Contractor Safety, Health and Environmental Protection Standard

Tufts University

Tufts Environmental Health and Safety
Version 1.0
October 2013
Tufts University Contractor
Safety, Health and Environmental Protection Standard

I acknowledge that my firm has received a copy of the Tufts University Contractor Safety, Health and Environmental Protection Standard and is qualified to meet the Standard.

Name:_____________________________________
Title:______________________________________
Company:__________________________________
Signed:____________________________________
Date:______________________________________
Tufts EHS Representative: __________________________

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I. INTRODUCTION

Mission of Tufts Environmental Health and Safety

Tufts Environmental Health and Safety (TEHS) promotes health, safety and environmental protection in teaching, research, public service and administrative activities by providing training, advice and other compliance assistance.

TEHS provides leadership in developing and supporting high quality programs that allow students, faculty and staff to protect themselves from potential health hazards they encounter at the University.

In addition, TEHS staff has the expertise needed to direct efforts toward compliance with health, safety and environmental laws and regulations.

In summary, the goal of TEHS is to provide guidance to every manager, supervisor, employee, and student of Tufts University so that a safe, healthful and environmentally sustainable learning environment is achieved and maintained.

TEHS provide permitting and compliance advisory services on all phases of a demolition, construction or renovation project in the areas of:

1. Occupational Safety and Health
2. Public Health
3. Fire Safety
4. Environmental Protection

TEHS maintains relationships with regulatory agencies on behalf of the University to ensure compliance with applicable laws and regulations and can connect you with them. We also regularly engage and supervise outside safety and environmental contractors and maintain a list of qualified safety and environmental contractors with experience at Tufts.

Occupational Safety and Health

Tufts Occupational Safety and Health staff recommends compliance with OSHA regulations.

Environmental Management

Tufts Environmental Management staff recommends compliance with U.S. Environmental Protection Agency, Massachusetts Department of Environmental Protection, Massachusetts Water Resources Authority and municipal regulations.

Fire Safety

Tufts Fire Safety staff recommends compliance with National Fire Protection Association, Occupational Safety and Health Administration (OSHA) and Massachusetts regulations.

Purpose of Standard

The policy of Tufts University is to provide for the protection of its faculty, staff, students, visitors, facilities and surrounding environment through the development and implementation of a comprehensive safety, health and environmental protection program.

The purpose of this Standard is to assist contractors to provide a safe environment for Tufts employees, students, visitors and construction workers in any area impacted by maintenance, renovation or new construction projects. Safety, health and environmental protection programs are implemented by contractors to protect life, property, and the environment and must comply with federal, state and local regulations.

The major objectives of the Tufts Contractor Safety, Health and Environment Standard are to:

1. Protect employees, students, visitors, property, and the environment from hazards.
2. Operate a safe and healthful construction site free from recognized hazards.
3. Comply with all safety, health, environmental regulations and University policies.
4. Maintain an effective health and safety program by assigning tasks to managers, supervisors, and employees.
5. Cooperate with building occupants and others involved in the work area to maintain a safe and healthful workplace.

**Application of Standard**
Contractors are required to provide a safe workplace and implement their own safety program that protects their employees and the University community. Due to the wide variety of construction operations, it is not possible to outline every conceivable applicable regulation and work practice.

**Scope**
This Standard should be used for a project of any size and scope and is intended to assist in coordinating Tufts Facilities Services and contractor operations during construction, renovation projects and maintenance. By becoming familiar with the policies and procedures in this Standard, the contractor will complete the project with fewer workplace accidents and incidents.

Contractors are required to comply with all applicable federal, state, local laws and university policies and also follow safe work practices for construction trades. Some of these regulations and safe work practices are outlined in this Standard.

Contractor management must thoroughly review their own work practices and workplace hazards and then provide employees all the necessary training and equipment for their safety.

Contractor shall carry current and valid photo identification at all times, preferably a motor vehicle operator’s license and must present such identification to university officials upon request.

**Definitions:**
- **Owner**: Refer to the definition of owner in found in “ARTICLE 2 OWNER” of the AIA Document A201-2007 “General Conditions of the Contract for Construction.”
- **Contractor**: Refer to the definition of Contractor in found in “ARTICLE 3 CONTRACTOR” of the AIA Document A201-2007 “General Conditions of the Contract for Construction.”

**Contractual Obligations**
1. **Contractor EHS practice evaluation**
   All Contractors working on Tufts construction projects are required to provide Owner with their past safety and environmental compliance record. Contractor’s safety and environmental protection programs will be evaluated according to pre-determined criteria based on:
   a. **Safety and Environmental Compliance Record**
      Provide a chronology of regulatory inspections, violations, fines and other terms of settlement for the last three (3) years. This chronology must reflect federal, state, and local agency involvement including U.S. DOT, OSHA, EPA, MassDEP and local agencies having public health or environmental responsibilities. This chronology should summarize incidents, corrective actions, penalties, and preventative measures taken.
   b. **Safety and Environmental Protection Management Systems**
      Provide environmental health and safety staffing and reporting structure.

      Based on information provided to Owner, a risk profile shall be assigned to the contractor consisting of one of the following levels: high risk, medium risk, low risk. The risk profile will be submitted to the Tufts project team for potential action on this or future contracts. **A high risk compliance record may invite closer oversight from Owner or recommendations against future contract opportunities.**

2. **Pre-Construction Phase**
a. Contractors shall designate a competent site-safety coordinator for each job site. The contractor’s site-safety coordinator should be identified to the Project Manager/Construction Coordinator in the event that safety concerns regarding the worksite arise.
b. **Health and Safety Plan:** Contractor shall develop a Health and Safety Plan (HASP) prior to commencement of work. The HASP shall identify the following: major hazards anticipated as they relate to the scope of work, methods the Contractor will employ to manage the hazards, and the responsibility for each of the management techniques. The HASP shall be made available to Owner.
c. Prior to commencement of work, a HASP meeting shall be conducted with Owner.
d. **Pre-Construction Safety Meetings:** the Contractor shall coordinate and chair a pre-construction safety meeting for each subcontractor working on the project. This meeting shall be held prior to the commencement of work by the Contractor and is intended to communicate project-specific safety requirements and expectations to subcontractor project management and site supervision and to review the elements of the HASP.

3. **Construction Phase**
a. **Employee Orientations:** Contractor shall develop a Safety Orientation Program, specific to the project. The Safety Orientation Program shall address the major hazards associated with the project scope as defined by the HASP, project-specific safety requirements and expectations, and emergency response procedures at a minimum.
b. Each employee entering the project site shall undergo the Safety Orientation.
c. **Contractor Inspections and Reporting:** Contractors should initiate and maintain an inspection program to provide for frequent and regular self-inspections of the job site, materials, and equipment.
d. Formal inspections shall be documented by the inspector. Following each inspection, communications shall be made to the responsible parties/Contractors, and the documentation/report shall be forwarded to Owner.
e. Contractor shall maintain logs of deficiencies and plans for corrective actions.
f. Contractor shall conduct safety and environmental protection meeting as frequently as requested by Owner to discuss inspection results.

II. General Requirements

1. **Submittals**
   Certain Safety and Environmental requirements must be documented in submittals from the Contractor to Owner. Such Submittals shall be submitted to the Owner in a timely manner to prevent project delays during review and approval by the Owner.

2. **Worksite Access**
   Contractor shall establish controls to restrict unauthorized persons to enter the work zone and to ensure that entry requirements are clearly posted at all access points to the construction site. Signs should indicate the personal protective equipment must be worn by all persons and at all times.

3. **Fire Protection, Alarms and Suppression Systems**
a. Contractors must obtain Hot Work permits from the Project Manager before performing welding, soldering or torch work.
b. Contractors must contact the Department of Facilities Services and FM Global before performing work on Fire Suppression and Fire Alarm systems.
c. Firefighting equipment shall be conspicuously located, readily accessible at all times, shall be periodically inspected, and shall be maintained in operating condition.
d. Extinguishers are to be placed at least every 75 feet. Extinguishers are to be provided by contractor.
e. Each employee must know the alarm system at the worksite so they, and the local fire department, can be alerted during an emergency.

4. **Egress**
a. If a project obstructs building egress, temporary signage shall be installed to direct occupants to other egress pathways.
5. **Building Alarms**
   In the event of a construction site fire in an occupied building, Contractor shall ensure that the fire alarm is activated and that building occupants are notified. Contractor employees will evacuate the construction site and assemble at locations at least 50 feet from the building or location of the fire.

6. **Signs**
   The Contractor shall comply with all requirements of posted signs in any building that requires use of personal protective equipment, restrict entry to authorized persons or establishes any other conditions for entry into any part of the building not in the construction site.

7. **Building Roof Access**
   a. There are exhaust discharges located on the roof of buildings from boilers, autoclaves, fume hoods and other devices that discharge air that may be contaminated with a physical or hazardous material.
   b. Roof access by construction employees shall be limited to those periods when the air concentrations of air contaminants are at a safe level due to work limitations or maintaining a safe distance from the discharge stack or device.

8. **Housekeeping**
   a. Form and scrap lumber with protruding nails and other debris shall be kept clear from all work areas.
   b. Combustible scrap and debris shall be removed at regular intervals.
   c. Containers shall be provided for collection and separation of all refuse. Covers shall be provided on containers used for flammable or harmful substances.
   d. Wastes shall be disposed of at frequent intervals.
   e. Lay down areas shall be orderly and free from tripping hazards.

9. **Materials Storage and Handling**
   **General Storage**
   a. All materials stored in tiers shall be secured to prevent sliding, falling, or collapse.
   b. Aisles and passageways shall be kept clear and in good repair.
   c. Storage of materials shall not obstruct exits.
   d. Materials shall be stored with due regard to their fire characteristics.

   **Flammable and Combustible Liquids**
   a. Flammable and combustible liquids shall only be stored in approved containers and in appropriate quantities for the job site use.
   b. Conspicuous and legible signs prohibiting smoking shall be posted in service and refueling areas.
   c. Flammable liquids shall be dispensed through grounded and bonded containers.

10. **Lighting**
    Construction areas, ramps, corridors, offices, storage areas including all outdoor work locations shall have a minimum light level of: 5 foot-candles (50 lux) for general areas, 10 foot-candles (100 lux) for shop areas and 30 foot-candles (300 lux) for office areas. *OSHA 1926.56 Illumination (lighting/visibility).*

11. **Accident Reporting and Recordkeeping**
   a. **Accidents:** All accidents, incidents, injuries and illnesses must be reported to Project Manager immediately so they can be properly investigated and employees properly protected. Injuries and illnesses requiring an “Employers’ first Report of Accident” shall be reported to the contract administrator/Project Manager.
   b. **Accident Record Keeping and Reporting Requirements**
   c. Within 8 hours after its occurrence, an accident which is fatal to one or more employees or which results in the hospitalization of three or more employees shall be reported by the employer to the nearest OSHA Area Director.
12. **Emergency Response and First Aid**

1. **Emergency Phone Number:** It is imperative that all emergencies, including but not limited to fires, medical issues, water leaks, hazardous spills, or criminal activity are immediately reported to the Tufts University Police Department (TUPD). TUPD is staffed 24 hours/day, 7 days/week and can be reached at:
   - 617-636-6911 for Boston off-campus or cell phone users
   - 508-839-5303 for Grafton off-campus or cell phone users
   - 617-627-6911 for Medford off-campus or cell phone users

   It is critical that basic information is provided to assure the appropriate response personnel are quickly dispatched. Basic information includes:
   - Your name and phone number
   - Exact location of emergency
   - Description of emergency
   - Extent of injury if any
   - Type of chemical if a spill has occurred

   While communicating with TUPD it is important to be aware of your surroundings and assure your safety is not compromised. Remain on the phone unless directed otherwise by TUPD.

2. **Medical Services and First Aid**
   a. A person trained to render first aid is to be available at the worksite.
   b. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

III. **SPECIFIC PROGRAM REQUIREMENTS**

1. **Safety Requirements**
   1. **OSHA General Duty Clause**
      Hazardous conditions or practices not covered in an OSHA standard may be covered under Section 5(a) (1) of the Occupational Safety and Health Act of 1970 which states: “Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

   2. **Facilities, Equipment, Tools and Vehicles**
      All equipment, tools and vehicles shall be properly designed and maintained from a safety standpoint. All workplace facilities, equipment, and activities must comply with the applicable governmental regulations including OSHA 1926, 1910 and EPA. Proper stairs, ladders, platforms, and guardrails shall be provided to ensure employee safety and compliance with OSHA regulations. All equipment tools and vehicles used must be used in accordance with manufacturers operating instructions.

   3. **Education and Training**
      All managers, supervisors, and employees must be properly trained to recognize, evaluate, and control workplace safety and health hazards in accordance with OSHA 1926. No employee is allowed to perform a job until he or she has been properly trained to perform the job safely. Specific training must be provided concerning the safety rules and procedures pertaining to the jobs being performed. Safety and health training is to be conducted initially upon employment and at least annually thereafter. Frequent refresher training such as tool box safety talks must also be part of the training program.

   4. **Manual Materials Handling**
      Manual materials handling and other physical activities must be performed only by those employees physically able to do so.
**Enforcement:** Contractors should consider disciplinary action for unsafe acts.

5. **Personal Protective Equipment (PPE)**
   Appropriate PPE shall be worn in all operations where there is an exposure to hazardous conditions or where the need is indicated for using such equipment to reduce the hazard to the employees.

6. **Eye and Face Protection**
   a. Eye and face protection shall be provided when machines or operations present potential eye or face injury.
   b. Eye and face protective equipment shall meet the requirements of ANSI Z87.1-1991, “Practice for Occupational and Educational Eye and Face Protection.”
   c. Employees involved in welding operations shall be furnished with filter lenses or plates of at least the proper shade number.
   d. Employees exposed to laser beams shall be furnished suitable laser safety goggles that will protect for the specific wavelength of the laser and be optical density adequate for laser involved.

8. **Head Protection**
   Head protective equipment (hard hats/helmets) shall be worn in areas where there is a possible danger of head injuries from impact, flying or falling objects, or electrical shock and burns. Hard hats/helmets shall meet the performance requirements of ANSI Z89.1, “Standard for Industrial Protective Helmets.”

9. **Hearing Protection**
   a. Feasible engineering or administrative controls shall be used to protect employees against sound levels in excess of those shown in Table D-2, OSHA Standard 1926.52.
   b. When engineering or administrative controls fail to reduce sound levels within the limits of Table D-2, hearing protective devices shall be provided and used.
   c. Hearing protection is required at constant noise above 85 decibels or impact noise above 140 decibels.
   d. In all cases where the sound levels exceed the values shown in safety and health regulations, a hearing conservation program shall be administered.
   e. Plain cotton ear plugs are not acceptable for hearing protection.

10. **Respiratory Protection**
    a. When engineering or administrative controls are not effective in controlling toxic substances, appropriate respiratory protective equipment will be provided and shall be used.
    b. Respiratory protective devices approved by the Mine Safety and Health Administration/National Institute for Occupational Safety and Health for the specific contaminant to which the employee is exposed shall be used.
    c. Respiratory protective devices provided by supervisors shall be appropriate for the hazardous material involved and the extent and nature of the work requirements and conditions.
    d. Employees required to use respiratory protective devices shall be thoroughly trained in their use.
    e. Contractors shall have a written respirator protection program that includes respirator training, fit-testing and medical qualification documentation.

2. **Motor Vehicles and Mechanized Equipment**
   a. All vehicles operated on public streets, roadways, alleys, or any passageway where the public has a right to access must be property registered as motor vehicles, with current registration, registration plates and insurance.
   b. All personnel operating motor vehicles must be properly licensed to do so, have a license to operate on their person at all times, and must obey all relevant motor vehicle during operation.
   c. All personnel operating mechanized equipment must have a current and valid license to do so, in the event that a license is required to operate the equipment under the control of the operator.
   d. Observe posted speed limits, give pedestrians the right of way, and yield to emergency vehicles. Unless otherwise posted, there is a campus-wide speed limit of 5 miles per hour.
e. All vehicles in use shall be checked at the beginning of each shift to assure that all parts, equipment, and accessories that affect safe operation are in proper operating condition and free from defects. All defects will be corrected before the vehicle is placed in service.
f. No person shall use any motor vehicle, earth moving or compacting equipment having an obstructed view to the rear unless:
g. The vehicle has a reverse signal alarm distinguishable from surrounding noise level or
h. The vehicle is backed up only when an observer signals that it is safe to do so.
i. Heavy machinery, equipment, or parts thereof which are suspended or held aloft shall be substantially blocked to prevent falling or shifting before employees are permitted to work under or between them.

1. Hand and Power Tools
a. Electric power operated tools shall either be approved double-insulated, or be properly grounded, and used with ground fault circuit interrupters when used in damp or wet areas.
b. Only authorized and properly trained employees shall use power tools.
c. Powder actuated tools require certified operators and warning signs posted in all areas affected by the noise of the nail gun.
d. Wrenches shall not be used when the jaws are sprung to the point that slippage occurs.
e. Impact tools shall be kept free of mushroomed heads.
f. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

2. Air Tools
a. Pneumatic power tools shall be secured to the hose or whip in positive manner to prevent accidental disconnection.
b. Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled.
c. The manufacturer’s safe operating pressure for all fittings shall not be exceeded.
d. All hoses exceeding ½-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

3. Hazard Communication and Chemical Safety
a. Contractors shall have copies of Safety Data Sheets (SDS) available at the job site for review by the Project Manager/Construction Coordinator and Owner at all times.
b. Chemicals with strong odors and/or are extremely hazardous often cause odor complaints and concerns among students, employees, and visitors. SDSs of materials that may produce strong odors and/or which are extremely hazardous will be forwarded, before use, to the Project Manager/Construction Coordinator for review with Owner.
c. To ensure that all contractor employees know and understand the hazards of all chemicals they are exposed to and they know how to protect themselves from hazardous chemicals, each contractor must establish and maintain an effective hazard communication program. The program must comply with OSHA standard 29 CFR 1926.59 or CFR 1910.1200.
d. The contractors HAZCOM program must provide:
   − A written hazard communication program,
   − An inventory of chemicals,
   − SDSs for all chemicals at the site,
   − Labeling of all containers and other warnings, and
   − Employee training.

e. Plumbing work: If liquid mercury is discovered in sink traps and other piping, notify the Project Manager. If employee exposure to human blood and/or body fluids is anticipated, contractor employees shall comply with OSHA 1910.1030.

4. Compressed Gases
a. Compressed air used for cleaning purposes shall not exceed 30 psi.
b. Compressed air for cleaning will only be used with effective chip guarding and personal protective equipment. This requirement does not apply to concrete form, mill scale, and similar cleaning operations.

**Compressed Gas Cylinders**

a. Valve protection caps shall be in place when compressed gas cylinders are transported, moved, or stored.

b. Cylinder valves shall be closed when work is finished and when cylinders are empty or moved.

c. Compressed gas cylinders shall be secured in an upright position at all times, except if necessary for short periods of time when cylinders are actually being hoisted or carried. In general, no more than 3 cylinders, may be secured by a single belt or chain with a minimum strength to prevent falling.

d. Cylinders shall be kept at safe distances or shielded from welding or cutting operations. Cylinders shall be placed where they cannot become part of an electrical circuit.

e. Oxygen and fuel gas regulators shall be in proper working order while in use.

f. Applicable technical portions of *American National Standards Institute, Z49.1, Safety in Welding and Cutting*, shall be followed.

**Gases, Vapors, Fumes, Dusts and Mists**

a. Exposure to toxic gases, vapors, fumes, dusts, and mists at a concentration above those specified in the most recent “Threshold Limit Values of Airborne Contaminants” of the ACGIH, shall be avoided.

b. Administrative or engineering controls must be implemented whenever feasible to comply with TLV’s.

c. When engineering and administrative controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed. Any equipment and technical measures used for this purpose must first be approved for each particular use by an industrial hygienist or other technically qualified person.

**5. Electrical Safety**

a. All electrical work shall be in compliance with the most recent National Electrical Code or the NEC specified in the construction documents.

b. Only qualified persons are permitted to work on or near energized conductors or parts and then only under special procedures that ensure proper employee protection.

c. Unqualified persons shall not be allowed to work within 10 feet of energized overhead power lines.

d. Equipment must not be operated closer than 10 feet to overhead energized power lines unless specific procedures are followed by qualified persons using appropriate protection equipment.

e. Extension cords used with portable electric tools shall be the 3-wire type, shall be protected from damage. Splices shall have soldered wire connections with insulation equal to the original. Worn or frayed cords shall not be used.

f. Bulbs on temporary lights shall be equipped with guards or deeply recessed in the reflector. Temporary lights shall not be suspended by their electric cords unless designed for suspension.

g. Receptacles for attachment plugs shall be of the approved concealed contact type. Where different voltages, frequencies, or types of current are supplied receptacles shall be of such designs that attachment plugs are not interchangeable.

h. Each disconnecting means of motors and appliances and each service feeder or branch circuit at the point where it originates shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.

i. Cable passing through work areas shall be covered or elevated to protect it from damage which would create a hazard to employees.

j. Boxes for disconnecting means shall be securely and rigidly fastened to the surface upon which they are mounted and fitted with covers.

k. All extension cords and cord & plug connected equipment shall be protected by an assigned equipment grounding conductor program.

l. No contractor shall permit an employee to work in proximity to any part of an electric power circuit that he may contact, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it by effective insulation or other means.
m. In work areas where the exact location of underground electric power lines is unknown, workers using jackhammers, bars, or other hand tools which may contact an energized line shall be provided with insulated protective gloves.

8. Electrical Hazards
   b. Training shall be documented for all employees who face a risk of electric shock from working on, near, or with electrical circuits which are not reduced to a safe level by electrical insulation.

9. Lockout/ Tagout
   a. The lockout/ tagout standard (the control of hazardous energy standard) in 29 CFR 1926.417 and 1910.147 shall be followed by all contractors on all job sites.

Owner lockout procedure requires at a minimum:
   − Tufts University does not recognize the use of tags as an adequate means of energy isolation.
   − Individual keyed locks must be used on energy isolating devices.
   − Special lockout procedures for jobs requiring multiple lockout devices.
   − Contractors must provide their own lockout equipment.
   − All contractor employees, (authorized, affected, and other employees), shall be trained by the contractor (or another acceptable training source) concerning lockout/ tagout procedures.
   − An annual inspection shall be conducted by an authorized employee of the contractor to evaluate the implementation and efficacy of lockout/ tagout procedures.
   − Locks must not be removed by anyone other than the employee applying them except under a special, approved permit.
   − Testing or positioning of machines or equipment will be performed only under special procedures per OSHA 29 CFR 1910.147(f).

   a. Procedures: All contractors shall have a general lockout/ tagout program prior to performing work at Tufts. A written form will be required for lockout/ tagout procedures for machinery on equipment which require more than one energy isolating device to be locked.
   b. Training: All contractor employees will be trained by the contractor (or another acceptable training source) concerning the lockout/ tagout procedures prior to beginning work at the site. A record will be kept of all employees trained and verification (by exam or other written means) that they understood the training they received. The training shall include the disciplinary actions which will be taken if lockout/ tagout procedures are not followed.
   c. Inspections: Audits and inspections of the lockout/ tagout procedures shall be conducted routinely by contractor’s foreman, supervisor, or on-site safety personnel. A record shall be kept of the inspections and the follow-up action taken.

6. Excavations and Trenches
   a. A daily inspection of excavations, the adjacent areas, and protective systems shall be performed by a competent person.
   b. Trenches more than 5 feet deep require shoring or sloping.
   c. Substantial barricades to prevent persons from falling into an open trench shall be maintained around the perimeter of trenches. This is especially important at the end of the workday for trenches that must remain open overnight. A plastic ribbon is not substantial for this purpose.
   d. Ladders will be provided at least every 25 feet for access to trenches over 4 feet deep.

Confined Space Entry Program
   a. Confined spaces present serious potential hazards to employees entering them including oxygen deficiency, toxic materials, flammable materials, and hazardous energy. Each contractor shall establish
and maintain an effective confined space entry procedure that complies with OSHA standard 29 CFR 1926.21(b)(6) and 1910.146 when applicable.

b. For those contractors performing work in areas with confined spaces, a copy of your confined space entry procedures must be submitted to the Project Manager/Construction Coordinator prior to beginning work at the site.

c. Contractors must provide all equipment required for safe entry, including special external and internal rescue equipment and response team and air monitoring equipment.

7. Utility Service Interruptions
a. Before any work involving the planned or possible interruption of utilities such as electric, water, gas, or steam services, permission from the Facilities Services Department is required. Contact Facilities Services through your Project Manager/Construction Coordinator.

b. Underground Utility Location
Anyone proposing to excavate, dig, bore, tunnel, blast or disturb the earth in any manner which may damage buried utilities is required to call the Dig Safe Hotline and Private Lines (3 working days) before starting the proposed work. In the event of a bona fide emergency, notification may be made directly to the Department of Facilities Services.

8. Hot Work Permits: Welding and Cutting
a. Hot work involving the use of open flames, welding apparatus, and spark producing equipment can result in fires and explosions. All contractors shall use the Tufts Hot Work Permit program. Please contact the Tufts Fire Marshal.

b. 48 hours before performing hot work, contractors shall submit a Hot Work Permit to the Department of Facilities Services. The Project Manager/Construction Coordinator may be able to provide assistance filling out the Hot Work Permit.

c. Fire Suppression and Fire Alarm systems – Red tag Permit System must be followed any time a sprinkler system is shut down for any reason. Contact the Department of Facilities Services and FM Global at (800) 411-3929, 48 hours before work on these systems. Note: operations that create dust or particles, such as sanding and spray painting, may affect fire alarm systems.

d. The contractor shall prepare and carry out and effective fire protection and prevention plan, including provisions for fire protection and suppression equipment.

e. Housekeeping - with provisions for prompt removal and disposal of accumulations of combustible scrap and debris, shall be maintained in all areas of the jobsite. Self-closing metal containers shall be used for disposal of waste saturated with flammable liquids such as cleaning rags.

f. Codes and regulations: The contractor shall comply with the requirements of the current revisions of the National Electrical Code, National Safety Code, and the National Fire Protection Association standards.

h. Codes and regulations: The contractor shall comply with the requirements of the current revisions of the National Electrical Code, National Safety Code, and the National Fire Protection Association standards.

g. Smoking: Smoking or other sources of ignition shall not be permitted in areas where flammable or explosive materials are stored for present. All areas shall be conspicuously posted: NO SMOKING OR OPEN FLAMES.

h. Cleaning and degreasing: Gasoline and liquids with a flash point below 100 degrees Fahrenheit shall not be used for cleaning or degreasing.

i. Fire extinguishers: Distinctly marked fire extinguishers rated 2A40B: C should be according to NFPA standards.

Welding
a. All employees shall be instructed in the safe use of welding equipment prior to using this equipment.

b. Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention shall be taken where welding or other “hot work” is being done. No welding, cutting or heating shall be done where the application of flammable paints or the presence of any other flammable compounds, or heavy dust concentration creates a fire and explosion hazard.

c. Arc welding and cutting operations shall be shielded by noncombustible or flameproof shields to protect persons from direct light and UV rays. Visual barrier screens are required for arc-welding operations.
d. When electrode holders are to be left unattended, electrodes shall be removed and the holder shall be placed or protected so that it cannot make electrical contact with employees or conducting objects.

e. All arc welding and cutting cables shall be completely insulated and be capable of handling the maximum current requirements for the job. There shall be no repairs or splices within 10 feet of the electrode holder except where splices are insulated equal to the insulation of the cable. Defective cables shall be repaired or replaced.

f. Fuel gas and oxygen hoses shall be easily distinguishable and shall not be interchangeable. Hoses shall be inspected at the beginning of each shift and shall be repaired or replaced if defective.

g. General mechanical or local exhaust ventilation or air line respirators shall be provided, as required, when welding, cutting or heating:
   - zinc, lead, cadmium, mercury, or beryllium-bearing, materials in enclosed spaces.
   - Stainless steel with inert-gas equipment.
   - in confined spaces.
   - where an unusual condition can cause an unsafe accumulation of contaminants.

9. Scaffolding

   b. Access to scaffolds shall be limited to authorized personnel only, especially after working hours.

   c. Scaffolds shall be erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement.

   d. Scaffolds and their components shall be capable of supporting without failure, at least 4 times the maximum intended load.

   e. Guardrails and toeboards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats. Scaffolds 4 feet to 10 feet in height, having a minimum dimension in either direction of less than 45 inches, shall have standard guardrails installed on all open sides and ends of platform.

   f. There shall be a screen with maximum 1/2-inch openings between the toeboard and the guardrail, where the persons are required to work or pass under the scaffold.

   g. All planking shall be Scaffold Grade or equivalent. The maximum permissible span for 1 ¼ x 9 inch or wider plank of full thickness is 4 feet, with medium loading of 50 p.s.f.

   b. Scaffolding planking shall be overlapped a minimum of 12 inches or secured from movement.

   c. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.

   d. Job-made ladders shall be constructed for their intended use. Cleats shall be inset into side rails ½ inch, or filler blocks used. Cleats shall be uniformly spaced, 12 inches, top-to-top.

   e. Except where either permanent or temporary stairways or suitable ramps or runways are provided, ladders shall be used to give safe access to all elevations.

   f. All users of ladders shall be properly trained and documented by the Contractor.

   g. Ladders shall be inspected periodically by the Contractor.

10. Ladders
   a. The use of ladders with broken or missing rungs or steps, broken or split side rails or with other faulty or defective construction is prohibited. When ladders with such defects are discovered they shall immediately be withdrawn from service.

   b. Portable ladders shall be placed on substantial base at a 4 to 1 pitch, have clear access at top and bottom, extend a minimum of 36 inches above the landing, or where not practical, be provided with grab rails and be secured against movement while in use.

   c. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.

   d. Job-made ladders shall be constructed for their intended use. Cleats shall be inset into side rails ½ inch, or filler blocks used. Cleats shall be uniformly spaced, 12 inches, top-to-top.

   e. Except where either permanent or temporary stairways or suitable ramps or runways are provided, ladders shall be used to give safe access to all elevations.

   f. All users of ladders shall be properly trained and documented by the Contractor.

   g. Ladders shall be inspected periodically by the Contractor.

11. Fall Protection
   a. Reasonable fall protection shall be provided to protect personnel from accidental falls associated with floors, platforms, scaffolds, guardrails, physical barriers, and elevated work locations. Standard
guardrails must be provided for work locations 6 feet or more above the adjacent level per OSHA standard 29 CFR 1926.500.

b. All employees working at unguarded locations above 6 feet in construction (10 feet on scaffolds) must be protected by properly wearing approved fall protection equipment including safety harnesses and life lines as specified by supervision. All employees required to wear approved fall protection devices must be properly trained concerning the need for and purpose of the protection. Also, they must be instructed in the proper use of the equipment and shall demonstrate that they know, understand, and can use the fall protection devices properly.

c. Supervisors shall ensure the use of fall protection devices as required.

Railings

a. A standard railing used to protect personnel from falls shall consist of top rail, intermediate rail, toeboard, and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to the floor, platform, etc.

b. The top rail of railing shall be smooth-surfaced, with strength to withstand at least 200 pounds. The intermediate rail shall be approximately halfway between the top rail and floor.

c. A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches, nor less than 30 inches from upper surface of top rail to surface of tread in line with face or riser at forward edge of tread.

12. Mobile Cranes and Hoists

a. All personnel shall have a current and valid license if a license is required to operate the equipment.

b. Operator shall comply with the manufacturer’s specifications and limitations for hoists.

c. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be posted on cars and platforms.

d. Operator shall never move suspended loads directly over personnel.

e. Movement of loads over active roads, sidewalks or pathways should be avoided. If unavoidable, barricades, signage and/or a traffic detail from TUPD shall be considered.

13. Heaters

Liquefied Petroleum Gas (LP Gas)

a. Storage of LP Gas within buildings is prohibited.

b. Each system shall have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type.

c. All cylinders shall meet DOT specifications.

d. Containers and vaporizers shall be provided with one or more approved safety relief valves or devices.

e. Containers shall be placed upright on firm foundations or otherwise firmly secured.

f. Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas in the event of flame failure.

g. Storage locations shall have at least one approved portable fire extinguisher, rated not less than 20-B:C.

IV. ENVIRONMENTAL PROTECTION REQUIREMENTS

Definitions:

EPA: United States Environmental Protection Agency
MassDEP: Massachusetts Department of Environmental Protection
MWRA: Massachusetts Water Resources Authority

Environmental Permits and Licenses

a. Contractor is responsible for obtaining local, state and federal environmental permits and approvals for each project on Owners behalf unless otherwise specified.

b. Contractor is responsible for complying with the requirements in the environmental permits and informing Owner of all compliance requirements following project completion.
1. **Air Emissions**

**General Requirements**

Any installation, removal, substantial reconstruction, alteration or operation of the following equipment requires permitting by Contractor and TEHS:

a. Temporary or permanent combustion equipment: boilers, water heaters, emergency generators, etc.

b. Natural gas and oil fired boilers rated between 10 MMBtu/hour and 40 MMBtu/hour and emergency generators having an output capacity equal to or greater than 37 kilowatts must be MassDEP Environmental Results Program (ERP) Certified within 60 days of startup.

c. Ozone depleting substances: refrigeration equipment containing CFCs, halon fire suppression systems

d. Cooling towers

e. Contractor shall permit individual units and provide TEHS with all necessary information including equipment specifications to permit units as part of campus air permits.

**Asbestos**

a. Contractor shall determine all asbestos containing materials (both non-friable and friable) that are present at the site and whether or not those materials will be impacted by the proposed work prior to conducting any renovation or demolition activity.

b. If a demolition/renovation or repair activity could cause damage to asbestos-containing material, it shall be removed prior to the activity. Demolition of a building requires that all asbestos be removed prior to demolition.

c. Any work in Tufts owned buildings constructed prior to 1979 without documentation of previous abatement shall be surveyed for presence of asbestos containing materials (Presumed Asbestos Containing Material, PACM).

d. Contractor is responsible for conducting asbestos surveys and MassDEP requires notification 10 working days prior to commencement of work involving the removal of any amount of asbestos.

e. Notification shall be made using MassDEP’s Asbestos Notification Form ANF-001 (BWP AQ-04).

f. Contractor shall refer to Refer §10.3 “HAZARDOUS MATERIALS” of the AIA Document A201-2007 “General Conditions of the Contract for Construction” for additional requirements.

g. TEHS provides the following services for asbestos projects:
   − Review survey records from licensed inspector
   − Review the qualifications of the selected abatement contractor
   − Review notification to state. In addition, there are two additional notifications (Boston Public Health and Boston Fire) for abatement projects on the Boston campus.
   − Post area with standard TEHS memo and if any, manage questions from building occupants.
   − Review industrial hygiene firm plan for air monitoring and clearance sampling and inspection
   − Review air monitoring and/or clearance sampling report.
   − Wait for disposal manifest.
   − File the above paperwork in a project file.

**Dust Control**

a. Contractor responsible for construction or demolition of a building, excluding residential buildings with less than 20 units, shall notify MassDEP using Form BWP AQ 06, 10 working days prior to the construction or demolition start date.

b. Contractor shall prevent indoor and ambient airborne transmission of air contaminants include dusts, fumes, mists, gases and vapors that are produced by equipment or processes on the construction site.

c. Dusts are solid particles such as soil that may be produced during demolition, construction site work and grading. Contractor shall monitor dust concentrations at the construction site boundary in the downwind direction.

d. MassDEP requires the Contractor to control any dust or odor generating process or equipment such that emissions to do not contribute to a condition of air pollution.

e. Remedial actions such as water mist dust suppression shall be implemented to control dust emissions at the construction site boundary.

f. Mechanized street sweeping shall be conducted using an effective dust collection or dust suppression system to prevent a condition of air pollution.
g. Where the product used by the Contractor has a Permissible Exposure Limit (PEL) established by OSHA, the Contractor shall implement controls to limit exposure to construction workers. Any air contaminant carried by the wind across the construction site boundary will be controlled to MassDEP, EPA or other public exposure level.

Noise Control
a. Contractor shall control ambient noise generated from the project at all times. MassDEP evaluates noise impacts at both the property line and the nearest occupied residence or other sensitive receptor. When noise is found to be a nuisance or a threat to health, MassDEP requires the source to mitigate its noise.
b. Contractor shall implement a noise control plan which includes baseline testing of all equipment delivered to the construction site for compliance with 86 dB(A) at 50 feet from the equipment prior to use of the equipment.
c. If the noise level at a sensitive receptor's location is more than 10 dB(A) above ambient, MassDEP requires the noise source to mitigate its impact.
d. Contractor shall manage vehicle traffic to and from the construction site to minimize noise impact on the surrounding community.
e. Equipment that can be equipped with noise suppression devices such as mufflers shall have such mufflers and operate with least possible noise.

Indoor Air Quality
Prior to construction in an occupied building, Contractor shall provide the Owner with a written Plan that protects the health of building occupants by:
− preventing contamination of the building ventilation system with air contaminants from the construction site
− providing temporary ventilation in the event that building ventilation system is shut down at any time during construction.
− protection of building and materials impacted by construction from water and potential mold growth
− protection from cleaning materials and processes throughout all stages of construction through owner acceptance.

2. Drinking Water
Underground Water Source Protection: Any type of geothermal well used to return to the ground the water used for heating or cooling energy in a heat exchanger requires a MassDEP permit.
a. Only Massachusetts Registered Well Drillers may install wells for potable and non-potable purposes.
b. Monitoring, test and irrigation wells must follow these standards:
   − MassDEP Registration of Well Drillers and Filing of Well Completion Reports.
   − MassDEP Standard References for Monitoring Wells, Policy #WSC-310-91, which describes the requirements for locating, drilling, installing, sampling and decommissioning wells.

Water Management Act Regulations: Any water withdrawal of 100,000 gallons or more per day on an annual basis or 9 million gallons over a three-month period must be permitted by MassDEP.
− Contractor shall notify TEHS before any wells are dug on Tufts property.

3. Hazardous Waste Management
a. Contractor is responsible for the proper management of oil and hazardous chemical wastes generated and/or stored in areas under their oversight except for waste that is abated from Tufts property (e.g., lead paint, asbestos, contaminated soil, universal waste).
b. Contractor shall develop a Hazardous Waste Management Plan that identifies all procedures for the safe handling of hazardous waste in compliance with applicable regulatory requirements and shall include:
   − Awareness of applicable hazardous waste regulations and procedures.
   − Identification of wastes classified as hazardous waste in accordance with all applicable regulations;
− Proof of registration with EPA and/or MassDEP as a generator of hazardous waste and/or waste oil;
− Certification of appropriate hazardous waste training for all personnel.
− List of necessary supplies for proper hazardous waste management.
c. The Contractor shall submit their Hazardous Waste Management Plan to TEHS for review.
d. TEHS shall sign all manifests for hazardous waste generated from Tufts property.
e. Contractor shall retain a Massachusetts Licensed Site Professional (LSP) if soil will be removed from the project site.
f. The LSP shall be the only permitted person to sign Massachusetts Bills of Lading for contaminated soil disposal
g. TEHS recommends that Contractor subcontract with Triumvirate Environmental for all hazardous chemical waste and waste oil disposal. Tufts has negotiated contracted pricing and has approved disposal sites.
h. **TEHS cannot recommend the use of alternate hazardous waste contractors without reviewing qualifications.**
i. TEHS may approve contractor use of alternate hazardous waste contractors for specialized services not offered by Triumvirate Environmental by submitting documentation that contractor meets Tufts insurance requirements, Tufts disposal site standards as well as a satisfactory safety, health and environmental protection compliance record.

4. **Solid Waste**
a. Contractor shall transfer and dispose all solid wastes for incineration and/or landfill disposal at licensed facilities with the 12 MassDEP waste ban items, infectious and hazardous waste items removed.
b. Construction and Demolition Debris (C&D): For projects involving the collection and off-site recycling and disposal of solid waste materials, the contractors shall ensure that the solid waste management facility is appropriately permitted and is operating in compliance with all regulations.

5. **Storage Tank Management and Oil Spill Prevention**
a. Tufts is required to maintain an Spill Prevention, Control and Countermeasure (SPCC) Plan which outlines procedures to prevent, control and remediate oil spills at the University. Responsibility for initiating response to a release is assigned to the individual who first observes a spill. Overall spill response is the responsibility of Tufts SPCC Plan Coordinator.
b. **A FUEL SPILL OF ANY AMOUNT MUST BE REPORTED TO TUPD AT (617) 627-6911.** A spill of 10 gallons or greater must be reported to MassDEP immediately.
c. Contractors may respond to small leaks or spills that do not pose significant risks to health or safety and appear to be less than 10 gallons.
d. If project requires the use of oil or equipment containing oil, Contractor shall have available equipment (e.g., secondary containment pallets, absorbent pads and booms) that is suitable and sufficient to control a release.
e. Contractor shall use appropriate protective procedures such as double containment, employee training; overflow protection, and other measures as part of activities involving the use of oil.
f. Installing, removing or modifying fuel tanks will require the amendment of Tufts SPCC Plan. Contractor shall notify TEHS for any project that will install or remove fuel tanks in order to amend Tufts SPCC Plan.

6. **Stormwater**
a. Contractor is responsible for obtaining appropriate local, state and federal permits for stormwater discharges during construction. Contractor shall retain a Massachusetts Licensed Site Professional if soil will be removed from the site during construction.
b. For all campuses, permit coverage is required for discharges related to construction if the project will disturb greater than one acre of land; or if the project will require dewatering discharge to a navigable water or stormwater system.
7. **Toxic Substances Control**
The Toxic Substances Control Act addresses polychlorinated biphenyls (PCBs), asbestos and lead management.

**Asbestos:** Requirements addressed in Air Emissions section above.

**Lead**

a. Lead paint removal requirements are applicable to Tufts owned and occupied child-occupied facilities (day care facilities, classroom) as well as dormitories and apartments.
b. EPA and MassDEP lead law notification and disclosure rule requires the notification of occupants before starting work in buildings constructed before 1978 that disturbs more than six square feet of interior or 20 square feet of exterior painted surface and provide them with an EPA-approved pamphlet with information about lead paint hazards and necessary precautions.
c. Contractor shall perform waste stream characterization of suspected lead containing waste materials by laboratory analysis following EPA Toxicity Characteristic Leaching Procedure (TCLP) for lead prior to disposal.
d. Contractor shall follow requirements found in Hazardous Chemical Waste (Section 3 above) for lead paint waste disposal.

**Universal Waste**
Pesticides, batteries, mercury containing lamps/bulbs, mercury containing thermostats and mercury containing devices are managed as “Universal Waste.” Contractor shall collect, store and dispose Universal Wastes by following the disposal requirements outlined in Hazardous Chemical Waste (Section 3 above).

**Mercury Containing Devices**

a. A mercury containing lamp is any bulb or tube including, but not limited to incandescent, fluorescent, high intensity discharge, and neon lamps.
b. A thermostat is a temperature control device that contains metallic mercury in an ampoule attached to a bimetal sensing element.
c. Mercury-containing devices include, but are not limited to, thermocouples, thermometers, manometers, barometers, sphygmomanometers, electrical switches and relays, as well as certain gas flow regulators and water meters.
d. All must be stored in closed and structurally sound fiber drums labeled appropriately prior to disposal.

**Polychlorinated Biphenyls (PCBs)**

a. PCB and Non-PCB ballasts must be stored in separate containers. A ballast is considered to contain PCBs if it was manufactured before 1979, or if it does not have a manufacturers label on it that states “No PCBs.”
b. Contractor removing fluorescent ballasts are responsible for examining the ballast to determine if it contains PCBs, removing any PCB containing ballasts from the fixture, placing each ballast into proper containers, labeling the container to indicate that it contains PCBs and making sure the containers are transported for disposal pursuant to the requirements found in Hazardous Chemical Waste (Section 3 above).

8. **Wastewater**

a. A Massachusetts registered professional engineer shall design and approve any connections or modifications to Tufts wastewater systems.
b. All connections or modification must comply with municipal, MWRA, and Massachusetts Uniform Plumbing Code requirements.
c. TEHS maintains permits for industrial wastewater discharges on each campus. **Any change to the current system must be submitted to TEHS for approval 45 days prior to the planned connection date because Tufts may be required to notify regulators 30 days prior to connection in order to amend Tufts sewer use discharge permits.**
d. Labs that may discharge special hazardous wastes of acidic and alkaline wastewater are not permitted by the Massachusetts Uniform Plumbing Code to use limestone chip tanks for pH neutralization and require more advanced pH neutralization.
e. Wetlands: Any construction in or near a 100-foot buffer zone around a wetland resource is subject to the provisions of the Massachusetts Wetlands Protection Act. Projects in wetlands or the buffer zone must be permitted by a municipal conservation commission.

V. WORKSITE INSPECTIONS AND SAFETY/ENVIRONMENTAL AUDITS

General Inspections and Training
a. Contractor shall designate a competent site-safety coordinator for each job site. The contractor’s site-safety coordinator shall be identified to the Project Manager/Construction Coordinator in the event that safety concerns regarding the worksite arise.
b. Contractor shall initiate and maintain an inspection program to provide for frequent and regular self-inspections of the job site, materials, and equipment.
c. Contractor shall instruct each employee in the recognition and avoidance of unsafe conditions and in the regulations applicable to his or her work environment and to control or eliminate any hazards or other exposure to illness or injury.
d. The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirements of OSHA standards is prohibited.