



# ENVIRONMENTAL HEALTH AND SAFETY

## IN-HOUSE CONSTRUCTION (IHC) MANUAL

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# Table of Contents

<b>Status .....</b>	<b>2</b>
<b>A: INTRODUCTION .....</b>	<b>4</b>
<b>B: GENERAL REQUIREMENTS.....</b>	<b>4</b>
<b>C: EHS PROGRAM MANAGEMENT .....</b>	<b>5</b>
<b>D: HEALTH AND SAFETY REQUIREMENTS .....</b>	<b>6</b>
<b>E: ENVIRONMENTAL REQUIREMENTS .....</b>	<b>20</b>
<b>F: DIRECTORY OF SERVICE &amp; EMERGENCY PROVIDERS .....</b>	<b>21</b>

# A: INTRODUCTION

The In-House Construction (IHC) Manual, developed by OSU's Environmental Health and Safety (EHS) department, contains performance expectations applicable to IHC and their personnel regarding environmental, health, and safety responsibilities while working at OSU. To ensure the protection of OSU's students, faculty, staff, visitors, and property, IHC is expected to provide a safe and secure workplace and operate in an environmentally sound manner. Strong environmental health and safety programs will prevent injuries, control losses, and minimize environmental impacts. We expect IHC to join us in providing a workplace free of uncontrolled hazards to people, the environment, and our campuses.

IHC must comply with all federal, state, and local laws, as well as OSU's EHS-related policies and procedures. The OSU requirements in this manual may be stricter than government regulations. This document is a summary of EHS performance expectations. It is not intended to replace or limit the requirements of government regulations or standard industry practice. It is the IHC's obligation to meet applicable EHS requirements, whether they are addressed in this document or not.

The In-House Construction Safety Program manages the safety of Facilities Management and their employees performing construction activities. OSU will communicate known hazards. This manual has been published to communicate the EHS department's philosophy and expectations to IHC and their personnel that do business with the University.

IHC is responsible for awareness and full compliance with all applicable rules, regulations, laws, and practices that are applicable to their work that are prescribed by OSU and any federal, state, or local government or agency that governs the safety and health of employees, students, faculty, and the public as well as protection of the environment. These include, but are not limited to, regulations promulgated by the following federal and state agencies: OSHA, EPA, DOT, DOE, NRC and OKDOL.

In-House Construction work areas may be observed and inspected at any time to ensure compliance with this manual. OSU designated staff, including the OSU Project Representative Manager, EHS, and the University Fire Marshal may perform inspections. In addition, a neutral third party may be secured by OSU to perform these inspections. Any deficiencies noted during the inspection must be corrected immediately. Repeat or serious violations could result in disciplinary action and/or expulsion from OSU property.

# B: GENERAL REQUIREMENTS

## **ENTRANCES AND EXITS**

IHC employees may use only those entrances and exits designated for the work area. OSU posts emergency exits with appropriate signs and often equips them with exit alarms to discourage unauthorized use. Employees who need to disable door alarms shall obtain prior approval from the OSU Project Representative Manager and University Fire Marshal. Exit doors shall not be blocked. In addition, doors to restricted areas may not be left unsecured or unmonitored.

## **INCIDENT REPORTING**

To maintain a safe and secure work environment, IHC shall report any incidents or observations that may affect the safety of their personnel, OSU employees or students.

**Unsafe Acts/Behaviors** - Report unsafe behaviors and conditions immediately to the OSU Project Representative. Stop work if an imminent danger exists. Work must cease until IHC corrects the issue to the satisfaction of the OSU Project Representative Manager and EHS.

**Accidents, Injuries, Near-Miss** – Employees and supervisors must report details of any accident or injury to the OSU Project Representative and EHS within 24 hours of the incident. Details of the accident, including investigation of injuries and near-misses must be documented by the employee or supervisor according to OSHA record keeping guidelines.

**Emergencies** – Supervisors are responsible for implementing their own system for accounting for employees during an emergency.

**Security Issues** - Notify the OSU Police Department at 405-744-6523 or 911 in the event of an emergency or to report any issue causing a security concern. This may include theft, threats, or acts of violence, malfunctioning or disabled security devices, and violations of security policies or procedures.

## **PROTECTING BUILDING OCCUPANTS AND THE PUBLIC**

IHC employees conducting construction/renovation activities shall ensure that the health and safety of OSU faculty, staff, students, and visitors are not adversely affected. Whenever possible, exposure to physical and health hazards shall be minimized using administrative and/or engineering controls. Containment barriers, barricades, signs, and localized exhaust ventilation shall be used. Building occupants and the public must not be affected by emissions from construction/renovation activities. IHC shall follow the guidelines of ANSI A10.34 “Protecting the Public on or Adjacent to Construction Sites.”

Since the hazards associated with construction and renovation often change as a project progresses, IHC must conduct periodic hazard assessments to anticipate and plan for these changes. Additionally, activities such as cutting wallboard or other dust-generating operations have the potential to activate smoke detectors/building evacuation alarm systems, which must be accounted for.

Any changes in planned construction activities shall be brought to the attention of the OSU Project Representative Manager so the appropriate notification can be made to all affected OSU staff and students.

# **C: EHS PROGRAM MANAGEMENT**

## **EHS PROGRAM ENFORCEMENT**

It is the responsibility of each employee/ supervisor to comply with this manual as well as all applicable federal, state, local, and OSU requirements. Violations will be brought to the attention of the personnel involved and the responsible supervisory personnel. Identified violations must be promptly addressed and corrected.

Violations may result in work stoppage and will result in progressive enforcement actions that range from temporary to permanent expulsion of personnel from the site. If the violations are severe or repetitive, the employee may be prohibited from working for OSU. IHC may be required to take other corrective actions, such as conducting an incident review, stopping work, holding safety reviews for the entire crew or company, or providing additional training to employees, etc. at the discretion of OSU.

## **EHS SAFETY AUDITS**

Periodic scheduled and unscheduled work site audits may be conducted by EHS or other designated university personnel. These audits are conducted solely for the benefit of the university and shall not relieve the employee of responsibility for enforcement and/or compliance with federal and state agencies.

If work site conditions exist that potentially impact the safety of university employees, students, or the public, the university auditor shall issue a verbal or written warning to IHC and shall notify the university project manager. If the unsafe condition(s) cannot be immediately corrected and/or the hazard mitigated, the university auditor will:

- Ensure that other university personnel, students, or the public present onsite are warned to avoid the area of the hazardous condition.
- Detail the federal or state agency violation(s) that were noted, and explain the potential impact upon university employees, students, or the public, and
- Require that the university project manager has IHC either stop work or implement measures to isolate the hazardous condition until the unsafe condition can be mitigated.

A formal written report of the violation(s) may be issued to the OSU project manager and to IHC. Audits conducted by EHS and/or regulatory agencies shall be coordinated with the OSU Project Manager.

If work site conditions present an imminent danger to life or health, EHS may order the cessation of hazardous activity until the danger from such a condition is abated or adequate measures have been taken.

### **SAFETY REPRESENTATIVE**

Regulations require “competent persons” for situations such as crane operations, confined spaces, electrical safety, excavations, fall protection, scaffolds, and trenching/ shoring. OSU expects (where applicable) IHC to have trained competent persons within line of sight of such activities. OSU management will periodically audit projects requiring competent persons. If a qualified competent person is not available, work will be stopped.

### **TRAINING**

EHS provides training for all employees assigned to work for OSU. When training is required by law or regulation (e.g., oil handling personnel, hazardous waste operations or asbestos workers), the supervisor shall ensure that only trained workers are assigned to work on the specific job tasks. In addition to meeting the regulatory requirements, it is OSU’s expectation that all personnel shall be adequately trained in proper techniques to safely perform the job assigned to them. All training needs to be documented and kept on site.

## **D: HEALTH AND SAFETY REQUIREMENTS**

### **BLASTING AND EXPLOSIVE USE**

Prior to engaging in projects involving the use of blasting or explosives, IHC must submit a comprehensive blasting plan to the University Fire Marshal and OSU Project Manager for review and approval. The plan must include, but not be limited to, the following elements:

- Pre-blast surveys and seismographic locations
- Site safety and job hazard analysis
- OSU notification procedures
- Blasting monitoring
- Sequence of blasting
- Blasting procedures
- Blasting mats
- Blasting security and warning whistles
- Explosive information—type, quantity, transportation, storage, etc.
- Blasting personnel
- Blaster qualifications
- Blast vibration
- Blast reports
- Typical blast design

It is the responsibility of IHC to determine if any special licenses and permits are required to perform blasting operations at the work site and to obtain those licenses and permits as part of the project. Copies of all plans,

permit applications, licenses, and any approvals shall be provided to the OSU Project Manager prior to commencing work. Blasting operations shall comply with all federal, state, and local regulations, including NFPA 495.

IHC shall ensure that explosive materials are stored in a manner consistent with applicable regulations and shall never store more than a one-day supply of explosives on an OSU work site. Any excess explosive material must be removed from campus immediately. IHC shall always account for all explosives and report any missing explosives to the OSU Police Department and OSU Project Manager as soon as the loss is discovered.

Only trained, qualified and authorized individuals can handle and use explosives. IHC shall employ the use of signs, barricades, flags, audible and visual warning devices, and any other means indicated to ensure the safety of the workers and the surrounding public.

IHC must take precautions to prevent the accidental discharge of electric blasting caps from currents induced by radio transmitters (pagers, cell phones, radios), radar, lighting, adjacent power lines, dust storms, or other sources of extraneous electricity. IHC shall indemnify OSU for fines, penalties or other legal exposures caused by blasting operations.

### **CHEMICALS, HAZARDOUS MATERIALS, AND HAZARD COMMUNICATION**

Chemicals and hazardous materials used at OSU shall be accompanied by a Safety Data Sheet (SDS). Prior to use of the material(s), IHC shall provide an SDS to the OSU Project Manager for distribution to affected university personnel. SDSs are required for various chemicals, solvents, paints, thinners etc., brought onto OSU property.

IHC and their employees shall comply with all regulatory requirements in the management of the chemicals and hazardous materials they use at OSU. IHC personnel should be thoroughly familiar with the information contained in the SDS and shall use the materials safely. If the use of the material has the potential for exposure to OSU personnel (students, faculty, employees, or residents), EHS must be consulted before starting the job via the OSU Project Manager. The SDS must be forwarded to EHS. EHS is available to make recommendations to minimize occupant exposures to chemicals or hazardous materials. IHC shall be aware that vapors and/or odors from chemicals can travel long distances, especially when introduced into building ventilation systems. Every attempt shall be made to minimize or eliminate the potential for exposure.

IHC shall provide secure and compliant storage, containers, and spill control plans for chemicals (including fuels and oils) stored on open ground or other areas lacking spill containment.

IHC shall immediately report any oil or chemical spill or release to the Stillwater Fire Department by dialing 911 and by notifying the OSU Project Manager. OSU may ask IHC to notify government agencies if required by federal and state environmental laws governing spills and releases.

IHC is fully responsible for responding to oil and/or hazardous material spills resulting from their actions or from their failure to provide adequate safeguards, including without limitation, the full cost of the response and any associated clean-up. The OSU Project Manager will notify EHS of any spills or releases that IHC reported to the Stillwater Fire Department and will consult with EHS to ensure that any waste generated is properly removed and disposed. If IHC fails to perform any action required, OSU, at its option, may complete the action at IHC's expense. IHC shall indemnify OSU for fines, penalties or other legal exposures caused by the spill.

IHC is responsible for managing their chemical containers according to federal, state, and local regulations. IHC shall remove any remaining chemicals or hazardous material products within 24 hours of their completed use on a project unless approval is received from the OSU Project Manager to leave the material on site.

If IHC generates waste materials, they must comply with all regulatory and OSU requirements. IHC may not discharge chemicals or wastewater to drains without the written approval of the OSU Project Manager, who is thoroughly familiar with the water discharge practices and permits for the university.

Special precautions shall be observed prior to using any chemicals or hazardous materials in mechanical, electrical, or air distribution rooms. The OSU Project Manager and EHS must be notified prior to use of chemicals in these areas.

Confined space specific entry procedures should be reviewed in a pre-planning meeting. Permit required confined space entry procedures must be conducted as outlined in the departmental SOPs and entry permit and must include a debriefing of personnel involved in the entry when the task has been concluded.

### **COMBUSTION ENGINES INDOORS**

Employees shall not operate combustion engines, such as those in vehicles, compressors, generators, welding machines and power tools, inside buildings without prior approval by the OSU Project Manager and EHS. The employee will be required to connect the exhaust to an approved venting system.

Do NOT refuel with the engine running. Employees and supervisors shall store fuel (gasoline, diesel and/or LPG) outside OSU buildings in approved and appropriately marked containers and compliant storage areas.

### **COMPRESSED GAS CYLINDERS**

Cylinders should be properly secured and labeled to identify contents in accordance with OSHA's Hazard Communication Standard (1926.350, 1910.1200). Workers shall close valves when cylinders are idle, empty, or moved. Valve protection caps shall be in place when cylinders are moved or stored.

Employees and supervisors shall comply with OSHA requirements and consensus standards from the Compressed Gas Association on the separation of cylinders containing incompatible chemicals. Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour. A cart with oxygen and fuel-gas cylinders is in storage when it is reasonably anticipated that gas will not be drawn from the cylinder within 24 hours (overnight hours included). At that point the storage requirements must be met.

Regulators, hoses, and torch assemblies shall be in working order and checked for leaks prior to initial use or installation. If a leak develops, remove the cylinder to a safe location outside the building.

Compressed gas cylinders shall never be brought into confined spaces, except for SCBA or with the express permission of OSU EHS.

### **CONFINED SPACE ENTRY**

IHC employees who need to enter a confined space at OSU as part of service delivery shall conduct entry under a written confined space entry program in compliance with OSHA 29 CFR 1910.146. Permit-required confined spaces may include, but are not limited to; storage tanks, in-ground vaults, boilers, trenches, manholes, lift stations, and valve pits. Under certain conditions, some confined spaces may be reclassified as non-permit required confined spaces. Non-permit required confined spaces may include certain attics or other areas free of specific hazards. A competent person must evaluate the conditions of the confined space and conduct atmospheric testing prior to the temporary reclassification and entry of the confined space. IHC should consult the OSU Project Manager and EHS prior to confined space entry.

If during the course work, IHC encounters a confined space that has not been previously identified by OSU, IHC must notify the OSU Project Manager so that the space can be assessed by the OSU Project Manager in consultation with EHS.

Prior to conducting work in or around a confined space, IHC shall notify the OSU Project Manager. Upon this notification, OSU shall provide IHC with information relative to the known or anticipated hazards of the space.



Upon completion of the confined space entry, IHC will notify the OSU Project Manager and provide information on any unexpected hazards that were encountered.

IHC is expected to comply with the OSHA Permit-required Confined Space Standard. Therefore, they are expected to:

- Have a confined space entry program in place that meets the OSHA standard.
- Ensure their employees are properly trained.
- Have and use the equipment and resources available to ensure a safe entry, including atmospheric testing equipment, protective clothing, hard hats, respirators, lifelines, ventilation equipment and safety harnesses etc.
- Provide for emergency rescue. IHC must arrange for the appropriate level of rescue services based on the potential for the types and complexity of the rescue that may be required. Documentation on the rescue procedure, authorized rescuers, training, and equipment must be available on site prior to conducting confined space entries requiring rescue services.

## **CRANES AND HOISTS**

Before lifting the first load of the day, IHC shall verify the hoist system will operate properly by conducting documented inspections. These inspection documents should be made available upon request of the OSU Project Manager.

IHC shall not leave suspended loads unattended. When moving a suspended load, the operator shall assure personnel are clear of the path of transport. Workers will not stand or walk under suspended loads.

Crane operators and riggers shall be thoroughly trained and competent in the use of such equipment. IHC shall provide a “competent person” (as required by OSHA) to oversee and/or perform lifting operations.

IHC shall establish a restricted work area using barricades and other appropriate controls to minimize the hazards to personnel from swinging or falling objects. See the “Signs, Signals, and Barricades” section of this document for details. The work area boundary must be created in response to the level of potential pedestrian traffic that could be expected to pass through. At a minimum, in light traffic areas, a boundary shall be set up with snow fencing on stanchions, posted with red “DANGER- Do Not Enter” tape and enough ground crew personnel to challenge any pedestrians who wish to pass through. If an unauthorized person enters the work zone, all work must stop. If the lifting work zone will be set up in high pedestrian traffic areas, then portable chain link fencing may be necessary to channel traffic around the work zone. As an option, performing the picks during early morning hours or weekends can preclude the use of chain link fencing in these areas, but snow fencing, danger tape and ground crew requirements remain.

IHC shall ensure that all building exits that open into the work zone are monitored by ground crew personnel to prevent pedestrians from exiting into the work area. If building exits need to be blocked, permission to do so must first be obtained from the University Fire Marshal, as these exits may be necessary for egress.

A Lift Plan provides an in-depth evaluation and plan for all heavy and/or complicated lifts and must be completed before attempting the lift. The Lift Plan must include:

- Current certification of the crane operator
- Documentation of Competent/Qualified Person and designation forms for rigger and signal person
- Details on the type of crane(s), assembly requirements, and annual certifications
- Load details, including:
  - Dimensions, weight, and description of the load
  - Crane configuration, including the number of sections, boom size, radius, etc.
  - Where the load is to be moved, radius needed for the lift, and hazard analysis
  - Load test results if applicable
- Type of rigging that will be used, including rated capacity

- Most recent annual inspection records, which must include the name of the person conducting the inspection and qualifications
- Weather conditions such as wind speed, excessive rain, or lightning that may delay the lift
- Crane locations/clearances, including:
  - Overhead hazards such as power lines, guidelines etc. deemed safe by 20ft clearance of cranes radius
  - Soil/ground conditions - Identify any subsurface vaults, Underground Storage Tanks, duct-banks, storm water sewers, etc. Ensure soil and mats under crane are of sufficient bearing capacity
- A communication plan – will radio or hand signals be used, how will other affected stakeholders in the area be notified?
- Will tag lines be used? If yes, how will they be used? Is there sufficient room? What are the hazards, etc.?
- Contingency plans for mechanical failure and incorrect load calculations that result in exceeding 90% of the crane’s capacity
- Written calculations of the lift, including the configuration of the rigging and load
  - Lifts out of water require additional calculations
- Safety precautions for workers and nearby staff
- Review of crane inspection and maintenance documentation
- Plan for a pre-lift huddle for supervisor to relay the plan and potential hazards to all employees
- Briefing details for staff working in the area
- Review of all associated JHAs/JSAs

IHC shall comply with all federal, state, and local laws and regulations regarding the inspections, maintenance, and operation of the cranes within their fleet.

OSHA prohibits hoisting personnel by crane or derrick except when no safe alternative is possible. Based on the review of the record, OSHA determined that hoisting with crane- or derrick-suspended personnel platforms constitutes a significant hazard to hoisted employees and must not be permitted unless conventional means of transporting employees are not feasible or unless they present greater hazards.

## **ELECTRICAL SAFETY**

Energized electrical equipment and services represent a significant hazard on every job site. OSHA’s electrical standards (29 CFR 1926.400) address the long-held recognition that electricity poses a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires, and explosions. OSHA’s regulations related to electrical safety recognize two key hazard management tactics: elimination of the hazard through shut down and isolation (Lockout/Tagout 29 CFR 1910.147); or when live circuits must be maintained, the use of Energized Work Permits and protection from contact using guarding, insulation, and protective equipment.

There are other considerations related to electrical systems that must not be overlooked. The National Electric Code (NEC) and NFPA 70E define design, proper installation and worker safety parameters associated with electrical systems maintenance and installation, as well as PPE that must be worn in potential arc-flash areas.

Not only must employee contact with electrical systems be avoided, fires and explosions due to overheating and arcing of electrical systems must be prevented as well. Some OSU facilities contain “rated” areas where “explosion-proof” or intrinsically safe lights, conduits, motors, controllers, and switches are used to prevent the ignition of flammable or explosive liquids and gases. Accidental use of non-rated equipment (such as cell phones, power tools, radios) in these areas could have catastrophic consequences.

The following is a partial list of items to consider when working with or near energized systems:

- IHC will comply with OSHA subpart K electrical regulations and the current editions of the National Electric Code and NFPA 70E.
- IHC must identify and document competent and qualified persons, ensuring they are properly trained, licensed, and protected.

- IHC shall comply with the OSHA “Lockout/Tagout” Standard (29 CFR 1910.147) when working with de-energized equipment or circuits. IHC shall identify the switches that energize the affected circuits or equipment. Due to their ability to store residual electrical energy, medium and high voltage circuits shall be grounded on both sides of affected workers. Contact the OSU Project Manager for assistance in identifying the locations of energy isolating devices.
- All permanent and temporary electrical work shall be done in accordance with the National Electric Code, OSHA, and other applicable standards.
- IHC employees installing electrical service will label circuit breakers and disconnect panels as to their purpose.
- The responsible employee shall properly tag temporary feeder wiring at the source for identification purposes.
- Exposed voltage in occupied areas shall be attended to by an IHC employee or be posted and barricaded within an enclosed radius safe area as recommended per NFPA 70E.
- Electrical equipment inspection is to be done in accordance with the manufacturer’s specifications, or on a quarterly basis at a minimum. Records of these inspections shall be made available upon request.
- Frayed or cut electrical cords or cords with damaged or missing plugs shall be immediately removed from service, rendered unusable, and removed from the site.
- The OSU Project Manager reserves the right to confiscate and destroy any defective tool or cord immediately upon discovery if the defective tool or cord has not been rendered unusable.
- Electrical connections shall be coordinated with an OSU electrician.
- Electrical tie-ins shall be conducted only on de-energized (locked out and tagged out) systems.
- Unauthorized, live tie-ins to electrical services are prohibited and will result in the immediate and permanent exclusion of the worker from all OSU facilities.
- After an employee performs repairs, maintenance, or installations, and before OSU qualified employees attempt to re-energize the electrical equipment, verification shall be performed to ensure that the electrical equipment components are operationally intact and that no electrical hazard exists upon re-energization. This verification can be performed by qualified persons from the OSU Facilities Electric Shop or a qualified third party, at the discretion of the OSU Facilities Electric Shop supervisor.

## **EMERGENCY EQUIPMENT**

IHC employees may not block or obstruct access to emergency equipment, such as self-contained breathing apparatus, first aid kits, eyewash stations, safety showers, fire extinguishing equipment, fire hydrants, transformers, and emergency generators. Employees may not relocate, obstruct, or disable emergency equipment without prior permission of the OSU Project Manager.

## **EXCAVATION AND TRENCHING**

Prior to excavating, trenching, or otherwise penetrating the ground (including driving tent stakes or signposts deeper than 12 inches), IHC shall be responsible for utility marking, signage and barricades, shoring, and following applicable confined space entry procedures. No excavation activity may take place until an OSU permit has been obtained. No excavation operation activity may take place outside the dates of an issued permit. Excavators may not “piggyback” off other excavation permits.

The excavation permit start date begins with the date/time of the original OKIE request and is in effect for 10 working days. IHC receives the permit electronically at the email address included in the OKIE locate request. The permit must be present on the job site for the duration of the operation.

If work is going to extend beyond the permit expiration date, to ensure that the work may continue without interruption IHC must submit a new OKIE Locate request a minimum of 48 hours prior to the expiration of the original permit and acquire an updated permit before work can continue.

IHC's receipt of the permit acknowledges completion of the OSU locates and acceptance of responsibility for adhering to, at all times during the operation, OSU's [Trenching and Shoring Manual](#) and the state's safety guidelines as defined by OK §142.1 - Oklahoma Underground Facilities Damage Prevention Act.

As of August 27, 2015, under Title 165, Chapter 20, Subchapter 17 of OK§142.1 - it is now required that: "An excavator shall immediately call the local 911 emergency telephone number and report any incident that results in an unintentional and uncontrolled release of flammable, toxic or corrosive gas or liquid from a pipeline or pipeline system." In the event any utility lines are hit during the excavation all activities must cease and OSU emergency contacts be notified. A list of emergency contacts is available in section F: Directory of Services and Emergency Providers.

IHC is responsible for restoring the site back to its original condition once the excavation operation is completed. IHC assumes financial responsibility for the repair of any damage caused by the excavator to line or facilities if the steps given in the excavation permit procedures are not followed.

IHC shall comply with the OSHA Excavation Standards (29 CFR 1926.650) and other regulatory requirements associated with the work. If the IHC employee encounters any suspect material (i.e., discolored soil, pipe not on OSU's excavation package drawings, asbestos, etc.), the IHC employee shall stop immediately and contact the OSU Project Manager. If the soil is contaminated, EHS will arrange for its proper removal and disposal.

IHC shall place conspicuous warning signage and barricades or fencing on all sides of a trench or excavation to prevent pedestrians from crossing the opening.

IHC shall provide a "competent person" as required by OSHA Excavation Standards (29 CFR 1926.650) to inspect the excavation area and protective systems. Excavations greater than 20 feet deep require excavation protection plans that are designed and executed under the supervision of a Professional Engineer (PE) licensed in Oklahoma. This would apply to sloping, use of trench shields (trench boxes) and shoring systems.

IHC shall utilize the appropriate protective system per 29 CFR 1926.650 for all excavations five feet or greater in depth and/or as site conditions require. Excavation and trench work at shallower depths may require protection when the workers' chest height is less than the depth of the excavation or trench.

Ramps shall be constructed in accordance with 29 CFR 1926.651 by a competent person, as defined by the OSHA Excavation Standard.

## **EYEWASHES AND SAFETY SHOWERS**

IHC is responsible for supplying eyewash units and safety showers for their employees while performing work on the OSU campus. They will ensure these units are in full operational compliance for use during an emergency.

If no permanent unit is available, then a temporary unit shall be provided and utilized by IHC. IHC is responsible for assessing the adequacy of all units to be used, whether permanent or temporary, and to ensure that they are in full operational compliance.

## **FALL PROTECTION**

IHC shall provide fall protection for their employees, as required by 29 CFR 1926.500. Fall protection is required in areas where the fall hazard is 6 feet or greater from the worker's foot-level, or where the individual is working over dangerous equipment.

IHC shall provide adequate protection where there is a potential for endangering persons below. IHC shall isolate such work areas to protect persons from falling objects. In addition, IHC shall barricade and monitor an area of twenty-five (25) feet minimum radius from such work to prevent unauthorized personnel from entering the hazard area. If IHC cannot establish this secure area due to operational constraints, then the work must be scheduled during off-shift hours.

Users of fall protection equipment shall perform a documented inspection of their equipment before each use. Workers shall raise and lower tools and equipment to overhead work areas using aerial work platforms or ropes and tethers. Throwing or dropping tools and equipment is prohibited.

**Floor Openings** - Working within six feet of a floor opening (skylight, hole, open hatch, etc.) requires appropriate fall protection. Floor openings (holes) shall be protected with a fixed cover, using materials of sufficient strength to support any imposed load or to equal the design floor loading capacity, or shall be guarded by a standard OSHA-compliant fixed railing system with toe boards on all exposed sides except at entrances to stairways.

When floor openings are protected with covers, the cover shall be clearly marked: "Danger- Hole - Do Not Remove." To minimize the exposure time, openings in floors shall not be cut until the last practical moment, and then only by the employee who will utilize or fill this floor penetration.

**Ladders** - The following guidelines apply to all OSU facilities per OSHA 29 CFR 1926.1053

All ladders must be in good condition and free of any broken or defective parts.

Metal or conductive ladders are prohibited from use for electrical work or within 10 feet of overhead power lines at OSU worksites.

Any ladders with broken or split rails, rungs, steps, or any defective parts must be removed from OSU property.

Workers shall not place ladders in door swing areas unless the door is locked or otherwise blocked from striking the ladder. Blocking exit doors may require permission from the University Fire Marshal.

Ladders must extend a minimum of (3) three feet beyond the landing surface and be securely tied to prevent any movement. When used against beams, pipes, or similar supports, workers shall secure ladders to prevent shifting, slipping, or being knocked over.

**Roof Work** - Working on a roof will require appropriate fall protection (railings or warning lines with safety monitors or personal fall protection) in accordance with OSHA Standards.

IHC shall not work on roofs without prior approval from the OSU Project Manager. Access to the roof will be controlled. Only authorized persons designated by IHC shall be granted access. IHC must obtain other appropriate permits, as needed (e.g., hot work, confined space entry, etc.), before working on roofs.

## **FIRE PROTECTION IMPAIRMENTS**

IHC shall take precautions to prevent damage to fire protection systems. Report damage immediately to the OSU Project Manager. Except in emergency conditions, IHC may not operate any fire protection valve/fire hydrant without prior approval of the OSU Project Manager and University Fire Marshal.

IHC employees who need to disable a fire protection system shall contact the OSU Project Manager and the University Fire Marshal. Notify the OSU Project Manager of any planned fire protection impairment at least twenty-four (24) hours in advance to obtain an approval to shut down. This applies to sprinklers, fire mains, fire pumps, and fire alarm system components.

During fire protection equipment impairments, all operations that present a fire hazard will be suspended. These would include all types of hot work. Fire protection systems should be restored as soon as possible by the end of the workday. Fire watch personnel may be required during fire system impairments.

IHC shall not suspend materials or equipment on sprinkler pipes, valves, or supports.

## **FIRE SAFETY**

IHC should be familiar with the location of fire alarm activation devices (pull stations), portable fire extinguishers and at least two exit routes from the work area. IHC shall not obstruct access to exits, exit routes, or fire equipment or prop open stairwell doors.

All fires shall be reported by activating the nearest fire alarm station, followed by dialing 911.

IHC employees shall be trained in the proper use of portable fire extinguishers if conducting fire watch duties. IHC-supplied fire extinguishers shall be clearly marked and have current inspection. IHC shall provide their own portable fire extinguishers for any hot work unless other arrangements have been made with the OSU Project Manager.

Flammable and combustible liquids are easily ignited and thus shall meet all the labeling, use, storage, and disposal requirements outlined in the Chemicals and Hazardous Materials section in this document.

IHC employees performing welding, torch cutting, soldering, grinding, using high temperature heat guns and other forms of “hot work” shall adhere to the special requirements listed in the Hot Work section of this document. Hot work shall not be conducted during times when sprinkler systems have been impaired.

Fire extinguishers must be provided as prescribed by the University Fire Marshal in the construction areas, along with evacuation plans and air horns for emergency signals. The use of an air horn and evacuation plans should be described within the IHC’s Site-Specific Health and Safety Plan (EHS has a template that can be used).

## **FIRST AID AND MEDICAL SERVICES**

IHC is responsible for ensuring that first aid and medical services are available for their employees and for reporting and recording injuries, as required by OSHA. Dial 911 to summon emergency assistance.

## **HOT WORK**

OSU utilizes and enforces the use of a hot work permit system to help minimize the risk associated with hot work. IHC shall contact the University Fire Marshal to obtain a Hot Work Permit for any temporary operation involving open flame or which produces sparks. This includes, but is not limited to welding, cutting, grinding, brazing, and torch-applied roofing. The Hot Work Permit should be valid for only one job on one shift unless other arrangements have been agreed upon.

OSU strongly encourages IHC employees to consider alternative work methods to mitigate or eliminate fire hazards. For instance, using bolted flanges instead of welding, or performing necessary welding outside of buildings would render if hot work will be performed. It is OSU’s expectation that IHC document a job-specific hazard assessment. All flammable and combustible materials shall be removed from the area. The assessment also includes evaluating other work in the vicinity that has the potential to create a hazard. IHC shall meet or exceed all regulations and industry standards when conducting hot work.

Fire protection equipment and protective materials (fire blankets, portable exhaust ventilation etc.) shall be at the hot work site before the work begins. Oxy-acetylene torches shall have flashback preventers on both gas lines at the torch handle.

A designated fire watch may be required during hot work. IHC must provide trained personnel for this duty or may be required to hire a firefighter detail for this purpose. If the fire watch observes unsafe conditions during the hot work, they shall stop the work until the hazard is eliminated.

IHC will verify hot work equipment is in proper working order and in a fire-safe condition.

As the hot work authorizer, the University Fire Marshall or EHS personnel may choose to inspect the equipment before issuing the permit and may request the removal of unsafe equipment from the site.

IHC shall use non-combustible or flameproof shields to protect nearby personnel from direct rays of welding arcs (asbestos blankets are prohibited).

## **MAINTENANCE OF SITE**

IHC is responsible for maintaining high standards of cleanliness and orderliness; anything less is unacceptable.

Housekeeping must be dealt with on a continuous basis. Sloppy work practices will not be tolerated. In occupied buildings, the work area shall also be mopped daily. Hazardous or flammable materials, trash, and/or excess waste material is to be removed from the work area at least daily.

Construction materials are to be kept in a neat, consolidated, and organized manner. Deliveries shall be sequenced so that only one week's worth of materials at most are on site at any given time unless IHC has been given a specific laydown area in the contract documents for material storage. Unused or excess/scrap materials shall be promptly removed from the site.

Additional site maintenance requirements include the following:

- Temporary cords or hoses shall be supported at least six feet above the floor when routed across aisles. If this is not possible, cords and hoses shall be secured to the floor and protected from damage to eliminate trip hazards. The area shall be properly marked with appropriate warning signs or traffic cones to alert pedestrian traffic.
- Workers shall place waste materials in proper containers. IHC employees will keep work areas clear of form and scrap lumber and other debris. IHC employees will remove all waste materials and debris daily.
- IHC will place equipment and materials so as not to block exits, aisles, doors, stairs, ladder ways, emergency equipment or electrical panels.
- Workers will remove nails and other sharp objects protruding from surfaces and will sweep up loose nails and screws.
- IHC employees may not store tools and equipment above work areas. Workers shall not leave materials in plenum spaces such as air handling rooms.

## **LOCKOUT/TAGOUT**

IHC will ensure proper isolation and control of hazardous energy on affected equipment and machinery. IHC will comply with the OSHA Control of Hazardous Energy (lockout/tagout) Standard (1910.147) including training and equipping workers. IHC is expected to maintain a written program and work cooperatively with OSU personnel for multiple lockouts. Applying tape across a breaker is not an acceptable form of electrical lockout/tagout and will not be permitted.

Lockout/tagout procedures must be exchanged and coordination of procedures must be discussed between IHC and OSU during a pre-job meeting. All concerned university employees must be effectively informed of the restrictions and prohibitions associated with IHC's lockout/tagout procedures. See also the Electrical Safety section of this document.

## **NOISE**

IHC employees are required to comply with the OSHA Noise Standard, 29 CFR 1910.95. Workers will be asked to cease work activities when noise levels to OSU employees or students can be expected to meet or exceed OSHA's Action Level of 85 dBA (8-hour TWA). Activities can resume when engineering or work practice controls reduce the level of noise below OSHA requirements. Should this not be feasible, work must be scheduled for a time when OSU employees, students, and town residents are not impacted.

Additional project-specific noise reduction measures or restrictions may also be required to minimize disruption to teaching and learning activities. OSU may restrict the use or scheduling of operations that generate disruptive vibration, such as hydraulic hammering, concrete boring, or driving piles.

## **PERSONAL PROTECTIVE EQUIPMENT**

IHC shall provide their employees with appropriate personal protective equipment (PPE) such as safety glasses, respirators, hard hats, gloves, and safety shoes when performing certain activities or when working in designated areas. IHC shall perform workplace hazard assessments, as required by OSHA 29 CFR 1926.95, and provide required PPE accordingly. The OSU Project Manager will notify IHC when specific PPE is required for entering or working in a designated area at OSU. IHC shall ensure PPE is available, maintained, and used appropriately. The OSU Project Manager reserves the right to stop work if PPE deficiencies are noted.

IHC must control their work zones and effectively communicate the hazards of the work zone and required personal protective equipment to all personnel requiring access to those work zones.

IHC shall wear proper footwear and appropriate apparel and PPE when working at OSU. Sandals, open-toed shoes, shorts, and sleeveless shirts are prohibited at OSU construction work sites. Professional appearance is required. Muscle shirts, tank tops, or tee shirts with inappropriate graphics or slogans are prohibited.

## **MOBILE EQUIPMENT/WORK PLATFORMS**

IHC shall ensure that only trained and authorized personnel operate mobile equipment, such as extendable boom lifts, scissors-type lifts, and cranes. IHC shall provide trained personnel to assist the operator in clearing building fixtures or other obstructions when raising, lowering, or advancing the equipment.

IHC shall conduct a documented inspection of equipment prior to each day's use to assure it is in safe operating condition. Workers shall replace or repair defective equipment before bringing it on site.

For outdoor projects, workers may not operate cranes, aerial platforms, power shovels, or similar equipment within 50 feet of overhead utilities without prior approval from the OSU Project Manager.

Only documented, trained, and authorized personnel shall be allowed to operate Aerial Lifts per 29 CFR 1926.453. Aerial lifts (boom lifts) shall only be used for lifting personnel and their tools and must not be used as material hoists. The manufacturer's load limitations and operating requirements must be complied with. Personnel working in aerial lifts must be tied off to anchorages specifically designed for that purpose (railings do not meet fall protection anchorage requirements). Aerial lifts that are not equipped with such anchorages shall not be used. Work shall only be accomplished from the floors of the baskets and must not involve climbing on basket railings, ladders, or other elevating platforms. OSHA defined frequent and periodic inspections will be performed in accordance with manufacturer's recommendations. Copies of these inspection reports shall be kept on site. Aerial off to an adjacent pole, structure or equipment while working from an aerial lift shall not be permitted.

If the work area is not included in a chain-link fenced area, IHC shall establish a restricted work area using barricades and other appropriate controls to minimize the hazards to personnel from falling objects or lift movements. See the Signs, Signals and Barricades section of this document for details. The work area boundary must be created in response to the level of potential pedestrian traffic that could be expected to pass through. At a minimum, in light traffic areas, a boundary shall be set up with snow fencing on stanchions, posted with red "DANGER- Do Not Enter" tape and enough ground crew personnel to challenge any pedestrians who wish to pass through. If an unauthorized person enters the work zone, all work must stop. If the lifting work zone will be set up in high pedestrian traffic areas, then portable chain link fencing may be necessary to channel traffic around the work zone. As an option, performing aerial work during early morning hours or weekends can preclude the use of chain link fencing in these areas, but snow fencing with danger tape and ground crew requirements remain.

IHC shall ensure that all building exits that open into the work zone are monitored by ground crew personnel to prevent pedestrians from exiting into the work area. If building exits need to be blocked, permission to do so must first be obtained from the University Fire Marshal, as these exits may be necessary for fire egress.

## **RESPIRATORY PROTECTION**



EHS expects In-House-Construction to participate in the OSU Respiratory Protection Program. IHC shall comply with the respiratory protection requirements of OSHA 29 CFR 1926.103.

Respiratory protection requirements for specific jobs shall be documented in IHC's standard operating procedures and their written respiratory program.

## **SILICA**

Respirable crystalline silica is made of very small particles, typically 100 times smaller than ordinary sand found at beaches. At this size, the particles can enter your lungs and cause disease. Respirable-sized particles are generated during job tasks such as sawing, cutting, grinding, drilling, excavating, and/or crushing silica-containing materials, or when abrasive blasting with silica-containing materials or on substrates that contain silica.

To prevent unnecessary injuries or the loss of life, OSHA enacted the Respirable Crystalline Silica standard for construction (29 CFR 1926.1153), effective June 23, 2018. The standard requires that protective measures be taken when workers are exposed to concentrations of respirable crystalline silica at or above 25 micrograms per cubic meter of air (25 µg/m<sup>3</sup>) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

Oklahoma State University's number one goal is to not generate any silica-containing dusts above the permissible exposure limit (PEL). This allows us to ensure that no one is exposed above acceptable, safe levels, not the worker performing the task, nor faculty, staff, or students passing by the work area. It also reduces our compliance needs to a few easily manageable tasks.

Whenever possible, silica hazards will be eliminated from the workplace by engineering, work practice, or administrative controls. Only if this is not possible, or those controls do not provide enough protection, on Oklahoma State University property workers must use appropriate PPE.

## **SCAFFOLDS**

All scaffolding, staging, and work platforms must satisfy the applicable OSHA regulations (29 CFR 1926.450) and manufacturer's erection requirements. The use of site-built staging, or scaffolding is not allowed unless prior approval is obtained from the OSU Project Manager. The proper use of scaffolding requires that:

The scaffold should be erected and inspected by a trained, competent person. OSU expects scaffold erectors and users to comply with regulations and standard industry practices per 29 CFR 1926.450 - 452. IHC shall train scaffold erectors and users in safe work practices and procedures.

Scaffold erectors hired by IHC shall work under the supervision of a "competent person" as defined by OSHA Scaffolding Standards. The "competent person" shall be within sight of the scaffold erecting activity.

Compliant scaffolding will have a green inspection tag, signed, and dated by IHC's competent person each shift prior to use. If the green tag is not present, or it is not signed and dated, or a red tag is affixed, the elevated work platform shall be considered unsafe for use.

## **SIGNS, SIGNALS, AND BARRICADES**

At the entrance to the construction site or locations the following signage must be posted: "Construction Area," or "Restricted Area," and "Hard Hats, Safety Glasses, and Work Boots Required."

When Lasers are being used "Laser in Use" Signs shall be posted.

Parking areas shall be conspicuously marked "Parking for Construction Only" or "No Parking."

In locations where construction is occurring within an active building, work areas shall be barricaded to restrict and eliminate potential access and exposures to the public.

Guardrails, jersey barriers, snow fence, portable chain link fencing, etc. may be used to delineate and secure work zones based on the potential exposure and traffic at the locations. Delineation of work zones, either by guard rails, jersey barriers, snow fence, chain link fencing, etc., must also warn against any potential danger or immediate danger within, and inform persons as to the proper action required (e.g., CAUTION – Do Not Enter or DANGER – Do Not Enter).

### **SPECIFIC REGULATED MATERIALS OF CONCERN**

Asbestos-containing materials (ACM) and presumed asbestos-containing materials (PACM) exist in most University buildings. Prior to any renovation or demolition activities, including installation or repair work, an asbestos inspection by a licensed and certified asbestos inspector must be conducted. All asbestos materials that could be disturbed during work activities must be properly removed, in accordance with federal and state regulations, prior to work commencing. Contact the OSU Project Manager for information about the location of ACM/PACM, inspection data, or procedure for sampling. Written documentation of asbestos sampling results must be maintained at the worksite for use by affected employees.

IHC shall not disturb asbestos-containing materials in OSU facilities, unless authorized and hired to do so. To disturb or handle asbestos, IHC personnel must have the applicable training, licenses, or any other qualifications necessary to perform such work safely and in accordance with federal, state, and local regulations.

IHC is responsible for ensuring that any work that requires a specific license (e.g., refrigeration systems repair, asbestos/PCB abatement and removal, pesticide application, etc.) is only performed by individuals who are appropriately registered and/or licensed.

All IHC employees must comply with OSHA 29 CFR 1926.1101 training requirements for their employees who may contact, but not disturb, ACM and PACM. This is considered Class IV work and requires, at a minimum, 2 hours of asbestos awareness training annually.

All IHC employees must comply with OSHA 29 CFR 1926.1101 employee exposure requirements and engineering and work practice controls for materials that contain <1% detectable levels of asbestos, and are thus not identified as an ACM, nor regulated by EPA.

Should suspect ACM or PACM be found during work activities, IHC will stop all work immediately and contact the OSU Project Manager. No work should be attempted that could result in the release of asbestos to the environment.

In the event of an asbestos emergency (release to the environment), isolate and secure the area. Immediately contact the OSU Project Manager and OSU EHS during normal business hours. After hours or on weekends, contact the OSU Work Control (405-744-7154) and identify the nature and extent of the asbestos emergency.

No products containing asbestos shall be used, applied, or installed during renovations, repairs, or new construction activities. IHC is required to check new products to ensure they do not contain one of the identified asbestos minerals.

### **LEAD BASED PAINT AND LEAD CONTAINING PAINT**

Lead-based paint is identified by EPA, HUD, and the CT DPH, as paint containing more than 1.0 mg/cm<sup>2</sup> by XRF testing or 0.5% by weight by laboratory analysis

IHC personnel conducting work in pre-1978 residences and child-occupied locations must be in compliance with EPA's Renovation, Repair, and Painting Rule that became effective April 22, 2010. Evidence of certification must be provided to the OSU Project Manager. In addition, proper notification to tenants and occupants in these locations is necessary. Coordinate this notification with the OSU Project Representative.

OSHA considers all paint, even post-1978 residential paint, as lead-containing when any amount of lead is present in the paint, even if found below the levels as identified by XRF and laboratory analysis. If any identifiable amount of lead is present in the paint, the concern is the activity to the painted surface that could cause lead to become airborne in the employee's breathing zone. Exposure levels for lead in the construction industry are regulated by 29 CFR 1926.62. Many construction activities, such as hand scraping and sanding, light demolition, grinding, welding, cutting, and burning have been shown to expose workers to airborne levels of lead that exceed OSHA's Permissible Exposure Limit (PEL). IHC must follow OSHA regulations when any painted surfaces can be impacted.

In commercial and industrial buildings, only compliance in accordance with the OSHA Lead in Construction standard is necessary. Lead abatement professionals and certified renovators are only necessary when abatement or renovation and painting activities are conducted in pre-1978 residential and child-occupied locations.

While lead test data may exist for some OSU buildings, IHC must use documented lead-safe work practices in all University buildings, in accordance with OSHA 29 CFR 1926.62. Depending on the construction activities (grinding, sanding, etc.), a paint identified as not lead-based (<1.0 mg/cm<sup>2</sup>) has the potential for creating an airborne exposure to workers which may exceed the OSHA PEL. Contact the OSU Project Representative to review test data as necessary.

All paint chip debris/waste must be collected, and a hazard determination must be performed prior to disposal. All waste must be disposed of in accordance with Federal EPA Regulations. Contact OSU EHS for more details.

IHC is responsible for ensuring that any work that requires a specific license or certification (e.g., refrigeration systems repair, asbestos/PCB abatement and removal, pesticide application, etc.) is only performed by individuals who are appropriately certified, registered and/or licensed.

IHC employees are prohibited from conducting the following activities: dry scraping or dry sanding of paint (regardless of the year applied); torch burning/welding on painted surfaces; using heat guns set above 700°F; using non-shrouded and non-HEPA filtered powered sanders, or grinders.

### **PCBS IN CAULK**

Caulk is a flexible material used to seal gaps and make structures water or airtight. From the 1950s to the 1970s, some caulks were made using polychlorinated biphenyls (PCB) to increase flexibility. In 1979, the EPA banned the manufacturing of PCBs due to their highly carcinogenic properties.

Considering this, the following steps should be incorporated prior to any renovation or demolition project:

- If it is believed that the caulk in the building was manufactured before 1979, when PCBs were banned by EPA, and the planned renovation activities will impact that material, then the material should not be disturbed by the IHC employee until reviewed by the OSU Project Manager and a PCB remedial approach is developed.
- Depending on the size and scope of the renovation impact, the suspect caulks may be either presumed to contain PCB, and managed/handled as such, or the OSU Project Manager may have sampling of the materials performed to determine PCB content. IHC shall not perform sampling of any building materials for PCB content unless specifically authorized by the OSU Project Manager to do so.
- IHC must not disturb any known or presumed PCB-containing materials unless specifically authorized or hired to do so. To proceed with work involving handling PCBs, IHC employees must be adequately trained and qualified in accordance with all applicable Federal, State, and local requirements, including proper OSHA training.
- When PCB-containing caulk (confirmed or presumed) and associated impacted materials (substrate/soil) are removed and disposed of, it should be done utilizing engineering controls and work practices which prevent contamination of surrounding materials/spaces and with the use of proper worker personal protective equipment (PPE).

- EPA has developed fact sheets for contractors for the safe handling of PCBs in caulk during renovations (<http://www.epa.gov/pcbsincaulk/caulkcontractors.htm>).
- IHC must remove and dispose of any presumed or known PCB containing or contaminated materials per Federal regulations/statutes (e.g., EPA 40 CFR 761) and any project specific specifications/remedial plans.

## **TOOLS AND EQUIPMENT**

In general, IHC shall provide their own tools, equipment, and secure storage for valuable tools. IHC employees shall inspect and maintain tools in safe condition using them only for jobs in which they are intended per 29 CFR 1926.300. IHC shall use non-sparking tools in areas where flammable liquids or gases are stored or dispensed.

As indicated previously, portable electrical power tools, hand tools, machinery and equipment shall be approved by the appropriate agency, double insulated or have an approved grounding system. Ground fault circuit interrupters (GFCI) shall be used in wet areas.

When using pneumatic tools, the IHC employee shall disconnect hoses from air supply when not in use.

## **VAPOR AND PARTICULATE EMISSIONS / OCCUPIED SPACES**

IHC employees conducting painting operations or other activities that create vapor or particulate-producing activities (sealing, grinding, sanding, welding, spraying, stripping, chemical etching, adhesive application, roofing, sweeping, etc.) must consider the location of their activities, and the impact to OSU Staff, Faculty and Students, , active research, or academic efforts. Emissions from the above-described activities have the potential to adversely affect indoor air quality and interfere with active learning.

IHC employees using vapor emitting products or conducting particulate producing activities must prepare an air quality control plan that will prevent any negative impact to building occupant air quality. IHC should be prepared to provide air monitoring equipment, ventilation equipment, and engineering controls to document and maintain acceptable indoor air quality. Materials of particular concern include products that emit high volatile organic compounds (for example, solvents), certain glycol ethers that are considered reproductive hazards, epoxy-based products, byproducts of combustion, and isocyanates. Also, to be considered is the location of air intake when operating power equipment outside of occupied buildings.

If suitable indoor air quality cannot be achieved, IHC should be prepared to schedule activities outside of normal working hours and protect their employees with an OSHA compliant respiratory protection program.

## **WELDING EMISSIONS**

IHC employees shall erect appropriate shields to prevent accidental exposure to welding emissions to students, faculty, staff, and other workers. If welding is occurring in an occupied building, IHC must supply a “smog hog” type filtering unit to remove welding smoke, fumes and /or vapors. An air quality control plan shall be submitted to the OSU Project Manager to address steps taken to monitor and control welding emissions.

# **E: ENVIRONMENTAL REQUIREMENTS**

## **AIR POLLUTION CONTROL**

IHC employees must abide by good management practices to ensure that their daily activities do not adversely impact the air quality. These shall include, but not be limited to:

- IHC shall retain fuel slips for construction vehicles/equipment that are refueled on site. OSU requires that liquid fuels including “biofuels” consumed on-site shall not exceed the sulfur content of motor vehicle diesel fuel as defined in RCSA §22a-174-42” This includes all #2 oil and diesel burning equipment such as temporary boilers and heaters.
- No open burning is allowed on the OSU Campus.
- Vehicles shall NOT be operated near building fresh air intakes.

- Equipment shall not be allowed to idle for excessive periods of time when not in use.

## **ENVIRONMENTAL PERMITS AND LICENSES**

IHC and other service providers may be asked to work with or on behalf of OSU Project Managers to secure environmental permits. In some cases, IHC may submit the permit application.

IHC is responsible for following the requirements in the environmental permits. Project permits shall be on file with the project documents and shall be made available upon request.

Under no circumstances shall IHC use material in an application that is banned under the Toxic Substances Control Act (40 CFR 700-799).

## **WASTE MANAGEMENT**

Hazardous Waste: IHC is fully responsible for all hazardous waste that they generate while at OSU. Hazardous waste may be generated from construction and renovation activities and a variety of other IHC activities at OSU. Common hazardous wastes generated at OSU include:

- Waste solvents and solvent soaked rags.
- Waste oils and lubricants generated by a variety of operations including motor vehicles, elevators, plant maintenance, etc. OSU has an SPCC Plan (Spill Prevention, Control and Countermeasure Plan) in place due to the number of fuels, gas, and oil storage on campus.
- Unused chemicals and other hazardous substances, such as strong acids and bases, paints, aerosol cans, etc. that are no longer needed, do not meet specifications, are contaminated, have exceeded their storage life, or are otherwise unusable.
- Waste ethylene glycol and other coolants.
- PCBs, batteries, lead paint and other miscellaneous materials including contaminated rags and wipes, broken mercury-containing lamps (i.e., fluorescent lamps) and thermometers.

OSU EHS is available to assist IHC with hazardous waste management procedures including disposal, although these activities remain the responsibility of IHC. IHC must promptly remove and dispose of any regulated or hazardous waste generated (oil, paint, solvents, gasoline, etc.) from the site. OSU EHS must be contacted to sign off on all hazardous waste disposal paperwork to ensure proper disposal.

Solid Waste: Through daily activity, IHC employees generate various types of solid waste. A solid waste is a solid, liquid, semi-solid or contained gaseous material, which is to be discarded or recycled, or has served its intended purposes. All solid waste generated on an OSU work site (construction debris, boxes, pallets, etc.) must be removed and properly disposed of or recycled in compliance with local, state, and federal regulations. IHC must supply their own waste or recycling collection containers unless other means of disposal is agreed upon with the OSU Project Manager prior to the start of work. The receptacle must be in good condition and labeled with IHC's name and the containers contents. Also, Waste collection containers must be located under a roofed structure or covered with a waterproof top when not in use (i.e., material not being placed into container, etc.)

# **F: DIRECTORY OF SERVICE & EMERGENCY PROVIDERS**

## **Environmental Health and Safety**

University Health Services Suite 002 / (405) 744-7241

## **University Health Services**

1202 West Farm Road / (405) 744-7665

## **University Police Department**

104 USDA Building / (405) 744-6523

**Facilities Management**

402 North Willis / (405) 744-7154

**Stillwater, Oklahoma**

Emergency - Ambulance, fire, police  
(911)

For damage to natural gas lines, pipelines, or systems containing flammable, toxic or corrosive substances:

- 911- Fire and police response
- (405) 744-7154 - OSU Work Control
- 811 - Emergency OKIE Notification

For damage to all other utilities:

- (405) 744-7154 - OSU Work Control
- 811 - Emergency OKIE Notification