

Environmental Health and Safety Guidelines For Construction, Renovation and Demolition

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Environmental Health and Safety Guidelines For Construction, Renovation and Demolition

I. Purpose

This guidance document has been prepared by the University of Maryland (UM) Departments of Environmental Safety (DES) and Facilities Management (FM) to define the environmental, health, and safety (EHS) responsibilities of FM personnel managing Contractors who conduct work on campus property. These guidelines apply to Contractor activities that may impact the safety and health of UM employees and contractual personnel; pose an environmental hazard; or are contrary to Federal/State regulations and contract requirements. The information provided in this document should be used to assist Project Managers and Site Inspectors in the identification of construction hazards and facilitate inter-departmental communications. Furthermore, it should be used by Contractors as a reference source for basic health, safety, and environmental information while working on the UM campus and affiliated locations. This document does not address all EHS issues that may arise during a construction, renovation or demolition project. It is designed to address those EHS issues that are typically encountered during the course of UM projects. If conditions are encountered during a project that are not addressed in this document or clarification is required relative to site specific conditions, the Project Manager should consult with DES.

II. Scope

This guidance document applies to all FM units that hire outside Contractors to perform work on campus and affiliated off-campus locations. Oversight of contractual services is the general responsibility of the contracting FM department. The individual responsible for coordinating and accepting the work is referred to in this document as the “Project Manager”. The individual who inspects the progress of work at the project site is referred to as the “Site Inspector”.

Many contracted services have the potential for direct impact to UM students, faculty, staff, employees and visitors. Failure to comply with construction specifications or accepted EHS practices and regulations may pose a risk to the campus community, UM assets, and the environment.

In all circumstances, outside Contractors are directly and legally responsible for the health and safety of their employees, and for compliance with environmental, health and safety regulations. They must also correct EHS deficiencies that are brought to their attention. An identified imminent danger must be corrected immediately. Failure to adequately address deficiencies is cause for progressive actions up to and including discharge from campus.

For these reasons, this guidance document is written to explain the roles and responsibilities for conducting and managing work performed by Contractors. This document is not intended to replace a Contractor's safety program nor summarize all the EHS regulations governing the Contractor's operations.

Should situations arise which are not covered in these guidelines, or if you have a question about a guideline, contact the UM Project Manager or DES (301) 405-3960/61.

III. Definitions

- A. Asbestos Containing Material (ACM)** – A material that contains detectable asbestos according to the Maryland Asbestos Oversight Committee (AOC).
- B. Competent Person** – A person who is trained and capable of recognizing existing and predictable hazards in the workplace and has the authority to take corrective action and/or stop work. In terms of fall protection, this individual can also identify dangerous conditions in the personal fall arrest system or any component as well as their application and use with related equipment. For trenching and shoring, this person is trained in the relevant OSHA requirements, soil types and conditions, acceptable benching and sloping methods and excavation support techniques and equipment.
- C. Confined Space** - A Permit-Required Confined Space is a space that:
 - 1. Is large enough and so configured that an individual can enter and performed assigned work; AND
 - 2. Has limited or restricted means for entry or exit; AND
 - 3. Is not designed for continuous occupancy; AND
 - 4. Has ONE OR MORE of the following characteristics:
 - a. Contains or has the potential to contain a hazardous atmosphere; OR
 - b. Contains a material that has the potential for entrapping, engulfing or suffocating an individual; OR
 - c. Has an internal configuration such that an individual could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; OR
 - d. Contains any other recognized serious safety or health hazard.
- D. Department of Environmental Safety (DES)** – The Department of Environmental Safety is a unit within the Division of Administrative Affairs and

has the primary responsibility for facilitating UM compliance with all applicable safety and environmental laws, regulations and permit conditions. DES serves as the lead department in coordinating UM activities with safety and environmental regulatory agencies including Maryland Occupational Safety and Health, Maryland Department of the Environment, Maryland Department of Natural Resources, U.S. Environmental Protection Agency, U.S. Occupational Safety and Health Administration, Nuclear Regulatory Commission and several quasi regulatory institutions. DES is organized into several units including: the Occupational Safety and Health unit (OSH); Environmental Affairs (EA); Safety & Code Services (S&CS); Radiation Safety; Biosafety; Fire Marshal; and Risk Management and Communications.

DES units have the following general responsibilities:

- EA is responsible for overseeing all environmental compliance activities including hazardous, radioactive and biohazardous waste management; environmental permitting, environmental sampling, spill response and environmental cleanup activities.
- OSH is responsible for facilitating compliance with applicable safety and health regulations including: hazard communication; fall protection; confined space entry; lockout/tagout; asbestos and lead management; accident/incident investigation and mitigation; and indoor air quality investigations.
- Safety & Code Services reviews project designs managed by FM for fire, health and safety issues; code compliance, and coordinates health and safety issues associated with construction, renovation and demolition projects including asbestos and lead management. S&CS includes an Assistant State Fire Marshal who must approve all project design documents, test and accept fire suppression systems and issue final occupancy approvals.
- The Fire Marshal Unit includes additional Assistant State Fire Marshals who have jurisdiction over ongoing campus activities including activities that pose a risk to building occupants, existing fire suppression systems, management of the hot works permits program and public assemblies.
- Risk Management and Communication is responsible for the campus Worker's Compensation Program and management of UM's insurance claim process.
- Biosafety is responsible for the approving and overseeing the safe use of biological agents and response to biological incidents.
- Radiation Safety has overall authority over licensing, purchase and use of radioactive sources.
- The Manager of Natural Resource Permitting is responsible for advising, facilitating, reviewing, and tracking, all natural resource permits associated with construction. These include wetland, floodplain, sediment and erosion control, stormwater and forestation permits.

All DES departments may be reached by calling (301) 405-3960. The DES web page, located at <http://www.des.umd.edu/>, includes subject specific contacts within the Department (See Appendix A); Fact Sheets summarizing key EHS issues; training opportunities including online training; all DES procedures and policies; DES forms, permit applications and databases related to confined spaces and ACM inventories; online permits; and links to Material Safety Data Sheet databases and regulatory agency web sites.

- E. Imminent Danger** - An imminent danger is defined as a condition or practice that (1) could reasonably be expected to cause death or serious physical harm to UM faculty, staff or students, and/or Contractor personnel, or (2) has or may cause an uncontrolled release of hazardous or otherwise regulated material to the air, water or soil.
- F. Lead-Based Paint (LBP)** – A paint containing at least 0.7 milligrams of lead per square centimeter (0.7 mg-Pb/cm²) of surface area or 0.5% lead by weight.
- G. Material Safety Data Sheet (MSDS)** – A document supplied by a manufacturer that describes the ingredients, health hazards and means of protection related to a hazardous material. MSDS's are required by and must meet the informational requirements specified by OSHA.
- H. Project Manager** - The individual responsible for coordinating and accepting the Contractor's work. The Project Manager may officially carry that job title (e.g., Project Manager for construction of a new building), or may have that contingent duty assigned by FM. The Project Manager is the primary conduit of information between the contractor and the University, and employees responsible for this work should have an awareness of EHS regulations, permits, plans and UM policies. Projects that are designed by Facilities Management (FM) are assigned a FM Project Manager.
- I. Project Monitor** - The Project Monitor is an approved industrial hygienist that is professionally insured, accredited in Maryland and qualified to provide asbestos and lead-based paint abatement project oversight.
- J. Site Inspector** - The individual responsible for routine monitoring of Contractor activities on the site is the Site Inspector. For projects managed by FM, a Site Inspector is assigned to the Project. This individual routinely visits the site; monitors progress, identifies situations that do not comply with terms of the Contract; and works in tandem with the Project Manager and the Contractor to resolve those concerns.

IV. Training

UM Project Managers and Site Inspectors should obtain training about EHS topics relevant to the types of projects they are involved in managing. Training is available through DES and external sources including OSHA and MOSH. Training may include one or more of the following: a review of regulations that apply to the project; DES “Fact Sheets”; online DES courses including ACM/LBP awareness, hazardous waste management, radioactive materials management, etc.; routinely scheduled face-to-face DES training including Natural Resource Permitting, Environmental Hazard and Safety Awareness related to Construction; blood-borne pathogen training; Hazard Communication training; and Spill Prevention Control and Countermeasure (oil spill response) training. DES course schedules are available at: <https://des.umd.edu/apps/TrainingClass/index.cfm>. In addition to these sources, individuals may review DES published guidance manuals, procedures and plans available through the DES web site or request a training session from DES about one or more topics. OSHA and MOSH provide extensive information through their web sites and provide courses and workshops related to EHS and construction activities.

V. Duties and Responsibilities

A. University Project Managers shall:

- (1) Be knowledgeable concerning EHS items that occur on projects that the PM is responsible for and receive training that provides an awareness of EHS issues as appropriate.
- (2) Ensure that all planned projects involving new construction; changes in existing space use and occupancy; changes in floor plans; and installation or modification of building systems are reviewed and approved by DES at each design phase of the project to ensure compliance with applicable codes and permits. In addition, ensure that all projects involving the disturbance of land is evaluated by the Manager of Natural Resource Permitting to determine the need for environmental (natural resource) permits. For those projects described above, ensure final use and occupancy inspection is completed by DES before occupancy is permitted. It should be noted that some small projects may not require DES review and approval (i.e. painting, casement replacement, etc.). Project Managers should contact DES to determine the need for code review.
- (3) Ensure that pre-existing hazards at a UM work site (i.e. presence of asbestos, lead, contaminated soil, etc.) are communicated to the affected Contractor prior to the start of work.
- (4) Respond to EHS deficiencies identified by DES and other UM employees and work with the Contractor to eliminate the deficiencies.
- (5) Communicate observed or suspect EHS concerns to DES.
- (6) Immediately notify the DES Director if the Contractor fails to correct an identified imminent danger.

- (7) Note deficiencies and corrections in the project log and report instances of continued non-compliance to DES. Keep DES informed of the status and resolution of identified deficiencies.
- (8) Ensure that Contractors are following the EHS requirements specified in the contract.
- (9) Require that Contractors provide copies of EHS regulatory agency inspection and violation reports they may receive relative to the contracted work and the campus site they are working on.
- (10) Follow up on corrective actions for reported deficiencies from regulatory inspections.
- (11) In the event of an incident, ensure that Material Safety Data Sheets (MSDS's) are immediately available for all hazardous materials that will be used by Contractors on campus.
- (12) Ensure that all hazardous, biological or radioactive waste resulting from a project is processed through DES. These include wastes resulting from the demolition, renovation or removal of building and building components. Waste generated by the Contractor such as those from cleaning and degreasing, unused hazardous material products supplied by the Contractor, etc. are the sole responsibility of the Contractor.
- (13) Notify the Contractor of any observed or reported EHS concern, but do not prescribe corrective action at a Contractor-controlled site without specific authorization from the DES Director.
- (14) Ensure that UM specific information concerning topics such as lock-out/tag-out procedures and confined spaces are communicated to the Contractors as appropriate and as required by OSHA regulations.
- (15) As applicable, ensure Contractor submits completed Asbestos Abatement permit located on the DES web site: (<http://www.des.umd.edu/os/asbestos/form/asbate.pdf>) See Appendix B. At the conclusion of the work, notify the UM Project Manager and DES of actual ACM removed and remaining in the affected work area.
- (16) Coordinate the movement of any equipment/processes that must be relocated as a consequence of the work.

B. DES Employees shall:

- (1) Provide EHS training for individuals assuming Project Manager and Site Inspector responsibilities.
- (2) Respond to complaints regarding Contractor activities that may impact the safety of UM employees and visitors, the campus environment, or that are deemed imminent dangers.
- (3) DES employees who observe an imminent danger shall inform Contractural personnel that the activity must be immediately stopped until appropriate corrective actions are implemented. The DES employee will immediately contact the UM Project Manager (or their supervisor, if the Project Manager is

unavailable or unknown) to explain the circumstances of the work stoppage, and shall notify the DES Director in writing by the end of that business day. Notify the DES Director if the Contractor fails to correct an imminent danger.

- (4) When approved by the DES Director, contact the appropriate regulatory agency (e.g., MDE, MOSH) to report Contractor non-compliance, and provide support services to regulatory agency representatives as necessary.
- (5) Notify the Project Manager of any observed or reported EHS concern.
- (6) Not prescribe corrective action at a Contractor-controlled site without specific authorization from the DES Director.

C. DES Director or Designee shall:

- (1) In the event an imminent danger exists at a construction site, determine the need to contact UM FM management, the Legal Office, and/or the appropriate regulatory agencies when Contractors fail to make sufficient efforts to correct imminent dangers. In the case of public/private partnerships, or other projects not directly managed by Facilities Management, written notice will be provided to the appropriate responsible parties, the UM Legal Office and the Associate Vice President of Administrative Affairs.

Provide recommendations, as determined necessary, to the appropriate Project Manager and Procurement for discharge of Contractor from the contract.

D. Site Inspectors shall:

- (1) Obtain necessary EHS awareness training to be aware of common environmental permit requirements and safety and environmental hazards associated with construction and renovation projects.
- (2) Inspect and monitor Contractor and subcontractor project activities to ensure contract compliance with EHS requirements.
- (3) Notify the Project Manager and the Contractor of any observed or reported EHS concern, but do not prescribe corrective action at a Contractor-controlled site without specific authorization from the DES Director.
- (4) Report uncorrected imminent dangers to the UM Project Manager and DES.

E. Contractors and Subcontractors:

- (1) Comply with all EHS contract requirements as well as applicable federal, state, and local regulations.
- (2) Provide all safety and personal protective equipment (PPE) required to complete the contracted scope of work. PPE equipment must meet or exceed the requirements of the appropriate governmental regulatory agency.
- (3) In the event of an incident, ensure that copies of Material Safety Data Sheets are immediately available for all hazardous chemicals and products that will be brought onto campus.

- (4) Process all hazardous waste described under Section IV.B.16 through DES by calling (301) 405-3163/2. All hazardous waste containers must be closed, labeled to identify the container contents and in good condition. State and federal regulations require the use of the federal Hazardous Waste Label.
- (5) Ensure the supervisor on-site is well trained on EHS activities and regulations in the performance of the work.
- (6) Be familiar with the contents of this guidance document as it applies to the contracted scope of work.
- (7) Provide a copy of the firm's safety and health program as an attachment to the bid proposal and/or acceptance of contract.
- (8) Notify DES when hot work is to be performed (welding, cutting, etc.) Appropriate permits should be obtained and filed with DES). This can be done through the DES web site (<http://www.des.umd.edu/>)
- (9) Review UM's lockout – tagout procedures when working on UM controlled equipment and sites.
- (10) Provide all specified submittals for review as deliverable documents where required for asbestos and lead removal work (i.e. NESHAP notifications with Maryland, DES asbestos abatement permit, etc.).
- (11) If work is to be done in a confined space, check the UM inventory for special hazards via the DES web site described above. Contractor's should follow their Confined Space Entry program requirements. Notify Work Control (301-405-2222) when an entry is to be made. Forward a copy of completed permits to DES at 3115 Chesapeake Building, College Park, MD. 20742, or via fax (301-314-9294).

VI. General UM Environmental, Health, and Safety Requirements

The following information is provided to assist FM employees in recognizing hazards that may occur in conjunction with contractor projects; facilitate communications between FM and DES regarding construction EHS issues; and to minimize risks that construction activities may impose on UM employees, visitors and the campus environment. Project Managers, Site Inspectors and DES staff should identify EHS concerns to the Contractor, but not prescribe corrective actions. Contractors may be directed to government web sites or other generally recognized information services.

A. Emergency Procedures

- (1) Reporting Emergencies:

If a Contractor notices signs that may indicate a fire, gas/vapor release, downed electrical wires, releases to the environment, etc., the contractor shall call 911 or call the campus Police using one of the available campus emergency "Blue" phones. Provide the 911 operator with as much detail as possible, caller's name and the employer's name. Remain on the phone until the operator has verified

the information. At this point, unless otherwise told, the Contractor should leave the area per their Emergency Response Guidelines and notify the Project Manager, Site Inspector, or DES immediately.

(2) Contractor Responses:

Upon hearing any alarms, the contractor should stop all work and evacuate as necessary. This includes ceasing all welding and burning activities, shutting off all equipment (electrical, motorized, and pneumatic), and extinguishing all sources of ignition.

The Contractor supervisor or crew leader should take a head count to ensure that all contract personnel are accounted for. The Contractor personnel should remain within at a safe distance of the area they evacuated until the “ALL CLEAR” is announced and a UM employee has instructed them that they may return to work.

(3) Obtaining Assistance for a Medical Emergency:

If the contractor requires assistance for a Medical Emergency, it can be obtained by calling 911. When the person answers, the caller shall identify the area where assistance is needed, type of injury or accident, his/her name, and the company name. The caller should not hang up until all the information has been verified.

(4) Accident/Incident Reporting:

If a person is seriously injured or the Contractor becomes aware of a fire, explosion, fatality, or other serious incident, the Contractor should immediately notify Campus Police. The UM Project Manager and DES should then be immediately informed of the incident. Contractors are responsible for notifying MOSH in the event of a fatality or multiple injuries involving their employees. News releases should be coordinated with the UM Communications office on campus.

B. Work Issues

(1) Protection of Property:

In accordance with the project contract, the Contractor will be held liable for all damage to personal and real property as a result of the contractor’s negligence to provide appropriate protective measures.

(2) Clean-Up:

The Contractor shall keep the work area, specifically walking and working surfaces, clean and free from debris and trash which could cause slipping and tripping hazards. Tools, materials, dirt, lumber, concrete, metal, insulation, paper, etc. should be promptly cleared and disposed of by the Contractor. All debris should be disposed of each day off the campus or in a Contractor supplied dumpster.

(3) Demolition: Preparatory Operations

- (a) Coordinate utility and mechanical service modifications with FM Work Control in advance of work.
- (b) Provide public pedestrian protections such as barrier fences and sidewalk sheds in accordance with local building code; and coordinate vehicle traffic control with campus police, subject to MUTCD (2000).
- (c) Identify potential hazardous material conditions at the site. When potential hazardous conditions are apparent or suspected, testing shall be performed and the hazard eliminated before demolition starts. Common hazardous material site conditions include (but are not necessarily limited to); asbestos-containing building materials (ACBMs), lead-based paint (LBP), polychlorinated biphenyls (PCBs) in lamp ballasts, mercury in fluorescent lamps and thermostats, microbial amplification reservoirs (molds, fungi, animal droppings), recoverable refrigerants, caustics, corrosives, metals, and petroleum products.

(4) Asbestos and Lead-Based Paint

- (a) Asbestos-containing building materials and lead-based paint coated substrates are located throughout UM buildings and present special management requirements. These materials are regulated by MOSH, OSHA, MDE and USEPA. An asbestos inventory is located on the DES web site and can be referenced to assist with asbestos identification.
- (b) An inspection of building materials for the presence of asbestos and lead hazards must be conducted prior to initiating renovation and demolition projects. Facilities Management-Operations & Maintenance (FM-O&M) manages On-Call contracts with several firms that can perform asbestos and lead-based paint surveys and abatement. DES recommends that Project Managers contact FM-O&M prior to renovation to arrange for survey and abatement work through these on-call firms. These firms have met specific qualifications of insurance, work and training through a competitive bid process and are familiar with UM procedures in this area.

- (c) Federal and state regulations require the identification and management of asbestos and lead-based paint prior to renovation or demolition. On larger projects, management by FM-O&M on-call abatement and Project Monitoring firms should be coordinated to precede the General Contractor's work.
- (d) All asbestos abatement projects must be overseen by a Project Monitor unless specifically directed otherwise by the Project Manager and approved by DES. The Project Monitor is an approved industrial hygiene firm that is professionally insured and qualified to provide abatement oversight. The Project Monitor must provide a scope of work that includes sampling protocols and the submission of a Project Monitoring Report for DES review. The report must include an executive summary of all project activities and verification that all required abatement submittals meet technical specifications.
- (e) Asbestos and lead-paint abatement contractor's final progress payment should be withheld by UM's Project Manager until DES completes review of the Project Monitoring Report. For large projects, it is recommended that FM's Project Manager withhold at least 20% of payments until DES completes review of the Project Monitoring Report.

DES is available for consultation with Project Managers and Site Inspectors on all aspects of asbestos and lead-based paint related work.

(5) Portable Ladders and Scaffolds:

All walking/working surfaces including ladders and scaffolds that may be utilized by UM employees are subject to inspection by DES for compliance with OSHA regulations.

(6) Site Access and Use:

All sites must have controlled access to limit unauthorized individuals from entering the construction or renovation area. Large projects within a defined boundary, such as a new building site, must be fenced. Smaller sites within or in the vicinity of buildings must have temporary fencing, barricades, etc. subject to building code requirements. Building doors and roadways may not be blocked without the approval of the Project Manager or Site Inspector. The use of parking lot space must be pre-approved by Campus Parking.

(7) Fall Protection:

OSHA standards on fall protection must be followed. Major issues include:

- Providing engineering controls as a primary protective mechanism.
- Providing a Competent Person at the job site where fall hazards exist.
- Providing personal protective equipment and training to protect employees from fall hazards where engineering controls are not feasible.

(8) Contractor Tools and Equipment (including Manlifts) :

All equipment brought to a project site by Contractors must be in safe operating condition. All guards must be in place, and meet or exceed all applicable governmental regulations (OSHA, EPA, DOT, etc).

(9) Transfer of Flammable Liquids to Containers, Equipment, and Vehicles:

All small quantities (5 gallons or less) of flammable liquids must be stored in an approved UL listed safety can in approved storage areas at the project site. Equipment refueling must be accomplished by using vehicles and hoses that are maintained, inspected and in good condition. All vehicle engines must be turned off during refueling activities. Using UM fuel pumps for refueling contractor equipment is prohibited. ABC rated fire extinguishers (10-lb. minimum) must be provided in the immediate area of the refueling and chemical storage areas. It is recommended that the transfer of flammable liquids from drums to small containers incorporate the use of grounding and bonding.

(10) Electrical Safety/Lockout/Tagout

Work on UM electrical systems is prohibited unless employees or groups have been given authorization by the Vice President of Facilities Management to work on these systems. These systems include premise wiring, wiring for connection to supply, installations of other outside conductors on the premises, installations of optical fiber cable where such installations are made along with electrical conductors and work around exposed energized parts.

Groups currently holding authorization to work on UM electrical systems include; Facilities Maintenance, Residential Facilities, Dining Services and Contractors under their control. Additional authorizations will be reviewed and granted as appropriate.

All work on electrical systems must be performed in a “De-Energized” state as required by OSHA unless employees have been authorized to work on systems live. Exceptions to the De-Energized rule may be made for work where it can be demonstrated that de-energizing introduces additional or increased hazards or when troubleshooting or maintenance can only be performed on a live system.

Only authorized/qualified persons may work on electric circuit parts or equipment that have not been de-energized. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials and insulated tools. UM employees who are authorized to work on UM systems are the authorized University maintenance staff as and licensed electrical contractors and sub-contractors, working from designs that have been reviewed and approved by Facilities Management.

For systems that are de-energized and subsequently locked and tagged out, UM personnel and UM contractors must inform each other of their respective lock-out tag-out procedures and shall understand and comply with the applicable restrictions and prohibitions. UM employees are required to perform lockout – tagout in accordance with the UM policy and program VI-14.00(A) UM Policy on Control of Hazardous Energy During Maintenance of Equipment.

(11) Confined Space Entry:

If a contractor is performing work that requires a confined space entry, the contractor must provide employees who are trained and qualified as required by 29 CFR 1910.146 (i.e. Authorized Entrants, Attendants, Entry Supervisor/Competent Person, Rescue and Emergency Services, etc.). DES has identified permit required and non-permit required confined spaces and associated hazards on its web site (<http://www.des.umd.edu>). The UM Project Manager must inform the Contractor of identified confined spaces they may encounter as part of the project. Unless the project site is fenced and controlled by the contractor or subject to a public/private agreement, contractors must contact Work Control (301-405-2222), provide notification of a planned confined space entry and forward a copy of the contractor's Confined Space Entry Permit to the DES. If a confined space is to be added, demolished or altered, complete the confined space survey form and forward it to DES.

(12) Excavation Safety:

All excavations on UM property must be performed in accordance with applicable OSHA regulations (shored, sloped, shielded, barricaded, acceptable egress, etc.). The contractor is responsible for providing a "Competent Person" at every excavation site. This individual must be capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them. Also he/she must be able, through experience or training, to determine the suitability of equipment or materials used for support systems, shield systems, and other protective systems. Prior to starting the actual excavation, the contractor must

ensure that all underground utility installations in the area (such as electrical, phone, gas, sewage, water, irrigation and fuel lines) have been identified. On the College Park campus, contact Work Control (301-405-2222) to request a utility marking.

(13) Welding/Burning/Torch/Soldering:

DES has an established hot work policy. No hot work is allowed without a permit. A copy of the policy may be obtained from the UM Project Manager or DES. A hot works permit can be completed online at the Department of Environmental Safety Homepage (<http://www.des.umd.edu>).

(14) Hazard Communication (HAZCOM) Standard:

OSHA requires that contractors train their employees in basic chemical safety precautions and in precautions required for chemicals they work with, so as not to cause a hazard for themselves and others in the vicinity. UM expects that all contractors will comply with OSHA's HAZCOM Standard requirements. PM's must also ensure that contractors make MSDSs available for chemicals used in areas where UM faculty, students and staff may be exposed.

(15) Personal Protective Equipment (PPE) and Hazard Signage:

- (a) Contractors must not create hazards for UM employees, students and visitors. Hazardous areas should be properly secured and signage should be posted to identify PPE required at the project site and hazards posed by site activities.
- (b) If non-contractor persons need to enter or pass directly through the work area, the contractor may be expected to provide appropriate Personal Protective Equipment (PPE) for such visitors at anytime. The PPE to be made available is dependent on the hazards posed by construction activities. Typically, hard hats and safety glasses are required.

Safety equipment supplied and used by contractors is expected to comply with OSHA requirements.

(16) Hazardous Materials:

There are many hazardous materials at UM. These materials are typically found in laboratories in the form of chemicals, biological agents, and radioisotopes. Contractors must avoid creating an unsafe work environment or cause disruption of any lab activity when working in these areas.

The following precautions should be followed by the Contractor before working in a laboratory or hazardous material storage area. In addition, these guidelines apply to hazardous materials the Contractor brings and stores on a project site.

- (a) Advise the laboratory supervisor or primary researcher what work will be completed so appropriate precautions can be taken.
- (b) Avoid contact with any lab equipment left in the work area.
- (c) Material Safety Data Sheets for all chemical compounds used at the job site should be immediately available on-site or off-site. Contractors must be capable of providing a MSDS within 1 hour of an incident. Contractor employees should carefully read container caution labels and be able to provide information concerning the hazardous materials they are using or storing.
- (d) When using chemical compounds, especially odorous products, appropriate precautions should be followed as stated on container labels. As necessary, proper ventilation should be established prior to their use. The UM Project Manager may require modification of existing ventilation systems or restrict work to specific days/times to minimize occupant chemical exposure.
- (e) Containers of chemicals and hazardous materials brought on site by a Contractor must be stored indoors; labeled with the manufacturer's original label and remain closed, except when removing material from the container. The indoor area used for storage must be secure and not be located where a release could enter the environment, a sewer system or cause a hazard to other building activities.
- (f) Compressed gas cylinders should be clearly labeled to identify their contents and chained or otherwise secured to a fixed object, such as a wall, to prevent them from falling and releasing their contents.
- (g) The disposal of chemicals or hazardous materials via sinks, drains, ground disposal or by evaporation is prohibited. Nothing should be poured down building floor drains or storm drains including, but not limited to, chemicals, chlorinated water, detergents, glycols, and oils/fuels.
- (h) Portable fuel tanks at construction sites must be staged away from storm drains and any body of water. The tanks should be properly labeled and have secondary containment to contain any spills or leaks.

(17) Hazardous and Regulated Waste:

UM requires that materials or substances classified as hazardous or regulated waste be handled carefully and receive proper disposal. Examples include, but are not limited to: paints, thinners, glues, solvents, gas cylinders, cathode ray and television tubes, fluorescent or H.I.D. (high intensity discharge) lamps, lamp ballasts, batteries, ACM, LBP debris, oils/fuels, freon, glycols, corrosives, and CFCs. Shipments of hazardous and regulated waste must be processed through DES. Disposal costs for these materials will be charged back to the project. The University is only responsible for University generated waste. Hazardous waste generated by the contractor will be the contractor's responsibility and will not be processed by the University. Hazardous waste generated by contractors may not be stored on-site during construction and renovation projects, except ACM and LBP abatement projects. Storage related to these projects must be in a secured indoor area in containers or outdoors in a covered roll-off that are marked with the words Hazardous Waste and a description of the waste, and the date waste was first placed in the container. All containers must be in good condition and closed when waste is not being added to the container.

- (a) Fluorescent lamps and H.I.D. lamps are to be removed from fixtures with care and placed in special cartons provided by DES. Since these lamps contain mercury it is important that they are not broken, releasing toxic mercury dust and vapor into the environment. Coordinate the removal and disposal of these materials with DES.
- (b) Fluorescent lamp ballasts containing PCBs (polychlorinated biphenyls) must be removed from fixtures and placed in pails or drums for disposal by DES.
- (c) Batteries containing heavy metals must not be placed in University trash containers. DES collects these batteries for proper disposal or recycling. Batteries used by contractors are the contractor's responsibility and are to be removed from University premises when spent.
- (d) Asbestos removal from University buildings is considered regulated waste and is the responsibility of the asbestos abatement contractor to properly remove and dispose as required by their contract and applicable regulations. FM and DES coordinate the assessment and removal of asbestos in existing structures.
- (e) Lead-based paint removed from structures or their components is considered hazardous waste and must be properly disposed. Coordinate the disposal process, including manifesting and scheduling of any containers or roll-off dumpsters with DES (UM's controlled waste vendor requires at least 3 days advance notice to deliver a roll-off container). DES may assist in determining if paint or painted material contains lead and if it requires

special handling or disposal as a hazardous waste.

- (f) Tritium gas-containing exit signs, when removed under renovation work, must be collected and disposed of properly. Contact DES to evaluate and assist with this process.

(18) Spills and Releases:

Regulatory agencies require containment and remediation of all spills or releases of hazardous materials, including fuels, oils and anti freeze. Contractors who spill, or detect a release, of a hazardous material on UM property must report it immediately to DES or the Campus Police. Clean-up costs resulting from a spill or release caused by a contractor are the contractor's responsibility. Depending on the substance and quantity, DES may notify regulatory agencies. Cleanup and restoration of the contaminated area must be performed to regulatory and UM acceptable levels. DES will coordinate analytical testing to determine the extent of the contamination and the acceptable cleanup level. DES, at its discretion, may elect to conduct the cleanup and charge associated costs to the project or allow the contractor to conduct the cleanup based on the material released and site conditions. If the contractor conducts the cleanup, proper documentation, including manifests, for the disposal of the hazardous material, contaminated soil, and any other materials contaminated during the spill or release must be provided to DES.

(19) Natural Resources Permitting and Compliance Issues:

Natural resources or environmental permits such as those for Sediment and Erosion Control, Storm Water Management, Forestation, or for work in Non-tidal Wetlands or within 100-year Floodplains should be obtained prior to start of construction and should be reflected in the contract documents of the project. Natural resource permitting may take as long as one year and must be obtained prior to construction. It remains the responsibility of UM as the owner to insure that these regulations are complied with. If a Project Manager or any responsible person connected with the project observes work that violates environmental regulations, or fails to follow the contract or applicable permit requirements, this should be brought to the attention of the Contractor to correct. The deficiency should be noted in the project's log. If the Contractor fails to comply in a timely fashion, the incident should be brought to the attention of the Director of DES for further action.

(20) Fire Protection/Life Safety:

The following fire protection and life safety requirements apply to all construction sites:

- (a) **Applicable Codes:** All work must be performed in accordance with NFPA 1 (National Fire Prevention Code), NFPA 101 Life Safety Code and NFPA 241 (Standard for Construction, Demolition and Alterations).
- (b) **Working Plans and Shop Drawings:** A set of design drawings approved by DES must be on site at all times. For small projects, the Project Manager should contact DES Safety & Code Services (301-405-7487) to determine the need for drawings, plans, approvals and inspections. DES Safety & Code Services will generally provide expedited assistance and have limited requirements for such projects.
- (c) **Fire Alarm Systems:** Existing fire alarm systems must remain in service whenever a building is occupied. Outages in existing fire alarm systems should be kept to a minimum. All fire alarm system outages shall be scheduled through UM Operations and Maintenance Life Safety Systems at 301-405-2222. Once all fire alarm system work is completed, an acceptance test must be scheduled through Safety & Code Services at 301-405-7487.
- (d) **Automatic Sprinkler Systems:** Existing sprinkler systems must remain in service whenever the building is occupied. A sprinkler contractor licensed in the State of Maryland shall perform all modifications and additions to an existing sprinkler system. All sprinkler system outages shall be scheduled through UM Operations and Maintenance Life Safety Systems at 301-405-2222. Once all sprinkler system work is completed, a hydrostatic test must be scheduled through DES at 301-405-7487. DES approved shop drawings must be on site at all times for any sprinkler work performed by a Contractor.
- (e) **Corridors/Exits:** Corridors, stair enclosures and exits must remain clear at all times in occupied buildings. Storage is not permitted in corridors, stair enclosures and exits.
- (f) **Gas Cylinders:** All compressed gas cylinders must be transported, used and stored properly. All cylinders (full or empty) must be secured in place at all times.
- (g) **Flammable and Combustible Liquids:** Storage of flammable and combustible liquids must be in accordance with NFPA 30 (Flammable and Combustible Liquids Code).

- (h) Fire Extinguishers: At least one fire extinguisher must be provided in plain sight on each floor for each construction area.
- (i) Smoking: Smoking is not permitted in the buildings at any time.
- (j) Final Occupancy: Occupancy is not permitted until a final occupancy inspection is completed by DES.

C. Small Projects – FM routinely conducts “small projects” with the use of internal and Contractor resources. Small projects involve minor activities such as the replacement or installation of carpeting, ceiling tiles, walls, dividers, cubicles, small equipment, etc. FM will assign a Project Manager who may also be the Site Inspector. For such projects, Project Managers must:

- (1) Obtain the necessary EHS awareness training to be familiar with the environmental and safety issues involved with the specific project they intend to manage.
- (2) Contact Safety and Code Services (301) 405-7487 to determine the need for drawings, plans, approvals and inspections; as well as a pre-demolition hazardous material abatement survey.
- (3) Contact Facilities Management if the project impacts existing building utility systems.
- (4) If a Contractor will perform all or a portion of the work, ensure the project contract requires the Contractor to comply with all applicable federal, State and local environmental and safety regulations and requirements.
- (5) Adhere to all fire and life safety guidelines in this document.
- (6) Adhere to all other applicable guidelines in this document based on the nature and scope of the project.

VII. Regulatory Requirements and Information

The EHS regulations that apply to construction and renovation activities on campus are numerous and constantly undergo modifications and additions by the regulatory agencies. For projects managed by FM, DES reviews and comments on draft specifications and design drawings to identify applicable EHS regulatory requirements and environmental permitting issues. Environmental permitting may take as long as one year and must be obtained prior to construction. It is advised that the Natural Resource Permitting Manager and the Environmental Affairs unit be consulted during the project planning stage to determine applicable environmental permitting requirements, schedules and fees.

Several sources of regulatory information are available to Project Managers and Site Inspectors. These include:

- A. Several topic specific Fact Sheets prepared by DES that identify applicable regulatory citations and summarize key requirements. The Fact Sheets are typically 2 to 3 pages in length and are available at: <http://www.des.umd.edu/compliance/factsheet/index.html>. Appendix C is a printout of the web page as of August 2002 and lists the available Fact Sheets. The Fact Sheets are updated annually.
- B. Federal OSHA's web site (<http://osha.gov/doc/topics.html>) also has summaries of individual EHS topics related to construction as well as online training. Appendix D is a printout of the above-described web page as of August 2002.
- C. Maryland OSH also provides regulatory information and provides a listing of available seminars on its web page, which may be found at: <http://www.dllr.state.md.us/labor/mosh.html>. Appendix E is a printout of the web page as of August 2002.

VIII. Public/Private Partnership Projects

The University is increasingly developing projects through public/private Memoranda of Understanding (MOU). The MOU establishes the contractual terms and conditions for the project and will place responsibility for EHS compliance on the private developer. Ultimately, the private developer's contractors and subcontractors will be responsible for the safety of their employees and compliance with OSHA requirements. DES will support the project by providing Fire Marshal services. Therefore, they must approve project design drawings, conduct inspections and perform testing. The Fire Protection/Life Safety requirements previously described will apply to public/private partnerships. The developer and its contractors must also obtain required environmental permits and comply with applicable environmental regulations and permit requirements. In the event a UM employee observes an imminent danger as defined in Section II of this document, they should notify the DES Director and the UM Legal office.

IX. Regulatory Agency Inspections

Contractor sites are subject to inspection by safety and environmental regulatory agencies for compliance with applicable regulations and permit conditions. In all cases, the contractor should immediately inform the Project Manager if a regulatory agency conducts a site visit; provide the results of the inspection and the schedule of corrective actions the contractor will take to remedy deficiencies, as applicable. In the event of an environmental regulatory inspection, the Project Manager should notify the Manager of Natural Resource Permitting (301-405-3462) regarding the conduct of natural resource inspections (i.e. sediment/erosion control, wetlands, forestation, floodplains); the DES Environmental Compliance Manager (301-405-3163) regarding the conduct of other environmental inspections (i.e. stormwater discharges, regulated and hazardous waste, air quality, spill/releases); and the

Assistant Director of Occupational Safety and Health (301-405-3965) for safety related inspections (MOSH/OSHA) .

Construction sites are also subject to fire protection and life safety inspections by the DES Fire Marshals. The Fire Marshal should notify the UM Project Manager of any significant deficiencies observed during inspections and testing.

Public/private developments are subject to the terms of the MOU. The Fire Marshal will directly notify the developer and contractor of any deficiencies identified during inspection and testing activities. The contractor should immediately notify the DES Environmental Compliance Manager (301-405-3163) of any identified environmental deficiency that may impact the campus environment including air, water or soil; or the off campus environment through air dispersion, surface or subsurface migration or campus utilities.

APPENDIX A

DES SUBJECT SPECIFIC CONTACTS

<https://des.umd.edu/apps/employee/list.cfm>

APPENDIX B

ASBESTOS PERMIT

<http://www.des.umd.edu/general/form.html>

APPENDIX C

DES ENVIRONMENTAL HEALTH AND SAFETY FACT SHEETS

<http://www.des.umd.edu/compliance/factsheet/index.html>

APPENDIX D

FEDERAL OSHA WEB PAGE

<http://osha.gov/doc/topics.html>

APPENDIX E

MARYLAND OSH WEB PAGE

<http://www.dllr.state.md.us/labor/mosh.html>