

# HARVARD UNIVERSITY



# CONTRACTOR SAFETY MANUAL

*All Service Contractors are responsible for performing the work of contracts in conformance with all environmental, health and safety laws and regulations. Contractors shall be subject to the provisions of this Contractor Safety Manual, which has been prepared for the protection and safety of Harvard students, faculty, employees, neighbors and property, recognizing that Contractor's work can potentially affect the safety of personnel and property. This Contractor Safety Manual shall be provided to Service Contractors to communicate the availability of hazard information for University properties and to outline Harvard's safety and environmental procedures.*



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### **DISCLAIMER**

*Harvard University has a duty to its students, faculty, employees and neighbors to provide a safe environment and workplace. Because a Contractor's work on University premises can potentially affect the safety of Harvard students, faculty, employees, neighbors and property, the University is committed to hiring Contractors who take the safety of our students, faculty, employees, neighbors and property as seriously as we do. We are providing the following safety manual to remind you of some of your specific responsibilities in this regard. The information provided within this handbook is advisory in nature and is not intended to represent or replace the Contractor's safety or environmental procedures or requirements.*

*We expect that our Contractors will train, supervise, and direct their employees to be mindful of the safety of Harvard's students, faculty, employees, neighbors and property when performing work on Harvard's premises. This manual does not address, and is not intended to abrogate or assume responsibility for, the Contractor's duty to its employees. Nor does this manual provide an exhaustive outline of laws, ordinances or regulations governing environmental, health and safety compliance. Rather, it is provided solely to communicate the availability of hazard information for University properties and to outline Harvard's safety and environmental procedures.*

### **INTRODUCTION**

Welcome to Harvard University! While working here, it is your responsibility to ensure that your work is performed so as to protect Harvard's students, faculty, employees, neighbors and property. To fulfill this responsibility, Harvard expects that you will comply with these Safety Guidelines, other project-specific safety and environmental procedures that may apply (e.g., Laboratory Safety, Radiation Safety, Construction Safety, Lead Paint or Asbestos Abatement Safety, your company's rules, and local, state and federal laws and regulations). Work performed in a manner that endangers Harvard's students, faculty, employees, neighbors and property is unacceptable.



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## 1.0 GENERAL INFORMATION

### 1.1 Standard Safety and Security Rules

The following are some reasons for which an employee of a Contractor may be temporarily or permanently removed from University premises:

- Possession or use of alcoholic beverages or regulated drugs not prescribed by a physician
- Possession of explosives, firearms, ammunition, and other weapons
- Deliberate violation of safety or security rules
- Ignoring posted “Danger” and “Caution” signs
- Illegal dumping, handling, or disposal of hazardous materials
- Destruction or removal, without written permission, of any property belonging to Harvard University, the property owner, employee, or other Contractors or employees
- Intimidating, threatening, harassing, impeding or interfering with an inspector, police officer, security officer, or Harvard University employee or designated representative
- Using emergency exits other than for emergencies
- Misuse of fire prevention and protection equipment
- Unauthorized removal or destruction of a safety barricade, handrail, guardrail, warning sign, fall protection, or other warning devices intended to protect Harvard’s students, faculty, employees, neighbors or property
- Violation of any local, state or Federal ordinance or law

For additional information on safety guidelines that are related to security issues, you may refer to the Harvard University Police Department “Playing it Safe” handbook which is available electronically at <http://www.hupd.harvard.edu/>.

### 1.2 Safety Permits and Procedures

The following operations may present a hazard to Harvard’s students, faculty, employees, neighbors or property. Therefore, you must obtain approval through the Harvard University Contract Coordinator before:

- Working on fire protection/detection systems
- Performing burning, welding, cutting, soldering, or other hot work
- Working on electrical, steam, chilled water systems or other energized systems
- Moving emergency equipment (fire extinguishers, first aid kits, etc.) provided by Harvard
- Installing a temporary electrical service
- Working with hazardous chemicals (including solvents and paints)
- Generating hazardous wastes (including waste oil)
- Using powder actuated tools
- Using a gas, diesel, or LP (propane) powered engine indoors
- Operating a power vehicle or self-propelled work platform
- Excavation/trenching
- Using radioactive sources or conducting field radiography (x-ray)
- Working with asbestos-containing materials
- Working on security systems
- Working with compressed air/gases
- Using a laser
- Working on a fume or biological hood



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- Working on a solvent storage cabinet
- Working on heating, ventilation, or air conditioning equipment
- Working on a roof
- Lifting or hoisting with cranes, derricks, hoists or helicopter
- Performing blasting operations

### Special Rules for Operations Involving Utilities:

- Only Harvard University Facilities Operations may shut down or start up operating utilities.
- You must notify your Contract Coordinator, who will coordinate with Harvard University Facilities Operations, *in advance* of the need for such shutdowns or startups.
- Any suspect or actual PCB-containing substance that is observed or discovered by the Contractor in the course of their work should be reported to the Contract Coordinator immediately.

### Special Rules for Lockout/Tagout of Machinery, Pipes, etc.:

- If you intend to service or maintain machinery that could hurt someone if it were to unexpectedly start up, you must inform the Harvard University Contract Coordinator of the lockout/tagout procedures you intend to follow.
- See Section 3.3 on Lockout/Tagout.

## **1.3 Housekeeping**

Contractors must maintain good housekeeping while working on Harvard Property. Contractors must keep work areas neat, clean, orderly and free of excess trash and debris and never block walkways, stairs, exits, or create a tripping hazard. Contractors must always cover and/or place guardrails around open holes, trenches, or excavations into which Harvard's students, faculty or employees may fall. Poor housekeeping at a job site may lead to an increased potential for safety hazards and an increased incidence of accidents and chemical spills.

## **1.4 Accident, Incident, Injury, or Illness**

After notifying the appropriate emergency agency (e.g., Local emergency at 9-1-1, Harvard University Operations Center at 495-5560 or Harvard University Police at 495-1212), work related accidents, incidents, injuries, and illnesses must be immediately reported to the Harvard University Contract Coordinator or representative. The Contractor is responsible for notifying OSHA for any incidents that are reportable to that agency.

## **2.0 ENVIRONMENTAL ISSUES**

### **2.1 Hazardous Waste Management**

The Contractor must provide the Harvard University Contract Coordinator with a list of actual and potential hazardous waste(s) to be generated during a project. Hazardous waste generated by a Contractor as part of its work is the responsibility of the Contractor. Contractors must ensure that their hazardous waste is properly identified, stored, transported and disposed of in accordance with all applicable local, state and federal laws. Contractor employees must be appropriately trained to handle hazardous waste safely and in compliance with all applicable local, state and federal laws. For projects where temporary on-site storage



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is necessary, the Contractor must ensure, at a minimum, proper labeling of containers and tanks, adequate secondary containment, segregation of incompatible materials and documentation of weekly inspections of these storage areas. Contractors must maintain an adequate emergency plan and spill equipment to address spills, fire, etc. In addition, all hazardous waste containers shall be constructed of a material that is compatible with the waste, in sound condition, and kept securely closed at all times. Tanks used to store hazardous wastes must be managed in accordance with MADEP & MADPS regulations and must be inspected daily. The Contractor is responsible for completing all disposal documents, which may include, but are not limited to, waste profiles, waste analytical samples and hazardous waste manifests. Copies of these documents will be provided to the Harvard University Contract Coordinator at the end of the project for inclusion in Harvard's project file.

For projects where Harvard is deemed responsible for the hazardous waste generated, the Contractor will ensure that hazardous wastes are managed in accordance with all applicable local, state and federal laws. The Contractor must ensure that Harvard University (EH&S Department, 175 North Harvard Street, Allston, MA 02139) is designated as the Generator on all manifests and land disposal restriction forms and shall be provided with copies of all waste analyses and related documentation. Copies of all disposal documents shall be submitted to the Contract Coordinator for review at least 5 days prior to shipment. An EH&S representative or the Harvard Contract Coordinator will sign the manifests on behalf of Harvard. At the time of shipment, the Contractor shall ensure that appropriate copies of the manifest are provided to the Contract Coordinator or the EH&S representative for distribution to the appropriate agencies. The Contractors should refer to the EH&S Hazardous Waste Manifest Fact Sheet at [http://www.uos.harvard.edu/ehs/env\\_pro\\_haz\\_man.shtml](http://www.uos.harvard.edu/ehs/env_pro_haz_man.shtml) for additional guidance on completing a manifest when Harvard is deemed the waste generator.

The following table provides the specific generator status and EPA/DEP Identification Numbers that should be used on all hazardous waste manifests:

Site	Address	Generator Status		EPA ID/DEP Registration
		Hazardous Waste	Waste Oil	
<b>CAMBRIDGE</b>				
Cambridge	Main Campus	LQG	LQG	MAD001963263
Center for Astrophysics	60 Garden St	VSQG	SQG	MV6174957478
Center for Astrophysics	160 Concord Ave.	VSQG	VSQG	MV6174957259
Center for Astrophysics	1815 Mass Ave.	VSQG	VSQG	MV6174957371
Loeb Drama Center	64 Brattle St.	VSQG	VSQG	MV6174962000
Sailing Pavilion	45 Memorial Dr.	VSQG	VSQG	MV6174953434
Weld Boathouse	971 Memorial Dr.	VSQG	VSQG	MV6174952226
Longfellow Hall	Appian Way	VSQG	SQG	MV6174953490
Radcliffe – Bunting Institute	Concord Ave.	VSQG	VSQG	MV6174958212
Radcliffe – Pforzheimer Hall	Walker St.	VSQG	SQG	MV6174958621
A.R.T.	155 Fawcett St	VSQG	VSQG	MV6174958395
Rolland Institute at Harvard	100 Cambridge Parkway	VSQG	VSQG	MAD002265825



<b>ALLSTON</b>				
Allston	Main Campus	SQG	SQG	MAD092188325
Newell Boathouse	65 Soldiers Field Rd.	VSQG	VSQG	MV6174957775
<b>BOSTON – LONGWOOD CAMPUS</b>				
Longwood	Main Campus	LQG	LQG	MAD000846287
Huntington Ave	812 Huntington Ave (HSPH)	VSQG	VSQG	MV6174323508
Mass Mental Health	Fernwood Rd	VSQG	N/A	MV6177329090
1 Kendall Sq.	1 Kendall Sq	SQG	VSQG	MAR000503755
<b>OFF-SITES</b>				
NERPRC	One Pine Hill – Southborough	SQG	SQG	MAD000846444
Harvard Forest	Petersham	VSQG	VSQG	MV5087243302
Arnold Arboretum	Jamaica Plain	VSQG	VSQG	MV6175241718
Concord Field Station	Bedford	VSQG	VSQG	MV7812751725

In the event a Contractor encounters previously unidentified material that is reasonably believed to be radioactive, volatile, corrosive, flammable, explosive, biomedical, infectious, toxic, hazardous, asbestos containing or oil-based, the Contractor shall immediately stop work in the affected area and report the condition to the Contract Coordinator. At no time shall such material be disposed of in chutes, dumpsters, drains, pipes or any other waste container. The Contractor agrees to cooperate with the Contract Coordinator and any consultants engaged by the Contract Coordinator to perform services with respect to the analysis, detection, removal, containment, treatment and disposal of such regulated materials.

## **2.2 Transport of Hazardous Materials**

At no time should hazardous materials be transported via public or private roads at Harvard University in a manner that could result in an unsafe condition for personnel or the environment. All transportation of hazardous materials while on Harvard University property shall be conducted in accordance with USDOT Hazardous Materials Regulations for proper packaging, marking/labeling, handling, documentation, etc. Contractors must ensure, in accordance with USDOT regulations, that proper shipping papers accompany shipments of hazardous materials and that a 24-hour emergency contact is available to address transportation related emergencies.

## **2.3 Spill Prevention and Response**

Harvard University’s Spill Prevention Control and Countermeasures (SPCC) Program establishes University-wide procedures for the prevention, detection and reporting of spills and/or releases of oil or hazardous materials. When working on University property, Contractors must adhere to SPCC protocols, including the following:



### Spill Prevention

- Based on the inventory of oil and hazardous chemicals that will be brought on-site, the Contractor shall have available equipment (e.g., secondary containment pallets, absorbent pads, absorbent booms, speedi-dry) that is suitable and sufficient to control a potential spill/release.
- The Contractor is responsible for identifying conveyances to the environment (e.g., sumps, storm/floor drains, etc.) and adequately minimizing spill potential to these areas.
- The Contractor is responsible for the proper storage of all flammable and combustible chemicals that are brought and/or stored on site to complete the work of this contract. Such storage may require the use of safety containers, safety cabinets, and/or secondary containment. The Contractor shall also ensure that any incompatible chemicals are safely segregated. The Contractor is responsible for maintaining and securing all chemical containers and all chemical storage areas. This requires selecting locations and methods to minimize exposure to rainfall, surface water, and the ground surface or subsurface. Enclosures, shelters, and secondary containment should be used where appropriate.
- The Contractor must use appropriate protective procedures such as double containment, inspections, employee training, overflow protection, and other measures as part of activities involving the use, storage, or handling of petroleum products or hazardous materials on Harvard University Property.
- The Contractor must ensure that his/her employees are adequately trained in spill response/notification procedures outlined below.

### Spill Response

The University's SPCC Program also establishes reporting requirements in the event of a spill or release of oil or hazardous materials. The Contractor is responsible for the proper management of their spills including internal/external notifications, as well as, proper mitigation steps and clean-up to the satisfaction of Harvard's Contract Coordinator. Schedule delays, cost overruns, etc. caused by a spill are the responsibility of the Contractor. In the event of a release or spill, the Contractor must follow all of the reporting requirements of the SPCC Program as specified below:

- (1) The Contractor shall determine if the spill/release is incidental<sup>1</sup> or non-incidental<sup>2</sup>.
- (2) For *incidental* spills/releases:
  - The Contractor shall attempt to stop or contain the spill/release at the source provided that doing so does not endanger anyone.
  - The Contractor shall prevent discharge of materials to environmental receptors including drains, sumps, soil, etc.
  - The Contractor shall immediately notify the Contract Coordinator of all incidental spills/releases.
  - The Contractor is responsible for the proper collection, storage and disposal of waste materials in compliance with EPA and DEP regulations and in cooperation with the Contract Coordinator.
- (3) For *non-incidental* spills/release:

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<sup>1</sup> "Incidental" spills meet **ALL** of the following criteria: 1) personnel are familiar with the hazards associated with the spilled material; 2) containment/response does not pose potential health and safety hazards (e.g. fire, explosion or chemical exposure); 3) a small quantity (less than 10 gallons) of material is spilled/release which **DOES NOT** reach the environment or pose potential health and hazardous; and 4) spilled/release material can be readily absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate area or by maintenance personnel.

<sup>2</sup> "Non-incidental" spills include 1) major spills/release (e.g. greater than 10 gallons) that do not reach the environment or 2) any amount of spilled material that escapes to the environment (including drains, sumps, soil, etc.).



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- The Contractor shall immediately report the spill/release to the University Operations Center at 495-5560. The Operations Center will notify the University's Environmental Health & Safety (EH&S) Department who may advise you on the need for initiating contact with spill response vendors. If deemed necessary by Harvard, we reserve the right to contact spill response vendors to initiate response measures and prevent further damage.
- ◆ The Contractor shall follow the steps for incidental spill/releases identified in item (2) above, provided that it is safe to do so.
- ◆ Harvard's EH&S Department will coordinate with the Contractor to ensure for proper reporting to outside agencies (if necessary).
- ◆ The Contractor will conduct an incident analysis and coordinate with the Contract Coordinator and Harvard's EH&S Department on any actions that are required to prevent recurrence.

### **2.4 Pest Control**

The Contractor shall not use any insecticide products on University property unless such activities are part of your contracted work and you are specifically trained and licensed to do so. If a Contractor or his/her employees see evidence of cockroaches, mice, ants or other pests during the course of their work, they must notify the Contract Coordinator immediately. Contractors must ensure that they perform their on-site operations in a manner that minimizes the potential for pest infestation including, but not limited to, maintaining housekeeping on project site, utilizing rodent-proof trash receptacles and securing door/window/wall penetrations and other access points.

### **2.5 Air Emissions**

Contractors must ensure compliance with all applicable local, state and federal air emissions regulations pertaining to the operations of their on-site equipment.

#### **Combustion Units**

Combustion units include, but are not limited to, boilers, heaters, emergency generators and kilns. All Contractors must immediately report the following to the Contract Coordinator for subsequent notification to EH&S:

- Any installation, maintenance or repairs to a combustion unit that could result in a change in maximum heat input value or overall emissions (e.g. burner replacement or fuel conversions)
- Any conditions discovered which could have resulted in an increase on air pollutant emissions.

#### **CFC-Containing Units**

CFC-containing units include those containing any ozone depleting refrigerants including, but not limited to, Chlorofluorocarbons (CFC), Hydrochlorofluorocarbons (HCFC) and Halon. Contractors shall immediately notify the Contract Coordinator whenever they become aware of any unintentional or intentional release of CFCs above de-minimis levels as established by EPA regulators. The intentional release of CFCs and Halon is prohibited.

Contractors must immediately notify and provide documentation to the Contract Coordinator whenever:

- A leak rate equals or exceeds 35% per year for commercial/industrial processes
- A leak rate equals or exceeds 15% per year for comfort cooling processes
- A release occurs of >100 pounds in a 24 hour period for CFC-12, CFC-113 and R-500.



Contractors must provide the following documentation to the Contract Coordinator:

- EPA certifications for any reclaimers to which CFC products evacuated from Harvard systems are to be sent
- Certifications for any CFC recycle/recovery equipment to be used at Harvard
- Technician Certifications
- Service records for all units containing greater than 50 pounds of refrigerant. Records must include the date and type of service and the type and quantity of refrigerant added.

## **2.6 Stormwater and Wastewater**

### **Stormwater**

Projects that disrupt over one (1) acre of land must adhere to the EPA’s Phase I or II stormwater requirements. These projects are required to obtain a NPDES Construction General Permit and develop a Stormwater Pollution Prevention Plan (SWPPP) that outlines best management practices to be implemented to minimize pollutants in site stormwater runoff. Prior to project start, the Contractor is responsible for obtaining the proper stormwater permit, developing a site-specific SWPPP and implementing appropriate best management practices. Upon completion of the project, the Contractor must file for a Notice of Termination (NOT) and provide all associated documentation to the Harvard Contract Coordinator. Listed below are items for inspection during the project:

The Contractor must post the EPA Permit No. or the Notice of Intent (NOI) form and the name of site contact person at the entrance to the construction site.
The Contractor must provide a copy of the completed NOI and the Storm Water Pollution Prevention Plan (SWP3) to Harvard University.
The SWP3 is available on-site and is up-to-date.
The Contractor must adhere to the sequence of soil disturbance activities identified in the SWP3.
The Contractor must report releases of hazardous substances to USEPA (if applicable) and Harvard’s Contract Coordinator.
The Contractor must record the dates of major construction activities involving grading, stabilization, and work suspension.
The Contractor must provide for inspections of storm water control measures and discharge points are being performed by qualified personnel at the frequency stated in the SWP3.
The Contractor has completed, signed, and maintained inspection reports with the SWP3 that identify the dates of inspection, weather conditions, findings, and corrective actions.
When an inspection indicates an amendment to the SWP3 is necessary, the Contractor has revised the SWP3 within 7 days of the inspection and provided SWP3 updates to Harvard University.



The Contractor must check site for the condition of the following:

- Have disturbed areas have been stabilized?
- Have storm drains have been protected?
- Have materials stockpiles have been stabilized or isolated?
- Is sediment/debris visible at drains or discharge locations?
- Is there evidence of sediment or loose gravel from site entrance onto the street?
- Are chemicals or oils stored near storm drains, discharge locations or surface waters?
- Are BMPs (e.g. filter fabric, hay bales, silt fencing) being adequately maintained?
- Are sediment ponds/traps filled beyond half capacity?

## **Wastewater**

The Contractor must identify all wastewater streams and obtain approval for any drain discharge. In addition, for excavation projects, the Contractor is responsible for obtaining and adhering to the MWRA Dewatering permit.

The Massachusetts Water Resource Authority (MWRA) regulates industrial wastewater discharge from Harvard University buildings under an MWRA Sewer Use Discharge Permit for the Cambridge, Longwood and other campuses. The discharge of any wastewater must adhere to these permit requirements and MWRA Specific Prohibitions (360 CMR 10.00). These include, but are not limited to:

- No discharge of PCBs
- No discharge of mercury, silver or other metal-bearing wastewater
- No discharge of highly corrosive substances ( $5 < \text{pH} < 12.5$ )
- No discharge of flammable materials that could create a hazard for facility personnel or MWRA treatment works personnel.
- No discharge of oils, fats, greases above 300mg/L

Contractors should refer to the University discharge guidance document at [http://www.uos.harvard.edu/ehs/enviro/Sink\\_Disposal.pdf](http://www.uos.harvard.edu/ehs/enviro/Sink_Disposal.pdf). Any discharge of prohibited substances must immediately be reported to the Harvard Contract Coordinator.

## **2.7 Biological/Chemical/Radioactivity Hazards**

Some Harvard University operations involve the use of biological, chemical, or radioactive material that can be hazardous to Harvard's students, faculty or employees if not handled safely. Areas where work with biological, chemical, or radioactive materials is being performed will be marked with appropriate signs. Do not enter these areas and do not handle hazardous biological, chemical, or radioactive material unless it is part of your contracted work and you are specifically trained to do so.

## **2.8 Asbestos Containing Materials**

Harvard University will have determined, before work is begun, the presence, location, and quantity of asbestos-containing or potentially asbestos-containing materials that would be specifically impacted by the work of your contract. The Harvard University Contract Coordinator will provide a specific asbestos audit report for those work areas in question. The Contractor shall not disturb asbestos-containing materials unless such activities are part of your contracted work and you are specifically trained to do so. Asbestos



abatement Contractors should coordinate with the Contract Coordinator and the University’s EH&S Department for specific requirements for asbestos abatement work.

The Contractor shall not disturb, damage or otherwise handle any *suspect* asbestos containing material. It is recommended that the following suspect materials be assumed to contain asbestos unless specific auditing data shows otherwise:

Cement Pipes	High Temperature Gaskets	Electrical Wiring Insulation
Cement Wallboard	Lab Hoods/Benches/Gloves	Chalkboards
Cement Wallboard	Fire Blankets/Curtains/Doors	Roofing Shingles and Felt
Flooring Backing	Elevator Equipment Panels	Base Flashing
Construction Mastics	Elevator Brake Shoes	Thermal Paper Products
Acoustical Plaster	HVAC Duct Insulation	Caulking/Putties
Decorative Plaster	Boiler Insulation	Adhesives
Textured Paints/Coatings	Breeching Insulation	Wallboard
Ceiling Tiles and Lay-in Panels	Pipe Insulation	Joint Compound
Spray-applied Insulation	Cooling Towers	Vinyl Wall Coverings
Blown-in Insulation	Electrical Cloth	Asphalt Floor Tile
Fireproofing Materials	Heating and Electrical Ducts	Vinyl Sheet Flooring
Taping Compounds	Electrical Panel Partitions	Vinyl Floor Tile
Packing Materials (wall/floor penetrations)	Ductwork Flexible Fabric Connectors	Spackling Compounds

The Contractor shall not sweep, dust, vacuum or mop dust or debris that is the product of a suspect asbestos containing material. The Contractor shall also not pick up or throw away any suspect asbestos-containing waste or trash. If it material that is suspected to be asbestos-containing is disturbed and becomes airborne, the Contractor shall immediately notify the Contract Coordinator and the Operations Center at 617-495-5560.

If it is part of the Contractor’s work, stripping of floor finishes shall be done using low abrasion pads at speeds lower than 300 rpm and wet methods shall be used. The Contractor shall take care not to overstrip floors and shall stop stripping immediately upon removal of the old surface coat. Sanding of flooring material is strictly prohibited unless it is part of your contracted work and you are specifically trained to do so.

Any suspect asbestos containing material that is observed by the Contractor to be crushed, ripped, broken or in any way damaged should be reported to the Contract Coordinator immediately.

Contractors must, within 24 hours, convey to the Harvard University Contract Coordinator any information they newly discover concerning the presence, location and quantity of asbestos-containing or potentially asbestos-containing materials.

## 2.9 Lead Paint

Unless the Harvard University Contract Coordinator provides a specific lead-paint inspection, Contractor’s should assume that any painted surface they come in contact with is coated with lead-based paint. Therefore, Contractor’s should not perform any intrusive, dust-generating work on painted surfaces (e.g., drilling, cutting, brazing, scraping, demolition), unless the surface has confirmed to be non-lead or unless such work is part of your contracted work and you are specifically trained to do so.

Any painted surfaces that have loose, flaking, chipping or otherwise non-intact paint should not be impacted by the Contractor and should be reported to the Contract Coordinator immediately.



Lead paint abatement Contractors should coordinate with the Contract Coordinator and the University's EH&S Department for specific requirements for lead abatement work. Refer to the section of this manual on Hazardous Waste for guidelines on the proper disposal of lead containing paint.

### **3.0 OSHA SAFETY ISSUES**

#### **3.1 Hazardous Materials and Hazard Communication**

##### **Hazardous Materials**

- Do not handle or use hazardous materials without training by your company's representative.
- No solvents, paints, or similar flammable, toxic, or irritating materials may be used in areas occupied by Harvard University employees, faculty or students unless specifically approved in writing by the Harvard University Contract Coordinator.
- Maintain adequate ventilation when paints or solvents are used.
- Use flammable solvents and materials with extreme caution.
- Store flammable paints and solvents in approved flammable liquid storage cabinets if inside buildings.

##### **Hazard Communication**

It is the Contractor's responsibility to develop, implement and maintain their own Hazard Communication Plan that complies with 29 CFR 1910.1200. The Contractor shall submit an inventory of all hazardous chemicals that are brought on-site with accompanying Material Safety Data Sheets to the Harvard University Contract Coordinator. The Contractor shall also ensure that all containers that are brought on site for the storage of hazardous chemicals (e.g., gas, paint, etc.) are labeled and inspected in accordance with all applicable regulations. The Contractor shall remove all hazardous chemicals that it brings on-site when work involving a specific hazardous chemical is complete.

The Contractor may request and review Material Safety Data Sheets for any chemicals that are encountered on University property during the performance of its work. Requests should be made to the Contract Coordinator.

#### **3.2 Confined Space Entry**

##### **Background**

Harvard University has developed and implemented a Confined Space Entry Program to protect all University employees who are required to enter confined spaces. This University-wide program defines a "Confined Space" and an "Enclosed Space" in accordance with 29 CFR §§ 1910.146 and 1910.269, respectively.

As part of the Confined Space Entry Program, the University performed hazard assessments, developed inventories and posted all confined and enclosed spaces at the point of entry. These postings include information on the classification of the space (e.g., "Permit Required", "Non-permit Required"), the confined space ID number, the location, the known hazards, and the minimum personal protective equipment needed for entry. Where available the University's experience with the confined space is also included on the signage.

In order to enter any of the identified confined spaces at the University, it is the Contractor's responsibility to develop implement and maintain its own Confined Space Entry Program, including provision for emergency rescue, in accordance with all regulations. Applicable regulations include, but may not be



limited to, 29 CFR 1910.146 and 1910.269. In addition, the following requirements must be adhered to by the Contractor:

- If during the course of its work, the Contractor encounters a confined space that has not been previously identified by the University, it must immediately bring the space to the attention of the Contract Coordinator and delay entry until Harvard has examined the space.
- When both University personnel and Contractor personnel are working in or near confined spaces, the Contractor shall coordinate all operation with the affected University personnel before entry.

### **3.3 Lockout / Tagout**

Harvard University protects its students, faculty, employees, neighbors and property in part by complying with 29 CFR 1910.147 – Control of Hazardous Energy Sources (Lockout/Tagout). As part of Harvard's Lockout/Tagout Program, standard locks and tags are used to control the start-up of equipment that is being serviced or maintained by its employees. At no time shall the Contractor or its employees override any locks or tags that they encounter during the performance of its work.

The Contractor is responsible for developing, implementing and maintaining his/her own Lockout/Tagout Program in accordance with OSHA regulations as it applies to the work of their contract. The Contractor shall submit a copy of its Lockout/Tagout Program to the Contract Coordinator before the start of any work where 29 CFR 1910.147 is applicable. The only purpose of this submission is to ensure that, for the safety of Harvard's students, faculty, employees, neighbors or property, the Contractor's lockout/tagout procedures are consistent with restrictions and prohibitions of Harvard's lockout/tagout program.

- Unless otherwise specifically directed by the Contract Coordinator, Harvard University facility personnel will shut down and start up utility systems.
- The Contractor will maintain a log of all machines and equipment that are locked out and/or tagged out during the performance of the work of this contract. This log shall identify the equipment that was worked on, the date that work was performed, and the name of the individual performing the work. The Contractor will submit this log to the Contract Coordinator on a monthly basis when lockout/tagout work is being performed.

### **3.4 General Electrical Safety**

- Only qualified electricians are permitted to work on electrical systems and equipment that uses or controls electrical power.
- All work shall be conducted in accordance with the National Fire Protection Agency 70E Standard for Electrical Safety in the Workplace.
- Do not operate electrical tools or equipment in wet areas or areas where potentially flammable dusts, vapors, or liquids are present, unless specifically approved for the location.
- Should a circuit breaker or other protective device "trip," ensure that a qualified electrician checks the circuit and equipment and corrects problems before resetting the breaker.
- Erect barriers and post warning signs to ensure non-authorized personnel stay clear of the work area.



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- Report hazards (lack of protective guards or covers, damaged equipment, etc.) to the Harvard University Contract Coordinator immediately.
- Do not leave electrical boxes, switch gear, cabinets, or electrical rooms open when not directly attended. Insulate energized parts when covers have been removed or doors are ajar. Use of cardboard, plywood, or other flammable materials to cover energized circuits is prohibited.

### **3.5 Fall Protection**

Contractors are responsible for complying with 29 CFR 1926, Subpart M – Fall Protection as it applies to their work on University property. Responsibilities include, but are not limited to:

- Maintain guardrails, mid rails and toe boards located in University buildings or on University property unless removal is approved by the Contract Coordinator as part of the work of a contract.
- Cover all open holes, skylights, trenches, or excavations into which Harvard's employees may fall and/or have guardrails, mid rails and toe boards installed around them.
- Provide Contractor employees with personal fall protection equipment or other hazard control measures listed within the fall protection standard and ensure their proper usage.
- Ensure that Contractor personnel are trained in accordance with the requirements listed in 29 CFR Subpart M.
- Ensure that falling hazards are thoroughly communicated to Contractor employees and sub contractors.

### **3.6 Window Washing**

Window washing shall be conducted using suspended scaffold (single or two point), a boatswain's chair, or other OSHA compliant method. Scaffolding apparatus shall comply with the requirements of 29 CFR 1910.28. Window washing anchors located on any Harvard building shall be verified by the window washing Contractor to be in good condition and suitable for use as an anchor point. All reports or inspections of anchor points shall be provided to the Harvard building manager.

### **3.7 Compressed Gas Cylinders**

Compressed gases can pose a sever hazard to Harvard's students, faculty, employees, neighbors and property. Therefore, Contractors must take the following measures their protection and the protection of others:

- Valve protection caps must be in place when compressed gas cylinders are transported, moved, or stored.
- Close cylinder valves and replace valve covers when work is complete and when cylinders are empty or moved.
- Secure compressed gas cylinders in an upright position in a welding cart or to a solid object (using chains, straps, or a rigid retaining bar). Secure compressed gas cylinders on an approved carrier while being transported.
- Keep cylinders at a safe distance or shielded from welding or cutting operations. Do not place cylinders where they can contact an electrical circuit.
- Keep oxygen and flammable gas regulators in proper working order and a wrench in position on the acetylene valve when in use. If not manifolded together, separate oxygen and flammable gas cylinders by 20 feet or a 5 foot high fireproof barrier.
- If a leak develops in a cylinder and it cannot be immediately corrected, move the cylinder to a safe location outside the building.



- Use only approved spark igniters to light torches.
- Cylinders must not be taken into or stored in confined spaces, including gang boxes and office/storage trailers.
- Do not store hoses and regulators in unventilated or closed containers or areas.
- Do not leave behind partially filled or empty cylinders. Always remove them from the site.

### **3.8 Powder-Actuated Tools**

Powder-actuated tools can pose hazards to Harvard's students, faculty, employees, neighbors and property. Such tools are, therefore, not permitted in occupied Harvard buildings without the approval of the Harvard University Contract Coordinator. In addition:

- Contractor's who operate powder-actuated tools must be properly trained in their use and carry a valid operator's card provided by the equipment manufacturer.
- Each powder-actuated tool must be stored in its own locked container when not being used.
- A sign at least 7 inches by 10 inches with bold face type reading "POWDER-ACTUATED TOOL IN USE" must be conspicuously posted when the tool is being used.
- Powder-actuated tools must be left unloaded until they are actually ready to be used.
- Powder-actuated tools must be inspected for obstructions or defects each day before use.
- All Powder-actuated tool operators must have and use appropriate personal protective equipment such as hard hats, safety goggles, safety shoes and ear protectors.

### **3.9 Welding, Cutting, and Brazing**

- The Contractor must obtain a permit for hot work activities from the local fire department for each separate work activity and ensure that all conditions of the permit are met at all times. The permit must be submitted to the Contract Coordinator prior to the start of any welding/cutting/brazing work. In addition, the Contractor must also maintain its own hot work permit system in accordance with OSHA regulations.
- Remove combustible materials from the area before beginning work.
- Elevate oxygen/acetylene hoses seven feet above the work area or otherwise protect them from damage.
- Install anti-flash back (safety/check) valves in both the oxygen/acetylene hoses at the regulator.
- Shield adjacent areas with welding partitions.
- Have a second person stand by with an approved fire extinguisher for welding and burning operations in accordance with OSHA regulations and permit requirements. This person should remain in the area for a minimum of 30 minutes after the hot work is completed to ensure the site is cold.



### 3.10 Cranes and Rigging

Each crane, rigging, or hoist brought onto Harvard University property must have an annual inspection performed by a certified testing agency. Before operations begin on site, documentation, including a log book, must be provided to the Contract Coordinator or its designee.

All operators must possess a valid Massachusetts hoisting license. Documentation of this license shall be provided to the Harvard University Contract Coordinator. At no time shall loads be hoisted by a non-licensed operator. The operator is responsible for the proper placement of the crane in relationship to the load to be handled and the landing area so as to obtain the best rated lift capacity, and the installation and maintenance of crane swing radius protection.

### 3.11 Excavation

Excavation activities present hazards such as: underground utilities, egress limitations, hazardous atmospheres, water accumulation, chemical or biological hazards, stability of adjacent structures, fall protection concerns, and cave-ins. The OSHA standard for trenching and excavation also sets forth the requirements for shoring and sloping of excavations.

- Prior to any excavation work, driving of spikes/stakes into the ground and drilling, Dig-Safe must be notified. Excavation should not begin until Dig-Safes approval is given and all utility companies have marked existing utilities in the field.
- Specifically, all excavations 5-feet or more in depth must be shored or sloped.
- When excavation activities approach a utility, state law requires excavators to use non-mechanical means when digging within 18" of a marked underground facility. Utilities must also be supported to prevent collapse.
- The area around the trench/excavation must be kept clear of surface encumbrances.
- Ladders must be provide for access and egress to the excavation.
- In excavations where hazardous atmospheres have the potential to exist, the atmosphere must be tested before entry. If a hazardous atmosphere is found, then the excavation shall be treated as a permit required confined space. Locations that are most likely to result in a hazardous atmosphere include excavations in landfills, in other areas where there is significant decomposition of organic materials, and in areas next to hazardous materials storage areas.
- Adjacent structures must be shored in accordance with the design documents to prevent collapse.
- Guardrails or some other means of protecting people from falling into the trench/excavation should be installed around the perimeter of the excavation.



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**3.12 Miscellaneous Additional Safety Rules for the Protection of Harvard Students, Faculty, Employees, Neighbors and Property**

- Do not perform work over the heads of people or leave tools or equipment overhead.
- Isolate your work area with safety markers, tape barriers, blinker lights, etc. and use police details when pedestrian and/or vehicular traffic is impeded.
- All portable ladders including but not limited to extension ladders, step ladders, and job made ladders shall be the Contractor's sole responsibility to maintain and use according to 29 CFR 1910.27.
- Immediately report unsafe acts or conditions to your Supervisor and Contract Coordinator.