review the repair and maintenance of the building envelope, lighting and illumination of the workspace, plumbing system, drinking water filters, ice machines, ventilation exhaust hoods, floor, wall, window and ceiling surfaces and components, drinking water supply, sufficiency and temperature of supplied water, and proper operation of all equipment.

After routine food safety inspections occur, food establishment operators will forward a list of building - related items that require correction. Facility Managers must ensure that any problems identified during the inspection process are remediated in a timely fashion, in accordance with the requirements of the MA Food Code, 105 CMR 590.000.

TYPICAL FACILITY MANAGER RESPONSIBILITIES INCLUDE:	
Maintenance of sewer ejector pits and floor drains (filling with water) to prevent pest infestations	Building security for food defense
Cross connection control for the building's potable and non-potable water systems, timely repairs/replacement of failed devices.	Instructions to vendors regarding work practices that may impact the food establishment
Maintenance of intact surfaces in establishment (floors, walls, ceilings, windows), and ensuring that contractors return surfaces to intact state after work.	Closure of outer openings that may provide access to pests, and exterior pest control
Provision of sufficient hot and cold running water to meet food establishment needs all day.	Management of building trash, recycling and compost areas. No food left out overnight (brain breaks, late night work). Trash bins and compost emptied at end of each day.

FOOD SAFETY

ASSESS - CONSULT- EXECUTE

WHEN NOTIFIED OF BUILDING ISSUES NEEDING CORRECTION AFTER A FOOD SAFETY INSPECTION:

- Arrange for repairs to be made as quickly as possible, by reputable vendors.
- Review Harvard requirements for dust control, lead paint remediation, segregation of the work area and provide routes for contractor travel that do not impact the food establishment.
- Save receipts or other detailed records of repairs, and send a copy to the establishment operator.
- Participate in pest control work groups with EH&S, the Food Establishment Operator, and the Pest Control Vendor to determine who is responsible for each aspect of the remediation action plan.

KEY CONTACTS & RESOURCES

Cambridge/Boston Police, Fire and Medical	911
Harvard University Police Department	617-495-1212
University Operations Center	617-495-5560
Longwood Operations Center	617-432-1901
University Health Services UHS (Smith Campus Center)	617-495-5711
Environmental Health & Safety	617-495-2060
Harvard News Updates	617-496-NEWS
Harvard Public Affairs & Communication	617-495-1585
Motorist Assist Program	617-496-4357

Additional Emergency Notifications
www.harvard.edu/emergency

ACCIDENTS

Accidents that involve a **workplace fatality**, or the **inpatient hospitalizations** of any employee, or any **amputation**, or the **loss of an eye must be immediately reported** to the Campus Operations Center (617-495-5560).

ALL work related injuries or illnesses must be reported within 24 hours of a work related injury or illness.

Accident Report Forms can be obtained from:

- Human Resources.
- Your Supervisor.
- The EH&S Accident Investigation & Reporting Webpage.

Return Accident Report Forms to:

- Supervisor to complete and sign.
- Completed Accident Report Forms are then submitted to Human Resources by the Supervisor.
- Human Resources forwards a copy of the Accident Report Forms to 3rd party claims administrator and EH&S.

Accident Investigation:

Accident Investigations must be completed on scene immediately following the report of an accident.

- **Low** Priority (Scrapes, minor burns etc.): Conducted by Area Supervisor/Manager.
- **Medium** Priority (Strains, sprains etc.): Conducted by Area Supervisor/Manager.
- **High Priority** (Broken bones, lacerations, severe burns, amputations, loss of an eye, inpatient hospitalizations and fatalities, etc.): Conducted by Environmental Health & Safety and the Area Supervisor/Manager.

If an OSHA inspector is notified or arrives on-site, STOP. Call EH&S immediately.

WORKING FIRE

INITIAL NOTIFICATION OF FIRE

- Location of the fire?
- Size and scope of the fire?
- Any known or possible injuries?
- Who is on site?
- Building and School Officials notified?
- LEMT activated?
- WebEOC established?
- Do we have any additional information from Fire Department, HUPD, Fire Safety Group, POA's, Area Operators, Insurance Office, etc.?

ON-SCENE

- Speak with the Fire Department Incident Commander.
- Is the scene safe – Secure all access to building?
- Establish a safety perimeter – HUPD, Police or Security.
- Establish a safe location for Occupants – Move to indoor location if possible.
- Temporary shelter location – Directions/Access.
- Method of communicating – Short term status - Updates - Frequency?
- Establish on-site sign in of ALL responding personnel - Name, Department and Contact Information

SECURE AREA

- NO access to the area or building until it has been cleared by Fire Department, Inspectional Services, and EHS Safety Officer. **Often the fire department will turn the building over to Harvard – this does not necessarily mean the building is safe to reoccupy.**
- **If hazardous chemicals or hazardous building materials (i.e. asbestos, lead, PCB, etc.) have been effected or damaged – STOP. You cannot safely access the area.**
- Damaged electrical and or mechanical systems must be secured – Locked out Tagged out (LOTO).

WORKING FIRE (CONTINUED)

ASSESSMENT

- Structural Assessment
- Electrical
- Asbestos
- Lead Paint
- Chemical/Biological/Radiation
- Water – any hazards associated with sprinkler/fire suppression.

REMEDIATION

- Clean up and remediation starts ONLY after hazards have been identified, abated or secured. Clean up and remediation may require specialty contractors (i.e. Asbestos Abatement Vendor, Industrial Hygienist, Structural Engineer, Service Master, etc.).
- Building Management should define scope of the remediation with ALL on-site Contractors (i.e. initial, short and long term).
- Establish on-site sign in of ALL responding personnel - Name, Department, Contact Information, and Cell Phone.
- All staff and contractors should have identification.
- Establish work site safety rules.
- EH&S can assist with and define personal protective equipment - PPE (i.e. hard hats, eye protection, gloves, boots, etc.)
- Implement electrical system inspections and look out tag out (LOTO) equipment, electrical panels, etc.
- Document damage to buildings, rooms, equipment, personal belongings, etc. – take inventories & photos.

FOCUS REMEDIATION ON:

- Electrical & mechanical systems
- Water & debris removal
- Aggressive drying & dehumidification
- Soot & smoke removal- surface cleaning
- Secure damaged doors, windows, floor access, etc.

ABSESTOS RELEASE RESPONSE

EMERGENCY RESPONSE

As long as asbestos-containing material remains in the building, the potential for a fiber release episode is present. Asbestos fibers can be released by water damage or through physical disturbance such as during construction or while maintenance activities are occurring. This section describes contingency measures in the event that a fiber release does occur or is suspected of occurring.

Building Maintenance Staff should always be on the lookout for any possible evidence of fiber release episodes, including debris on the floor near the presence of ACM, or water or physical damage to ACM. Asbestos-related problems should immediately be reported directly to the Building Manager or reported to the Building Management.

Minor Damage
Items such as broken or loose floor tiles or damaged surfacing materials should be brought to the Building manager's attention for assessment and repair.

Major Damage
A major damage episode is one in which more than 3 square feet or 3 linear feet of friable asbestos containing material is dislodged. When this occurs, the area should be sealed off and the **Building Manager should be immediately notified.**

Following an assessment by a competent person or asbestos inspector, an emergency waiver should be obtained from the MassDEP and an asbestos abatement contractor should be called to perform repair work as soon as possible.

In the event of major damage, the following activities are required:

- Restrict access to the area by barrier tape or physical barricades. If the damage is larger, doors can be locked, taped or signed to prevent entry.
- Shutdown ventilation in the area.
- Notify the Operations Center of the release and request response from EH&S
- EH&S can manage interactions with the regulatory agencies and coordinate emergency air monitoring and cleanup as needed.

Note: Often releases will require the development of a written work plan to be approved by the Commonwealth. EH&S can manage this process and the interactions with the regulatory agencies as these interacts can impact the University as a whole.

FLOOD RESPONSE CHECKLIST

DISCOVERY & REPORTING A LEAK OR FLOODING

- **DO NOT enter standing water. Assume water is carrying electric current.**
- Immediately notify University Operations Center (617) 495-5560 or Building Management Office.
- What is the source of the water (i.e. pipe, backup, roof, window, etc.?)
- How much water is present & how fast is it entering?
- Has anything been damaged or in danger of being damaged?

POTENTIAL HAZARDS: Initial Response - Building Management

- Assume water is carrying electric current.
- Determine if electrician is required to evaluate/ shut off power.
- Are there hazardous materials involved (gasoline, oil, asbestos, chemicals, etc.?)
- Is there sewerage involved?
- If water is "contaminated" result of sewer backup or if hazardous materials are involved contact EHS immediately.
- Contact custodial/housekeeping group to extract water.
- Custodial/housekeeping's powered equipment must be GFCI protected (in wall outlet or integrated into extension cord) if cords are in or around standing water.
- Call EHS for additional assistance.

ENVIROMENTAL HEALTH & SAFETY ROLES

- Assess potential hazards and monitor response to ensure appropriate health and safety procedures are followed.
- Provide technical assistance to building /facility Management. Evaluate, identify & target areas requiring mechanical means or other intervention to dry.
- Interface with tenants/residents/faculty/students/staff to assure health and safety of occupants.

FLOOD RESPONSE CHECKLIST

MICROBIAL CONTAMINANTS

- Responders must wear appropriate gloves, boots, and safety glasses.
- Wet Vacuums used to extract flood water from highly contaminated sources such as sewage should be equipped with HEPA filters to minimize airborne exposures.
- Only storm or groundwater may be discharged to storm drains.
- Disturbance of hazardous materials must be remediated by trained or authorized vendors.
- Do Not disturb building materials affected by leak or flood.
- Assume suspect materials are hazardous until confirmed otherwise.
- Only licensed asbestos contractors can disturb or remove asbestos containing materials.
- Disturbance of surfaces with lead-based paint must be done in a controlled manner and may fall under state lead laws.

CARPETS

- Carpets saturated with **clean water** may be salvaged in place with quick aggressive drying. If an underlying pad is present, proper drying may require lifting the carpet.
- **Disposal of carpets and carpet pads saturated with sewage or other highly contaminated water source is recommended.** Salvage is possible if the response is quick and sufficient decontamination and disinfection are performed.

PREVENTING MICROBIAL & MOLD GROWTH

- Move furniture and equipment to expose wetted areas.
- Cut or drill wetted wallboard (small holes or whole bottom sections) if necessary to promote drying inside the wall cavity.
- Place sufficient number of floor blowers / fans in combination with dehumidifiers to promote effective evaporation and drying of wetted materials.
- EHS to monitor progress/ provide guidance to ensure porous materials are effectively dried within 24 - 48 hours.
- Clean and disinfect (1) all surfaces in contact with sewage or other highly contaminated water source, preferably before aggressively drying with floor blowers or fans.

Note: (1): Disinfectants include alcohols (60 to 90% in water), quaternary ammonium compounds (0.4 to 1.6%), phenolics (0.5 to 5%), iodophors (75 ppm), glutaraldehydes (2%), household bleach (sodium hypochlorite, diluted 10%), and hydrogen peroxide (3 to 6%), with a typical contact time of 20 minutes unless otherwise specified by the manufacturer.