NOVA SOUTHEASTERN UNIVERSITY	ENVIRONMENTAL HEALTH AND SAFETY
POLICY/PROCEDURE TITLE: **CONTRACTOR ENVIRONMENTAL HEALTH AND SAFETY PLAN**	POLICY/PROCEDURE NUMBER: 5

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DOCUMENT HISTORY

OWNER:		Date: 1 Sept 2011
APPROVED:		Date: 1 Sept 2013
IMPLEMENTED:		Date: 1 Oct 2010
RETIRED:		Date:

Date:	Revision No.	Review / Changes	Reviewer
15 August 2013	none		

DOCUMENT DISTRIBUTION

Date:	Distribution	# of Copies

Distribution: The current version is available via NSU intranet. Paper copies of this document require prior approval before printing.

SECTION A

1. INTRODUCTION

Nova Southeastern University has established a policy to comply with all applicable laws and regulations concerning construction activities on all campus property. Good communication is a necessary element for maintaining safety at NSU different locations, thus communication among contractor groups must identify safety hazards and preventive practices that each brings to the worksite. Therefore, NSU has implemented this contractor's health and safety plan for their worksites so that on the job injuries are minimized and work practices may be standardized.

2. PURPOSE

This plan is to provide contractors with a clear and concise understanding of the environmental health and safety requirements and responsibilities of the Contractor while working on NSU property. The plan intends to ensure that all Contractor work practices are carried out safely, thus reducing incidences that cause personal injury, property damage and liability losses due to construction, renovation and demolition of any NSU buildings and facilities.

3. SCOPE AND APPLICATION

All companies, Contractors and Subcontractors associated with any alteration, construction, design, demolition, erection, maintenance and renovation of a NSU building or any part there-off shall be familiar with the guidelines. This plan is not intended to represent or replace the Contractor's own program for environmental health and safety protection. Although this plan highlights important regulatory issues, it is not an exhaustive outline of all applicable laws and regulations for health and safety concerns.

The Contractors and Subcontractors shall contact Facility Management with any questions or concerns they may have, prior to initiating work. Non-compliance for lack of review or understanding shall not be considered acceptable by NSU or applicable regulatory agencies.

The major objectives of the Contractor Environmental Health and Safety plan are to:

1) Inform Contractors of their responsibilities when working on NSU property.
2) To ensure employees, students, visitors, property and the environment is protected from potential hazards.
3) All companies and Contractors comply with all federal and local safety and environmental regulations.

4. CONTRACTOR INSURANCE REQUIREMENTS

Prior to the commencement of work on NSU campuses, and for the duration of the project the following minimum insurance coverage shall be maintained by the Contractor and any Subcontractor working on the project. Nova Southeastern University, Inc. is exposed to a financial risk from potential negligent acts when hiring Contractors and construction-related services involving new construction, renovation, remodeling or general maintenance of all properties owned by the University.

Prior to the commencement of any work, the Contractor must provide a Certificate of Insurance evidencing coverage in compliance with NSU's insurance requirements and name Nova Southeastern University, Inc. as additional insured. The scope of coverage and deductible shall be shown on the certificate of insurance. The certificates of insurance and endorsements shall provide for no cancellation or modification of coverage without thirty days written notice to the University.

To reduce this potential financial exposure, all Contractors and Subcontractors are required to maintain a comprehensive insurance program as follows:

4.1 Worker's Compensation Insurance

Insurance for the benefit of injured employees as required by the law with the requirements of the statutes of the jurisdiction(s) in which the operations will be performed, covering all employees.

(i) Statutory Worker's Compensation limits
(ii) Employer's Liability limits of $1,000,000 bodily injury by accident, each accident, $1,000,000 bodily injury by disease, policy limits, and $1,000,000 bodily injury by disease, each employee per occurrence

4.2 Comprehensive General Liability Insurance

The Contractor's Commercial General Liability (CGL) shall be in the amount of $2,000,000 for Annual Aggregate per project and for Bodily Injury, death and Property Damage in the amount of $1,000,000 for each occurrence, including without limitation, contractual liability, product, and completed operations, with $5,000,000 Umbrella coverage per occurrence and $5,000,000 annual aggregate. The coverage must include:

- Fire Legal Liability
- Medical Expense Coverage
- Underground, explosions, and collapse hazard
- Products/Completed Operations
- Contractual Liability Insurance

4.3 Comprehensive Automobile Liability Insurance

Applicable to all automobiles owned, hired, rented or used by the Contractor, in addition all automobiles not owned by but used on behalf of the Contractor. The required insurance must be written by insurance companies licensed to do business in the jurisdiction(s) where the work is being performed. A copy of the policy shall be provided if request by NSU. All applicable deductibles shall be the responsibility of the Contractor to pay in the event of a loss. The policy will provide the following minimum limits:

Combined Single Limit $1,000,000 per occurrence and $2,000,000 annual aggregate for death, bodily injury and property damage, covering any automobile or other vehicle including, without limitation, owned, non-owned, leased and hired vehicles.

Contractor shall name Nova Southeastern University, Inc., its officers, trustees, agents, and employees as additional insured under its commercial general liability and auto liability policies. Contractor's insurer shall have a Best rating of no less than AIX. Contractor shall notify NSU at least thirty (30) days prior to any cancellation, reduction or material change in coverage.

4.4 Indemnification

The Contractor shall defend, indemnify and hold NSU harmless from any and all suits, actions or claims by the contractor's employees who suffer personal injury while on the premises of NSU provided the injuries are not caused by the sole negligence of NSU. The Contractor shall be responsible for any damage to and for:

1) The Contractor's property while on NSU campuses.
2) NSU property/campuses under construction by the Contractor.
3) NSU property caused by the negligence or fault of the Contractor, their employees and/or the subcontractor.

5. ROLES AND RESPONSIBILITIES

The Facilities Management at NSU is responsible for developing and maintaining the program. A copy of the plan may be reviewed by employees and is located with the Safety Officer at Facilities Management.

5.1 NSU Facilities Management Responsibilities

1) Ensure all Contractors and Subcontractors are aware of their responsibilities under the NSU Contractor Environmental Health and Safety Plan.
2) Ensure Contractors have their own Environmental Health and Safety plans in place in accordance with federal and local regulations.
3) Ensure all potential work-site hazards are addressed in the pre-construction planning phase. Inform the Contractor and Subcontractor of any known potential fire, explosion, or toxic release hazards related to the contracted project.
4) Take measures to protect the workers who perform work on or near potentially hazardous areas.
5) Explain the applicable rules of the emergency actions plan to the Contractor, and ensure that the Contractor has notified all workers who will be working on NSU sites of this emergency action plan.
6) Verify that supervisor of the Contractor has taken and completed an OSHA 10 Hour Hazard Recognition Course or a similar approved course.
7) Maintain a copy of the Contractor's employee injury and illness log.

5.2 Contractor Responsibilities

1) Contractors are to assure their employees are trained in the work practices necessary to safely perform their job.
2) Prior to the start of the project, each Contractor is required to review the work area and identify any potential hazards that may occur while performing the project/job.
3) As required by OSHA, Contractor(s) are responsible for advising their employees on the emergency signals and the primary evacuation route. The contractor shall have an accounting system in place in the event an emergency occurs to ensure all personnel are accounted for.
4) Conduct a health and safety inspection daily to prevent illness, injury and accidents from occurring at the job site.
5) The Contractor shall notify NSU of all hazardous and "universal" waste that will be generated on site. The contractor shall properly label, maintain and store hazardous and universal waste of in accordance with federal EPA regulations.
6) All Subcontractors are required to abide by the same rules to which the Contractor is bound in this plan.
7) The Contractor shall ensure all persons working at the job site are trained and aware of potential hazards and ensure these individuals are provided with proper safety equipment to prevent accidental injury in accordance with OSHA's regulations.
8) The Contractor(s) shall hold weekly environmental health and safety meetings. The meetings may be attended by the Environmental Health and Safety (EH&S) officer.
9) Barricades, guards and signs must comply with ANSI Standard D6.1, Uniform Manual of Traffic Control.
10) The Contractor(s) shall not permit the drinking of alcohol or the use of drugs (other than those which are medically prescribed) at the job site or on the grounds of NSU campuses, in addition all Contractor's employees must abide by the University's smoking rules, which may prohibit smoking in certain areas of the campus.
11) The Contractor shall ensure that all employees/workers are not in possession of weapons at the work area or on the grounds of NSU campus.
12) Ensure there is no destruction, defacement or improper removal of NSU property.

6. PROCEDURES AND GENERAL REQUIREMENTS

6.1 Hazard Information

The Contractor shall contact the Facilities Management Department prior to the start of the project, to ensure they have all pertinent information for the assigned project including hazard, permits, floor plans and utility information.

Certain activities that may impose a high level of risk for the University may be restricted or prohibited. NSU may impose additional safety or environmental requirements upon the Contractor due to certain hazards of the particular project.

Projects where additional requirements may be necessary due to potential hazards are:

- Working in or around chemical, biological, or radioactive materials (especially labs).
- Contractor required to use highly hazardous substances.
- Working with asbestos- or lead-containing materials.
- Mold remediation.

- Working with energized systems.
- Disablement of security or fire protection systems.

The Contractor shall be responsible for the removal and/or disposal of hazardous waste generated from the project. Hazardous waste generated from the project must be removed and disposed of in accordance with federal and state regulations and NSU Hazardous Waste Plan.

All Contractors performing inspections, construction, repairs and demolition at NSU are to comply with the requirements as outlined in this plan. Failure to adhere to these requirements may result in an immediate shutdown of the worksite and project which is a breach of contract with the University.

6.2 Security and Site Logistics

All Contractors and employees while on NSU properties are required to wear identification badges (visitor tag) or stickers on their clothing. Contractors are required to maintain a daily attendance log of their employees to be used in the event of an evacuation or catastrophe.

Contractors and employees are required to obtain parking permits while on NSU properties. Contractor permits are valid only inside the applicable construction sites or specifically designated areas as specified by the contract or University. The Contractor shall notify the University's parking office in advance to the number of parking permits required for their employees. Contractors and employees are subject to ticketing and fines if University parking rules are not observed.

6.3 Housekeeping

The Contractor must consult with the Facilities Management Department prior to bring materials and/or equipment onto the site, so storage locations can be determined and designated. Materials and equipment are to be placed in an orderly manner in public areas so there are safe passageways for staff, faculty and students.

At the end of each work day, all tools, supplies etc., will be removed and stored in the appropriate storage areas. Contractors will ensure that employees clean the work sites at the end of each day, plus containers/bins should be provided to discard any scrap metal, wood or wire. Contractors are to ensure that the appropriate safety barricades are installed around open holes, trenches or other worksite hazards to assure that no injury is caused to workers or University faculty, staff and students.

SECTION B

1. ASBESTOS

1.1 PURPOSE

This section is to inform Contractors of their responsibilities under NSU's Asbestos Management Program which was developed in accordance with the United States Department of Labor, Occupational Safety and Health Administration (OSHA) and Asbestos Standards [29 CFR 1910.1001, 29 CFR 1926.1101] to prevent the unintentional disturbance of Asbestos Containing Materials (ACM). Building materials that contain more than 1% asbestos are considered ACM which require proper work practices and engineering controls to be used including the appropriate PPE.

1.2 ASBESTOS CONTAINING MATERIALS (ACM)

Nova Southeastern University buildings are assumed to contain asbestos until proven otherwise by the EH&S office. Types of ACM possible found in University buildings are:

- Thermal system insulation (pipe, boiler, fume hoods)
- Fireproofing
- Compounds (caulking, adhesives, plaster, joint compound)
- Flooring (vinyl floor tile, sheet goods)
- Textiles (rope, fire curtains)
- Cementitious (roofing and siding shingles, countertops)
- Acoustical (plaster, ceiling and wall tiles)

1.3 RESPONSIBILITIES

Contractors performing demolition or renovation work at the University who encounter suspect asbestos-containing materials, must either assume that the material is asbestos, or work with the EH&S office to obtain the services of a qualified consultant to sample and determine the asbestos content of the material. The Contractor shall immediately stop work until the material has been analyzed and remediated as appropriate. If the material is assumed or tested positive (more than 1% for asbestos content), the material may only be disturbed or removed by a qualified abatement Contractor.

Requirements for Contractors:

1) Request from the EH&S office, the location of any known or presumed asbestos containing building materials that may be in the work area before starting any maintenance, equipment installation, renovation, alteration or demolition projects.
2) Ensure that all work is in compliance with all applicable federal and state regulations.
3) If any ACM or suspect material is encountered, the contractor should immediately stop work and contact the EH&S office.

4) If asbestos is impacted or accidentally disturbed, all necessary precautions shall be taken by the Contactor to protect University staff, students and visitors from the exposure to asbestos fibers or contamination.
5) Contractors shall provide their employees with asbestos awareness training as required by OSHA and the location of any possible ACM in the contracted work area.
6) The Contractor will perform an exposure assessment of the job site and provide the employees with the appropriate personal protective equipment if necessary.

1.4 REGULATIONS

OSHA 29 CFR 1910.100,	Asbestos
OSHA 29 CFR 1926.1101,	Toxic and Hazardous Substances
DOT 49 CFR 171 – 172	Hazardous Materials Regulation
EPA 40 CFR 61, Subpart M,	National Emission Standard for Asbestos

1.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

2. INDOOR ENVIRONMENTAL QUALITY

2.1 PURPOSE

Prevent indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and NSU employees, students and faculty. To inform Contractors of their responsibility when performing renovations and construction at NSU that can create unusual situations and conditions that might impact indoor environmental quality.

2.2 ACTIVITIES IMPACTING AIR QUALITY

Contractors are to minimize the impact of construction-related activities such as the removal or replacement of walls, or the modification or installation of ventilation equipment which can expose the indoor environment to previously isolated environmental contaminants.

Occupants/employees of the areas to be repaired, renovated, or for construction will be temporary relocated prior to commencement of activities which could affect the overall indoor environmental quality. Such activities include but not limited to:

Activity	Contaminant/Physical Agent
Carpeting (replacement)	Volatile organic compounds
Walls (replacement)	Dust, fibers
HVAC (replacement, repair)	Dust, asbestos, mold, fiberglass
Ceiling tiles or other materials	Fiberglass, mold
Sanding and grinding	Dust, fibers and particulates
Roofing	Coal tar pitch volatiles
Flooring, painting	Volatile organic compounds
Welding and cutting	Lead, carbon monoxide, ozone
Demolition	Asbestos
Jack-hammering	Noise, vibration

2.3 RESPONSIBILITIES

The EH&S office at NSU is responsible for coordinating all hazard identifications and industrial hygiene sampling. NSU will conduct air, bulk and wipe sampling as necessary by either using internal resources or consultants selected by the EH&S office.

Prior to any work being conducted, and after workers have been relocated (if appropriate), baseline testing should be conducted by an outside testing consultant.

Prior to and during construction-related activities including repairs, Contractors are required to implement or follow these procedures:

1) Whenever possible Contractors must use the least toxic compound to accomplish the project.
2) Contractors will keep sources of air contaminants such as exhaust or roofing compounds away from building air intakes.

3) Contractors shall not permit their employees to be exposed to air contaminants in excess of established occupational exposure limits.
4) Contractors shall utilize engineering controls to minimize the generation of hazardous air contaminants. If engineering controls are not feasible and/or do not adequately control hazardous air contaminants, then Contractors shall utilize administrative controls and PPE to prevent employees from exposures.
5) Contractors working in occupied NSU areas shall not expose NSU employees, students or faculty to air contaminants in excess of established occupational exposure limits. NSU reserves the right to specify exposure criteria for NSU staff, students and faculty that could be more stringent than established occupational limits at its discretion based on the affected population, the air contaminant, and the requirements of the project.
6) NSU reserves the right to determine independent measurements of the project area and exposures to its employees during the assigned work. NSU reserves the right to stop the assigned project, with no financial penalty to NSU, in the event that exposures in NSU occupied areas are deemed unacceptable. Should this condition arise, Contractors are responsible for creating a safe environment in an expeditious manner.
7) At all access points in occupied building areas and the Contractor's work area, critical barriers shall be erected where there is the potential for generation of atmospheric contaminants. NSU reserves the right to request additional critical barriers as needed on a case by case basis.
8) Contractors must maintain good housekeeping habits to control dust and construction debris. HEPA filtered vacuum systems shall be used to minimize recirculation of contaminants. To minimize dust, wet methods will be used when appropriate.
9) Critical barriers made of polyethylene sheeting shall be used on doors, windows, vents, etc. to isolate specific work sites.
10) Contractors and employees are to conduct work activities in a safe manner.
11) All debris or sources of standing water are to be removed from work sites as soon as possible.

Once the renovation/construction activity is completed, the following actions should take place prior to occupancy, or as soon as possible:

1) Thoroughly clean carpeting and other flooring by vacuuming, steam-cleaning, and/or damp mopping, as appropriate. Steam-cleaning should *not* be done if humidity or moisture problems exist in the area but performed immediately after these humidity and moisture problems are resolved. Damp mopping of hard surfaces should be performed using a commercial grade disinfectant and cleaner.
2) A High-Efficiency Particulate Air (HEPA) filter system shall be used during vacuuming operations whenever possible and ensure that it is operating to American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards, and that temperature and humidity levels are at desired levels:
   - Temperatures should be 68^{o}F to 72^{o}F.
   - Relative humidity levels in the air should be maintained between 30% and 50%.
   - Relative humidity below 30% can cause drying of skin and the respiratory system, while values above 50% can result in accelerated mold growth.
3) Remove or address any sources of odor remaining from the renovation/construction activities.

Sources of post-renovation/construction odor can include:

- Elevated humidity with commensurate increase in biological activity (*i.e.*, mold growth).
- Inadequately cured adhesive products.
- Open solvent cleaning containers.
- Uncured paints.
- Inadequate air flow.

4) Ensure all HVAC systems are fully operational, then conduct air/surface closure testing which should be conducted by the same outside consultant who performed the pre-work testing.

2.4 REGULATIONS

OSHA and other regulatory agencies have set the regulations for indoor environmental quality and the permissible exposure limits (PEL's); NSU Industrial Hygiene Plan outlines all the requirements and regulations.

2.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

3. MOLD

3.1 PURPOSE

Mold spores primarily cause health problems when they enter the air and are inhaled in large numbers. To inform contractors of their responsibility when performing renovations and construction at NSU buildings and how to deal with mold when encountered.

3.2 MOLD

Molds, a type of fungi, are found both indoors and outdoors. Molds can grow on a variety of things including; wood, leather, cloth, carpets, sheet rock, drywall, flooring and insulation. It is possible for people to become exposed to molds and their products, either by direct contact on surfaces, or through the air. Certain types of mold produce toxins which can cause allergic reactions and produce flu-like symptoms.

3.3 RESPONSIBILITIES

All Contractors before starting any projects of repair, renovation or construction that may impact mold are required to perform the following:

1) Contractor are to meet with Facilities Management and the EH&S office to obtain the locations of mold in the work area if applicable.
2) If the Contractor's employees encounter mold, they are to stop work immediately and notify Facilities Management and the EH&S office.
3) All Contractor's employees and Subcontractors are to have the appropriate level of mold awareness training.
4) Contactors should fully enclose a structure before installing insulation, drywall, or other materials to prevent mold growth. The enclosure should prevent rain or other moisture from infiltrating the work area and creating water damage or affecting building materials.
5) Temporary enclosures such as tarps or permanent measures such as installing windows, exterior walls, and roofs before installing drywall and insulation could satisfy this requirement.

3.4 REGULATION

Currently, there are no federal, state or local regulations for evaluating potential health effects of fungal contamination and mold remediation.

3.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

4. LEAD-BASED PAINT

4.1 PURPOSE

To effectively reduce lead exposures, Contractors need to be informed of their responsibilities under the University's Lead program and to provide contractors with guidelines who may potentially impact lead-based paint on NSU campuses.

4.2 GENERAL

Lead is a potent neurotoxin and carcinogen that causes reproductive toxicity and is regulated by federal and state agencies. Lead paint was used extensively before 1978 both on indoor and outdoor applications. Although lead-based paint materials may not present any health hazards while intact, any impact created by demolition, renovations or repair projects may present significant health hazards from the fumes or lead dust. Unless a lead paint inspection has been performed as part of the overall project, all painted surfaces should be treated as though they contain lead.

In the construction industry, most overexposures to lead are found in trades such as demolition, welding and painting.

4.3 RESPONSIBILITIES

For projects that involve the disturbance of paint, the EH&S office will contract with an appropriate consultant to determine if lead is present in the affected areas. The results of the lead paint survey will be made available to the Contractor prior to start of the contracted project. Contractors before starting any projects of repair, renovation or construction that may impact lead-based paint, the following responsibilities are to be followed:

1) Contractors shall not perform any work on potentially lead-containing painted surfaces that creates dust or fumes (drilling, hot work, sanding, etc.) unless they are specifically trained and licensed to perform the work.
2) Ensure all work is compliant with all regulations as cited below.
3) If the Contractor's employees discover any loose or flaking painted areas during the course of the project, they are to report their findings immediately to the EH&S office.
4) Critical barriers shall be erected at all access points between occupied areas of the building and the Contractor's work area where potential lead dust/fumes can be generated. Such barriers may include using plastic sheeting to isolate the work area.
5) Contractors shall utilize engineering controls such as HEPA-shrouded tools to maintain low dust levels when working with lead painted surfaces.

4.4 REGULATIONS

OSHA regulation for lead is found in "Lead Exposure in General Industry" (29 CFR 1910.1025) and "Lead Exposure in Construction" (29 CFR 1926.62).
OSHA 29 CFR 1926.103 – General Industry Respiratory Standard

EPA 40 CFR 261.24 – Identification and listing of Hazardous Waste - Toxicity
EPA 40 CFR 745 - Lead-based Paint Poisoning Prevention in Certain Residential Structures
Another good resource is the U.S Department of Housing & Urban Development (HUD) Title 10 requirements for the notification, evaluation, and reduction of lead-based paint hazards.

4.5 ACCOUNTABILITY

- All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

5. PERSONAL PROTECTIVE EQUIPMENT

5.1 PURPOSE

Personal protective equipment (PPE) increases safety for workers performing potentially hazardous tasks. Contractors shall ensure that the proper types of PPE (i.e., safety glasses, hard hats, gloves, respirators or any equipment or clothing necessary to protect the worker against injury or illness) are available for use by their workers and shall prohibit Subcontractors, their employees or other personnel including NSU personnel and visitors from entering the project site unless they are wearing the appropriate PPE.

5.2 GENERAL

Contractor's personnel are required by OSHA to utilize appropriate personal protective equipment for the work they perform. All workers, NSU personnel and visitors entering the project site shall be appropriately attired. The minimum required PPE on a project site is a hard hat, safety glasses and sturdy work shoes with steel toes as necessary (no short pants, skirts, sleeveless shirts, open toe shoes shall be allowed). All protective equipment and clothing must meet applicable ANSI, NIOSH, or ISEA standards.

5.3 RESPONSIBILITIES

Contractors must determine the minimum personal protective equipment (PPE) requirements for the job site prior to starting the project. Contractor workers may be required to wear additional PPE or use additional safety devices to accomplish their work. Contractors are responsible for selecting and maintaining the required PPE and devices as well as ensuring that their employees are trained and qualified to use all the required equipment.

1) All PPE shall be used and maintained in a sanitary and reliable condition as stated in OSHA 29 CFR 1910.132 – 138 and 1926.28 regulations.
2) All selected PPE shall be of construction design, and material that properly fits the employee to protect them against known or anticipated hazards.
3) The EH&S officer will stop work if the appropriate PPE is not in place.
4) Contractors must control their work areas and effectively communicate the hazards encountered and require all NSU representatives to wear PPE when accessing those work areas.
5) Contractors working near roads, i.e. during striping, excavation, or landscaping shall ensure work area safety in accordance with Federal Highway Administration's manual.

    a. General Requirements (OSHA 1910.132)
    Protective equipment for eyes, face, head and extremities, protective clothing, respirators, and protective shields shall be used wherever it is necessary to protect for the hazards, the environment, chemical or radiological hazards, or mechanical irritants encountered which are capable of causing injury or impairment to any part of the body through inhalation, absorption or physical contact.

    b. Eye and Face Protection (OSHA 1910.133)

Employees shall use the appropriate eye or face protection whenever exposed to eye or face hazards. The following hazardous work require the use of the appropriate eye/face protection; drilling, chipping, pouring concrete, working with pneumatic tools, welding, working with chemicals, molten metal, or potentially injurious light radiation.

c. Respiratory Protection (OSHA 1910.134)
Employees shall use the appropriate respiratory protection when potentially exposed to air contaminated containing harmful dusts, fumes, gases or vapors. Respiratory protection shall be used as necessary for jobs such as cutting and sanding dry wall and spray painting.

d. Head Protection (OSHA 1910.135)
Employees shall wear protective helmets to prevent head injury from falling objects in the work areas. Head protection shall be worn whenever overhead work is performed such as crane operations, excavations, and scaffold erection or when there is a risk of electrical shock from nearby exposed electrical conductors.

e. Foot Protection (OSHA 1910.136)
Employees shall wear protective footwear to prevent potentially dangerous foot injuries in the work area such as crush or puncture injuries, falling or rolling objects, exposure to chemicals, slips, or energized electrical circuits.

f. Hearing Protection (OSHA 1910.95 [K](1)-(3))
Employees shall wear protective ear gear whenever noise levels equal or exceed the OSHA exposure limit of an 8 hour time-weighted average sound level (TWA) of 85 decibels and when engineering controls cannot reduce or eliminate the hazard.

g. Hand Protection (OSHA 1910.138)
Employees shall wear protective gloves when working in areas where hands will be exposed to hazards which can be absorbed into the skin, cause severe cuts or lacerations, severe abrasions, punctures, chemical or thermal burns and harmful temperature extremes.

<u>Minimum PPE for construction areas:</u>

- ANSI approved safety glasses (ANSI Z87.1) with side shields.
- Hard hats.
- Impact and compression resistant safety shoes.
- Long pants.
- Reflective vest when heavy power equipment is in operation within contract limit line, or when working in high-traffic areas.
- Long-sleeved shirts are required when working in production buildings, utilities or any pipe rack.
- Professional appearance is required.

Additional PPE considerations:

- Cut resistant or cut-proof gloves.
- Fall retention harness with arresting lanyard as required.
- Ear plugs or ear muffs if work will involve exposures to loud noises.
- Respiratory protection.
- Non-conductive, insulated gloves, boots and blankets as required by NEC.
- NOMEX or approved fire resistant clothing as required by NFPA.
- Fire/heat resistant gloves with gauntlets.
- UV protective goggles/face shield.
- Impact resistant face shield.
- Electrical Hazard rated (EH) safety shoes for working in substations or while performing work on live parts.

5.4 REGULATIONS

OSHA 29 CFR 1910 Subpart l,	Personal Protective Equipment
OSHA 29 CFR 1910.95(K)(1)-(3)	Occupational Noise Exposure
OSHA 29 CFR 1926.52	Occupational Noise Exposure
OSHA 29 CFR 1926 Subpart E	Personal Protective and Life Saving Equipment

and any other applicable regulations.

5.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

6. HAZARD COMMUNICATION

6.1 PURPOSE

The OSHA Hazard Communication Standard (29 CFR 1910.1200) requires that employers provide each employee with information regarding the hazardous chemicals in their workplace. This section is to inform contractors of their responsibilities regarding potentially hazardous materials present on NSU job-sites and in University buildings.

6.2 GENERAL

Nova Southeastern University uses a wide variety of hazardous chemicals in many of its operations, thus the University has developed a Hazard Communication program for its employees, students, faculty and visitors. However, Contractors are responsible for having their own Hazard Communication policy for their employees when working at NSU sites.

NSU maintains a chemical inventory which contains an inventory of hazardous chemicals by location and the MSDSs for each of those chemicals. The EH&S office is to ensure that all chemicals in the workplace are appropriately labeled.

6.3 NOTIFICATION

NSU is responsible for disclosing site-specific hazards to Contractors prior to the solicitation process. This will allow Contractors to address any precautionary requirements for the identified hazards. Site-specific hazards may include the presence of chemical, radiological or biological materials.

6.4 RESPONSIBILITIES

Requirements for Contractors working on NSU properties:

1) Contractors shall provide Material Safety Data Sheets (MSDSs) for any hazardous chemical or products they purchase and bring onto University property. NSU reserves the right to disallow certain chemicals on NSU properties.
2) Contractors shall maintain an effective Hazard Communication program for their employees.
3) For all hazardous materials brought onto NSU property, the MSDSs must be sent to the EH&S office for review before the materials can be used.
4) Contractors shall ensure all chemicals, whether owned by NSU or the Contractor are kept in approved containers with an appropriate label as stipulated in OSHA 29 CFR 1910.1200 as well as conforming to any local codes.
5) Contractors shall provide training to their employees in accordance with OSHA 29 CFR1910.1200.
6) Contractor is to secure permits, if applicable, for the temporary storage of hazardous materials on the project site.
7) Ensure that any hazardous materials spills are contained and cleaned-up immediately and all materials and means are maintained at the work site to accomplish the task.
8) Notify the EH&S office immediately of a hazardous material spill.

9) In the event, the Contractor encounters a hazardous material at the project site which has not been rendered harmless, the Contractor must report their finding to the EH&S office.
10) Contractors shall provide the appropriate PPE to their employees necessary to safely handle, and use hazardous materials either owned by NSU or the Contractor.

6.5 REGULATIONS

OSHA 29 CFR 1910.1200	Hazard Communication
OSHA 29 CFR 1926.59	Hazard Communication

6.6 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

7. HAZARDOUS WASTE

7.1 PURPOSE

The Contractor must provide NSU's EH&S office with a list of potential hazardous waste(s) to be generated during a project. Contractors are fully responsible for all hazardous wastes that they generate while on NSU properties.

7.2 GENERAL

With the establishment of the Resource Conservation and Recovery Act (RCRA) Solid and Hazardous Waste Program; the transportation, handling, storage and disposal of hazardous wastes became regulated under federal, state and local laws. The EPA and local agencies have developed regulations for compliance with RCRA. All persons are responsible for compliance with the hazardous waste regulations which begins with the generation of waste materials and follows through to disposal.

Hazardous wastes are a specific category of solid wastes because of its quantity, concentration, physical, chemical or infectious characteristics. RCRA identified two general categories of hazardous waste: those specifically "listed" in the regulations, and those that exhibit a hazardous "characteristic" by being flammable, corrosive, reactive, or toxic. Examples of hazardous wastes associated with construction projects include, but not limited to: adhesives, cement, lubricants, used oil, cleaning supplies, solvents, paints, and paint thinners.
Most empty containers are not hazardous waste under federal RCRA rules. As with solid waste, states may have more specific requirements than required by federal RCRA.

7.3 RESPONSIBILITIES

Contractors are fully responsible for all hazardous wastes they generate while working at NSU. Hazardous waste may be generated from construction, renovation and repair activities. NSU requires that all materials and substances classified as hazardous or regulated waste be handled carefully and receive the proper disposal.

1) All Contractors and Subcontractors performing work on projects conducted at or on behalf of NSU shall comply with all applicable federal environmental regulations, Florida State regulations, and local regulations (see below for applicable regulations).
2) Nova Southeastern University will not be responsible for materials and substances brought onto the project sites by any Contractor. Contractors are responsible for the proper storage and management of hazardous materials in accordance with Federal, State and Local requirements. Furthermore, Contractors are responsible for the removal and disposal of all surplus chemicals that they bring on-site for the project.
3) No Contractor shall use any drain, pipe or plumbing fixture for the disposal of any waste materials unless authorized by the EH&S office and all chemicals brought on-site are to be removed from NSU property upon completion of the project unless there is written consent from the EH&S office.
4) Contractors shall review all contract documents to ensure they are aware of the presence and locations of hazardous materials that have been identified by NSU.

5) The Contractor must provide the EH&S office with a list of potential hazardous waste(s) to be generated during the project. The hazardous waste generated during the project is the responsibility of the Contractor unless stipulated otherwise in the project contract.
6) The Contractor shall develop a Hazardous Waste Plan that identifies procedures for the safe handling of hazardous waste in accordance with all applicable regulatory requirements. The Hazardous Waste Plan shall outline the Contractor's responsibilities related to hazardous waste and shall include such items as the identification of wastes classification of waste; proof of registration with EPA as a generator of hazardous waste and/or waste oil, and employee training. The Contractor shall submit their Hazardous Waste Plan to the EH&S office prior to starting the project.
7) The Contractor shall establish and manage hazardous waste storage area(s) in accordance with the applicable regulatory requirements. The Contractor shall inspect these areas weekly and document inspections in an on-site log. The waste storage area shall be equipped with adequate signage, secondary containment and an appropriate compatible spill kit.
8) Containers of hazardous waste shall be properly stored and if necessary in a secondary containment device, labeled and maintained in good condition, and kept closed at all times.
9) Each Contractor with primary generator licensure is responsible for coordinating the shipment of all hazardous waste and retaining all signed hazardous waste manifests.
10) Contractors licensed to transport hazardous waste/materials shall be permitted to transport the hazardous waste/materials and shall comply with US DOT regulations and requirements.
11) Contractor may not transport hazardous materials via public or private roads in a manner that could result in unsafe conditions for University personnel, students, visitors or the environment.
12) Transportation of all hazardous materials shall be conducted in accordance with all applicable regulations relating to proper handling, packaging, labeling, and documenting.
13) Contractors are to ensure that all their employees are trained in handling, preparing, shipping and the documentation of hazardous waste management and disposal.
14) All copies of hazardous waste documentation are to be sent to the EH&S office (DOT permits, disposal records, etc.).
15) In the event, the Contractor encounters an unidentified material believed to be a hazardous substance or condition; they shall immediately stop work in the affected area. The condition must be immediately reported to the EH&S office and Facilities Management. After testing and confirmation by a qualified consultant that the material is a hazardous substance, the work in the affected area shall not be resumed except by written agreement between NSU and the Contractor.
16) NSU shall retain the services of a licensed, qualified consultant and licensed laboratory to verify the presence or absence of unidentified and untested hazardous substances/materials.
17) Should a Contractor discover materials previously hidden from view or uncharacterized on the basis of information provided to the Contractor by NSU, the workers shall leave and not disturb such materials until a licensed consultant has completely identified the materials.

7.4 REGULATIONS

EPA 40 CFR 261	Identification and Listing of Hazardous Waste
EPA 40 CFR 262	Standards Applicable to Generators of Hazardous Waste
EPA 40 CFR 263	Standard Applicable to Transporters of Hazardous Waste
OSHA 29 CFR 1910 Subpart z	Toxic and Hazardous Substances
OSHA 29 CFR 1910 Subpart h	Hazardous Materials

Florida Administrative Code (FAC) Rule 62-730

7.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

8. BLOODBORNE PATHOGENS

8.1 PURPOSE

To inform Contractors of their responsibilities relating to their employees who may be potentially exposured to Bloodborne Pathogens.

8.2 ACTIVITIES

The Occupational Safety and Health Administration (OSHA) issued the standard 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," to protect employees from exposures to potential bloodborne pathogens through contact with blood or other potentially infectious materials that may enter the employee via the skin, eyes, mucous membrane or parenteral contact that may result from the performance of the employee's duties.

Construction related work activities such as repair work or renovation projects in laboratories or clinics can create an environment where serious injuries are likely to occur and potentially exposing a construction employee to bloodborne pathogens.

8.3 RESPONSIBILITIES

Contractors shall ensure the following responsibilities are implemented prior to allowing employees to access job sites where potential exposure to bloodborne pathogens is possible during repair, renovation or construction projects.

1) Contractors shall identify any potential work activities which are likely to cause injury or serious physical harm to their employees.
2) Establish a written Exposure Control Plan designed to eliminate or minimize potential employee exposure to bloodborne pathogens in accordance with federal and local regulation which should include the following items:
    - employee exposure determinations
    - schedule and method for plan implementation
    - procedure for evaluating the circumstances of an exposure incident
    - Exposure Control Plan must be accessible to all construction employees
    - Exposure Control Plan must be reviewed at least annually
3) Universal precautions should be described in the Exposure Control Plan and observed by employees to prevent contact with blood or other potentially infectious materials. All body fluids shall be considered potentially infectious materials.
4) Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Once these controls have been instituted and there is still potential for exposure, employees shall use PPE's.
5) All employees are to receive sufficient training in compliance with federal and local regulations.
6) Ensure all employees are provided with adequate PPE as required by regulations.

8.4 REGULATION

OSHA 29 CFR 1910.1030 Bloodborne Pathogens

8.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

9. RADIATION SAFETY

9.1 PURPOSE

Various sources of radiation can be found at NSU from laser and ionizing radiation to radioactive material. To inform Contractors of their responsibility to follow all applicable radiation safety rules and radiation licensing conditions which are outlined in NSU Radiation Safety Plan.

9.2 RADIATION SUMMARY

NSU faculty, employees and students use licensed radioactive materials daily with careful regard to all safety requirements; in addition laser and ionizing (X-ray) equipment are used in areas which are restricted or with limited access to unauthorized persons. All areas where radiation sources are used or stored are duly posted with caution signs.
NSU insists that Contractors and their employees are attentive to radiation safety so as to keep radiation exposure "as low as reasonably achievable" (ALARA).

9.3 RESPONSIBILITIES

The Contractor shall perform the following at least a week prior to proceeding with any repair or renovation of a University facility that houses radiation equipment, laser, and radioactive materials or proceed with any use of a radiation source:

1) Implement and enforce applicable radiation safety policies and procedures necessary to complete the contracted project with full attention to the safety of all University faculty, staff, students, visitors and the contractors' employees.
2) Provide the EH&S office with sufficient information to allow the Radiation Safety Officer to review the radiation safety aspects of the contracted project.
3) For structural imaging or testing, the following information must be included in the safety procedures:
    - scope and schedule of the work.
    - the location, direction, and exposure duration of the radiation.
    - the strength and other major properties of the radiation source.
    - the means of providing uninterrupted security for the radiation source and surveillance of radiation for the surrounding areas.
4) If for any reason there is radiation usage, this information must be included by the Contractor:
    - the registration, license or license application required to use radiation.
    - a written and drawn description of the work to be performed
5) For work performed near a University radiation source, the Contractor must provide a plan and stay-time estimate.
6) Areas where lasers are installed will be posted with standard laser warning posters.
7) Never intentionally stare into a laser beam.
8) For work on any chemical hoods, biosafety cabinets, sinks or other equipment labeled with the radiation warning sign "Caution Radioactive Material" or "hot sink" the

information must include the location (building and room number) and the specific hood, cabinet, sink or other equipment and the planned work to be performed.

9.4 REGULATIONS

U.S NRC 10 CFR Part 19	Notices, Instructions and Reports to Workers: Inspection and Investigation
U.S. NRC 10 CFR Part 20	Standards for Protection against Radiation
U.S. NRC 10 CFR Part 35	Medical use of Byproduct Material
DOT 49 CFR Parts 171 – 185.	Subchapter C Hazardous Materials Regulations
EPA regulation and statutes	

9.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

10. ELECTRICAL SAFETY

10.1 PURPOSE

Energized electrical systems and equipment represent a significant hazard on every work site. The Contractor can reduce the risks associated with the performance of electrical work by developing, implementing, and enforcing an effective safety program that requires electrical work to be performed in accordance with the regulations of the National Electrical Code (NEC), OSHA and ANSI standards, and all other rules and regulations.

10.2 GENERAL

OSHA's electrical standards address the government's concern that electricity has been recognized as a serious workplace hazard, exposing employees to such dangers as electrical shock, electrocution, fires and explosions.

OSHA's electrical safety regulations recognize two key hazard management tactics: elimination of the hazard through shut down and isolation (Lock-Out/Tag-Out); or when live circuits must be maintained there should be contact protection through the use of guarding, insulation, and protective equipment.

The NFPA defined many of the design and installation parameters associated with electrical systems, as well as PPE that must be worn in potential arc-flash areas.

10.3 ACTIVITIES

Construction activities frequently impact electrical systems as part of the assigned project, such activities are but not limited to:

- Installation or alterations of electrical systems, components, machinery and equipment.
- Maintenance of existing systems and equipment.
- Demolition of existing systems.
- Temporary planned outrages.
- Tests and diagnostics.

10.4 RESPONSIBILITIES

Prior, during and post activities that potentially impact electrical system components and energized or non-energized machinery, equipment, parts, or systems, the following shall be taken into account by Contractors:

1) Contractors shall hire only qualified electricians to work on electrical systems and equipment that use or control electrical power and ensure all work is performed in accordance with the guidelines of federal and local regulations.
2) Contractors are to identify any potential sources of electrical energy likely to cause death, injury, or serious physical harm to employees.
3) Contractors are to notify Facilities Management of any impact activities prior to the start of the project.

4) Coordinate any planned outages with NSU Facilities Management department.
5) Contractors must identify and document competent and qualified employees who are properly trained and licensed, in addition ensure all employees performing impact duties have received sufficient training in compliance with federal and local regulations.
6) Contractors shall perform all permanent and temporary electrical work in accordance with NFPA 70E Standard for Electrical Safety in the Workplace and applicable OSHA general industry or construction standards.
7) Contractors shall erect barriers and post warning signs to alert non-authorized employees and NSU population to stay out and clear of the work area.
8) Contractors shall use ground fault circuit interrupters (GFCIs) with all power tools and equipment, in addition all 120 volt, single phase, 15 & 20 amp temporary power circuits shall have GFCI's.
9) Contractors installing electrical service will label circuit breakers and disconnect panels for their purpose. Proper PPE, including arc-flash protection shall be worn.
10) Cords and feeders shall be of sufficient rating to transmit power required by tools and equipment. All electric power tools shall be inspected for proper grounding and overall condition prior to use.
11) Contractors are not permitted to use damaged or defective electrical cords on NSU property.
12) Contractors are not permitted to run cords through holes in walls, ceilings, floors, or other openings. Cords may not be secured with staples, nails or wire.
13) In the event, a circuit breaker "trips" or a fuse is blown, the contractor shall ensure that a qualified electrician checks the circuit and corrects the problem before the circuit is reenergized.
14) Follow Lock-Out/Tag-Out procedures when working with de-energized equipment or circuits.
15) Electrical equipment including extension cords to be used in stacks, tanks, or other areas where flammable vapors or explosive atmospheres may be present require approval in accordance with the provisions of the National Electrical Code for Hazardous Locations.
16) All equipment and circuits involved in the scope of work should be de-energized prior to the start of any work, whenever possible.
17) When workers are required to work on energized lines and equipment, they must use rubber gloves and other protective equipment and/or use hotline tools meeting the provisions of ANSI and NFPA 70E. At least two persons must be assigned to work on the energized lines.
18) Transformer banks and high voltage equipment shall be protected from unauthorized access, with warning signs posted at the entrances or surrounding area.
19) Wiring shall be installed so as to avoid sharp corners and edges, projections, and/or pinching.
20) ONLY temporary or short-term use of extension cords. Extension cords shall be heavy duty with three-prong grounding type plugs and receptacles. Extension cords must be used in such a way as not to create a tripping hazard.
21) Electrical panel covers shall be installed and in place at all times prior to and upon completion of the project.
22) All circuits shall be marked for voltage and area of service.

23) Frayed or cut electrical cords, or cords with damaged plugs or missing ground plugs shall be immediately removed from service, rendered unusable and removed from the job site. Defective tools cannot be stored in tool boxes on the job site.
24) Cords and welding leads shall be rolled up at the end of each day.
25) Welding electrode connections require covers.
26) Only explosion-proof lightning shall be acceptable for usage in confined spaces,
27) All switches shall be enclosed and grounded.
28) Temporary area lighting if necessary must be powered by its own circuit.
29) Temporary lighting fixtures shall be hung from the insulated grommet attached to the fixture and not by the cord or conductors. Fixtures cannot be hung from fire sprinkler or water piping, or ceiling grids.
30) All temporary power or electrical systems shall be removed at the conclusion of the project.
31) Overhead power lines extending over the work area shall be clearly marked and shielded, especially if cranes, material hoists, aerial lifts, excavators, or similar equipment will be operated in the area.
32) Insulating gloves, hot sticks and shielding blankets must be tested and certified in accordance with applicable ASTM standards and documented.
33) Workspace required to access and service electrical systems shall not be used for storage.
34) No grounded conductor may be attached to any terminal or lead so as to reverse polarity. Verify polarity when using double-insulated tools.
35) Electrical tie-ins shall be conducted only on de-energized systems.
36) At least one member of the Contractor's staff must have a valid CPR certification.
37) After completion of all repairs, maintenance or installation of electrical systems and equipment, the Contractor must verify that no electrical hazards exist and all electrical components are operationally intact before attempts to re-energize shall occur.

10.5 REGULATIONS

OSHA 29 CFR 1910. 301 – 399	Electrical Standard
OSHA 29 CFR 1926, Subpart K	Electrical
OSHA 29 CFR 1910.137	Electrical Protective Devices
OSHA 29 CFR 1910, Subpart I	Personal Protective Equipment
NFPA 70	National Electrical Code
ASTM Standards	
ANSI Standards	

10.6 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

11. NOISE

11.1 PURPOSE

Contractors are required to comply with OSHA's Noise Standard 29 CFR 1910.95. This section is to inform Contractors of their responsibilities regarding noise to ensure NSU remains compliant with all applicable regulations.

11.2 ACTIVITIES

NSU follows the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values for determining noise exposures and for complying with OSHA's regulation. The eight-hour Time-Weighted Average (TWA) is 85 decibels (dBA). This is the maximum weighted-average noise level that employees may be exposed to without hearing protection during an eight-hour work shift. OSHA requires implementation of noise exposure controls for exposures at or above 85dBA with hearing protection and the implementation of a noise monitoring program.

Several different types of rules govern noise and contractors are to follow:

- OSHA noise regulations.
- State of Florida regulations regarding noise.
- Local State noise regulations; and
- NSU policies regarding noise.

OSHA noise standards consist of program with two-stages:

1. A hearing conservation program must be implemented when employees are exposed to 85 decibels or more of noise in an 8-hour day. Noise monitoring performed to determine levels.
2. Engineering or administrative noise controls are required when exposure exceeds 90 decibels. Engineering controls can be the replacement of noisy machinery with quieter equipment, enclosing the noise source or receiver, or redesigning the space to reduce noise level. Administrative controls ensure employees are not exposed to a particular noise source for any long periods of time and less than 8-hours.

11.3 RESPONSIBILITIES

Contractors must protect their employees in accordance with OSHA regulation from exposure to high levels of noise, the public and University staff by following local regulations and NSU policies related to noise.

1) Contractors will be asked to cease work activities when noise levels to NSU employees or students can be expected to meet or exceed OSHA's Action Level of 85 dBA (8-hour TWA).
2) Contractors can resume activities when engineering or work controls have reduced the level of noise to below OSHA requirements.

3) Should this not be feasible, the Contractor must schedule work for a time when NSU employees and students are not impacted.
4) Construction site personnel will utilize hearing protection when noise levels are determined to be in excess of OSHA's requirements.
5) Noise monitoring will be performed to determine noise levels.
6) Disposable ear plugs or ear muffs will be utilized dependent upon conditions.
7) If power tools, nail guns, or other such devices must be used to accomplish the assigned work, the Contractor shall notify Facilities Management as to what type of equipment will be used and the duration of the work.

11.4 REGULATIONS

OSHA 29 CFR 1910.95 Occupational Noise Exposure

11.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

12. LOCKOUT/TAGOUT

12.1 PURPOSE

The purpose of a "Lockout/Tagout" procedure is to protect employees from machines and equipment capable of causing injury due to unexpected energization, release of stored energy or the start-up of equipment while an employee is performing maintenance or servicing equipment. To inform Contractors of their responsibility when performing lockout/tagout activities at NSU to ensure all employees potentially affected by energization of building systems are properly protected and the EH&S office notified.

12.2 ACTIVITIES

NSU ensures all its employees; faculty, students, visitors and property are protected by complying with the OSHA Standard, 29 CFR 1910.147 – Control of Hazardous Energy Sources (Lockout/Tagout).

NSU maintains a Lockout/Tagout program for its maintenance employees, where standard locks and tags are used to control the start-up of equipment that is being serviced or maintained by employees.

Controlling hazardous energy may involve disconnecting motors, de-energizing electrical circuits or discharging capacitors.
Hazardous energy found at NSU may be of the following types:

- Electrical.
- Thermal.
- Hydraulic.
- Pneumatic.
- Chemical.
- Mechanical.

12.3 RESPONSIBILITIES

Contractors and employees must follow the requirements for Lockout/Tagout as outlined below:

1) The Contractor is responsible for implementing and maintaining his/her own Lockout/Tagout program in accordance with OSHA regulations.
2) The Contractor shall submit a copy of their Lockout/Tagout policy to the EH&S office before starting on a project where the control of hazardous energy sources is applicable.
3) The Contractor is to ensure all employees are trained in Lockout/Tagout procedures in accordance with OSHA regulations prior to performing the work.
4) The Contractor will not perform any work on electrical circuits, machinery or lines carrying hazardous liquids or gases under pressure until appropriate protective measures have been instituted by the Contractor.
5) If the Contractor is required to lock out University equipment, the Contractor will notify the EH&S officer. Under no circumstances will a Contractor lock out NSU equipment without permission.

6) The Contractor is prohibited from disengaging any warning devices or alarms without prior approval from Facilities Management.
7) It is the Contractor's responsibility to obtain a copy of the written NSU's Lockout-Tagout policy and to ensure all procedures are followed accordingly.
8) Contractors shall provide their employees with the lockout/tagout procedures developed specifically for the project.
9) During work on the project, if the Contractor encounters a NSU lock that interferes with the work being performed, they shall not attempt to remove or bypass the device, but contact Facilities Management to request removal of the lock.
10) Contractors will develop a special procedure in the event the project requires multiple lockout devices, shift changes or staff changes.
11) The Contractor will maintain a log of all machines and equipment that will be locked out and/or tagged out during the course of the project. The log shall contain details of which equipment was worked on, the date the work was performed, and the name of the employee performing the work.
12) All Contractors who are required to use their own lockout/tagout equipment, must ensure it meets OSHA standards, and all locks are removed at the end of the job with the approval of the EH&S office.

12.4 REGULATIONS

OSHA 29 CFR 1910.147	The Control of Hazardous Energy (lockout/tagout)
OSHA 29 CFR 1910.333	Electrical – Selection and Use of Work Practices
OSHA 29 CFR 1926.417	Lockout and tagging of circuits

12.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

13. BARRICADING AND FENCING

13.1 PURPOSE

Barricades act as warning devices that alert others of the hazards created by construction activities and should be used to control traffic, both vehicular and pedestrian, safely through or around construction work sites. Barricades used by Contractors must comply with OSHA 29 CFR 1926 Subpart G – Signs, Signals and Barricades regulations wherever necessary to provide for physical protection of NSU students, faculty, employees, public or property.

It is the Contractor responsibility is to maintain a safe and accessible path for all pedestrians including persons with disabilities, around and/or through construction sites.

13.2 ACTIVITIES

Barricades are required around all construction sites and all excavations, holes, openings in floors or roofs, raised platforms, for certain types of overhead work, restriction of access areas and wherever it is necessary to warn people against the potential of falling. Barricades must be suitable for each area of use. Examples of barricades are plastic safety fencing, temporary cyclone fencing and portable manhole barricades. Yellow caution tape and/or cones are not considered acceptable barricades and should be used only temporary until suitable barricades are erected. Signs and illumination should be used appropriately.

The following are examples of activities where barricades may be required:

- Wherever construction debris is dropped without the use of an enclosed chute.
- Areas with temporary wiring operating at more than 600 volts.
- Work areas for electrical equipment with exposed energized parts.
- The swing radius of the rotating superstructure of cranes or other equipment.
- Wherever equipment is left unattended near a roadway at night.
- Excavations.
- Areas used for the preparation of explosive charges or blasting operations.
- Street openings – manholes.
- Construction areas in energized electrical substations.

13.3 RESPONSIBILITIES

Contractors are responsible for providing all barrier materials for both interior and exterior application including but not limited to appropriate street closing barricades and signage that meet DOT requirements, and all local, state and federal laws.

1) The Contractor shall ensure the general construction area is protected; barricades must be erected before any excavation, extended as the excavation progresses and maintained until the project is completed.
2) The Contractor shall furnish, erect, and maintain all the necessary signs, barricades, lighting, fencing, bridging, and flaggers that conform to the requirements set forth by OSHA.

3) Barricaded areas which contain an opening or hole for access must be protected during working hours and must be secured at the end of each day.
4) All holes or openings through floors or decking at all elevations must be immediately covered or barricaded. Material or equipment must never be stored in an excavation cover or inside an excavation area.
5) Hole covers must be secured or cleated so they CANNOT slip, and must extend adequately beyond the edge of the hole.
6) Barricades shall not create a trip hazard.
7) The type of barricading system, whether it is fencing, caution tape, or some other means, the Contractor must discuss the barricades system to be used with the EH&S office to ensure protection for the campus community.
8) Warning signs should be placed on barricades/fences for the duration of the construction project.
9) Upon completion of the project, barricades shall be removed promptly when no longer needed.

13.4 REGULATIONS

OSHA 29 CFR 1926 Subpart G	Signs, Signals, and Barricades
OSHA 29 CFR 1926 Subpart T	Demolition
OSHA 29 CFR 1926 Subpart K	Electrical
OSHA 29 CFR 1926 Subpart N	Cranes, Derricks, Hoists, Elevators, and Conveyors
OSHA 29 CFR 1926 Subpart O	Motor Vehicles, Mechanized Equipment, and Marine Operations
OSHA 29 CFR 1926 Subpart P	Excavations
OSHA 29 CFR 1926 Subpart U	Blasting and Use of Explosives
OSHA 29 CFR 1910	General Industry Standards
ANSI Standard D6.1	Uniform Manual of Traffic Control

13.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

14. CONFINED SPACE ENTRY

14.1 PURPOSE

Nova Southeastern University has developed and implemented a Confined Space Entry Program to protect all University employees who are required to enter confined spaces. This program defines a "Confined Space" in accordance with OSHA 29 CFR 1910.146 and 1910.269.

OSHA uses the term "confined space" to describe such spaces that meets all three of the following characteristics:

- limited openings for entry and exit
- unfavorable natural ventilation
- not designed for continuous worker occupancy.

It is the Contractor's responsibility to develop, implement and maintain a rigorous Confined Space Health and Safety program including provisions for emergency rescue, in accordance with all regulations. To inform Contractors of their responsibilities when performing confined space entry activities at the University.

14.2 ACTIVITIES

Workers must be protected from toxic, explosive, engulfing or asphyxiating atmospheres when working in and around confined spaces.

NSU has identified confined spaces throughout its facilities and labeled each confined space stating whether the space requires a permit for entry or not. NSU will notify the Contractor of the confines space locations and whether entry will be required as part of the contract. A permit will be require for permit-required confined spaces and obtained from the EH&S office.

Types of confined space entries include, but are not limited to:

Storage tanks	Manholes	Tanks
In-ground vaults	Valve pits	HVAC systems
Boilers	Crawlspaces	Lift stations
Trenches	Injector pits	

14.3 RESPONSIBILITIES

Contractors must adhere to the following requirements:

1) Contractors who will be required to enter NSU confined spaces must demonstrate to NSU that they have a comprehensive written confined space entry program.
2) Contractors must provide their employees with confined space entry training according to their duties (entrant, attendant, entry supervisor, and rescue team) and submit documentation of this training to the EH&S office.
3) Contractors must supply their own atmospheric testing equipment which must be in good working condition and calibrated within the last 12 months.

4) Contractors must supply their own safety equipment, including but not limited to full body harnesses, mechanical retrieval devices, PPE and ventilation which must be in good working order and inspected per the manufacturer's guidelines.
5) Contractors shall provide no less than two employees for any confined space entry with one employee on the outside of the confined space at all times.
6) Contractors must have a plan for emergency rescue services prior to entry.
7) The Contractor must arrange for the appropriate level of rescue services based on the potential for the types and severity of the rescue that may be required.
8) Prior to conducting work in a Permit-required confined space, the Contractor must obtain a permit and NSU will provide the Contractor with all information related to the known or anticipated hazards of the confined space.
9) Upon completion of the confined space entry, the Contractor will notify the EH&S office on any unexpected hazards that were encountered which can be entered on the Confined Space Permit.
10) During the course of work by the Contractor, if a confined space is encountered that has not been previously identified by the University. The Contractor must immediately notify the EH&S officer and delay enter until NSU has examined the space.
11) When both University and Contractor personnel are working in or near confined spaces, the Contractor shall coordinate all operations with the affected University employees before entry.
12) On occasions an activity to be performed by a Contractor may temporarily change the designation of the confined space from non-permit to permit due to the nature of the work such as welding or hot work. A competent employee of the Contractor is responsible in determining if any operation to be performed meets the said condition which must be identified prior to start of the work and a permit obtained.
13) Contractor is to evaluate each confined space for the following:

    - Presence of explosive gases equal to or greater than 10% of the lower explosive limit (LEL).
    - Deficient or enriched oxygen atmospheres.
    - Carbon monoxide and hydrogen sulfide concentrations
    - Recognized hazards – electric shock, burns, heat stress, noise hazards and walking/working surfaces.

14) Contractor is to evaluate and monitor confined space hazards throughout the operation.
15) Control of potential hazards with the following measures:

    - Mechanical – ensure proper lockout/tagout procedures are used when needed to prevent hazards within the confined space.
    - Ventilation – a ventilation fan shall be used for the duration of the job if exposure to harmful vapors or an oxygen deficient atmosphere exists.
    - Slips and Falls – be cautious if shoes and/or ladders are wet or oily, inspect shoes prior to entry.
    - Burns and Heat Stress – a ventilation fan will provide cooler temperatures but cautions is required around hot equipment and avoid overexertion within the confined space. Frequent breaks should be taken for employees.

- For confined spaces with oxygen-enriched atmospheres to prevent explosions, do not use equipment that may cause a flame or sparks.
- PPE shall be worn when a potential hazard exists.

14.4 RESCUE OPERATIONS

In the event of an emergency entry rescue into a confined space, the attendant must immediately call 911. Only a trained rescue team can perform emergency rescues. The fire department will respond to the call and notify the local hospital emergency rescue unit.

14.5 REGULATIONS

OSHA 29 CFR 1910.147	Permit-Required Confined Spaces
OSHA 29 CFR 1910.268	Telecommunications
OSHA 29 CFR 1910.269	Electrical Transmission and Distribution
OSHA 29 CFR 1926.353(b)	Ventilation for Welding, Cutting and Heating

14.6 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

15. FALL PROTECTION

15.1 PURPOSE

Contractor's employees who leave the floor thus creating an elevated work situation that requires a proper work platform or harness protection must follow all regulations. When the fall hazard is 6 feet or greater from the worker's foot-level or where the individual is working over dangerous equipment, 100% fall protection is required in these work areas.

Contractors are responsible for complying with the regulations when performing work at elevated locations on University property.

15.2 ACTIVITIES

The Contractor can reduce the safety risks when conducting elevated work by developing, implementing, and enforcing an effective fall protection safety program that complies with OSHA 29 CFR 1926 Subpart M and other applicable regulations. All work performed 6 feet or more in elevation or within 4 feet of an unprotected floor opening, wall opening, or roof edge with a potential 6 foot fall requires optimum fall protection.

Fall arresting systems including lifelines, body harnesses, and other related equipment can be used when fall hazards cannot be addressed by employing railings, temporary floors, nets and other means.

Potential activities requiring fall protection may include:

Portable and fixed ladders	Roofs
Aerial lifts	Elevated work locations
Scaffolds	Decks or platforms within 6 feet of the edge

15.3 RESPONSIBILITIES

Contractor's responsibilities for fall protection safety of their employees include, but are not limited to:

1) The Contractor shall ensure all personnel are trained in fall protection and the use of fall protection safety equipment in accordance with the requirements listed in OSHA 29 CFR 1926 Subpart M.
2) The Contractor shall ensure all falling hazards are communicated to the employees and sub-contractors.
3) The Contractor shall reduce the hazards associated with falls by first using engineering controls. Ensure the employees have the necessary fall protection equipment to safely perform their job.
4) When engineering controls are not feasible, the Contractor shall institute personal fall arrest systems, and administrative controls.
5) Contractors shall provide properly manufactured/constructed, erected, secured and maintained ladders.

6) Contractors shall use properly manufactured, erected and maintained scaffold with complete handrail system (top rail, mid-rail, toe-board).
7) Monitors are not acceptable in lieu of fall protection.
8) All guardrails, mid rails and toe boards on University property are to be maintained unless removal has been approved by Facilities Management as part of the work assigned in the contract.
9) All open holes, skylights, trenches, or excavations into which NSU employees may fall must be covered and have guardrails, mid rails and toe boards installed around them.
10) Contractors shall inspect mobile buckets or scissors lift for proper operation before use and ensure employees work within the confines of the railings and tied off utilizing full body harnesses.
11) Contractors shall ensure when the roof pitch is over 4:12 and up to 6:12, slide guards along the roof eave are installed after the first 3 rows of roofing material.
12) When the pitch exceeds a 6:12 pitch, install slide guards along the roof eave after the first 3 rows of roofing material are installed and again every 8 feet up the roof.
13) Contractors are to stop roof operations when storms, high winds or other adverse weather conditions create unsafe conditions
14) Contractors shall remove or properly guard any impalement hazards.
15) Safety harness system must be worn and tied off to independent lifelines when working from elevated areas under the following conditions:
    a) Steep roofs with a pitch equal to or exceed 6:12 or if the ground-to-eave height exceeds 25 feet.
    b) Workers are required to be closer than 4 feet from the roof edge without parapets.
    c) Two-point suspension scaffolds or stages are used.
16) Contractors shall see that anchorage points for tie off are able to sustain a minimum load of 5000 lb. per worker and be located at or above the workers shoulder level.
17) If no anchorage point exists at or above shoulder level, the Contractor shall utilize special lanyards to ensure fall arrest forces do not exceed OSHA limits.
18) Small diameter pipes, cable trays and electrical conduit are not to be used for anchors or platforms.
19) Contractors cannot perform overhead work when there is danger of falling objects striking a person below, these work areas shall be isolated to protect individuals from falling objects.
20) All fall protection safety equipment must meet the ANSI standards (ANSI A10.14 and ANSI Z359.

15.4 REGULATIONS

OSHA 29 CFR 1926 Subpart M	Fall Protection
OSHA 29 CFR 1910 Subpart D	Walking and Working Surfaces
OSHA 29 CFR 1910 Subpart F	Powered Platforms, Manlifts, Vehicle-Mounted Platforms
OSHA 29 CFR 1926 Subpart L	Scaffolds
OSHA 29 CFR 1910.67	Vehicle-Mounted Elevating and Rotating Work Platforms
OSHA 29 CFR 1910.132	Personal Protective Equipment
OSHA 29 CFR 1926.453	Aerial lifts
ANSI A10.14	Construction and Demolition Operations – Requirements for Safety Belts, Harnesses, Lanyards, and Lifelines for Construction and Demolition Use
ANZI Z359	Fall Protection Code

15.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

16. HOT WORK PERMIT

16.1 PURPOSE

"Hot Work" is defined as a process or procedure that could result in a fire if not properly controlled. NSU utilizes and enforces the use of a Hot Work permit system to help reduce the potential of an uncontrolled ignition of materials in a hot work area. This procedure is to inform Contractors of their responsibilities when performing hot work and to encourage them to provide suggestions/alternative methods on ways to avoid Hot Work.

16.2 ACTIVITIES

Hot work equipment may produce high voltages or utilize compressed gases and requires special awareness training of employees for safe handling. The Contractor shall ensure all hazards associated with hot work are controlled by developing, implementing and enforcing an effective safety program in accordance with OSHA regulations and all other applicable industrial standards.

NSU has developed a hot work procedure and permit applicable to both NSU employees and Contractors. The procedure is applicable to all hot work activities except those activities being performed in designated welding areas. The NSU permit can be obtained from the EH&S office.

Hot work is any activity that creates heat, flame, sparks or smoke. Common examples of hot work include but not limited to:

Grinding	Cutting	Bronzing
Brazing	Gas or Arc welding	Burning
Soldering	Torch-applied roofing	Hot riveting

16.3 RESPONSIBILITIES

Contractors shall be responsible for the safety of their employees as well as NSU employees, student, faculty and property when performing Hot Work.

1) Obtain a permit from the EH&S Office for each separate work activity and ensure that all conditions of the permit are met at all times. A request for a permit must be submitted to the Fire Safety Office a minimum of forty-eight (48) hours prior to the start of any hot work.
2) Cease operations if permit conditions cannot be met.
3) Post the hot work permit at the project area in an accessible and conspicuous location.
4) 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 all hot work performed as part of the project.
5) The Contractor must also coordinate with the Facilities Management Electrical Division for fire alarm impairments in the area of the hot work to avoid false alarms.
6) Should "hot work" be necessary inside an occupied building, activities are to be arranged so that any occupants exposure to fumes generated are eliminated and/or kept to a minimum. Ventilate the work area to the outside if possible.

7) Contractors when working indoors will remove all paints and other surface treatments prior to hot work.
8) All flammable and combustible materials should be removed from the area of hot work.
9) Fire protection equipment and protective materials shall be at the Hot Work area prior to beginning the project.
10) If the project requires the disabling of fire alarms, the Contractor is to make arrangements in advance with the EH&S office and the Davie Fire Department.
11) A designated fire watch may be required and the Contractor must provide a trained employee during the permit activity. The Fire Watch may not engage in any other activities while acting as fire watch, and if unsafe conditions are observed during the Hot Work, he/she will stop the work until the hazard is eliminated. The Fire Watch shall remain in the hot work area for 30 minutes post completion of the project.
12) The Contractor will perform daily inspections of all Hot Work equipment to ensure the equipment is in proper working order and in a safe condition.
13) The Contractor shall use flameproof or non-combustible shields to protect employees from the direct rays of welding arcs.
14) Contractors shall provide sufficient safety equipment for their employees to use, provide training and medical surveillance in accordance with all applicable regulations.
15) The contractor shall provide an appropriate rated (a minimum of 2-A, 20BC) fire extinguisher for use and maintained within 25 feet of any welding, burning or open-flamed work.
16) Flashback arrestors must be installed on all oxy-acetylene torches.
17) Acetylene/oxygen hoses and welding leads should not run through doorways and must be bridged over or otherwise supported by a minimum of 7 feet above passageways.

16.4 REGULATIONS

OSHA 29 CFR 1926 Subpart J	Welding and Cutting
OSHA 29 CFR 1910.252 Subpart Q	Welding, Cutting and Brazing
NFPA 51B	Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

16.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

17. SCAFFOLDING

17.1 PURPOSE

The Contractor and all Subcontractors who use scaffolding, staging and work platforms will provide safe working conditions for those employees engaged in the erection, use and dismantling to encourage and direct safe work practices in accordance with all applicable laws, OSHA 29 CFR 1926.450 and the manufacturer's requirements.

17.2 RESPONSIBILITIES

Prior to starting any project of repair, renovation or construction that require the use of scaffolding, the Contractor shall:

- Review and comply with NSU's Contractor Environmental Health and Safety Plan.
- Ensure all employees have received training and competent in compliance with federal and local regulations.
- Contact NSU Facilities Management with questions regarding scaffolding safety and any required precautions.

The use of site built staging or scaffolding is not allowed unless prior approval is obtained from NSU's Project Coordinator at Facilities Management.

The Contractor shall ensure the proper use of scaffolding requirements is followed:

1) No scaffold shall be erected, inspected, moved, dismantled or altered unless under the supervision of a trained, competent person. The competent person as defined by OSHA Scaffolding Standard is "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous to employees, and who has authorization to take prompt corrective measures to eliminate them."
2) Contractors shall train scaffold erectors and users in safe work practices and procedures; training must include fall hazards, falling object hazards, electrical hazards, proper use of the scaffold, and handling of materials.
3) The scaffold shall be inspected before each work shift and labeled with an inspection tag with notations by the supervising competent person that the scaffold has been inspected and approved for use.
4) The scaffold shall be inspected after any occurrence that could affect the structural integrity; a competent person must inspect the scaffold components for visible defects.
5) Any conditions that do not conform to the requirements will be corrected immediately by the scaffolding Contractor.
6) A record of all inspections and any corrections made will be kept on site.
7) The competent person will determine if it is safe for employees to work on or from a scaffold during storms or high winds and to ensure that a personal fall arrest system or wind screens protect these employees.
8) Each scaffold must be able to support without failure a load four times the maximum intended load.

9) All load-carrying timber members of a scaffold framing must be a minimum of 1,500 fiber construction grade lumber that is free of holes, saw cuts and other defects.
10) Each platform must be planked and decked as fully as possible with the space between the platform and uprights not more one inch wide. The space must not exceed nine inches when side brackets or odd-shaped structures result in a wider opening between the platform and uprights.
11) Each scaffold platform and walkway must be at least 18 inches wide. When the work area is less than 18 inches wide, guardrails and/or personal fall arrest systems must be used.
12) Platforms must be free of debris and clutter.
13) Safe access onto and off scaffolding must be maintained at all times.
14) Scaffold poles, legs or uprights must be plumbed and braced securely to prevent swaying or displacement.
15) Scaffold platforms more than 6 feet above ground must be equipped with a top/hand rail at a height of 38 to 45 inches from the work platform.
16) A mid rail should be installed approximately halfway between the top rail and the platform surface. When a cross point of cross bracing is used, it must be between 20 and 30 inches above the work platform.
17) A toe board of 4 inches in height is required on all open sides and ends.
18) If the manufacturer's requirements are more stringent, they shall supersede these minimum requirements.
19) Adequate access to work platforms must be provided and Contractor's personnel are forbidden from accessing other platform levels by anything other than manufacturer-approved stairways or ladders.
20) Replace or repair immediately any scaffolding and accessories which have any defective parts.
21) Scaffold erectors or dismantlers shall tag any incomplete scaffold assembly as "**Scaffold Incomplete – DO NOT USE"** or other similar form of posted warning.
22) The standard requires fall protection at a 10 foot height above a lower level for employees; the Contractor must supply workers with fall protection equipment and ensure that it is used in a proper manner.
23) Overhand bricklaying –a guardrail or personal fall arrest system on all sides except the side where the work is being done must protect employees doing overhand bricklaying from supported scaffolds.

17.3 REGULATIONS

OSHA 29 CFR 1926 Subpart L	Scaffolding
OSHA 29 CFR 1910.28	Safety Requirements for Scaffolding

17.4 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

18. FLUORESCENT AND MERCURY LIGHT/LAMP DISPOSAL

18.1 PURPOSE

The Contractor is responsible for the proper disposal of PCB and "NO PCB" light ballasts from NSU property and when removing or replacing mercury-containing lamps.

18.2 GENERAL

The primary concern regarding the disposal of used fluorescent ballasts is the health risk associated with polychlorinated biphenyls (PCB's). Fluorescent and high-intensity discharge (HID) ballasts contain a small capacitor that may contain high concentrations of PCBs (>90% pure PCBs or 900,000ppm). The Toxic Substances Control Act (TSCA) was enacted in 1976 and subsequently banned the production of PCBs in the United States. PCBs are regulated because they are carcinogenic and pose a long-term hazard due to their persistence in the environment. Ballasts produced after 1978 are usually marked "NO PCB". The specific regulations governing the use and disposal of PCBs are found in 40 CFR Part 761.

Florida regulations for PCB ballast and mercury-containing lamp disposal – PCB capacitors or other contaminated ballast material cannot be disposed in any solid waste management facility in Florida. Recycling of non-PCB ballast components is highly recommended with an approved facility. Mercury-containing lamps may not be disposed in any municipal waste container. Generators of > 10 lamps/month must arrange for disposal in permitted lined landfills or recycling at mercury reclamation facilities. Lamps that are recycled are subject to streamlined, universal-waste regulations (Chapter 62-737, FAC). See Appendix A for the Florida fact sheet on Managing Spent Fluorescent and High Intensity Discharge (HID) lamps.

Di (2-ethylhexyl) phathatlate (DEHP) is a substance that was used to replace PCBs in certain ballast capacitors beginning in 1979. DEHP in its pure form is listed as hazardous waste but once it has been used, it is no longer hazardous as defined by RCRA.

Fluorescent and high-intensity discharge (HID) lamps contain a small quantity of mercury that can be harmful to the environment and to human health when improperly managed. Mercury is regulated under RCRA, which is administered by EPA.

18.3 RESPONSIBILITIES

Before starting any projects of repair, renovation or construction, Contractors shall follow the below requirements and regulations:

I. Identification and Removal of Lighting Ballasts.

Ballasts are rectangular shaped electrical boxes that are usually black in color.
Fluorescent ballasts are located above or between the lamps in a fluorescent lighting fixture. Sometimes a metal plate must be removed to access them.
HID ballasts can be found in HID lighting fixtures and light posts.

Identifying PCB ballasts

- All ballasts manufactured through 1979 contain PCB's
- Ballasts manufactured after 1979 that do not contain PCBs are labeled "No PCBs"
- If ballasts are not labeled "No PCBs" assume it contains PCBs.
- It is extremely important to establish if a ballast containing PCBs is leaking before you remove it from the fixture, so that it can be handled properly.

Removal

1) Contractor shall submit a Plan describing the procedure to be used to detach ballasts from lamp fixtures and the stripping of all wiring.
2) Contractor shall submit a Plan describing the collection and segregation of PCB and No-PCB ballasts for disposal/recycling purposes.
3) The Contractor is to coordinate with Facilities Management prior to the start of the planned work activity as to the location for the storage drums which will contain the disposed ballasts.
4) EPA recommends packing and sealing the intact ballasts in 55 gallon steel drums. For disposal purposes, the ballasts must be separated into drums marked "PCBs" and '"No-PCBs" based on the identification procedure discussed above.
5) One drum holds 150 to 300 ballasts depending on how tightly the ballasts are packed.
6) It is recommended that all void spaces be filled with an absorbent packing material for safety reasons and all drums are to be labeled according to DOT regulations.
   NOTE: tightly packed drums may weigh more than 1,000 pounds which may present a safety risk.
7) If there is a puncture or other damage to ballasts exposing an oily tar-like substance, then the PCB ballast is leaking and should be placed immediately in a heavy- plastic, zip-lock type bag and handled as hazardous waste.
8) Contractor is to immediately notify the EH&S office of leaking ballasts.
9) The contractor is to use trained personnel to handle and dispose of leaking PCB-containing ballasts.
10) An average of 30 seconds per fixture is required for ballast removal.
11) PCBs are very harmful upon contact with the skin and mucous membranes. Use caution.
12) Safety equipment recommended by OSHA includes gloves made of neoprene, polyvinyl alcohol, FEP Teflon and Viton fluorocarbon rubber. These may be worn inside leather or cloth work gloves to prevent tearing or puncturing.
13) The Contractor is to coordinate with Facilities Management prior to the start of the planned work activity as to the location for the storage of the drums.

Disposal

1) Ballasts containing PCBs cannot be disposed in Florida.
2) The Contractor is to coordinate with the EH&S office for the disposal/recycling of the ballasts.
3) The EH&S office is to ensure that all PCB ballasts/components are removed by a processor and disposed at an approved facility outside of Florida.

4) Non-PCB ballasts/components may be managed and recycled at an approved facility in Florida.
5) About 25% of non-PCB ballasts contain DEHP which is classified as a hazardous substance and regulated under CERCLA. Disposal of about 1600 of these ballasts or 100 pounds would trigger the "Reportable Quantity" requirement under the federal Superfund law (40 CFR, Section 304.2) and require you to notify the National Response Center.
6) If more than a pound (12-16 fluorescent ballasts) of PCBs is being disposed within a 24-hour period, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that you notify the EPA National Response Center at (800) 424-8802.
7) The EH&S office shall keep a record of all TSCA transported or hazardous waste.
8) The EH&S office must sign the waste manifest prior to transportation. The recycler or transporter can supply the generator with a Uniform Hazardous Waste Manifest that identifies the type and quantity of the waste, the generator, the transporter and its ultimate destination.
9) The manifest must accompany the waste and each handler of the waste must sign the manifest and keep one copy. When the waste reaches its destination, the owner of that facility returns a copy of the manifest to the generator to confirm that the waste arrived.
10) If the waste does not arrive as scheduled, the Contractor must immediately notify the EH&S office who are responsible for notifying EPA or the authorized state environmental agency immediately so they can investigate and act appropriately.

II. Identification and Removal of Mercury-containing Lamps.

Although fluorescent and HID lights save energy and money, they do present special disposal considerations. Low- mercury fluorescent and HID lamps contain less mercury than conventional lamps but they may still be considered hazardous waste when disposed.

Mercury-containing lamps will include all fluorescent and high-intensity discharge lights, bulbs, tubes and lamps, which at NSU is most of the indoor and outdoor lighting. Mercury-containing tubes will not be transported from one campus to another; each campus has at least one designated storage site.

<u>Identifying mercury-containing lamps</u>

- Fluorescent lights can be found in over-head-light fixtures and exit signs.
- Most HID lamps are used in security, outdoor or warehouse applications.
- Probable locations for HID are parking-lot light poles, warehouse rafters and the outside walls of buildings.

<u>Removal</u>

1) The Contractor shall notify Facilities Management of the project nature relating to mercury-containing lamps, the duration and storage requirements prior to starting the planned work activity.

2) The Contractor shall submit a Plan explaining the removal procedure of the light tubes from service and the manner in which the tubes will be stored to prevent unnecessary breakage.
3) The Contractor shall document training of employees in the proper lamp handling, packaging and emergency cleanup and containment procedures.
4) Light bulbs should be immediately placed in the appropriate closed containers to prevent breakage and for disposal. Recycling facilities require that the lamps/tubes are not taped together for storage or shipment.
5) If bulbs/tubes break, the Contractor is to immediately contact the EH&S office for consultation on clean-up and disposal in accordance with federal and local regulations.
6) Average time to remove individual bulb/tube is 60 seconds.
7) A 15-inch diameter drum for 8 foot lamps holds between 80 to 90 fluorescent bulbs, while a 21-inch diameter drum for 4 foot lamps holds between 160 to 170 bulbs.
8) For HID lamps, the best way to remove the lamps is to remove the entire lighting unit.
9) Ballasts and batteries should be placed separately from the bulbs and in their respective appropriate containers.
10) HID lamps should be placed in cardboard boxes wrapped in newspaper and/or cushioned with cardboard "peanuts."
11) The Contractor is to ensure the containers are labeled as "Spent Mercury-Containing Lamps for Recycling" or Universal Waste Mercury Lamps"
12) EH&S office and the Contractor are to designate a space solely for bulb storage to ensure the bulbs are not damaged prior to recycling by an approved facility.
13) Average time to remove HID item is 90 seconds.

<u>Disposal</u>

1) The Contractor is to coordinate with the EH&S office for the disposal/recycling of tubes.
2) Florida regulations regarding the disposal of mercury-containing lamps are either recycling or landfill.
3) It is encouraged that fluorescent and HID lamps, even the low mercury content lamps be recycled.
4) Hazardous waste lamps destined for recycling and managed in accordance with FAC Chapter 62-737 regulations are considered to be universal wastes in Florida and do not count towards the facility's hazardous waste generator status.
5) Recycling is the recommended management option for all lamps.
6) Generators of 10 or less spent lamps per month per location may dispose of these lamps with the regular trash going to a permitted, lined solid waste landfill.
7) Low-mercury, non-hazardous waste spent lamps may also be disposed of at permitted, lines solid waste landfills in any quantities.
8) The EH&S office shall contact the local solid waste management department for any final guidance or restrictions on the landfill disposal of these lamps.
9) If more than 10 spent hazardous waste lamps are generated per month, they may be disposed of at a permitted hazardous waste landfill and would count towards NSU's hazardous waste generator status.
10) The EH&S office is to obtain and keep receipts for shipments of lamps off-site to show DEP and local inspectors that lamps were properly handled.

11) Receipts should have the following information; quantity of lamps shipped/received, the date of the shipment, and the name and address of the handler/recycling facility.
12) Records of receipts and shipments of lamps shall be kept for 3 years from the date of shipment.

18.4 REGULATIONS

EPA 40 CFR 761	Polychlorinated Biphyenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
Toxic Substances Control Act (TSCA)	
FAC 62-701	Solid Waste Management Facilities
FAC 62-737	The Management of Spent Mercury-containing Lamps and Devices Destined for Recycling
EPA 40 CFR 273	Standards for Universal Waste Management
EPA 40 CFR 262	Standards Applicable to Generators of Hazardous Waste
EPA 40 CFR Subchapter I	Solid Wastes

18.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

19. EXCAVATIONS & TRENCHING

19.1 PURPOSE

Before Contractors start any excavation or trench work they must obtain the necessary permits, review the project and comply with all OSHA and the Florida Department of Labor and Employment Security (DLES). Excavating or trenching must be done in a manner which will not expose employees to possible injury. To inform Contractors of their responsibility while performing excavation and trenching operations at Nova Southeastern University.

19.2 GENERAL

Excavation and trenching activities present a unique set of hazards. The primary hazard associated with excavation and trenching activities is cave-in which may result in entrapment and eventual suffocation of workers in an unprotected excavation.

The OSHA standing for excavation and trenching also sets forth the requirements for shoring and sloping of excavations.

Excavation and trenching hazards include:

damage to underground utilities
cave-ins
hazardous atmospheres
stability of adjacent structures
mobile equipment
egress limitations
water accumulation
chemical or biological hazards
fall protection

19.3 RESPONSIBILITIES

Contractors shall be responsible for the safety of their employees as well as NSU employees, when performing excavation and trenching activities.

1) 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 surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees and who has the authorization to make prompt corrective measures to eliminate them.
2) The "Competent Person" through experience or training must be able to determine the suitability of equipment or materials used for support systems, shield systems, and other protective systems.
3) Prior to starting the actual excavation, the Contractor must ensure all underground utility installations in the area (such as electrical, phone, gas, sewage, and water irrigation and fuel lines) have been identified. The Contractor is to contact Facilities Management to request a utility marking.
4) Excavation work shall not commence until all underground utilities have been identified and marked.

5) The Contractor shall ensure the evaluation of the trenching site by a "Competent Person" who knows and is trained to identify soil types, proper protective systems and hazardous conditions.
6) Prior to beginning any trenching operations, all surrounding hazards must be evaluated, including the location of tress, large rocks, buildings and sidewalks. These items should be either removed or made safe.
7) The Contractor will place warning signage on all sides of a trench or excavation to prevent pedestrians from crossing the opening.
8) Contractors must slope or shore all excavations 5 feet or more in depth, in accordance with OSHA 29 CFR 1926 Subpart P.
9) All slopes shall be excavated to the angle of repose. All excavations shall be sloped at an angle not stepper than 34 degrees from the horizontal.
10) Excavations which are less than 5 feet in depth may not require sloping or shoring if determined by a "Competent Person" that there is no risk for cave-in.
11) When excavations are deeper than 4 feet, the Contractor must provide properly designed means of access and egress (ladders) such that at no time is the employee required to travel more than 25 feet to egress, between ladders. Ladders must extend 36 inches above the top surface of the excavation and used in accordance with the manufacturer's instructions.
12) The Contractor shall ensure there are daily documented inspections of the excavation and the adjacent areas prior to work and as needed during the workday (e.g. after rain). If there are any unsafe conditions, work in the excavation shall stop and personnel removed until the problems are corrected.
13) The Contractor shall design the excavation to prevent the accumulation of water in the trench. Contractors shall not permit their employees to work in an excavation where water accumulates.
14) The Contractor shall monitor and test the atmosphere within the trench/excavation for oxygen deficiency, flammable gases or other air contaminants as deemed necessary by the "Competent Person". The Contractor shall provide its own equipment for the testing and the equipment shall be calibrated.
15) All protective material and equipment must be checked for any damage.
16) Trenches or excavations where there is a hazardous atmosphere without regard to ventilation shall be classified as Permit-Required Confined Spaces. The Contractor will follow the procedures set forth in this manual for Confined Spaces. The Contractor shall provide ventilation for excavations where there is a hazardous atmosphere as determined by testing. The ventilated atmosphere must be maintained below 10% of the lower explosive limit for flammable gases.
17) The Contractor shall provide the appropriate respiratory protection and other personal protective equipment in situations where the atmosphere cannot be adequately ventilated for human health.
18) The Contractor will identify areas where structural integrity of neighboring facilities may be compromised as a result of excavation activities. The Contractor will notify Facilities Management of any at-risk structures.
19) The Contractor is responsible for the design and installation of guardrails or other means of protecting other employees and the public from falling into the excavation.
20) Pits, shafts and trenches must be covered or properly barricaded and illuminated.

21) When heavy equipment will be operated nearby an excavation, the shoring or bracing shall be able to withstand this extra load regardless of the depth of the excavation. Excavations that will be entered by employees shall have all dirt, debris and excavation material stored or retained at least 2 feet from the edge of the excavation.
22) Signs and barricades shall be displayed at all excavation and trenching sites.
23) Barricades at least 3 to 5 feet high shall be spaced no further than 10 feet apart and yellow and black "Caution, Do Not Enter" construction tape shall be stretched securely between the barricades.
24) For excavations of more than 20 feet deep require the design of a registered professional engineer.
25) Excavations must be covered overnight whenever possible.

19.4 REGULATIONS

OSHA 29 CFR 1926 Subpart P	Trenching and Excavations
OSHA 29 CFR 1926.650	Excavations – Scope, Application and Definitions
OSHA 29 CFR 1926.651	Excavations - Specific Excavation Requirements
OSHA 29 CFR 1926.652	Excavations – Requirements for Protective Systems

Florida Department of Labor and Employment Security (DLES)

19.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

20. RED TAG PERMIT FOR FIRE SUPPRESSION SYSTEMS

20.1 PURPOSE

To inform Contractors of their responsibilities when working on projects that require the sprinkler or fire protection systems to be taken out of service and to abide by the University's Red Tag Permit Program.

20.2 RED TAG EVENTS

Projects of repair, renovation or construction conducted on NSU property often require the disabling or alteration of automatic sprinkler and other fire safety systems.

The Red Tag Permit Program is a procedure approved by NSU and designed as a method of managing life safety (i.e. sprinkler system) impairments or other fire safety systems in University buildings and on University property in the event the systems are temporarily disconnected/out of service for repairs or replacement.

Fire Protection Systems applies to the following systems:

1) Fire alarm systems, including all/any detection
2) Automatic fire suppression system (sprinkler) including fire pumps
3) Standpipe systems
4) Local flooding/suppression systems
5) Fire hydrants

20.3 RESPONSIBILITIES

Prior to undertaking any projects of repair, renovation or construction, that may require the disabling or altercation of a fire protection system the Contractor shall:

1) For any project with fire impairments which are expected to last longer than 4 hours, the Contractor shall notify the EH&S office who will in turn notify the local fire department and provide the appropriate details of the location of the impairment, expected length of time and the contact person.
2) The EH&S office shall notify building occupants when the impairment is anticipated to last more than 4 hours.
3) The "Fire Protection Out of Service" red tag shall be displayed at the site of impairment (valve, control panel, hydrant, etc.).
4) The Contractor shall plan to utilize temporary protection (i.e. fire extinguishers or charged lines) to prevent the outbreak of a fire.
5) Contractors and their personnel shall not undertake work that may cause a fire hazard, place themselves or any University employee, student or faculty at risk, cause a false alarm or damage any fire protective equipment.
6) All Hot Work shall be restricted in the affected area.
7) The Contractor shall provide a fire watch when the fire protection system of an occupied building is impaired by construction/repair until the system is restored.

8) In accordance with NSU policies, the fire watch shall be coordinated with the EH&S office.
9) Smoking shall be strictly prohibited in areas where impairments are being conducted.
10) In areas where there are combustible and flammable materials, additional controls are required during impairment operations.
11) The EH&S officer shall contact periodic surveillance of sites where fire protection systems have been impaired.
12) The Contractor shall notify the EH&S office when the impaired system is restored to operation. The EH&S office will then contact the fire department.
13) The Contractor shall remove the red tag from the point of impairment upon completion and the EH&S office shall file a record of the impairment.

20.4 REGULATIONS

NFPA 25	Standard for the Inspection, Testing, and Maintenance of Water-based Fire Protection Systems
Florida Statutes, Title XXXVII Chapter 633	Fire Prevention and Control
FAC 69A- 60	Florida Fire Prevention Code

20.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

21. HAND AND POWER TOOL SAFETY

21.1 PURPOSE

To inform Contractors of their responsibilities to ensure all tools and equipment are in safe working conditions and their employees are trained in the proper use and handling of the tools and equipment.

21.2 ACTIVITIES

Each Contractor shall be responsible for the safe working conditions of tools and equipment used by their employees. Contractors are to follow the University's Hand and Power Tool Program.

21.3 RESPONSIBILITIES

Prior to undertaking any projects of repair, renovation or construction at NSU, Contractors shall eliminate or minimize any potential unsafe tools or equipment and ensure safe operation by implementing the following:

1) Each Contractor shall be responsible for the safe condition of tools and equipment used by their employees.
2) Tools shall be inspected regularly and repaired in accordance with the manufacturer's specifications.
3) Before using a tool, the operator shall inspect it to determine if all moving parts are operating and if the tools is in a clean condition.
4) All power tools shall be maintained in accordance with the manufacturer's specifications.
5) Appropriate personal protective equipment such as safety goggles and gloves must be worn to protect against hazards that may be encountered while using portable power and hand tools.
6) Tools should only be used for their intended purposes.
7) All employees must receive training which should include the regulations and the safe use of each hand and power tool.
8) The Contractor shall ensure the workplace floors are kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.
9) The Contractor shall inspect all power tools to ensure they are fitted with guards and safety switches.
10) Employees using electric tools must be aware of the dangers; among the most serious hazards are electrical burns and shock.
11) The Contractor shall use electric tools that have a three-wire cord with a ground and be plugged into a grounded receptacle, be double insulated, or be powered by a low-voltage isolation transformer.
12) Powder-actuated tools operate like a loaded gun and must be treated with extreme caution. The Contractor shall ensure all operators of powder-actuated tools are specially trained.

13) Employees using powder-actuated tools must wear suitable ear, eye, and face protection.
14) Loaded tools shall not be left unattended.
15) For pneumatic tools powered by compressed air there are several potential dangers encountered when using this equipment, the main one being getting hit by one of the tool's attachments or by some kind of fastener the employee is using with the tool.
16) The Contractor shall provide employees using pneumatic tools with eye and face protection as well as hearing protection as the noise is a hazard.

21.4 REGULATIONS

OSHA 29 CFR 1910.242	Hand and Portable Powered Tools and Equipment, General
OSHA 29 CFR 1910.243	Guarding of Portable Powered Tools
OSHA 29 CFR 1910.244	Other Portable Tools and Equipment
OSHA 29 CFR 1926.302	Power-operated Hand Tools

21.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

22. LIFT TRUCKS, HOIST AND CRANES

22.1 PURPOSE

To inform Contractors of their responsibilities to ensure only trained and authorized employees will be allowed to operate forklifts, cranes, hoisting equipment and industrial lift trucks on NSU property.

22.2 ACTIVITIES

Contractors must have all cranes, hoists, forklifts and industrial lift trucks annually inspected by a certified testing agency before being brought onto NSU property.

Industrial lift trucks include but not limited to: forklifts, tractors, platform lift trucks, motorized hand trucks and other specialized industrial trucks powered by electric motors or internal combustion engines.

22.3 RESPONSIBILITIES

Contractors shall ensure the following safety and operational procedures are followed:

1) Contractors shall ensure that all such equipment is functioning as designed prior to and while in use.
2) Any deficiencies and/or defective parts are to be repaired before using the equipment.
3) All use of the equipment shall be within the safe workloads as specified by the equipment manufacturer.
4) Barricades shall be clearly established using appropriate methods (tape, sawhorses, etc.).
5) If the project requires the Contractor to be working near overhead power lines, an application for an Energized Work Permit needs to be submitted to the EH&S office.
6) Care should be taken to maintain adequate distance from power lines and to take appropriate precautions when working near power lines.
7) All such equipment shall be adequately anchored pursuant to OSHA regulations.

<u>Cranes and Hoists</u>

8) Contractors shall provide appropriate barriers around cranes and material hoists to protect pedestrian and vehicular traffic around the operating area.
9) When cranes are operating and moving, flag men shall be provided by the Contractor and utilized to prevent pedestrian and vehicular traffic from crossing paths with the crane load.
10) If a crane and its associated rigging has sustained any damage, the crane and rigging shall be fully re-inspected and proof of the inspection and its results shall be recorded and maintained on the project site.
11) Daily and pre-shift inspections shall be performed and documented by the crane operator or trained representative designated by the Contractor in accordance with the manufacturer's recommendations and OSHA regulations.

12) All cranes must have load charts in cabs.
13) All crane operators must be certified by an approved agency.
14) Contractors shall not leave suspended loads unattended. When moving a suspended load, the operator shall assure all personnel are clear of the path of transport. Workers will not stand or walk under suspended loads.
15) Motorized crane engines must be stopped before refueling. A fire extinguisher must be present during refueling and must be immediately accessible.
16) The Contractor is responsible for checking the weather conditions daily and establishes a wind speed at which elevated work or crane operations are suspended; 25mph is a commonly suggested limit.
17) If a lift is to be performed over an occupied building, a licensed structural engineer shall review and certify that the building can withstand the impact of the load being dropped on the building due to a crane or rigging failure. If this cannot be established or the building cannot withstand the impact of a dropped load, the building has to be evacuated or the lifting can be scheduled for off-hours, this decision will be made by the University.

Lift Trucks

18) The Contractors shall ensure the vehicles are inspected daily.
19) Employees are to obey all safe operating procedures and all site traffic regulations.
20) The Contractor shall remove from service any power-operated industrial truck that is not in safe operating condition.
21) All vehicles must be shut off when unoccupied.
22) All repairs are to be performed by authorized personnel.
23) Any industrial truck requiring replacement parts shall be replaced by parts equivalent to those used in the original design.
24) No person shall be allowed to stand or pass under the elevated portion of any truck whether loaded or empty.
25) All passengers on motor vehicles must be seated and within the confines of the vehicle.
26) Unauthorized personnel shall not be permitted to ride on powered industrial trucks.
27) Operators will sound the horn and use extreme caution near pedestrians, making turns and traveling through doors.
28) Operators are to report all accidents, regardless of fault and severity.
29) All employees operating lift trucks are to be trained in the operation and handling in accordance with federal and local regulations.
30) A flagman shall direct traffic and backing of vehicles in congested areas.

22.4 REGULATIONS

OSHA 29 CFR 1910.178	Powered Industrial Trucks
OSHA 29 CFR 1910 Subpart F	Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms
OSHA 29 CFR 1926.453	Aerial Lifts
OSHA 29 CFR 1926.554	Overhead Hoists
OSHA 29 CFR 1926 Subpart CC	Cranes and Derricks in Construction

22.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.

APPENDIX A

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Managing Spent Fluorescent and High Intensity Discharge (HID) Lamps

A Fact Sheet For Florida Businesses and Government Facilities

Fluorescent or High Intensity Discharge (HID) lighting is a good business choice. Compared to incandescent lighting, fluorescent and HID lighting use less energy and produce less heat. Less energy and heat not only result in lower lighting and cooling costs, but they also result in utility power plants emitting less air pollutants such as mercury, lead, nitrogen oxides, and sulfur dioxides. If you are considering switching to high-efficiency fluorescent or HID lighting, don't hesitate to make the change.

Although fluorescent and HID lights save energy and money, they do present special disposal considerations. Fluorescent and HID lamps (as well as some types of neon lamps) contain mercury and in most cases are considered to be hazardous wastes when disposed. Mercury is a toxic metal that in certain forms can accumulate in living tissue and cause adverse health effects. Although the amount of mercury in each lamp is small, several million lamps are discarded by Florida businesses each year, making these lamps one of the largest sources of mercury in our garbage. When a lamp is broken or placed in a landfill or incinerator, the mercury can contaminate the air, surface water, and ground water. Mercury contamination in Florida is most evident from the Department of Health's warnings of high mercury levels in fish in a number of our lakes and in the Everglades.

Because of this, these types of spent lamps, excluding those from households, containing any amount of mercury have been banned from solid waste incineration since July 1, 1994, in any quantity. Since most of these types of lamps contain hazardous levels of mercury, they should not be disposed of at solid waste landfills in Florida if more than 10 lamps per month are generated by a business from any one location. Local solid waste departments are the final authority for landfill disposal and may decide to refuse to accept any spent lamps from generators, regardless of the amount of mercury contained in the lamps.

Florida businesses and governmental facilities generating spent fluorescent and HID lamps ("Generators") have two options for managing them: either recycling or landfill disposal.

1) You are encouraged to recycle fluorescent and HID lamps, even those with lower mercury content, by following the Chapter 62-737, Florida Administrative Code regulations outlined in this fact sheet. Hazardous waste lamps destined for recycling and managed in accordance with these regulations are considered to be universal wastes in Florida and do not count toward your facility's hazardous waste generator status. Check with the receiving storage or recycling facility for its guidelines on packaging and transportation. A list of recycling facilities in Florida can be obtained by calling 1-800-741-4337. *RECYCLING IS THE RECOMMENDED MANAGEMENT OPTION FOR ALL LAMPS!*

2) (a) Generators of 10 or less spent lamps per month per location may dispose of these lamps with the regular trash going to a permitted, lined solid waste landfill. Low mercury, non-hazardous waste spent lamps may also be disposed of at permitted, lined solid waste landfills in any quantities. However, contact your local solid waste management department for any final guidance or restrictions on the landfill disposal of these lamps.

(b) If more than 10 spent hazardous waste lamps are generated per month, they may be disposed of at a permitted hazardous waste landfill and would count toward your facility's hazardous waste generator status.

RECYCLING REQUIREMENTS AND GUIDELINES (Continued on Back)

Generator Requirements (Continued on Back)

- Does not place used lamps from business, industry, or institutions in the regular trash.
- Stores lamps in an area and in a manner that will prevent them from breaking. *Does not stuff too many or too few lamps into the shipping container. Store in closed containers. Recycling facilities request that you do not tape lamps together for storage or shipment and may not accept lamps that are taped together.*
- Labels the lamps or each container as *"Spent Mercury-Containing Lamps for Recycling"* or *"Universal Waste Mercury Lamps"*, or *"Waste (or Used) Mercury Lamps"*.

APPENDIX A continued

- A business or institutional generator location may accumulate and store up to 5,000 kilograms of lamps (20,000 lamps) at any one time and for up to one year, *if the lamps are destined for recycling*, without being subject to notification requirements (EPA Form 8700-12).
- If lamps are accidentally broken, immediately contain the broken lamps and store them in a tightly sealed container. It is recommended that you mark the container as "*Broken Spent Mercury-Containing Lamps For Recycling*".
- Trains employees in proper lamp handling, packaging and emergency cleanup and containment procedures. Non-lamp residues containing mercury and that are generated as a result of a lamp cleanup are to be managed as hazardous waste.
- Do not intentionally break or crush lamps unless you are complying with the "*Drum-top Crushers*" *requirements below.*
- If on-site storage is not feasible, lamps may be transported to a central accumulation point at one of your own facilities, to a registered handler facility, or directly to a permitted recycling facility. If you transport your own lamps, you also need to comply with the Department's transporter regulations. *See the Transportation Requirements and Transporter Requirements below.*

Drum-top Crusher Requirements (For *Generators* Only)

Lamps crushed using this equipment are still mercury-containing lamps and all pertinent regulations apply. In Florida, the Department recommends that properly-handled crushed lamps be recycled as Universal Waste. Confirm with your recycling facility that they accept crushed lamps for recycling. Use of this equipment is allowed by a generator only per paragraph 62-737.400(6)(h), F.A.C., as long as the crushed lamps immediately enter the final accumulation container from the drum-top crusher equipment and crushing is done under the following conditions:

- Crushing poses employee health and environmental risks if mercury vapors are released. Releases of mercury vapors or other contaminants shall be prevented, and the user shall comply with all applicable OSHA standards.
- The crushing unit shall be properly maintained (e.g., adequate filter changes), operated per the manufacturer's written procedures, and the employees using this equipment shall be thoroughly familiar with these procedures.

Handler Facility (Non-generator Collection) Requirements

- Annually registers with the Department as a small or large quantity handler and maintains a valid DEP ID number.
- *A small quantity handler facility* accumulates up to 2,000 kilograms (8,000) of lamps indoors at any one time for no longer than one year.
- A *large quantity handler facility* accumulating 8,000 or more lamps at any one time must also register as such and submit to the Department: *a one-time $1,000 registration fee, an operational plan, and a closure plan including financial assurance.*
- Follow other requirements listed above for *Generators* except that crushing of lamps as described above is only allowed by generators without a permit.

Record Keeping Guidelines for Generators & Handlers

- Obtain and keep receipts for shipments of lamps off-site to show DEP and local inspectors that lamps were properly handled. Receipts should have the following information: the quantity of lamps shipped or received, the date of shipment or receipt, and the name and address of the handler or recycling facility receiving any shipped lamps.
- Records of receipts and shipments of lamps are required for large quantity handler facilities (including generators) and shall be kept for 3 years from the date of shipment or receipt.

Reverse Distribution Program Requirements

- Sponsored by a lamp manufacturer or distributor (which may include a business distributing lamps to its facilities).
- Sponsor assumes responsibility for collection and recycling of spent lamps.
- Annually registers with the Department, maintains a valid DEP ID Number, and provides a program description including all participating transporters, handlers and recycling facilities.

Transportation Requirements

- When shipping lamps within Florida, a hazardous waste manifest and a licensed hazardous waste transporter are NOT REQUIRED for shipments to a handler or recycling facility within Florida.
- When shipping out of Florida, follow the intermediate and receiving states' requirements.
- When shipping into Florida, you may use a shipping paper unless your state or an intermediate state requires a hazardous waste manifest; then you must follow those states' requirements.

Transporter/Transfer Facility Requirements

- Annually registers with the Department and maintains a valid DEP ID number as a transporter and/or transfer facility.
- Uses only totally enclosed trucks in good condition.
- If registered as a transfer facility, may store properly packaged lamps on a truck used in the actual transportation of lamps or at an indoor location for up to 10 days.
- Trains drivers in proper handling, packaging and emergency cleanup and containment procedures and keeps these procedures on the trucks.
- Complies with any applicable Department of Transportation (DOT) regulations, including the Hazardous Material Regulations.

Note: Transporters and handlers collecting lamps from generators of 10 or less lamps per month and who do not accumulate more than 100 kilograms (400 lamps) at one time are exempt from the annual registration requirements outlined above.

PCB and Other Light Ballasts

- Ballasts containing PCBs (polychlorinated biphenyls) cannot be disposed in Florida. Send to a processor for removal of PCB components and disposal at approved facilities outside of Florida. Non-PCB components may be managed and recycled in Florida.
- About 25% of non-PCB ballasts contain DEHP (di (2-ethylhexyl) phthalate) which is classified by EPA as a hazardous substance. Disposal of about 1600 of these ballasts would trigger the reportable quantity requirement under the federal Superfund laws. The Department recommends that ballasts of this type not be disposed of at solid waste landfills.
- The Department recommends the recycling of all discarded light ballasts, including electronic ballasts.

For a list of recycling facilities or for further information or questions, contact the Florida Department of Environmental Protection's Hazardous Waste Management Section at: 1-800-741-4DEP (4337) or at www.dep.state.fl.us.

Revised January 2008