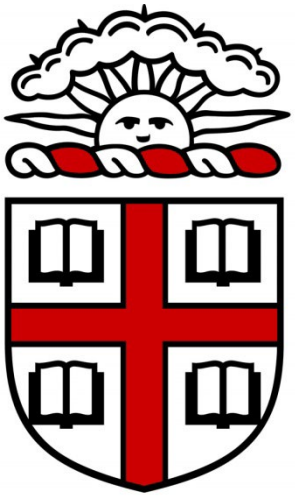

BROWN

Construction Safety & Environmental Management Program

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1 INTRODUCTION

The purpose of the Brown University Construction Safety & Environmental Management Program (CS&EMP) is to inform University Project Managers and contractors of information so they can perform work in conformance with environmental, health, and safety regulations and University requirements. Project Managers are typically Facilities Management employees, however, Project Managers also includes employees in other University departments that hire contractors who perform construction-related activities for Brown University.

Project Managers and contractors are responsible for adhering to the requirements of the Brown University Construction Safety & Environmental Management Program. It has been prepared for the protection and safety of University faculty, staff, students, neighbors, and property.

1.1 Application

This program applies to all University employees who manage construction-related projects and contractors. For consistency within this program, the term Project Manager applies to these employees who manage construction-related projects and contractors, regardless of their official University title. This includes, but is not limited to:

- Facilities Management Project Managers, Planners, and Construction Managers.
- Facilities Management Managers of Contracted Services.
- Facilities Management Operations Supervisors, Managers, Directors or similar.
- Office of Information Technology employees managing or overseeing construction-related projects.
- Real Estate employees managing or overseeing construction-related projects.
- Auxiliary Housing employees managing or overseeing construction-related projects.

This program applies to contractors performing construction-related activities for Brown University including, but not limited to:

- Construction managers
- General contractors
- Sub-contractors
- Service contractors
- Laboratory testing contractors
- Engineers, architects, and other design professionals

Brown has approved task-specific contractors which can be found in Appendix A, at the end of this program. Only approved contractors may do the following tasks:

- Asbestos sampling and abatement
- Hazardous waste management
- Underground storage tank and fuel removal
- Mold remediation/building drying
- Industrial hygiene consultation and sampling
- Lead abatement
- Indoor air quality assessments
- Geotechnical consulting

2 RESPONSIBILITIES

2.1 Contractors

- Contractors performing services for Brown University are required to comply with federal, state, and local regulations as well as the Brown University requirements described within this program. This program shall be provided to contractors to aid in the communication of hazard information for University properties and to outline Brown's safety and environmental procedures.

- If a contractor encounters material that is suspected to be hazardous (e.g. asbestos, oil, mercury, chemicals), the contractor shall immediately stop work in the affected area and report the condition to the Brown University Project Manager. The Project Manager shall immediately report these conditions to EHS.

2.2 Facilities Management

Facilities Management department is responsible for:

- Implementing this program and providing a copy to contractors working at Brown University. This program may be included with the project's contract documents.
- Ensuring Facilities Management employee compliance with the requirements of this program by:
  - Being familiar with this program,
  - Making safety training mandatory for employees, and
  - Correcting identified problems.
- Reviewing this program upon request and providing feedback to EHS.

2.3 Other Property Management (Real Estate, Auxiliary Housing)

Other property management at the University are responsible for:

- Implementing this program and providing a copy to contractors working at Brown University. This program may be included with the project's contract documents.
- Ensuring their employee compliance with the requirements of this program by:
  - Being familiar with this program,
  - Making safety training mandatory for employees, and
  - Correcting identified problems.
- Reviewing this program upon request and providing feedback to EHS.

2.4 Office of Information Technology (OIT)

The Office of Information Technology is responsible for:

- Implementing this program and providing a copy to contractors working at Brown University. This program may be included with the project's contract documents.
- Ensuring OIT employee compliance with the requirements of this program by:
  - Being familiar with this program,
  - Making safety training mandatory for employees, and
  - Correcting identified problems.
- Reviewing this program upon request and providing feedback to EHS.

2.5 Project Managers (employees who manage construction-related projects and contractors)

Project Managers are responsible for:

- Implementing this program and providing the contents of this program to contractors working at Brown University.
- Using only approved task-specific contractors when applicable.
- Ensuring contractor compliance with this program by including this program in project specifications and communicating identified hazards to the contractor.
- Notifying building occupants and other stakeholders of the project of construction progress, including but not limited to egress changes and utility shut down/start up.
- Contacting EHS for assistance with environmental and safety related matters including; permitting, environmental sampling, etc.
- Completing a Construction Safety & Environmental Management Program Checklist, submitting to EHS and updating it as needed.

2.6 Environmental Health & Safety

EHS is responsible for:

- Evaluating work activities described in the Safety Permits and Approval Procedures section of this program upon request. Approval or denial will be determined based on the evaluation.
- Reviewing this program and updating as needed.

- Providing training to University staff covered by this program upon request.
- Recommending personal protective equipment and safe handling procedures for specific operational needs upon request.
- Responding to reports of hazardous conditions/accidents during construction projects and assist in determining corrective measures.
- Assisting the Project Manager in performing safety evaluations of construction activities upon request.
- Assisting with permitting as required.

2.7 Fire Safety

Fire Safety is responsible for:

- Evaluating work activities described in the Safety Permits and Approval Procedures section of this program upon request. Approval or denial will be determined based on the evaluation.
- Responding to reports of hazardous conditions/accidents during construction projects and assist in determining corrective measures.
- Assisting the Project Manager in performing safety evaluations of construction activities upon request.
- Assisting Project Managers and Contractors with compliance with fire safety requirements, including; life safety impairments, hot work, issues related to egress, etc.

3 PROCEDURES

3.1 Emergency Procedures

3.1.1 Reporting an Emergency (Fire, Police, Medical or Hazardous Substance)

- Fire, police, or medical emergencies related to construction projects at Brown University may be reported to the local emergency agency (e.g., 911) or as specified in the Contractor's own safety manual/emergency plan.
- In addition, fire emergencies related to construction projects at the University shall be reported to Brown University Public Safety at 401-863-4111.
- In emergencies Public Safety will assist Providence Fire and Police with access to University property.
- Hazardous substance emergencies related to construction projects at the University shall be reported to Public Safety at 401-863-4111. Public Safety will contact EHS who will respond and perform or coordinate response activities.

3.1.2 Accident, Incident, Injury, or Illness Follow-up Procedures

- Contractor employees should report unsafe acts or conditions to their supervisors for corrective actions to be taken.
- Serious work-related accidents, incidents, injuries, and illness should be immediately reported to the Brown University Project Manager.
- The contractor is responsible for notifying OSHA of any reportable injuries.
- The Project Manager is responsible for notifying EHS about serious injuries. EHS will determine if additional follow-up is needed.
- An accident or injury involving the public or Brown faculty, staff, and students shall be reported to the Project Manager and EHS immediately.

3.2 Project Review, Notifications and Approvals with EHS

During the project planning, design and construction processes, the Project Manager is responsible for identifying and managing environmental, health, and safety requirements described within this program. The Construction Safety & Environmental Management Program Checklist, found in Appendix B of the program, must be reviewed and completed for all building or construction related projects. The checklist must be completed early on in the project and again if the project plans have been changed significantly. The completed checklist must be emailed back to EHS at safety@brown.edu and hazardous_waste@brown.edu for review.

Refer to the appropriate sections of the Construction Safety & Environmental Management Program (CSEMP) for more details about each item on the checklist or contact Environmental Health and Safety at (401) 863-3353 or by email. Connecting early with EHS on the issues identified in the checklist will help ensure projects stay compliant with regulatory requirements.

3.2.1 Contractor Notification and Approval From the Project Manager

The approval for general construction work is typically granted by the Project Manager. However, there are specific work permits and approvals that shall be obtained before starting certain potentially hazardous activities. Permits and approvals should be requested during normal business hours and with reasonable lead time unless specifically stated in this program.

- Contractors should notify the Project Manager before performing the following activities:
  - Working on electrical, steam, high-temperature hot water, chilled water, or other energized systems.
  - Working on heating, ventilation, or air conditioning equipment.
  - Working on security systems.
  - Working with hazardous substances (including solvents and paints).
  - Excavation or trenching.
  - Working with compressed air or gases.
  - Entering a research laboratory.
  - Working on a roof.
- Contractors shall obtain approval from the Project Manager before performing the following activities:
  - Changing occupied building egress pathways and exits during construction.
  - Working on fire detection or suppression systems.
  - Moving emergency equipment (e.g., fire extinguishers, emergency eyewash, showers) provided by the University.
  - Shut down of any utility or other building-wide or partial building service. (Only Brown University FM staff may shut down or start up University-owned utilities. The Project Manager will assist in coordinating with FM Operations, in advance of the need for shutdowns or startups.)
  - Working with or impacting suspect asbestos-containing materials.
  - Installing a temporary electrical service.
  - Using a gas, diesel, or propane-powered engine indoors.
  - Lifting or hoisting with cranes, derricks, hoists.
  - Performing blasting operations.
  - Using University-owned equipment or property to assist in performing work. Contractors should provide the necessary tools and equipment to safely complete their work.
  - Additional work not listed in the project documents which has a high risk of injury to the contractor and its employees or the public.

3.2.2 Project Manager and Contractor Approval Procedures with EHS and Fire Safety

The following table lists the types of construction activities that require Environmental Health & Safety (EHS) and Fire Safety approval. Project Managers and/or Contractors must contact EHS and/or Fire Safety before conducting the following work. Details of the required activities can be found in the program sections indicated, and email contact information is provided. The checklist found in Appendix B also provides a summary of some of these requirements.

Construction Activity Requiring EHS and/or Fire Safety Approval			
Construction Activity	**Approvers**	**Program Section**	**Email Contact**
Activity or work in research facilities that may interrupt critical research services such as ventilation (supply or exhaust), emergency eyewash/showers, research equipment cooling loops, fire alarm systems, electrical systems for certain research equipment, natural gas, fire detection, and steam.	EHS - Laboratory Safety	Construction in Research Facilities/Laboratories 3.3.6	labsafety@brown.edu
Performing hot work.	Fire Safety	Fire Safety - Hot Work 3.9.1	fire_safety@brown.edu
Modifying an egress pathway of a building.	Fire Safety	Fire Safety - Building Egress 3.3.3	fire_safety@brown.edu
Impairment of life safety equipment fire protection and suppression equipment, fire detection and alarm equipment, smoke evacuation/pressurization equipment, emergency lighting, emergency communications equipment, etc.)	Fire Safety	Fire Safety - Life Safety Impairment 3.9.2	fire_safety@brown.edu
Using Class 3B or 4 lasers.	EHS - Radiation Safety Officer	Laser Use 3.5	labsafety@brown.edu
Conducting field radiography.	EHS - Radiation Safety Officer	Radiation Safety 3.6	labsafety@brown.edu
Installing antennas capable of transmitting radio frequency (RF) energy over Federal Communications Commission (FCC) or OSHA standards.	EHS - Radiation Safety Officer	Antenna Installation 3.7	labsafety@brown.edu
Performing indoor air quality sampling (e.g., mold sampling).	EHS - Occupational Health & Safety	Indoor Air Quality Assessments and Mold Sampling 3.14.3	safety@brown.edu
Shipping of hazardous waste (including waste oil and lead-containing materials).	EHS - Environmental Compliance	Hazardous Waste Management 3.13.2	hazardous_waste@brown.edu
Modifications, additions, or removal of fuel-burning equipment (e.g., emergency generators, boilers, etc.)	EHS - Environmental Compliance	Air Emissions 3.13.1	hazardous_waste@brown.edu
Performing excavation dewatering operations.	EHS - Environmental Compliance	Excavation 3.4.6 & Stormwater 3.13.6	hazardous_waste@brown.edu

Construction Activity Requiring EHS and/or Fire Safety Approval			
Construction Activity	**Approvers**	**Program Section**	**Email Contact**
Disturbing >1 acre of land.	EHS - Environmental Compliance	Stormwater 3.13.6	hazardous_waste@brown.edu
Operating an Unmanned Aircraft System (UAS), (i.e., drone), on or over University property.	EHS - Occupational Health & Safety	Drone Use 3.15	drone@brown.edu

3.3 General Safety Procedures at Brown University

3.3.1 Basic Expectations for Contractor Personnel

Reasons for temporary or permanent removal of a contractor and/or its employee(s) from University premises include but are not limited to:

- Possession or under the influence of alcoholic beverages or illegal drugs.
- Possession of explosives, firearms, ammunition, and/or other weapons.
- Deliberate violation of safety or security requirements.
- Illegal dumping, handling, or disposal of hazardous materials.
- Destruction or removal of property belonging to Brown University, the property owner/resident, employee, or other contractors. without written permission.
- Intimidating, threatening, harassing, impeding, or interfering with an inspector, security officer, Brown University employee, student, designated representative, or public.
- Blocking emergency exits.
- Tampering or maliciously disabling of fire prevention, detection, or suppression equipment.
- Unauthorized removal or destruction of a safety barricade, handrail, guardrail, warning sign, fall protection, or other warning devices.
- Employment of minors on construction sites.
- Providing or gaining unauthorized access to construction sites or University buildings.

3.3.2 Site Safety and Security

Contractors are responsible for ensuring that work areas are secured.

- Exterior work sites shall be secured by fully encompassing physical barriers that are appropriate for the work site location.
- Isolate the work area with fences, barricades, safety markers, tape barriers, blinker lights, or other means that are appropriate to the work being performed.
- Maintain a physical barrier around machinery, equipment, and hoisting/staging areas.
- Cones and caution tape are not adequate protection for a busy campus environment. Proper barriers such as properly supported snow fencing, crowd control fencing, or temporary chain link fencing may need to be installed.
- Breaks in a physical barrier (e.g., truck entrances) should be appropriately staffed to ensure that the public does not access the site.
- Open holes, manholes, trenches, or excavations to which the public may fall shall be covered and/or guarded by a railing system. Manhole covers shall be secure unless someone is actively in the space working.
- Personnel within the site boundaries should be wearing appropriate personal protective equipment (PPE) as needed.
- Work areas shall be secured during off work hours to prevent unauthorized access. Only university-owned locks, keyed with contractor cores, can be used on construction fencing. The Project Manager can coordinate the use of these locks.
- If work is being performed in a public roadway, the contractor is responsible for contacting the city and making arrangements for police details and/or street closures. The contractor shall also coordinate this with the Project Manager.
- The contractor is responsible for providing the proper way-finding signage to direct both vehicular and pedestrian traffic safely around or through the work area.

3.3.3 Maintenance of Building Egress and Public Walkways

- Occupied buildings' egress pathways shall be maintained in good working order. If an egress pathway needs to be modified during construction, the Project Manager shall inform Fire Safety at 401-863-3462 before the change.
- Adequate way-finding signage shall be provided whenever changes to building egress or public walkways are made. The contractor shall also coordinate this with the Project Manager.

3.3.4 Housekeeping for Construction Areas

- The contractor is responsible for maintaining good housekeeping.
- Contractor should keep work areas neat, clean, orderly, and free of excess trash or combustibles.
- Contractors shall never block walkways, stairs, and exits or create tripping hazards. Failure to maintain good housekeeping may result in increased potential for safety hazards and the incidence of accidents and chemical spills.
- Contractors shall not perform work over the heads of people or leave tools or equipment overhead.
- The contractor shall ensure that construction materials that are stored or actively being used on elevated surfaces (e.g., roofs) are secured. Contractors shall minimize materials on elevated surfaces.

3.3.5 Construction in Occupied Buildings

- When building occupants are present during construction projects, additional safeguards shall be implemented to eliminate exposures and complaints. Dust and other particulates from demolition, sanding, and other construction activities shall be controlled by containment and negative air ventilation systems. Similar controls shall be utilized for other odorous activities such as using carpet adhesive and coatings, painting, and welding.
- Control of dust and other particulates in both occupied and unoccupied buildings will also prevent the contamination of HVAC systems.
- The contractor shall ensure that the HVAC system in each building is turned off and that the system is sealed off to prevent contamination. If an HVAC system is unprotected and contaminated by construction/demolition materials, the contractor will be held responsible for the cost of cleaning. This must be coordinated through the Project Manager.
- Negative air ventilation systems shall have appropriate filtration and be exhausted outside of the building.
- Occupant complaints related to dust and other particulates and odors during construction may interrupt the project schedule. Projects may only continue once problems have been resolved.

3.3.6 Construction in Research Facilities/Laboratories

Hazardous materials impacted by research facilities/laboratory renovation shall be handled and disposed of safely and in accordance with federal, state, and local regulations.

Some University operations involve the use of biological, chemical, radioactive materials, and other materials that can be hazardous if not handled safely. Areas, where work with biological, chemical, radioactive materials, or other hazards is being performed, will be marked with appropriate signs. Contractors shall not enter these areas or handle biological, chemical, or radioactive material unless it is part of the contracted work and the contractor is specifically trained to do so.

When renovations take place in research facilities:

- Departments/Researchers and the Project Manager shall:
  - Ensure that laboratories are decommissioned in accordance with the Laboratory Closeout Policy.
- Project Managers shall:
  - Ensure that the project follows the FM Design & Construction Standards - General Laboratory Design Standards.

  - Perform a survey to identify hazardous building materials (e.g., asbestos, PCB light ballasts, chemicals, mercury-containing devices) before building materials are impacted.
  - Coordinate approved abatement contractors and provide oversight of abatement operations.
  - Notify contractors of known or suspected hazardous materials or conditions present in their work area.
  - Inform departments, researchers, and EHS regarding construction schedules.
  - Inform EHS regarding work that will interrupt critical research services such as ventilation (supply or exhaust), emergency eyewash/showers, research equipment cooling loops, fire alarm systems, electrical systems for certain research equipment, natural gas, fire detection, and steam. This includes ensuring that affected fume hoods receive postings to alert end users of the shutdown schedule.
  - Ensure that FM Operations and EHS are informed of the planned removal or installation of chemical fume hoods or biosafety cabinets.
  - Ensure that modified or newly installed fume hoods have been ASHRAE 110 Certified and forward the test results to EHS. Biosafety cabinets shall be certified whenever modified or relocated.
- EHS shall:
  - Coordinate the removal of hazardous materials by providing appropriate contractor information when notified.
  - Assist with communication and notification during ventilation and other building system interruptions. Request for EHS assistance should be made at least 24 hours before the proposed shutdown.
- Contractors shall:
  - Ensure decommissioning work, closure, and abatement have been completed before the start of construction.
  - Comply with the requirements of this program as well as federal, state, and local regulations.
  - Develop a site safety plan for their employees. Work in functioning laboratories requires the use of safety glasses, long pants, and closed-toe shoes, at a minimum.
  - Stop work and report hidden hazardous conditions or materials to the Project Manager immediately upon discovery.

3.4 OSHA Regulated Hazards

3.4.1 Chemical Safety - Hazard Communication / Right-to-Know

The contractor shall ensure compliance with OSHA's Hazard Communication Standard and the Rhode Island Right-To-Know Act. The contractor is responsible for:

- Ensuring that the Project Manager is informed of the use of hazardous substances in occupied buildings (see Construction in Occupied Buildings section of this program).
- Ensuring that Safety Data Sheets (SDS) are immediately available for hazardous substances that are used to complete the project scope of work.
- Ensuring that containers are labeled in accordance with applicable regulations.
- Using flammable substances (e.g., oil paints and solvents) with extreme caution, ensuring that they are stored in approved flammable storage cabinets or containers when not in use.
- Not using hazardous substances that contain carcinogens or other serious health hazards in occupied buildings unless first reviewed and approved by Brown University EHS.
- Removing hazardous substances brought on-site when work with these substances is complete.

The contractor may request and review SDSs for hazardous substances that are encountered on University property during the performance of its work by contacting EHS at 401-863-3353.

3.4.2 Confined Spaces

Brown FM Operations is responsible for maintaining and updating an inventory of University confined spaces which includes; the location, utility type, permit requirements, any actions to reclassify a space, and other minimum requirements.

Project Managers are responsible for:

- Informing FM Operations about a modification to, the addition of, or removal of a University confined space.
- Informing contractors about confined spaces that may be encountered during a project and providing them information about the confined space classification and any requirements to enter or reclassify a space.

Contractors are responsible for complying with the requirements of OSHA's Confined Space Standard(s) and University requirements described below when entering confined spaces. Contractors are responsible for:

- Implementing and maintaining a Confined Space Entry Program, use of an entry permit, and provisions for emergency rescue as it applies to the work of the contract.
- Preplanning for rescue services for permit-required entries. Brown University does not have the ability to perform confined space rescue.
- Informing the Project Manager when a confined space is encountered that has not been previously identified by the University. The Project Manager shall notify EHS. Work should be delayed until the space can be evaluated by FM and Brown EHS.
- Coordinating with the Project Manager when University staff and contractor staff are working in or near confined spaces.
    - Entries made by supporting University staff shall be performed while using the Brown University Confined Space Entry Permit.
- Whether entering a confined space with a University employee or not, the contractor's entry attendant must always first inform the Brown University Project Manager before entering a confined space.
- The contractor shall provide the Project Manager with:
    - The location of the confined space including its unique Brown University identifier.
    - The time of entry and approximate entry duration.
- Ensuring adequate work areas around confined space entries and following the requirements of the Site Safety and Security section of this program.

3.4.3 Control of Hazardous Energy – Lockout/Tagout

The contractor is responsible for implementing a Lockout/Tagout Program in accordance with OSHA standards. The contractor shall ensure that its Lockout/Tagout Program meets the requirements of OSHA's multi-employer workplace requirements.

- If the contractor intends to service or maintain equipment that could potentially hurt someone if unexpectedly started, the contractor is responsible for complying with lockout/tagout requirements. Brown University FM is responsible for shutting down and startup of utility systems for University properties according to the approved Utility Outage Checklist developed by the contractor and reviewed by appropriate operations team members.
- The contractor should maintain a log of 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 must provide this log to the Project Manager upon request.
- As part of Brown's Lockout/Tagout Program, locks, and tags are used to control the start-up of equipment that is being serviced or maintained by its employees. The contractor or its employees may not override locks or tags that they encounter during the performance of their work.
- When contractors must work together with Brown staff, each worker involved in the service and maintenance task shall each have their own lock with one authorized worker taking responsibility for that lockout/tagout procedure.

3.4.4 Compressed Gas Cylinders

The use of compressed gas cylinders can pose a hazard if proper precautions are not taken. Contractors shall comply with OSHA, Compressed Gas Association (CGA), and applicable NFPA guidelines for compressed gas storage and use.

3.4.5 Electrical Safety

All new electrical systems or upgrades shall follow Facilities Management Design & Construction Standards for Electrical Design Criteria. Contractors shall comply with general electrical safety requirements including;

- Securing electrical work areas in accordance with the Site Safety and Security section of this program.
- Permitting only qualified electricians to work on electrical systems and equipment that uses or controls electrical power.
- Using Ground Fault Circuit Interrupters (GFCIs) with electric equipment used in wet or potentially wet environments.
- Ensuring that a qualified electrician checks the circuit and equipment and corrects problems before resetting a breaker.
- Not using defective or modified extension cords. The insulation must be intact, wiring may not be exposed, plugs must not be modified, etc.
- Not operating electrical tools or equipment in areas where potentially combustible or flammable dust, vapors, or liquids are present unless specifically approved for use.
- Reporting hazards (e.g., lack of protective guards or covers, damaged equipment) to the Project Manager immediately.
- Not leaving electrical boxes, switchgear, cabinets, or electrical rooms open when not directly attended. Insulating energized parts when covers have been removed or doors are open. Using of cardboard, plywood, or other flammable materials to cover energized circuits is prohibited.

3.4.6 Excavation

Contractors must comply with OSHA standards and University requirements with regard to excavation operations at the University. The contractor is responsible for:

- Notifying applicable utility companies that excavation work is planned.
    - The contractor shall contact Dig Safe at 1-888-DIG-SAFE and other utilities that cannot be contacted by calling Dig Safe.
    - The contractor shall contact the FM Computer Aided Design Office at 401-863-9144 and the Project Manager for specific University owned utility information before beginning excavation.
    - Dig Safe will not locate University-owned utilities except when they interface with other utilities.
    - Contractors shall provide Dig Safe confirmation numbers to the Project Manager.
    - Contractors shall verify the location of marked utility or as-built information either before or during excavation.
- Ensuring that adequate work areas around excavations are provided.
- Following the requirements of the Site Safety and Security and Soil Management sections of this program.
- Submitting excavation plans to the Project Manager before excavation activities.
- Notifying the Project Manager before utility (public and private) shutdown.
- Notifying the Project Manager immediately of unplanned shutdown or interference with site utilities.
- Routine inspections of excavation equipment.
- Ensuring that equipment operators carry the required licenses and have the training to operate the equipment on site.
- Ensuring that workers are not exposed to hazardous substances and/or an oxygen-deficient environment.
- Contacting the Project Manager and EHS if dewatering is needed for an excavation.
- Protecting, supporting, or removing underground installations as needed to safeguard employees while the excavation is open.
- Taking special precautions not to harm trees. The contractor must notify the City of Providence Parks Department Forestry Division if the tree is city-owned and/or Brown University's Grounds Superintendent if the tree is University-owned. This should be coordinated with the Project Manager.

3.4.7 Fall Protection

Fall protection may be needed in areas such as ramps, runways, walkways, excavations, hoist areas, holes, formwork and reinforcing steel, leading-edge work, unprotected sides and edges, bricklaying, roofing work, precast concrete erection, wall openings, and other walking/working surfaces. Fall protection generally can be provided through the use of guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, and warning line systems, among others. All fall hazards greater than or equal to 4 feet, must be mitigated.

Project Managers shall inform EHS if a new fall hazard will be created as part of the project, and consult with an approved fall protection consultant to design appropriate fall protection. This is most efficient when done early in the planning stages of the project. For a list of approved fall protection consultants, see Appendix A of this program. Fall protection systems must comply with the Facilities Fall Protection Design & Construction Standard.

Contractors are responsible for complying with the requirements of OSHA's Fall Protection Standard(s) and University requirements described below when working on elevated surfaces. The contractor is responsible for:

- Protecting their employees from fall hazards whenever an employee is 6 feet or more above a lower level or if there is a hazard of falling into dangerous equipment.
- Selecting fall protection measures compatible with the type of work being performed.
- Supplying fall protection harnesses and lanyards to their employees as needed for the task. Contractors may not use Brown-owned harnesses or lanyards.
- Informing the Project Manager if the project itself will create a new fall hazard.

3.4.8 Ladders

A means of access is required if a contractor needs to access a surface that is 19 inches higher or lower than the surface they are standing or working on. On a construction site, access is most commonly gained through the use of a ladder. Contractors are required to supply their own compliant portable ladders for the project. Contractors should not rely on the University to supply ladders for their work. Non-compliant portable ladders may not be abandoned at the University.

3.4.9 Personal Protective Equipment (PPE)

Contractors are responsible for complying with the requirements of OSHA and providing appropriate personal protective equipment (PPE) for their employees.

Project Managers are required to wear appropriate personal protection equipment on active construction sites including; a high visibility vest, hard hat, eye protection, closed-toe/heel shoes, and other site-specific PPE.

Project Managers and contractors shall ensure that visitors wear appropriate personal protection equipment on active construction sites including; a high visibility vest, hard hat, eye protection, and closed-toe/heel shoes, and other site-specific PPE.

3.4.10 Pneumatic Tools and Compressed Air Systems

Pneumatic tools are powered by compressed air which can create a hazardous condition if the proper precautions are not taken. Contractors shall operate these tools following OSHA standards.

3.4.11 Scaffolding

Contractors are responsible for complying with the requirements of OSHA's Scaffolding Standard(s) and University requirements when working on/with scaffolding. Contractors are responsible for:

- Utilizing qualified persons to design scaffolding and erect/move/dismantle scaffolding under the supervision of a competent person.
- Hiring a professional engineer for the design of complex projects as needed.
- Providing adequate anchorage, foundation, bracing, pinning, support, access, working surface, and fall protection for employees working on suspended scaffolding.
- Providing fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
- Securing scaffolding from unauthorized access.

3.5 Laser Use Operations

Brown University allows the use of Class 1, Class 2, and Class 3R lasers on campus projects without special permission from EHS. However, if a project requires the use of a Class 3B or Class 4 laser, the contractor, through the Project Manager, shall contact the EHS Radiation Safety Officer at 401-863-3353 to obtain written permission before using the equipment on University property. During laser operation, the contractor is responsible for complying with OSHA standards.

3.6 Field Radiography Operations

Industrial radiography is a procedure for inspecting welds in construction. The energy source used is a gamma ray source or a radiation-producing machine (x-ray). Due to the public perception of radiation risk, exposure to radiation should be kept as low as reasonably achievable

- Project Managers are responsible for:
  - Notifying EHS at least 24 hours in advance of radiography work on University property, including the name of the radiography company, date, time, and location.
  - Ensuring that the on-site radiographer has a current radiography license with, or has filed for and received a reciprocity agreement from, the State of Rhode Island Radiation Control Program.
  - Notifying building occupants before starting radiography work when needed. This is particularly important when occupied spaces are involved or nearby. The Office of Residential Life shall be involved with coordinating radiography work in a residence hall.
  - Coordinating with Brown Department of Public Safety to obtain security details to control access.
- Industrial radiographers are responsible for:
  - Posting visible signs in areas where radiography is performed.
  - Ensuring continuous direct visual surveillance of the operation to protect against unauthorized entry into a radiation area during radiographic operations.

3.7 Antenna Installation

Projects involving the installation of antennas capable of transmitting radio frequency (RF) energy over Federal Communications Commission (FCC) or OSHA standards must be reviewed and approved by EHS. Project Managers are responsible for notifying the Radiation Safety Officer before installation.

3.8 Equipment & Machinery

3.8.1 Mobile Elevating Work Platforms, Bucket Trucks, and Powered Industrial Trucks

Contractors are responsible for:

- Using qualified and trained persons to operate a mobile elevating work platform (i.e. scissor lift, boom lift), bucket truck, or powered industrial truck (forklift, powered pallet jack).
- Not operating Brown-owned mobile elevating work platforms, bucket trucks, or powered industrial trucks.
- Ensuring that equipment is secured from unauthorized use.
- Removing the keys for equipment when not in use.

3.8.2 Crane and Rigging Operations

Contractors shall comply with OSHA standards and adhere to University requirements regarding crane and/or rigging operations at the University. The contractor is responsible for:

- Submitting rigging plans to the Project Manager before related activities.
  - If work is being performed in a public roadway, the contractor must contact the local authorities and plan for police details and/or street closure permits as appropriate.
  - If work is being performed in a high-traffic area, workers shall comply with OSHA standards for exposure to vehicular traffic.
- Ensuring an annual inspection is completed for each crane, rigging, or hoist used as part of a University project. This should be performed by a certified testing agency. Documentation, including a logbook for the crane used, should be available on-site upon request.

- Ensuring that operators shall possess a valid RI hoisting license. Documentation of this license shall be available on-site upon request. Under no circumstance shall a non-licensed operator hoist loads. The crane operator is responsible for daily recordkeeping, monitoring, and equipment inspections.
- Ensuring that the operator follows requirements for the proper placement of the crane in relation to the load to be handled and the landing area to obtain the best-rated lift capacity. It is also important to ensure the installation and maintenance of the crane swing radius protection.
- Using scale pans and other approved hoisting mechanisms to hoist materials. Only items specifically designed to be hoisted by a crane shall be hoisted. Fifty-five-gallon drums shall not be directly hoisted by a crane or other means.
- Ensuring that adequate work areas around crane or rigging operations are provided.
- Following the requirements of the Site Safety and Security section of this program.

3.9 Fire Safety

3.9.1 Hot Work

Hot work in University buildings requires a Brown University Hot Work Permit. Contractors shall comply with the requirements of the Brown University Hot Work Program.

- Contractors shall obtain a hot work permit from the Brown University Fire Safety Office (401-863-3462) for each separate work activity and ensure that the conditions of the permit are met. A request for a permit should be submitted to the Fire Safety Office a minimum of 48 hours before the start of hot work.
    - Blanket Hot Work Permits may be issued for longer duration projects if approved by the University Fire Safety Office. If a blanket hot work permit is issued, the contractor will be responsible for issuing daily permits for hot work performed as part of the project.
    - The contractor must also coordinate with the FM Electrical Division for fire alarm impairments in the area of the hot work to avoid false alarms.

3.9.2 Life Safety System Impairment

Life safety equipment includes; fire protection and suppression equipment, fire detection and alarm equipment, smoke evacuation/pressurization equipment, emergency lighting, and emergency communications equipment. Impaired systems must be returned to their normal operating condition as soon as possible. These systems must be tested, at the end of each impairment.

Project Managers must comply with the requirements of the Life Safety System Impairment Program. Project Managers must report planned or emergency life safety system impairments, exceeding 4 hours, to the Fire Safety Office (401-863-3462). All impairments in residences (residence halls and auxiliary housing properties), must be immediately reported to the Fire Safety Office. Contractors must inform Project Managers about planned or emergency life safety system impairments.

The most common system impairments include:

- Water-based sprinkler systems
    - Fire pumps, standpipes, and underground piping (including municipal supplies)
- Fixed suppression systems in data rooms, cooking areas, high-hazard rooms, etc.
- Fire alarm system failure or bypass of six or more devices, or one or more zones
    - Full or partially reduced coverage
    - Master box disconnect
- Electrical power or other utility failure
- Smoke control/evacuation system failure to operate as designed

3.10 Self-luminous (Tritium) Exit Signs

A self-luminous (or self-powered) tritium exit sign is a non-electrical device that uses radioactive tritium gas to produce light. The production and distribution of self-luminous signs is licensed by the U.S. Nuclear Regulatory Commission because they can contain significant amounts of radioactive material.

Brown University is responsible for ensuring compliance with state and federal regulations. Project Managers must contact EHS for approval to install these exit signs, or to manage their disposal.

- A tritium exit sign cannot be installed, or replaced in kind, on University properties unless approved in writing by EHS. Authorization to use these signs will only be considered when traditional lighting fixtures are extraordinarily difficult to install.
- If discovered intact during a renovation project, the exit sign shall be collected by EHS, at the time of removal, for proper disposal. The cost of disposal will be charged to the project.
- If a tritium exit sign is damaged or found damaged during construction, immediately follow the instructions in the Emergency Procedures section of this program.

3.11 Ionizing Smoke Detectors

The production and distribution of smoke detectors using radioactive material is licensed by the U.S. Nuclear Regulatory Commission. In RI, the Radiation Control Program continues the regulatory supervision of possession and use of these items if they contain a certain type or amount of radioactive material. Brown University is responsible for ensuring compliance with these state and federal regulations and EHS should be made aware of the presence and location of smoke detectors that require further regulatory supervision.

- There are no regulatory requirements for their possession, use, or disposal if the smoke detector contains less than 1 microcurie of americium-241 (Am-214).
- Smoke detectors that contain a radioactive material other than Am-241, or Am-241 in quantities greater than 1 microcurie, cannot be installed, or replaced in kind, at the University unless approved in writing by EHS.
- If these smoke detectors are installed during a renovation or construction project, EHS shall be notified for evaluation and approval of their intended use.
- If discovered intact during a project, the Project Manager shall notify EHS so that it can be collected for proper disposal. The cost of disposal will be charged to the project.
- If these smoke detectors are damaged or found damaged during construction, follow the instructions in the Emergency section of this program.

3.12 Asbestos & Lead Management

3.12.1 Asbestos

The contractor shall not disturb, damage, or otherwise handle suspect asbestos-containing material unless they are on the University approved asbestos contractors list in Appendix A of this program, and the work is part of the project. The following suspect materials are to be assumed to contain asbestos until tested and proven otherwise unless in a building that was built after 1987:

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

All contractors are responsible for:

- Not sweeping, dusting, vacuuming, or mopping dust or debris that is the product of a suspect asbestos-containing material.
- Not throwing away suspect asbestos-containing waste.
- Notifying the Project Manager and EHS at 401-863-3353 if a material that is suspected to be asbestos-containing is disturbed and becomes airborne.
- Using low abrasion pads at speeds lower than 300 rpm for stripping floor finishes and using wet methods, if it is part of the contractor's work, the contractor shall take care not to over strip floors and shall stop stripping immediately upon the removal of the old surface coat. Sanding of suspect or asbestos-containing flooring material is prohibited.
- Reporting suspect asbestos-containing material that is observed to be crushed, ripped, broken, or in any way damaged to the Project Manager immediately.
- Notifying the Project Manager about any newly discovered potentially asbestos-containing materials.

3.12.1.1 **Asbestos Abatement Activity Requirements**

Asbestos-containing materials shall not be entombed or abandoned as a solution to project cost. The material may be forgotten and overlooked in future renovations causing a potential for future exposures. Examples of entombing includes but is not limited to installing carpet over vinyl asbestos tiles and installing fiberglass pipe insulation over asbestos pipe insulation. Asbestos-containing building materials may not be used in new construction or renovations.

Before work is started, the Project Manager must determine the presence, location, and quantity of asbestos-containing materials that would be impacted by the work of a project. The Project Manager should contract with an approved industrial hygiene consultant which can be found in Appendix A of this program.

Under the direction of the Brown University Project Manager, an industrial hygiene consultant is responsible for completing the following tasks depending on the scope of the project:

- Performing an asbestos inspection, taking samples as appropriate, and preparing a report for the affected area within the defined scope of work.
- Preparing and submitting an asbestos abatement plan to RIDOH if needed.
- Performing baseline air monitoring as required.
- Performing air monitoring during every work shift when abatement is performed.
- Performing visual inspections and clearance air samples after abatement activities.
- Authorizing re-entry once acceptable air clearance samples have been received.
- Providing analytical results, inspection reports, abatement plans, and air clearance results to safety@brown.edu and the Project Manager.
- Providing air clearance results to RIDOH.

The Project Manager must provide a current asbestos inspection report or abatement plan to the contractor that is consistent with the scope of work. Contractors shall coordinate with the Project Manager for specific requirements for asbestos abatement work. The Project Manager may consult with EHS as needed.

Contractors and asbestos abatement contractors must review and be familiar with the asbestos inspection report and asbestos abatement plans. The asbestos abatement contractor is responsible for:

- Coordinating OSHA-required personnel air monitoring for their employees.
- Providing original waste shipment records to the Brown University Project Manager and safety@brown.edu.
- Providing copies of waste shipment records to the state.

3.12.2 **Lead**

Unless the Brown University Project Manager provides a specific lead-paint inspection, contractors should assume that the painted surface they come in contact with is coated with lead-based paint in buildings older than 1978. Contractors shall not perform intrusive, dust-generating work on painted surfaces (e.g., drilling, cutting, brazing, scraping, demolition), unless the surface has been confirmed to be non-lead containing or unless such work is part of the contracted work and they are specifically trained to do so. EHS does not specifically approve lead abatement contractors. Project Managers must use lead abatement contractors which are licensed by the RI Department of Health.

- The Project Manager is responsible for ensuring that proper notification of lead paint abatement will be performed. Three types of notification can occur:
  - When performing interior work in an occupied building, the Project Manager should communicate the scope of the work to the building occupants.
  - When performing exterior work, the Project Manager shall work with the Director of Community Relations to communicate with external neighbors in compliance with RIDEM Regulation 24. In addition, the Project Manager should communicate the scope of the work to the building occupants.
  - When working inside or outside Auxiliary Housing or daycare facilities, the Project Manager should provide occupants with EPA's document entitled "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers, and Schools".This document should be provided if the building is going to be occupied during the renovation/repair work being performed.
- Painted surfaces that have loose, flaking, chipping, or otherwise non-intact paint shall not be impacted by the contractor and shall be reported to the Project Manager.
- The contractor is responsible for implementing and maintaining their Lead Exposure Control Program in accordance with OSHA, RIDOH, and RIDEM.
- Lead paint abatement contractors shall coordinate with the Project Manager and EHS for specific requirements for lead abatement work and disposal of materials.

3.12.2.1 **Sampling and Analysis for Lead Waste Disposal**

Representative samples of all lead-contaminated materials must be taken by an approved consultant to determine the proper disposal of the material unless all material will be managed as hazardous waste. Samples of the waste shall be collected and analyzed by the Toxicity Characteristic Leachate Procedure (TCLP) to determine the proper disposal route.

- The Project Manager or consultant must submit analytical results to safety@brown.edu for review.
- SDSs for any paint removal chemicals must be submitted to EHS in advance for evaluation, approval, and proper waste determination.
- EHS will perform waste classification to determine appropriate waste disposal methods.
- Additional waste collection requirements may be required by the Project Manager's chosen Hazardous Waste Disposal Contractor.
- When collecting lead debris in a roll-off container, the roll-off container must be appropriately lined.
- See the hazardous waste management section for details on collecting lead wastes.

3.13 Environmental Management

3.13.1 Air Emissions

3.13.1.1 Fuel Burning Equipment Installation Changes or Replacements

The Project Manager must inform EHS regarding:

- Modifications, additions, or removal of fuel-burning equipment (e.g., generators, boilers, etc.)
- The maintenance or repairs to fuel-burning equipment that could result in a change in maximum heat input value or overall emissions (e.g., modification or installation to burners, exhaust stacks, generators, or fuel conversions).
- Conditions discovered that could have increased air pollutant emissions.

Email hazardous_waste@brown.edu with details about the equipment involved. These changes may trigger reporting or updates to the University's Air Operating Permit.

3.13.1.2 Emergency Generators

The Project Manager must inform EHS of the installation of any new emergency generators including the following information:

- Input duty of engine (BTU/hr);
- Horsepower (HP) of engine (in the case of internal combustion engines);
- Location of the generator;
- Type of fuel(s) burned;
- Initial startup schedule (required before first use); and
- Fuel certification of low sulfur content from the fuel supplier (oil only).

If the new emergency generator will have an input heat duty of 350,000 BTU/Hr or more, or in the case of internal combustion engines, is 50 HP or larger, contractors supplying equipment shall work with the Project Manager, Consultant, and EHS to complete necessary permit application(s). Unit(s) requiring permits cannot be installed until approval is received from the RIDEM. Allow at least 2 months for new generator permit approvals.

Once generators are active all required documentation including routine maintenance, monitoring, tuning, hours of operation log, stack testing, and inspections must be performed according to the permit by Facilities Management or Real Estate respectively. Monthly inspection records and reports must be shared at hazardous_waste@brown.edu or through the EHS Facilities_Shared\Operations drive.

3.13.1.3 Boilers

Boilers and fuel-burning equipment are required to comply with all Brown University Air Permit requirements. The Project Manager must inform EHS of the installation or modification of boilers including the following information:

- Input duty of engine (BTU/hr);
- Location of boiler;
- Dimensions and type of stack(s);
- Type of fuel(s) burned;
- Other documentation as required by RIDEM.

Boiler tuning records, initial and recurring, must be provided to EHS for Air Permit compliance. Details of what tuning records are required to be documented for each boiler and their frequency is detailed in the Air Permit.

Projects involving stack testing for NOx emissions as specified for certain boilers in the Air Permit must be coordinated with EHS. The testing contractor is responsible for submitting their testing protocol to the DEM at least 60 days in advance of testing.

3.13.1.4 **Other Air Emissions**

The Project Manager must consult with EHS if the project will include installing equipment that has the potential to emit any other Air Toxics contaminants as listed by the RIDEM.

3.13.1.5 **Refrigerant Containing Units**

- In the event of a release of refrigerant EHS must be notified.
- Contractors should not respond to refrigerant leaks without support from Brown FM Operations staff. A confined space meter and refrigerant detector are also required to be used to investigate refrigerant leaks.
- Contractors who work on Brown University systems are required to have proper certifications.
- Contractors must comply with required practices for maintenance service and repair of refrigeration equipment
- Project Managers shall maintain records for all refrigeration equipment including service records for units containing greater than 50 lbs. of refrigerant including the date and type of service and the type and quantity of refrigerant added.
- Contractors shall immediately notify and provide documentation to the Project Manager and EHS 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 lbs. in a 24-hour period for CFC-12, CFC-113 and R-500.

3.13.1.6 **Halon**

Contractors shall immediately notify the Project Manager whenever they become aware of the unintentional or intentional release of halon. Halon may be reclaimed by EPA certified Halon recyclers.

3.13.2 **Hazardous Waste Management**

Hazardous wastes require proper management according to RIDEM and EPA regulations. include, but are not limited to, waste oil, contaminated fuels, lead-contaminated paint or debris, spent, unusable, or expired chemical products, used solvents, batteries, fluorescent lightbulbs, and tubes, lighting ballasts, and mercury-containing equipment and switches. Contractors are responsible for collecting and storing hazardous waste in compliance with all applicable federal and state requirements.

- Hazardous wastes, including excess chemical products (e.g., touch-up paints, solvents, compressed gases, aerosols, adhesives, caulking, oils, fuels, etc.) shall be appropriately disposed of by the contractor before completion of the project. Products shall not be abandoned or left on campus by the contractor unless specifically requested by the Project Manager.
- Contractors shall work with the Project Manager, and any consultant(s) engaged by the Project Manager to ensure proper waste characterization.
- Hazardous waste shall not be disposed of in chutes, dumpsters, drains, pipes, or similar containers.
- Contractors shall ensure proper labeling, adequate secondary containment, segregation of incompatible materials, and routine inspection of storage areas as required.
- Hazardous waste must be collected and stored:
    - In the area where the waste is generated;
    - Containers must meet applicable DOT requirements
    - In a manner that protects waste containers from the weather;
    - Compatibly and in containers in good condition (no cracks, rust, dents, or degradation);
    - Closed when not adding waste;
- Containers must be labeled as soon as the waste is collected/generated with a hazardous waste label completed with the following:

    - Full constituent names of all chemicals added to the container (no abbreviations, formulas, etc.);
    - The hazard type of the waste (e.g., ignitable, corrosive, reactive, or toxic)
- Drums storage must be stored:
    - on secondary containment (e.g., spill deck) of a compatible material that is large enough to contain leaks or spills.
    - where there is ground-level access.
- Boxes may only be used for solid material and shall have a 6-mil poly liner and be secured to a pallet.
- Roll-offs may only be used for solid material and shall have a 6-mil poly liner. Roll-offs shall be covered to protect waste from contact with rainwater.
    - Hazardous waste materials placed in a roll-off shall be no more than 3ft long in any direction and the roll-off may not be filled higher than the sidewalls.

3.13.2.1 **Hazardous Waste Disposal and Transportation**

Project Managers must engage the services of an approved Hazardous Waste Disposal Contractor. Hazardous waste disposal and transportation contractors shall be selected from the approved list in Appendix A of this program. Project Managers should establish a contract with the proposed hazardous waste disposal contractor for the management of the waste before the commencement of the work. Questions regarding hazardous waste disposal and transportation shall be directed to EHS.

Transportation of hazardous materials on University property is regulated by the USDOT.

- Waste containers shall not be moved from the work site without permission of EHS.
- The Project Manager shall coordinate the waste shipment with the Hazardous Waste Disposal Contractor and EHS.
- Waste shall be transported from the work site within 90 days of the date of generation or when the project is completed, whichever is sooner.
- The Brown University Environmental Compliance Officer or the Environmental Compliance Specialist are the only staff authorized to sign a hazardous waste manifest for Brown University.
- Hazardous Waste Disposal Contractors must contact EHS to receive the appropriate EPA IDs for the shipment location.
    - Contractors or subcontractors shall not obtain EPA ID numbers on behalf of Brown University.
- Brown University must be designated as the generator of hazardous waste.
    - The generator address must be the location where the work is occurring.
    - The mailing address for waste documents must be:
        Brown University
        Environmental Health & Safety, Campus Box 1914
        118 Waterman Street, Providence, RI 02912
- EHS must be provided with copies of waste analyses, land disposal restriction forms, and related documentation.

3.13.2.2 **Universal Wastes**

Brown University requires that Universal Waste be recycled. Universal Waste includes batteries, fluorescent bulbs, used electronics, and mercury-containing devices (e.g., mercury switches, and mercury thermostats). An approved Hazardous Waste Disposal Contractor must be selected from the list of approved contractors in Appendix A of this program.
Contractors are responsible for:

- Ensuring that Universal Wastes are not disposed of with regular trash.
- Handling Universal Wastes in a manner that prevents breaks, leaks, or other releases of hazardous materials.
    - Bulb boxes should be closed except when bulbs are being added to the container.
    - Bulbs cannot stick out of the boxes. Do not break bulbs to fit a container.
    - Tape battery terminals to prevent arcing.

- Collecting, storing, and disposing of Universal Wastes as hazardous waste if items break or leak.
- Storing Universal Wastes in closed containers obtained from or approved by the transporter.
- Labeling containers with a Universal Waste label with the contents identified, and the date when waste was first added to the container.
- Storing containers indoors in locations approved by the Project Manager.

3.13.2.3 **Suspect PCB-Containing Building Materials**

Polychlorinated Biphenyls (PCBs) are considered hazardous waste in RI. Renovations of properties constructed between the years of 1950 through 1978, or where suspect PCB-containing material may have been introduced as part of a renovation during that time, are required to follow the Suspect PCB-Containing Building Materials Management Plan. Common building materials that may contain PCBs include:

- ballasts,
- caulking,
- glazing,
- and sealants.

No building materials should be sampled or analyzed for PCBs without prior consultation with EHS. Project Managers must work with EHS early in the planning stages to assist in determining the most appropriate waste management options. A consultant may be required depending on the scope of the project. The Suspect PCB-Containing Building Materials Management Plan will be provided to Project Managers by emailing hazardous_waste@brown.edu upon request.

3.13.2.4 **Electrical Ballasts**

Electrical lighting ballasts manufactured before 1980 may contain PCBs and are considered hazardous waste in RI. Ballasts manufactured after 1980 do not contain PCBs, however, these ballasts must still be collected by the Contractor and sent off-site for recycling. An approved Hazardous Waste Disposal Contractor must be selected from the list of approved contractors in Appendix A of this program

- Ballasts cannot be disposed of with regular trash.
- Ballasts that do not contain PCBs will state “No PCBs” on the product label. If there is no PCB information on the label, it must be considered a PCB ballast and collected as hazardous waste.
- PCB and non-PCB ballasts must be segregated as they are removed from the fixtures. Separate containers should be established for each type of ballast and labeled appropriately.

3.13.2.5 **Oil-Containing Equipment**

The Project Manager shall inform EHS about the installation or removal of equipment that contains 55 gallons or more of oil (e.g. elevators, transformers, switches).

- Underground Storage Tank (UST) removal shall be pre-approved by the RIDEM. Contractors shall work with EHS to submit a Permanent Closure Application for USTs to RIDEM. The Project Manager will be required to pay the closure fee. Approval may take 1-2 weeks. Contact EHS if a UST has been discovered.
    - EHS must manage all UST closure applications.
    - Contractors shall work with EHS and the Project Manager to identify the contents.
    - Releases/spills must be reported immediately to EHS and/or the Department of Public Safety.
    - Tanks must be cut/cleaned per the Providence Fire Marshal’s requirements.
    - Closure assessment reports are required if fuel has leaked. A geotechnical consultant is required to monitor any fuel spills or past leaks into the ground. Work with EHS and consultant to confirm requirements. If there is evidence of a release, the property will be designated a Leaking Underground Storage Tank (LUST) property and a DEM representative will be assigned to oversee the remediation of the site.
    - Tank closures-in-place are only approved under limited conditions.

    - The closure assessment report, if required, must be submitted by the consultant to the State within 30 days and shall be submitted to EHS for signature at least 7 days before the due date.
    - The tank removal contractor and/or consultant must coordinate scheduling with the DEM representative who is required to be present at the time the tank is removed from the ground.
    - For a list of contractors approved to perform UST removal and waste fuel hauling services for Brown University, see Appendix A of this program.
- Aboveground storage tank (AST) installations, including emergency generators, must be coordinated with EHS and meet the following requirements:
    - Secondary containment to contain greater than or equal to 110% of the tank capacity or be double-walled;
    - Skid-mounted emergency generators must be double-walled and must have an interstitial space sensor installed to monitor and detect liquid leaks in between the inner and outer tank walls.
    - A minimum of a 3-gallon spill bucket at the fill pipe;
    - The tank capacity and type of fuel identified on the tank near the fill pipe;
    - All fuel lines will be protected by secondary containment;
    - Tanks must be added/removed from the SPCC plan.
- AST removal must be coordinated with EHS.
    - The contractor shall work with EHS and the Project Manager to identify the contents of the AST.
    - For a list of contractors approved to perform AST removal and waste fuel hauling services for Brown University, see Appendix A of this program.
- Waste oil and oil-contaminated debris are considered hazardous waste and shall be disposed of by following the hazardous waste management procedures.

3.13.2.6 **Oil Spill Prevention and Control**

Brown University's Spill Prevention Control and Countermeasures (SPCC) Program establishes procedures for the prevention and detection of spills and/or releases of oil, grease, or petroleum fuels. The contractor is responsible for:

- Having required equipment available on site (e.g., secondary containment pallets, absorbents, spill booms, etc.) that are suitable to control a potential spill/release of oil products used during the project.
- Identifying conveyances (e.g., sumps, storm/floor drains) to the environment and adequately minimizing spill potential to these areas.
- Properly storing oil products to prevent spills.
- Using appropriate protective procedures such as secondary containment, overflow protection, berms, and other measures to safely handle oil-containing products.
- Reporting oil spills to the Project Manager and EHS immediately.

3.13.3 **Soil Management**

Urban soils including those found in Providence, RI are often contaminated with lead, arsenic, and polynuclear aromatic hydrocarbons (PAH). The soils on campus may often have these contaminants at concentrations above the RIDEM regulatory levels and may be subject to RIDEM regulations.

- The Project Manager must work with EHS and an approved Geotechnical consultant for a project that involves disturbing and removal of soils.
- Priority should be given to reusing soils on-site, whenever possible.
- Impacted soils kept on-site during construction must remain covered to prevent run-off.
- Contractors are also responsible for adhering to requirements in the Excavation section of this program above.
- Contractor shall not sample, analyze, excavate, or remove soils off-site without prior approval from EHS.

Some sites on campus are already listed as contaminated sites due to previous excavation or prior construction projects. These sites are permanently listed with the State of Rhode Island as Environmental Land Use Restricted (ELUR) prohibiting certain types of site use and includes

specific procedures when disturbing any soils on these sites. FM Planning Design & Construction (PD&C) or EHS can identify or provide a summary of listed contaminated sites on campus that have ELUR requirements and restrictions. To perform any soil work on a listed ELUR site:

- The Project Manager must coordinate with EHS to submit a 30-day notice about the proposed work to the State prior to disturbing soils on these properties. Approval by the State may be required and could include additional soil management requirements or building restrictions.
- If excavation will or may potentially disturb any previously installed site cap materials, the Project Manager will require a geotechnical consultant.
- Adherence to existing contaminated site Soil Management Plans is required. Project Managers must communicate these requirements to contractors that will be impacting soils at listed contaminated sites on campus.

3.13.4 **Wastewater Discharge**

Brown University's non-sanitary wastewater discharges from buildings through sanitary sewer lines are regulated by the NBC. If discharging any type of non-routine, non-sanitary wastewater (e.g., laundry, food preparation services, cooling towers, HTHW, pipe flushing maintenance, certain laboratory operations, other industrial applications, etc.) or discharge volume will increase by more than 20%, then an NBC Pretreatment permit will be required to meet the following requirements:

- The Project Manager shall consult with EHS to determine if the building or construction site already has an NBC pretreatment permit that covers the discharge.
- If a permit already exists for the site the discharge of wastewater must adhere to wastewater discharge prohibitions and limitations imposed by the NBC permit.
- Permit conditions will require sampling and analytical to be performed in advance to demonstrate the discharge meets NBC contaminant limits.
    - A report including the analytical results must be provided to EHS.
    - If the analytical fails (exceeds) any NBC limitation, discharge will not be allowed. Collection and transport of the discharge must be handled by an approved Hazardous Waste Disposal Contractor.
    - If the analytical passes (below) all NBC limits then EHS will submit the analytical results and the necessary self-monitoring compliance report (SMCR) to NBC to request permission to discharge.
    - No discharge can happen without prior approval from NBC. This notice can take 24-48 hours to receive verbal approval from NBC. EHS will inform the Project Manager as soon as verbal authorization is obtained.
    - Discharge of wastewater through stormwater lines during or after construction is unlikely to be allowed. See the Stormwater Program section.
- If no existing permit exists for the site then an application for a Pretreatment permit will be required or wastewater discharge must be collected.
    - The Project Manager shall notify EHS as soon as possible and provide all applicable technical information to complete the appropriate application for the type of discharge (e.g., water usage estimates, water bills, installation specifications, location maps, etc.).
    - Allow at least 6 months for NBC pretreatment permit approval.

3.13.5 **Sanitary Wastewater**

EHS authorization is not required for sanitary sewer connection permits.

Construction or renovations require a sewer connection permit from the NBC when:

- Installing or modifying an existing connection;
- Establishing a new connection to sewer line systems; or
- The project will increase discharge by more than 20% in volume.

Sewer connection permits cover routine sanitary discharges only. Sewer connection permit applications may be completed and submitted by a contractor or the Project Manager. The project may require an approved wastewater consultant depending on the project. Application information can be found on the NBC website.

3.13.6 Stormwater Program

Construction-related discharges of stormwater runoff or diversions to wetlands, rivers, and under the ground will require a RI Pollutant Discharge Elimination System (RIPDES) permit.

- Projects that disrupt less than one acre of land, but include excavation that will require water discharge from the site (e.g., dewatering operations), may require a permit. A geotechnical consultant hired will determine if a RIPDES permit is required and assist EHS with the application. RIPDES permits take several months to obtain.
- Projects that disrupt more than one acre of land must adhere to the RIDEM's Phase II stormwater permit requirements.
    - The retention of an approved Geotechnical consultant by the project will be required.
    - A Notice of Intent (NOI) to RIDEM is required under the General Stormwater Permit Associated with Construction Activities. The Project Manager is responsible for submitting NOI for the stormwater discharge permit in coordination with EHS, the consultant, and the contractor.
    - The Project Manager is responsible for payment of all annual permit fees.
    - Contractors are responsible for developing and implementing best management practices for the site.
    - Contractors are responsible for continuous adherence to the conditions of the permit obtained. Contractors must include regular documented inspections to ensure compliance.
    - Project Managers in coordination with consultants and contractors must ensure the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) as required by the General Stormwater Permit Associated with Construction Activities. The SWPPP must be submitted to EHS for review and approval.
    - After the project is completed, the Project Manager must submit a Notice of Termination to RIDEM to close the permit under the general stormwater permit associated with construction activities requirements.
- Brown University requires contractors to provide erosion control plans for all projects where runoff may disrupt municipal stormwater systems.
- The contractor will be held responsible for cleaning catch basins, stormwater systems, and site perimeter if they become dirty or clogged as a result of erosion on a site or cleanup of concrete, painting, plaster, or similar at the end of each work day.

3.14 Water Intrusion, Mold Prevention, and Remediation

Brown University recommends that contractors follow EPA's mold remediation guidelines in the publication Mold Remediation in Schools and Commercial Buildings.

3.14.1 Water Intrusion

- Evidence of moisture intrusion shall not be covered up without first addressing the cause of the moisture intrusion.
- Contractors shall report evidence of moisture intrusion to the Project Manager so that the area can be dried properly before continuing a project.
- The Project Manager shall work with FM Operations, a Construction Manager, or a General Contractor as needed to coordinate repairs needed to stop the moisture intrusion.
- Large-scale water intrusion is managed through FM Operations, or they contract with an approved mold remediation/building drying contractor to dry out the impacted materials.
- Project Managers shall contact EHS for large-scale water intrusion projects.
- Close-out reports from contractors shall be sent to safety@brown.edu.

3.14.2 Mold Remediation

- Evidence of mold conditions shall not be covered up.
- Contractors shall report evidence of mold or suspected mold to the Project Manager.
- The Project Manager shall contact EHS for further guidance.

- For mold areas less than 100 sq. ft., contractors must follow EPA guidelines to clean up. This work can be completed by a demolition contractor or an approved mold remediation contractor.
- For mold areas greater than 100 sq. ft., only approved mold remediation contractors listed in Appendix A of this program will be allowed to clean up.
- The Project Manager shall contact EHS when an approved mold remediation contractor is hired so that the scope of work can be reviewed.
- Draft and final reports from contractors shall be sent to safety@brown.edu for review.
- Evidence of mold conditions may need to be explored further to ensure that impacted areas are identified and remediated.

3.14.3 Indoor Air Quality Assessments and Mold Sampling

- EHS does not recommend sampling for mold when evidence indicates that a material is mold.
- Indoor air quality or mold sampling (air, wipe, or other) projects require approval from EHS.
- Project Managers shall contact EHS if indoor air quality or mold sampling is requested.
- If EHS agrees to air sampling, the Project Manager must use an approved indoor air quality consultant found in Appendix A.
- Project Managers shall work with EHS and the industrial hygiene consultant to determine a scope of work.
- Draft and final reports from contractors shall be sent to safety@brown.edu for review.

3.15 Drone/Unmanned Aircraft System (UAS) Use

Brown University contractors who wish to use UASs on or over University Property or in connection with University Related Activities must send an application to Environmental Health & Safety to seek approval for the use of a UAS in support of University Related Activities. Project Managers are responsible for ensuring that contractors apply for approval with at least 14 days notice.

EHS must approve all UAS uses on or over University Property or in connection with University Related Activities, whether outdoors or indoors, prior to such use.

Additional information can be found on the drone website, including the Drone/Unmanned Aircraft System (UAS) Policy and SOP, and the Drone Request Application.

3.16 Pest Control

If a contractor is witness to evidence of cockroaches, rodents, bats, ants, or other pests, they must notify the Project Manager of the condition. The contractor shall not use insecticide or pesticide products on University property unless such activities are part of the contracted work and the contractor is specifically trained and licensed.

4 TRAINING REQUIREMENTS

Contractors working at Brown University must train their employees in accordance with federal, state, and local regulations about the work they are performing.

Brown University Project Managers must read and be familiar with the requirements of this program. EHS may assign safety training to Project Managers depending on the hazards they may be exposed to.

5 DEFINITIONS

CFC Containing Units – Contain ozone-depleting refrigerants including, but not limited to, Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC).

Confined Space – A space that (1) Is large enough and so configured that a person can bodily enter for a limited time and perform assigned work; (2) Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, pits); and (3) Is not designed for continuous person occupancy.

Contractor – Non-Brown personnel who have been hired to perform services for the University.

Fuel Burning Equipment – These units include, but are not limited to boilers, hot water heaters, emergency generators, and kilns.

Hazardous Substance – For this program, the terms hazardous chemical and hazardous material are synonymous with hazardous substance. A substance or chemical that poses a physical or health hazard which has the capability of producing adverse effects on the health and safety of humans. A substance that requires a Safety Data Sheet (SDS).

Hot Work – A temporary operation involving open flames or which produces heat and/or sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, thawing pipe, torch-applied roofing, welding, and the use of heat guns.

Laser – An acronym that stands for “Light Amplification by Stimulated Emission of Radiation.”

Permit-Required Confined Space – A confined space that has one or more of the following characteristics: (1) Contains or has a potential to contain a hazardous atmosphere; (2) Contains a material that has the potential for engulfing an entrant; (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or (4) Contains any other recognized serious safety or health hazard.

Project Manager – Refers to the Brown University Project Manager, Construction Manager, Engineer, Planner, or other University staff who oversee or direct work being performed by contractors. This term also refers to the representative from a property management company overseeing or directing work being performed by contractors.

Public – Refers to Brown University faculty, staff, and students not associated with the construction project. This includes non-Brown related individuals such as neighbors, pedestrians, and by-passers.

RIPDES – An abbreviation for Rhode Island Pollutant Discharge Elimination System; The Department of Environmental Management’s permit program for wastewater/stormwater discharges.

Task Specific Contractors – Also referred to as “Contractors” for this program. Task Specific Contractors provide services that require specialized skills, licenses, or training, but also require specific approval from EHS, FM, and Strategic Procurement & Contracts (Purchasing) to work at Brown University. Approved Task Specific Contractors can be found in Appendix A of this Program.

Universal Waste – Is defined by the RIDEM as a waste of any of the six types listed below that has at least one hazardous waste characteristic, per 40 CFR 261 Subpart C, if it is not managed as a hazardous waste. Examples include batteries, pesticides, thermostats, cathode ray tubes (e.g., computer monitors), mercury-containing devices, mercury-containing lamps, and used electronics.

6 REFERENCES

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- NIOSH, OSHA, USCG, & EPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. U.S. Department of Health and Human Services. October 1985.
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- U.S. Department of Labor, OSHA Standard 29 CFR 1926.54, Nonionizing Radiation, Occupational Safety and Health Administration.

7 APPENDICES

7.1 Appendix A – Approved Task Specific Contractor Listing

7.2 Appendix B – Construction Safety & Environmental Management Program Checklist

APPROVED TASK SPECIFIC CONTRACTOR LISTING

Environmental Health & Safety (EHS) maintains this list of approved task-specific contractors to assist Project Managers and contractors working for the University in the selection of contractors and consultants working with hazardous materials or performing certain tasks. Contractors on this list may not subcontract their work to another contractor or company. They are listed in no particular order of preference. Any other company must receive specific approval by EHS, Strategic Procurement & Contracts (Purchasing), and FM.

Asbestos Abatement Contractors

Pasquazzi Brothers Inc.
Henry Pasquazzi
464 Dyer Avenue, Cranston, RI 02920
(401) 942-2250

Sitecon Corporation
Greg Washburn
1430 Cranston St., Suite A, Cranston, RI 02920
(401) 944-2335

Yankee Fiber Inc.
Ron Gagnon or Jim Hutzler
2 Dexter Road, East Providence, RI 02914
(401) 435-4390

ACME
Yeatra Neth
52 Fuller Street, Seekonk, MA 02771
(508) 336-5551

Moran Environmental Recovery LLC
James Silvia
100 Water Street, East Providence, RI 02914
(401) 431-9514

TMC Services, Inc.
Matthew Iovanni
One William Way, Bellingham, MA 02019
(508) 966-3737

Fall Protection Consultants

Premier Safety Partners
Scott Ray
(617) 838-0350
sray@premiersafetypartners.com
www.premiersafetypartners.com

Reichle Associates
Bill Reichle
O: (610) 793-0137 or C: (610) 322-1959
www.reichleassoc.com

Geotechnical Consultants (Soil, Groundwater, Stormwater and Wastewater)

GZA ***(Environmental Site Assessment, Soils, Groundwater, Wastewater)***
Richard A. Carlone, P.E.
Associate Principal
188 Valley St, Suite 300, Providence, RI 02909
O: (401) 427-2776 or C: (401) 639-0985
richard.carlone@gza.com

Woodard & Curran ***(Wastewater, Stormwater, Sewer Connection)***
Bradford Hart, P.E.
Principal
33 Broad Street | One Weybosset Hill, Floor 7
Providence, Rhode Island 02903
C: (508) 525-0459
www.woodardcurran.com

Atlas Technical Consultants ***(Groundwater, Wastewater)***
Sara Baker
40 Strafello Drive, Unit G, Avon, MA 02322
(401) 744-8612
Sara.Baker@oneatlas.com

Hazardous Waste Disposal Contractors

Triumvirate Environmental ***(All wastes)***
Melanie Magnan
200 Inner Belt Rd.
Somerville, MA 02143
mmagnan@triumvirate.com
O: (617) 715-8996 or C: (617) 828-8871

Clean Harbors Environmental Services ***(All wastes)***
Mark Gynn
District Sales Manager
gynn.mark@cleanharors.com or RI@cleanharbors.com
(c) 781.531.5636

Veolia North America ***(Limited to lamps and lighting ballasts only)***
90 Pleasant Street
West Bridgewater, MA 02379
MaryAnn.Small@Veolia.com or paula.britopatras@veolia.com
O: (774) 296-6033 or (774) 296-6034

Indoor Air Quality Consultants

Environmental Health & Engineering, Inc. (EHE)
Leo Ryan, Market Executive
lryan@eheinc.com
O: 781-247-4300 C: 617-620-4566
https://eheinc.com/

Hydro-Environmental Technologies Inc. (HETI)
Scott Herzog
54 Nonset Path, Acton, MA 01720
1-800-347-HETI

Environmental Consulting & Management (ECM) ***(Limited mold sampling and IAQ)***
Dan Simas or James Gallagher
181 Amaral Street, Providence, RI 02915
(401) 438-1360

Industrial Environmental Consultant (Air Permitting, SPCC)

Charlotte J. Head, P.E.
6 Prospect Avenue
North Kingstown, RI 02852
(401) 294-1205

Industrial Hygiene Consultants (Asbestos & Lead)

Environmental Consulting & Management (ECM)
Dan Simas or James Gallagher
181 Amaral Street, Providence, RI 02915
(401) 438-1360

Emery Environmental Associates
Patrick Emery
P.O. Box E, Pawtucket, RI 02861
(401) 727-4941

RI Analytical Laboratories ***(Limited to FM Operations bulk asbestos sampling)***
41 Illinois Ave, Warwick, RI 02888
(401) 737-8500

Lead Abatement Contractors

EHS does not specifically approve lead abatement contractors. Contractors must be licensed by the RI Department of Health: https://health.ri.gov/find/leadprofessionals/

Mold Remediation / Building Drying Contractors

Prime Restoration
Jesse Koslow
26 Albion Road, Suite 201, Lincoln, RI 02865
(401) 479-0919

Alliance Restoration
Mike Deffley
2158 Plainfield Pike, Cranston, RI 02921
(401) 437-8369

Diversified Assessments & Inspections Restore (DAI)
15 Centre of New England Blvd., Coventry, RI 02816
(401) 465-3146

Enviro-Clean, Inc.
Eric Anderson
41 Cedar Swamp Road, Smithfield, RI 02917
(401) 231-3130

Pest Control

Big Blue Bug Solutions
Scott Goldman
161 O'Connell St, Providence, RI 02905
(401) 941-5700
Scott@bigbluebug.com

Underground and Aboveground Storage Tank Closure, Removal & Fuel Hauling Contractors

Clean Harbors Environmental Services, Inc.
Joshua Decknick
1 Hill Avenue, Braintree, MA 02184
decknick.joshua@cleanharbors.com
O: (401) 228-2400 or C: (781) 389-1555

Triumvirate Environmental
Melanie Magnan
200 Inner Belt Rd.
Somerville, MA 02143
mmagnan@triumvirate.com
O: (617) 715-8996 or C: (617) 828-8871

CONSTRUCTION SAFETY & ENVIRONMENTAL MANAGEMENT PROGRAM CHECKLIST

During the project planning, design and construction processes, the Project Manager is responsible for identifying and managing environmental, health, and safety requirements described within this program. This checklist must be reviewed and completed for all building or construction related projects. The checklist must be completed early on in the project and again if the project plans have been changed significantly. The checklist must be returned to EHS at safety@brown.edu and hazardous_waste@brown.edu for review.

Refer to the appropriate sections of the Construction Safety & Environmental Management Program (CSEMP) for more details about each item on the checklist or contact Environmental Health and Safety at (401) 863-3353 or by email. Connecting early with EHS on the issues identified in the checklist will help ensure projects stay compliant with regulatory requirements.

Project Name	
Project Manager	
Planning/Project Number	
Project Start/End Date	
Submission Date	
Project Planning Narrative	

Asbestos & Lead Management 3.12

Asbestos Management 3.12.1			
	Yes	**N/A**	**Required Activities**
Will the project impact building materials (e.g. plaster, insulation, walls, flooring, roofing, electrical, etc) that can potentially contain asbestos (for buildings constructed before 1987)?)	☐	☐	**If yes**, the Project Manager must do the following: • Hire an approved industrial hygiene consultant to perform an inspection and determine the presence of asbestos-containing building materials to be impacted by the project. • Hire an approved asbestos abatement contractor to disturb any materials known to or assumed to contain asbestos. • Ensure that other contractors do not disturb, damage, or otherwise handle suspect ACBM. • For projects impacting more than 25 sq ft or 10 linear ft, work with the industrial hygiene consultant to develop an abatement plan for RIDOH and perform air monitoring, etc. • Provide inspection reports, air sampling results, and original waste shipment records to safety@brown.edu.

Lead Management 3.12.2			
	Yes	**N/A**	**Required Activities**
Will the project involve plumbing which may impact lead service or distribution piping within the building?	☐	☐	**If yes**, plan to replace the lead service and/or distribution piping to the extent feasible. Email safety@brown.edu to discuss any work that may impact such systems.
Does the project involve impacting or removal of lead-containing paint from the interior or exterior of the structure? Property built before 1978 is considered to have the potential for lead-containing painted surfaces.	☐	☐	**If yes,** the Project Manager must hire a lead abatement contractor licensed by the RIDOH. The Project Manager must follow notification requirements outlined in the CSEM Program. • The Project Manager must communicate about interior work to building occupants. • The Project Manager must work with the Director of Community Relations to communicate with neighbors about exterior work.

Lead Management 3.12.2			
			• Additional action is required for regulated facilities including Auxiliary Housing properties and daycare facilities. • The project must ensure that paint is intact i.e., no chipping, flaking, or peeling paint can remain. • Paint in structures built before 1978 is presumed to be positive for lead unless tested otherwise. • Hire an industrial hygienist to perform testing to confirm the presence of lead, to inform next steps. • Send all sampling documentation to safety@brown.edu.
Will the project generate lead paint debris? (e.g. windows, window sashes, doors, moldings, or trim).	☐	☐	**If yes**, contact EHS for assistance with arranging proper disposal. The options for this type of waste include: • Perform sampling to determine if waste can be disposed of in a regular landfill. • Dispose of all material as hazardous waste. Contact an approved hazardous waste disposal contractor.

Construction in Research Facilities/Laboratories 3.3.6

Construction in Research Facilities//Laboratories 3.3.6			
	Yes	**N/A**	**Required Activities**
Will the project involve the renovation or creation of a research/laboratory facility?	☐	☐	**If yes**, hazardous materials impacted by laboratory renovation shall be handled and disposed of safely and in accordance with federal, state, and local regulations. • Project Managers and the department responsible for the laboratory must follow the Laboratory Closeout Policy. • The Project Manager must ensure that the project follows the General Laboratory Design Standards. Contact labsafety@brown.edu early on in the planning of research/laboratory related projects.

OSHA Regulated Hazards 3.4

Chemical Safety - Hazard Communication 3.4.1			
	Yes	**N/A**	**Required Activities**
Will the project involve the use of hazardous substances/chemicals (paint, welding, adhesives)	☐	☐	**If yes**, the Project Manager is responsible for ensuring that contractors: • Have safety data sheets (SDSs) immediately available on site or online. • Use flammable substances with extreme caution. • Do not use hazardous substances that contain carcinogens or other serious health hazards in occupied buildings unless first reviewed and approved by EHS. Email safety@brown.edu for approval. • Remove all hazardous substances brought on-site when work with the substances is complete.
Will building occupants be present during the project?	☐	☐	**If yes,** additional safeguards shall be implemented to eliminate exposures and complaints. • Dust and other particulates from demolition, sanding, and other construction activities shall be controlled by containment and negative air ventilation systems. • Similar controls shall be utilized for other odorous activities such as using carpet adhesive and coatings, painting, and welding.

Confined Spaces 3.4.2			
	Yes	**N/A**	**Required Activities**
Will the project involve contractor entry into a confined space (air handler, pit, manhole, crawl space, etc.)	☐	☐	**If yes**, the Project Manager must inform contractors about confined spaces that may be encountered during a project and provide them information about the confined space classification and any requirements to enter or reclassify a space. Refer to the inventory of University confined spaces.
Will the project involve the installation or creation of a confined space?	☐	☐	If yes, the Project Manager must inform FM Operations about a modification to, the addition of, or removal of a University confined space.

Electrical Safety 3.4.5			
	Yes	**N/A**	**Required Activities**
Will the project involve the installation of new electrical systems or upgrades?	☐	☐	If yes, follow the Facilities Management Design & Construction Standards for Electrical Design Criteria

Fall Protection 3.4.7			
	Yes	**N/A**	**Required Activities**
Will the project create a new fall hazard (falls from a height of 4 ft or greater)? This can include roof work, skylight installation, reaching equipment, theatrical systems, etc.)	☐	☐	**If yes**, the Project Manager shall inform EHS (safety@brown.edu) if a new fall hazard will be created as part of the project, and consult with an approved fall protection consultant to design appropriate fall protection. Fall protection systems must comply with the FM Fall Protection Design & Construction Standard.
Will the project impact an area of campus that has a preexisting fall hazard?	☐	☐	**If yes**, the Project Manager shall inform safety@brown.edu and consult with an approved fall protection consultant.

Laser Use, Radiation Safety, and Antenna Installation 3.5, 3.6, 3.7, 3.10, and 3.11

Laser Use, Radiation Safety and Antenna Installation 3.5, 3.6, 3.7, 3.10, and 3.11			
	Yes	**N/A**	**Required Activities**
Will the project require the use of a Class 3B or 4 laser?	☐	☐	**If yes,** the Project Manager must ensure that the contractor contacts the Radiation Safety Officer to obtain written permission before using the equipment.
Will the project involve the use of radiography for inspecting welds?	☐	☐	**If yes**, the Project Manager must notify EHS (Radiation Safety Officer) at least 24 hours in advance of radiography work, including the name of the radiography company, date, time, and location. Notification and security details to control access may be required.
Will the project include removing or installing tritium exit signs?	☐	☐	**If yes**, the Project Manager must contact the EHS Radiation Safety Officer to arrange for appropriate disposal or approval for installation.
Will the project involve removing or installing smoke detectors containing ≥ 1 micro Curie of Americium-241, or any amount of any other radioactive isotope, used in the detector element?	☐	☐	**If yes,** the Project Manager must contact the EHS Radiation Safety Officer to arrange for appropriate disposal or approval for installation.
Will the project involve Installing antennas capable of transmitting radio frequency (RF) energy over Federal Communications Commission (FCC) or OSHA standards?	☐	☐	**If yes, the** Project Manager must contact the EHS Radiation Safety Officer for review and approval.

Fire Safety (Hot Work, Life Safety Equipment, and Egress) 3.9 and 3.3.3

Fire Safety 3.9 and 3.3.3			
	Yes	**N/A**	**Required Activities**
Will the project require hot work to be performed?	☐	☐	**If yes**, Project Managers must ensure that Contractors obtain a hot work permit from the Fire Safety Office (401-863-3462) for each separate work activity. Allow at least 48 hours notice before the start of hot work. Coordinate with the FM Electrical Division for fire alarm impairment.
Will the project require impairment of life safety equipment (fire protection/suppression, fire detection/alarms, smoke evacuation/pressurization, emergency lighting, emergency communications?)	☐	☐	**If yes**, Project Managers must report planned or emergency life safety system impairments, exceeding 4 hours, to the Fire Safety Office (401-863-3462). All impairments in residences (residence halls and auxiliary housing properties), must be immediately reported to the Fire Safety Office. Contractors must inform Project Managers about planned or emergency life safety system impairments.

Fire Safety 3.9 and 3.3.3			
Will the project change occupied building egress pathways and exits during construction?	☐	☐	**If yes,** consult with fire_safety@brown.edu.

Air Emissions (Fuel Burning Equipment) 3.13.1

Emergency Generators 3.13.1.2			
	Yes	**N/A**	**Required Activities**
Will the project include the installation of an emergency generator?	☐	☐	**If yes**, Project Managers must provide EHS with the input duty (BTU/hr), HP of the engine, location, type of fuel, initial startup schedule, and fuel certification of low sulfur (oil only). Email hazardous_waste@brown.edu with details about the equipment. These changes may trigger reporting or updates to the University's Air Operating Permit. If the new emergency generator will have an input heat duty of 350,000 BTU/Hr or more, or in the case of internal combustion engines, is 50 HP or larger, Contractors supplying equipment shall work with the Project Manager, Consultant, and EHS to complete necessary permit application(s). Allow at least 2 months for permit approvals.

Boilers 3.13.1.3			
	Yes	**N/A**	**Required Activities**
Will the project include the installation of a boiler?	☐	☐	**If yes**, Project Managers must provide EHS with the input duty (BTU/hr), location of boiler, dimensions, and type of stack(s), type of fuel(s) and other information. Email hazardous_waste@brown.edu with details about the equipment. These changes may trigger reporting or updates to the University's Air Operating Permit.

Other Fuel Burning Equipment 3.13.1.1			
	Yes	**N/A**	**Required Activities**
Will the project include modifications, additions or removal of fuel-burning equipment?	☐	☐	**If yes**, email hazardous_waste@brown.edu with details about the equipment involved. These changes may trigger reporting or updates to the University's Air Operating Permit.

Other Emissions 3.13.1.4			
	Yes	**N/A**	**Required Activities**
Will the project include installing equipment that has the potential to emit any other Air Toxics contaminants as listed by the RIDEM?	☐	☐	**If yes**, the Project Manager must consult with EHS at hazardous_waste@brown.edu.

Environmental Management 3.13

Hazardous Waste Management 3.13.2			
	Yes	**N/A**	**Required Activities**
Will the project generate hazardous waste (e.g. waste oils, adhesives, paint, unusable chemical products)?	☐	☐	**If yes**, Project Managers must ensure that contractors collect and store hazardous waste in compliance with regulatory requirements (i.e. in appropriate containers that are closed, labeled, secured, and protected from weather). ● The Project Manager must engage the services of an approved hazardous waste disposal contractor for transportation and disposal. ● Project Managers must ensure that contractors do not leave hazardous substances/chemicals behind at the conclusion of the project. ● Only EHS may approve and sign waste manifests. Email hazardous_waste@brown.edu. **If no**, contact EHS as nearly all projects will generate some hazardous waste.

Universal Wastes (Batteries, Fluorescent Bulbs, Electronics, Mercury-Containing Devices) 3.13.2.2			
	Yes	**N/A**	**Required Activities**
Will the project generate Universal Waste including batteries, fluorescent bulbs, electronics, or mercury-contained devices?	☐	☐	**If yes**, select an approved Hazardous Waste Disposal Contractor for disposal. Project managers must ensure that contractors: ● Do not dispose of universal waste with regular trash. ● Handle waste in a manner that prevents breaks, leaks, or release. ● Store Universal Waste in closed containers approved by the transporter. ● Label containers with a completed Universal Waste label.

Suspect PCB-Containing Materials 3.13.2.3			
	Yes	**N/A**	**Required Activities**
Will the project impact potential PCB-containing materials for buildings constructed or renovated between 1950 - 1978?	☐	☐	**If yes**, follow the Suspect PCB-Containing Building Materials Management Plan. Email hazardous_waste@brown.edu for a copy of the plan. No building materials should be sampled or analyzed for PCBs without prior consultation with EHS.

Electrical Ballasts 3.13.2.4			
	Yes	**N/A**	**Required Activities**
Will the project generate waste electrical light ballasts?	☐	☐	**If yes**, select an approved Hazardous Waste Disposal Contractor for disposal. Project managers must ensure that contractors: ● Do not dispose of electrical lighting ballasts with regular trash. ● Collect and separate PCB ballasts from non-PCB ballasts. ● Label waste containers appropriately.

Oil Containing Equipment 3.13.2.5			
	Yes	**N/A**	**Required Activities**
Will the project include the installation or removal of equipment that contains 55 gallons or more of oil (e.g. elevators, transformers, switches)?	☐	☐	**If yes**, the Project Manager must coordinate with EHS. ● Email hazardous_waste@brown.edu with specifics about the equipment. ● This equipment must be added or removed from the University's Spill Prevention Control and Countermeasures Plan (SPCC). ● Select an approved Hazardous Waste Disposal Contractor for oil disposal.
Will the project include the installation or removal of an underground storage tank (UST)?	☐	☐	**If yes**, the Project Manager must coordinate with EHS. ● Email hazardous_waste@brown.edu with specifics about the UST. ● USTs must meet specific requirements detailed in the written CSEM Program. ● Tanks must be added/removed from the SPCC plan. ● The Project Manager must use an approved Contractor to perform UST removal and fuel hauling services. ● Select an approved Hazardous Waste Disposal Contractor for oil disposal.

Oil Containing Equipment 3.13.2.5			
Will the project include the installation or removal of an aboveground storage tank (AST)?	☐	☐	**If yes**, the Project Manager must coordinate with EHS. ● Email hazardous_waste@brown.edu with specifics about the AST. ● ASTs must meet specific requirements detailed in the written CSEM Program. ● Tanks must be added/removed from the SPCC plan. ● The Project Manager must use an approved Contractor to perform AST removal and fuel hauling services. ● Select an approved Hazardous Waste Disposal Contractor for oil disposal.

Soil Management 3.13.3			
	Yes	**N/A**	**Required Activities**
Will the project involve disturbing and removal of soil from Brown property?	☐	☐	**If yes**, the Project Manager must coordinate with EHS and obtain an approved Geotechnical consultant early in the process. Email hazardous_waste@brown.edu. ● The contractor shall contact Dig Safe and other utilities before excavation. ● The contractor shall contact FM CAD Office and the Project Manager for University-owned utility information before excavation. ● Soils on campus may have contaminants at concentrations above the RIDEM regulatory levels and may be subject to regulations. ● Contractors shall not sample or remove soils off-site without prior approval from EHS. ● Priority should be given to reusing the soils on-site. ● Impacted soils kept on site during construction must remain covered to prevent run-off.
Will the project involve disturbing soils on one of Brown's RIDEM listed contaminated sites or "ELUR"?	☐	☐	**If yes,** the Project Manager must coordinate with EHS to submit a 30-day notice about the proposed work to the State prior to disturbing any soils on these properties. ● Approval by the State may be required and could include additional soil management requirements or further building restrictions. ● If unknown, confirm if the site is ELUR listed. The Project Manager should consult with FM PD&C or EHS to identify the list of contaminated sites.

Wastewater Discharge 3.13.4			
	Yes	**N/A**	**Required Activities**
Will discharge of any type of non-sanitary wastewater (e.g., laundry, food preparation services, cooling towers, HTHW, pipe flushing maintenance, certain laboratory operations, other industrial applications, etc.) occur?	☐	☐	**If yes**, an NBC pretreatment permit will be required. ● The Project Manager shall consult with EHS to determine if the building or construction site already has an NBC pretreatment permit. ● If a permit already exists for the building/site the discharge of wastewater must adhere to wastewater discharge prohibitions, sampling, and submittals to NBC for permission to discharge. ● If a permit does not already exist the project will have to collect and dispose of the wastewater as hazardous waste. Discharge not approved. ● The Project Manager may request an NBC pretreatment permit and must provide the necessary details to EHS to submit an NBC pretreatment permit application to the NBC. Pretreatment permits take at least 6 months to obtain. **If no**, Will the discharge volume at the building/site increase by more than 20%, then an NBC Pretreatment permit application will be required. Pretreatment permits will take at least 6 months to obtain.

Sanitary Wastewater 3.13.5			
	Yes	**N/A**	**Required Activities**
Will a new sewer line connection, installation, or modification occur?	☐	☐	**If yes**, a sewer connection permit will be required. Sewer connection permit applications may be completed and submitted by a contractor or the Project Manager. The project may require an approved wastewater consultant depending on the complexity and scope of the project. Application information can be found on the NBC website. **If no**, will the discharge volume at the building/site increase by more than 20%, then a new sewer connection permit will be required. The project may require an approved wastewater consultant depending on the complexity and scope of the project. EHS authorization is not required for sanitary sewer connection permits.

Stormwater 3.13.6			
	Yes	**N/A**	**Required Activities**
Will the project disturb > 1 acre of land? Include all areas inside the construction site limit for the project.	☐	☐	**If yes,** the Project Manager must obtain an approved geotechnical consultant and notify EHS at hazardous_waste@brown.edu. ● A Notice of Intent (NOI) to RIDEM is required under the General Stormwater Permit Associated with Construction Activities. The Project Manager is responsible for submitting NOI for permit in coordination with EHS, the consultant, and the contractor. ● Project Managers in coordination with consultants and contractors must develop and implement a Stormwater Pollution Prevention Plan (SWPPP). ● Contact EHS for guidance for obtaining permits and the development and implementation of a SWPPP. ● RIPDES permits can take several months to obtain. ● After the project is completed, submit a Notice of Termination to RIDEM to end coverage under the general permit. **If no**, the Project Manager must ensure that contractors provide erosion control plans for all projects where runoff may disrupt municipal stormwater systems.
Will the project disrupt less than one acre of land but include excavation that will require water discharge from the site (e.g., dewatering operations)?	☐	☐	**If yes,** the project manager must consult with a geotechnical consultant to determine if a RIPDES permit is required and they will assist the Project Manager and EHS with the application. RIPDES permits can take several months to obtain. **If no**, the Project Manager must ensure that contractors provide erosion control plans for all projects where runoff may disrupt municipal stormwater systems.

Drone/Unmanned Aircraft System (UAS) Use 3.15

Drone Use 3.15			
	Yes	**N/A**	**Required Activities**
Will the project involve the use of a Drone/Unmanned Aircraft System (UAS)?	☐	☐	**If yes,** Project Managers must ensure that contractors who wish to use a UAS on University property, complete a Drone Request Application to EHS to seek approval for its use. Allow at least 14 days notice.