

# P&W

## ENVIRONMENT, HEALTH & SAFETY GUIDELINES

### For CONTRACTORS



**Pratt & Whitney**

A United Technologies Company

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**“Working Together for a Safer Environment.”**



## **FACILITY PHONE NUMBERS**

	<b>Emergencies Medical/Fire/Spill</b>	<b>EH&amp;S</b>	<b>Security</b>	<b>Fire Dept.</b>
<b>Pratt &amp; Whitney</b> Site Name	X-XXXX	X-XXXX	X-XXXX	X-XXXX

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# Cardinal Rules

## **Fall Protection:**

Contractors shall use fall protection when exposed to a fall hazard working at an elevation of two meters/ six feet or more.

## **Machine Guarding:**

Contractors shall not knowingly tamper with or disable machine/ equipment guarding while operating under normal conditions.

## **Hazardous Energy:**

Prior to performing work on machines or equipment, employees shall identify all hazardous energy forms, bring them to ZERO Energy State\* and secure them.

This shall include but is not limited to mandatory use of lockout/tagout procedures when working on any electrical, mechanical, hydraulic, pneumatic, chemical, or thermal processes.

Zero Energy State\* is defined as the elimination and/or control of hazardous energy such that it no longer represents a hazard to employees working.

## **Electrical Safety:**

Contractors shall use Ground fault Circuit Interrupters (GFCI's) on all portable tools and portable electrical devices used in manufacturing, construction, service/maintenance, or installation activities.

## **Confined Spaces:**

Contractors shall use proper safeguards and controls prior to and while working in confined spaces.

## **Powered Industrial Vehicles:**

Contractor PIV operators shall be properly qualified/authorized and abide by all traffic rules. Be aware of surroundings and always yield to pedestrians.

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# United Technologies Environment, Health and Safety Policy

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P&W strives to maintain a workplace that is free of hazards, and in compliance with company-established and regulatory requirements related to pollution prevention and protection of the natural environment. The purpose and scope of the UTC Standard Practice 10, Contractor EH&S Program, is to regulate the activities of contractors who perform work on-site at P&W's operating units.

## **OBJECTIVES**

- Eliminate employee injuries by taking all necessary and reasonable steps to make the workplace free from hazards and unsafe activities.
- Design manufacturing processes to reduce pollutants to the lowest achievable levels.
- Conserve natural resources in the design, manufacture, use and disposal of products and delivery of services.
- Establish safety and environmental protection standards that comply with applicable laws and company policies and go beyond, when necessary, to achieve our goals.
- Hold operating managers accountable for safety and environmental performance and for providing leadership and required resources.
- Require all employees to support the policy and objectives.

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# Contractor EH&S Requirements

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Contractors are responsible for ensuring their employees, subcontractors and agents comply with this EH&S Guide and applicable Federal, State and Local regulations at all times during performance of their work.

- Each contractor will complete an EH&S Pre-Qualification Questionnaire. The pre-qualification process will identify contractors, vendors and service providers who have effective Environment, Health and Safety (EH&S) programs with demonstrated leadership and performance in their industry.
- P&W reserves the right to verify that the Contractor and all of the Contractor's employees meet contractual requirements, including orientation, training, medical testing and substance abuse screening.
- The Contractor EH&S Program at P&W is administered in English and/or the language predominant at the Non- U.S. based facility. The Program includes this Contractor Handbook, online computer training or equivalent, and a Contract Coordinator who will provide project management and supervision.
- All contractors site supervision must communicate in English and/or the language predominant at the Non- U.S. based facility with the level of proficiency necessary to ensure the safety of their employees and the safety of others.
- Contractor activities and performance will be audited and evaluated through the Contractor EH&S Progressive Improvement Plan to ensure ongoing compliance with P&W policies, procedures and requirements, and to achieve a successful and injury-free workplace.
- Contractor employees may be required to sign a contractor verification card supplied by Emergency Services.
- Each contractor employee must carry the card with them at all times, as it is required in order to enter the facility through the security post.



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- A P&W Contractor Coordinator will be assigned for each project. The Contractor Coordinator will be the Contractor's primary P&W contact on all matters related to the task.
  - If there are any questions about this Guide or any EH&S concerns related to an operation or activity, contact your supervisor or the P&W Contractor Coordinator.
  - The requirements of this Guide are in addition to the terms and conditions of any Agreement or Purchase Order between the Contractor and P&W and form a material part thereof.
  - Contractors will conduct safety meetings with their employees to cover all applicable sections of this Guide before any work is done on P&W property.
  - Copies of this EH&S Contractor Guide are available from Environmental, Health & Safety (EH&S), and Emergency Services.

Each contractor shall:

- **Have ready access to this handbook at all times to use as a reference source.**
- Report all injuries, spills and near hits immediately to Emergency Services and your Contractor Coordinator.
- Conduct daily inspections of work areas to ensure compliance with the requirements of this guide. Review findings and corrective actions with your Contractor Coordinator.

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## Definitions

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- Contractor Coordinator – Any UTC employee, or authorized non-UTC employee per 4.4.1 of this procedure, who is responsible for coordinating the activities of an on-site contractor and the contractor's employees and subcontractors and has completed the required training as outlined in the PW SLP 22.10 procedure.
- Emergency Services – Protective Services, Fire Department, or Security Department, depending on the division or facility. These resources may or may not be physically located on the P&W premises.
- Level I Contractor- Any other person performing work, or providing a service who does not meet the definition of a level II or Level III contractor service. Examples of L1 contractors are Credit Union employees, Office Equipment repair, cafeteria personnel, Office staff, external auditors, etc.
- Level II Contractors: Contractor whose services require them to work in the shop or other potentially hazardous work areas (e.g. process engineering consultants, equipment engineers, original equipment manufacturer service contractors) or delivery personnel who engage in material handling activities. Level II contractors do not perform "trades" type work (e.g. electrical, pipefitting, mechanical).
- Level III Contractors: Contractors such as general contractors, construction vendors, riggers/millwrights, painters, machine tool service vendors, and other vendors who use power tools and / or are engaged in activities that involve potentially hazardous chemicals or energy sources.
- Minor Violation – Any violation other than a Serious Violation.
- Review Board – A board consisting of on-site P&W personnel who will address contractor violations that require a meeting with Contractor management.
- Serious Violation – Any violation of an EH&S requirement that could have resulted in an OSHA Recordable incident, an environmental release that the Environmental department would deem a threat to

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human health or the environment, or property damage in excess of \$1000.

- Site – Location of a P&W facility where work is performed.

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## **Contractor EH&S Performance**

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**When any contractor has been observed violating any P&W or regulatory EH&S requirement, they may be approached by any UTC employee to correct the observation. Serious violations shall be reported in writing to the facility EH&S department and logged in the P&W Contractor EH&S Violations database or equivalent to track violations.**

**If at any time the Contractor Coordinator believes that any or all of the contractor's EH&S practices are presenting an unacceptable safety risk, the contractor coordinator may suspend the Contractor either temporarily, until such time that the Contractor has assured the Coordinator that the work can be safely resumed, or permanently.**

**At such time that a contractor's performance requires a formal review by the Contractor EH&S Review Board the contractor's site supervisor, at a minimum, or representative of their management staff authorized to act on behalf of the company, shall be in attendance at the subject Review Board meeting.**

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## Security and Identification

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Emergency Services will clear contractors prior to their first day of work at P&W. Security requirements vary at different facilities according to the nature of their business. Contractors must contact the Emergency Services department or their Contractor Coordinator at each P&W facility to determine what (if any) restrictions apply to individual personnel. Contractors must do this in advance of assigning personnel to work on or within a P&W property or facility. Contractor personnel may be required to provide government-issued documents confirming their eligibility to access security, export controlled, or other sensitive areas of P&W's facilities. P&W reserves the right to deny access to contractor personnel who are unwilling or unable to meet P&W requirements .

- All persons visiting the site will register at their entry and exit points in accordance with site requirements as specified by the Contractor Coordinator.
- Contractors will display their One-Day Contractor Badge or Picture badge at all times. Reusable one-day badges are to be turned in to Emergency Services and disposable one-day badges are to be discarded at the end of each day. Badges are not transferable.
- Contractors will report the loss of a contractor picture badge immediately to Emergency Services.
- Unless otherwise authorized by the Contractor Coordinator, contractors are accountable for all employee badges.
- Firearms and weapons are prohibited unless authorized by the Emergency Services/Security Manager.
- Portable radios, tape decks, television sets are prohibited, unless authorized by Contractor Coordinator. Camera and video equipment (including cell phones with digital camera capability) require a P&W pass, which must be displayed at all times if issued.
- Contractor employees will be restricted to the area in which they are working.

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- Contractors are responsible for the security of all materials, tools and equipment used for the job, whether owned or rented by the contractor.
  - The Fair Labor Standards Act (U.S. sites only) prohibits the employment of anyone less than 18 years of age in hazardous occupations.
  - All packages, equipment and vehicles are subject to inspection by Emergency Services.
  - Contractors admitted to company property must conduct themselves in an orderly and safe manner. Fighting, engaging in horseplay, being under the influence of or possessing alcohol or drugs, gambling, soliciting, stealing, immoral or otherwise undesirable conduct is not permitted.
  - Contractor vehicles will be parked only in areas designated by the Contractor Coordinator or by Emergency Services. After unloading tools or equipment, contractor vehicles must be relocated to their designated parking area.
  - Authorization must be obtained from the Contractor Coordinator for any access to P&W property before 7 am or after 5 pm (weekdays) or on weekends/holidays.
  - Contractors shall never block access to Self-Contained Breathing Apparatus, emergency eye wash stations/showers, or any other emergency equipment.
  - Contractors will not use fire hydrants without prior Emergency Services approval.
  - **Failure to comply with security procedures is cause for termination of contractor privileges.**

P&W reserves the right to request a copy of the contractor's hazard control programs, training certificates, injury logs or other EH&S-related program

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documentation in order to substantiate compliance with various regulatory requirements.

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## Housekeeping and Sanitation

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- Contractors shall maintain a high standard of housekeeping on the job at all times. Daily clean up of work areas is required.
- All equipment and materials shall be stored in an orderly manner.
- Lumber shall be neatly stored when not used and nails shall either be removed or bent over to prevent puncture.
- Access to emergency equipment, exits, telephones, safety showers, eye washes, fire extinguishers, pull boxes, fire hoses, etc. shall not be blocked.
- No material shall be stored outdoors without the permission of the Contractor Coordinator. **Material shall be marked with the Contractor's Name.**
- Each Contractor shall perform work in a manner that will minimize and control the production and migration of noise, dust and debris to adjacent work areas.
- The Contractor Coordinator will notify the contractor immediately when inspections identify unsatisfactory clean-up efforts by contractor employees.
- Restrooms are provided throughout the facility. Your Contractor Coordinator will direct you to the nearest restroom location.
- Do not lay electrical cords across aisles or walkways.
- Report slipping or tripping hazards immediately to the area supervisor or Contractor Coordinator.
- Do not store hazardous materials in office areas without approval from EH&S.



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## **Working in a Manufacturing Unit**

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- Contractors shall not access, or perform any work on, operating process or manufacturing equipment unless specifically directed by the Contractor Coordinator.
- When construction work is performed in a manufacturing unit, work shall be coordinated with the operating unit supervision.
- Contractor employees who perform process and manufacturing operations work shall be trained in the operation and maintenance of the machine they will work with prior to starting work.

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## **”EH&S Requirements for Miscellaneous Operations”**

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**Blasting** - Any use of explosives, caps, blasting equipment, etc. must be reviewed and approved in advance by the Contractor Coordinator, the site EH&S Department and the site Emergency Services Department. Review shall consider local structure and neighboring community impact.

**Breaking Into Pipelines** - The Contractor Coordinator will review any specific line entry procedures for the site, including a review of emergency procedures, control of hazardous energy (LOTO), and material safety data sheets for materials contained in pipelines (as applicable).

**Clean Rooms** - The generation of dust and dirt by job activities must be minimized in clean rooms. Appropriate clean room garments must be worn and if this requirement creates a perceived safety hazard, the Contractor must immediately contact the Contractor Coordinator. Clean Rooms shall be entered and exited through approved doorways only. All construction materials, tools, ladders, etc. entering the Clean Room shall be as clean as possible prior to entry.

**Compressed Air** - Cleaning of clothing with compressed air is prohibited. Compressed air that is used for material cleaning must be limited to 29 psig, and appropriate personal protective equipment and chip guards shall be used.

**Computer Rooms** - To avoid accidentally engaging switches, breakers, buttons, etc. do not place tools or materials on or against any equipment in computer rooms. All computer equipment near any activity where conductive material might fly or fall (soldering, welding, sawing, etc.), must be completely protected from the falling material.

**Concrete, Concrete Forms and Shoring** - All protruding reinforcing steel, onto which employees could fall, will be capped to eliminate the hazard of impalement. Rebar caps shall be affixed as necessary. Employees shall not work under suspended concrete buckets. Employees will be protected with fall protection systems and other necessary protective equipment when placing or tying reinforcing steel more than six feet above any working surface. Formwork and shoring will

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be designed, erected, supported, braced and maintained so that it will safely support all vertical and lateral loads. Reinforcing steel for walls, piers, columns and similar vertical structures shall be adequately supported to prevent overturning or collapse. A limited access zone will be established whenever a masonry wall is being constructed. The zone shall be equal to the height of the wall to be constructed plus four feet (1.2m) and shall run the entire length of the wall.

**Demolition and Dismantling** - An engineering and environmental survey shall be made by a competent person prior to the demolition of any structure. The survey shall determine the condition of the framing, floors, and walls and the possibility of unplanned collapse of any portion of the structure, and the presence of hazardous materials.

**Electrostatic Discharge Sensitive (ESDS) areas** - Always wear static discharge equipment (except electricians) and test the static discharge equipment for effectiveness. Do not touch any ESDS equipment or hardware.

**Electric Utility Use** - Contractors must coordinate with their Contractor Coordinator for access to appropriate electric utility sources. Accessing power from test stands or production equipment is prohibited.

**Internal Combustion Engines** – Operation of diesel and gasoline powered vehicles is prohibited inside buildings unless prior approval and arrangements for ventilation have been made with the Contractor Coordinator, Emergency Services and the EH&S department.

**Lasers** – Prior approval must be obtained from the site EH&S department before any laser equipment is used on site.

**Noise** - Contractor personnel shall wear appropriate hearing protection in accordance with facility rules and posted signs.

Contractors must inform Contractor Coordinator if any planned task may create a noise level greater than 85 dBA.

Any planned tasks that are expected to create noise levels greater than 85 dBA, shall have the area restricted and properly identified as deemed necessary by the Contractor Coordinator.

**Radiographic Equipment** - Prior approval must be obtained from the site EH&S department before any radiation-emitting equipment (X-ray units,

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radioactive sources, etc.) is used on site. Approved radiation sources shall not be left unattended or on P&W property overnight.

**Sprinkler Systems** - Contractors shall not install or alter sprinkler systems without prints or documentation approved by the department at the site responsible for fire safety. Only licensed/qualified contractors may work on sprinkler systems.

**Temporary Heating Devices** - Temporary propane or resistance heating devices used on site must be approved by a nationally recognized testing agency (e.g., UL, Factory Mutual). The Contractor Coordinator must approve heater use and location in advance. A hot work permit must be issued on the day of use (see Hot Work Permit section of these guidelines).

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# Emergency Response and Notification

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## Fires

In the event of a fire, locate and pull the nearest fire pull box or call the emergency number specific to the site you are working. This will communicate the fire emergency directly to the dispatcher.

**Do not attempt to extinguish a fire yourself, unless you are trained and qualified to operate a fire extinguisher.**

## Evacuation

Evacuations are indicated by an audible signal followed by a specific announcement over the public address system. It is essential that all evacuation instructions be adhered to.

Exit quickly and in an orderly manner.

Your Contractor Coordinator will review evacuation routes and assembly areas with you.

## Injuries

In the event of an injury or illness, dial the site-specific emergency phone number from any internal P&W phone.

Provide the dispatcher with the following information:

- Nature of emergency (injury, spill, fire)
- Location (department name/number, building letter, column number)
- Your name and the name of the company for which you work.

In the event that a contractor requires medical care for work-related or potentially work-related injuries and illnesses and periodic medical evaluations, they need to receive this care at the clinic selected by the contractor's company.

The Pratt & Whitney onsite medical clinics provide clinical evaluation and treatment to contractors in the following situations:

- FAA mandated testing (e.g. drug and alcohol testing)

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- In emergency medical situations not transported directly offsite by the fire department/plant protection
  - HF acid exposure

**Only properly trained P&W emergency response personnel are qualified to clean up injury sites involving body fluids.**

## **Spills**

Chemicals may not be disposed of by dumping on the ground or into sanitary or storm drains. Check with your Contractor Coordinator for permission to dispose down a sink or other sanitary drain.

A **spill** is defined as an accidental release of any product, including water, outside of its normal container except during use.

There is no minimum to the quantity that defines a spill.

All spills, including those that occur outside a building, **shall be reported immediately** by dialing the emergency response number applicable to the site where you are working and providing the dispatcher with the following information:

- Nature of emergency (injury, spill, fire)
- Location (department name/number, building letter, column number)
- Your name and the name of the company for which you work.
- Identity of material spilled/released
- Quantity of material spilled/released
- Time of the spill

Contractors shall be responsible for all spills that result from their work at any P&W facility. However, the contractor cannot start cleaning up the spill until Emergency Services has authorized them to do so, unless failure to do so immediately poses an imminent risk to human health or the environment.

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If P&W determines that a spill clean up is beyond the contractor's ability, or the contractor has failed to clean up the spill adequately, P&W shall use its own personnel or hire spill clean up specialists.

In all cases, the contractor shall be responsible for all costs. These costs may include removal of contaminated materials as well as restoration of the area.

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## Injury and Illness Recordkeeping and Reporting

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Contractors shall immediately notify the Contractor Coordinator or P&W supervisor that he or she directly reports to, of any injury, illness and any loss or damage to P&W property, including incidents related to their subcontractors.

Contractors shall collaborate with the Contractor Coordinator in the incident investigation and root cause corrective action implementation.

An investigative report to assess the root cause and corrective action shall be submitted within 24-hours of the incident's occurrence to the Contractor Coordinator.

Any unsafe conditions and activities shall be reported to the Contractor Coordinator and corrected immediately.

OSHA requires P&W to document on our log when indicated by the OSHA reporting criteria, injuries and illnesses sustained by contractors who are directly managed on a day to day basis by a P&W employee. (Examples of contractors are Belcan or Kelly Services).

P&W supervisors of such contractors, must also contact the onsite medical clinic, or if no onsite medical clinic then the site recordkeeper, via email or telephone to let them know about any incidents. Follow-up information may also be necessary to determine if the case should be documented on the OSHA log.



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## Accident/Incident Investigation

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The Contractor Coordinator accompanied by the contractor must formally investigate all incidents, injuries and spills, including near misses, in order to prevent reoccurrence. For all incidents:

- Secure the area with barricades/caution tape to preserve the scene.
- Perform a walk-through of the incident site; this may occur with Site EH&S personnel as well as the Contractor Coordinator.
- Interview witnesses, where applicable.
- Take pictures and/or create a diagram of the incident site.
- Submit a written incident investigation report to the Contractor Coordinator or P&W supervisor that he or she directly reports to, within 24 hours of the incident occurrence.
- The report shall describe the incident and identify root cause and corrective actions, along with a timetable for implementing the corrective actions.
- With the assistance of the Contractor Coordinator, an internal divisional incident report will be completed for all incidents that result in a recordable injury, environmental release deemed hazardous by the Environmental Health and Safety department, or significant property damage.

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## Training

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- Contractors shall instruct each of their employees and sub-contractors in the recognition and avoidance of unsafe conditions and of the regulations applicable to his/her work environment to control or eliminate any hazards or exposure to illness or injury.
- Contractors who perform construction activities are encouraged to have their supervisory employees attend OSHA's 510 Equivalency Training Course on Construction Standards (U.S. facilities only) or equivalent construction based training.
- Contractors shall maintain records of all employees training.
- Upon request, the Contractor Coordinator shall be provided with documentation and certification of contractor employee training.

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## Aerial Lifts

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- Aerial lifts (boom, scissors, snorkel types, etc.) and other vehicle mounted elevated work platforms shall be used in accordance with applicable regulatory and industry recognized standards, and shall meet P&W Powered Industrial Vehicle (PIV) requirements.
- All employees operating aerial lifts shall be properly trained for the lift they use.
- Employees shall work from the floor of the aerial lift only. Climbing on handrails, mid-rails, brace members or out of the lift is prohibited unless an anchor point independent of the lift has been established and an approved body harness and lanyard is worn and attached to the anchor point.
- Areas below overhead work will be clearly marked with safety stanchions, caution tape and signs to protect associates at grade level.
- Major construction areas will be barricaded and construction signs erected to keep out all unauthorized personnel.
- Contractor personnel are not permitted to use P&W overhead cranes, hoists or powered lift apparatus unless prior approval has been received from the Contractor Coordinator.
- Mobile cranes, including portable crane derricks, power shovels, or similar equipment, shall not be operated within ten feet of overhead electrical power lines.
- The Contractor Coordinator shall be notified of all proposed crane use at least one day in advance of the actual lift to facilitate a pre-work review with EH&S, Emergency Services and impacted area supervision.
- The Contractor Coordinator will notify EH&S and Emergency Services a minimum of **thirty days** before proposed airlift operations.

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# Asbestos-Containing Materials

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- Some building materials throughout the facility may contain Asbestos-Containing Materials (ACM). Furthermore, the building material may not be labeled as containing asbestos.
- Assume that all thermal insulation (piping, elbows, joint insulation, etc.) floor and ceiling tile, window caulking, siding, and roofing materials, do contain asbestos, unless labeled as non-ACM.
- Tasks involving work on existing building material must be reviewed for ACM by the Contractor Coordinator and Site EH&S personnel prior to commencing the task. Construction and demolition activities will require prior approval by means of the site Facilities/EH&S department review procedure.
- In the event that ACM or suspect ACM material is encountered during construction or demolition, the contractor shall stop work immediately and call the Contractor Coordinator or the site emergency response number.
- Contractor personnel will not attempt to clean up any such debris, or perform any repair to the suspect ACM material unless they are trained and qualified to perform asbestos abatement, and are approved by P&W for asbestos abatement projects.
- All contractor employees will vacate the immediate area while P&W personnel assess the material and the area of concern.
- Some buildings may have thermal insulation sprayed on ceiling structural components (e.g. decking, I & H beams, etc.). The Contractor Coordinator, designated site asbestos coordinator or the site facilities department must be contacted before ceiling tiles are moved below areas that have not previously been confirmed to be free of sprayed on asbestos. Should the upper ceiling be insulated with sprayed on asbestos, only personnel trained and qualified to work with asbestos will be permitted to remove ceiling tiles and work above them, and only after authorization by the site facilities

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department or site asbestos coordinator. If the asbestos cannot be avoided to perform the work, it must be abated before the work is performed.

- No new products containing asbestos or its synonyms (chrysotile, amosite, crocidolite, anthophyllite, actinolite) may be used in any facility. Some foreign country suppliers use the names of the types of asbestos their product contains without using the word asbestos.

*P&W East Hartford Appendix* - There is sprayed on thermal system insulation on the ceiling structural components in Office Building B.

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# Barricades

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## **Barricades for Hazardous Work Area**

- Snow fencing, expandable gates or equivalent at least 42" high - New Construction Area or Unattended Work Area.
- Danger Tape - Work in progress that is continuously attended and supervised with a hazard that has a potential for moderate to severe injury (e.g., mounting hoist rails, hot work).
- Caution Tape or Cones - Work in progress that is continuously attended and supervised with a hazard that has a potential for minor injury only (e.g., mounting a bulletin board, plumbing repairs on a water fountain).
- Blocked main aisles require prior approval from the contractor coordinator and must have detour signs posted to re-route personnel to alternate emergency exits.
- Major construction areas will be barricaded and construction signs erected to keep out all unauthorized personnel.
- Curtain barriers must be made of flame retardant materials certified by Factory Mutual, Underwriters Laboratories (UL) or equivalent on the product label or the product specifications.

## **Barricades for Trenches/Holes/Pits**

- If four feet (1.2m) or more in depth - standard rail system that meets OSHA 1910.23(e) specifications (U.S. facilities only), four feet (1.2m) from edge of opening (*less than 4 foot distance must be approved by the Contractor Coordinator*).
- If workers are exposed to falls greater than six feet (1.8m) when inside the barricade, additional P&W approved fall protection will be required for the workers.
- If under four feet (1.2m) but greater than one foot (0.3m) - Snow fencing, expandable gates, or equivalent at least 42" high, four feet from edge of pit.

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- If under one foot and unattended (i.e. work is not in progress), caution tape four feet from edge of pit.
  - If the barrier will interfere with a main aisle or completely block the only means of egress of a department aisle, the 4-foot minimum distance from the edge is waived. If this creates a greater hazard to personnel working inside the barrier however, alternate barricading methods may be used if authorized by the Contractor Coordinator and the EH&S department.

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## Chemical Handling & Storage/ Hazard Communication

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- Contractors shall have a written hazard communication program and shall inform their employees of the location and availability of their program.
- Contractors shall train their employees on the physical, chemical and biological agents in the workplace.
- Material Safety Data Sheets (MSDS) shall be available at the work site for materials supplied and used by the contractor.
- The Contractor Coordinator will communicate hazards inherent to the work location and provide the contractors with access to MSDSs for materials at this site.
- All chemicals used by contractor personnel (including fuels, paints, coatings, coolants, cleaners, flooring materials, etc.) must have prior approval via the site EH&S approval process.
- Chemicals will be properly labeled and segregated to prevent potential hazardous mixing.
- Factory Mutual approved metal safety cans with self-closing lids and flame arrests shall be used for handling flammable liquids.
- All containers must be properly labeled as to their contents and potential chronic health and target organ effects.
- Flammable and combustible liquids shall not be used or stored in any close proximity to open flames and ignition sources.
- All unused, flammable and combustible liquids must be stored in a flammable-storage closet or removed from the premises on a daily basis.
- Flammable and combustible liquids and other hazardous materials shall be kept in closed containers when not in use.
- Upon completion of the project, all unused materials will be taken off site.



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- Storage and transfer of flammable liquids will be grounded and bonded where necessary.
  - Emergency safety showers and eyewash units are provided in various areas of the facility. P&W personnel will identify their locations for you. In the case that there is not an immediate eyewash station available, your own portable eyewash station may be required.
  - All affected contractor employees shall wear appropriate personnel protective equipment per their Hazard Communication Program and the MSDS of the product in use.

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## **Clean Fill Materials (e.g. soil, sand)**

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Any fill material being brought on to P&W property must be free from contaminants. This may be accomplished by any of the following methods:

- Certify in writing by the contractor that the fill is free of contamination
- Taking reasonable steps to ensure fill material is clean such as composite sampling and analysis, review of fill source disclosure, or photo ionization screening of fill material, etc.
- Visual inspection of the fill material when it is placed on P&W property.

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## Compressed Gas Cylinders

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- Compressed gas cylinders shall always be fastened securely in the proper position to appropriate carriers or restraints for the cylinder contents.
- Cylinders shall be kept away from welding or cutting operations so that sparks, hot slag, or flame will not impinge on them. When this is impractical, fire resistant shields will be provided. Cylinders will not be placed where they can contact an electric circuit.
- Cylinder valves shall be closed and valve protection caps shall be in place when compressed gas cylinders are transported, moved, stored or otherwise not in use.
- If a leak develops in a cylinder, follow emergency procedures. Call Emergency Services from any telephone within the facility.
- Gas cylinders that are damaged or have a buildup of scale or rust, which could weaken the container, will not be used and shall be removed from this site as soon as possible.
- Cylinders will be permanently labeled, marked or stenciled to identify the gas in the cylinder. Cylinders shall be mounted and stored with the content labels facing out.
- Hose lines will be periodically inspected and tested for leaks.
- When storing compressed gas cylinders, flammable gas such as acetylene and hydrogen will be separated from oxidizing gas such as oxygen and nitrous oxide by a distance of 20 feet (6.1m), or by a fire-rated barrier.
- Cylinders shall be moved by tilting and rolling them on their bottom edges, or cylinder carts must be used for their transportation. All cylinders will be handled with care.
- Cylinders shall not be transported horizontally on the forks of a fork truck

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- Compressed gas cylinders shall not be taken into confined spaces unless they are supplying breathing air.
  - Oxygen cylinders in storage (approved by Contractor Coordinator) shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), by a minimum of 20 feet (6.1m) or a noncombustible barrier at least five feet (1.5m) high having a fire resistance rating of at least one-half hour.

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## Confined Spaces

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- Contractors shall follow their own Confined Space Entry procedure when entry into a P&W designated permit-required confined space is necessary. Contractors shall provide their procedure to the Contractor Coordinator for review and approval prior to entering a permit required confined space.
- Contractor shall review the completed entry permit with their Contractor Coordinator or EH&S personnel prior to entry. **P&W division will retain a copy of permit.**
- "Permit Required Confined Spaces" are identified and marked by a sign near the entrance stating:

<p style="text-align: center;"><b>"DANGER"</b> <b>Permit Required</b> <b>Confined Space</b> <b>Do Not Enter</b></p>
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- Before entering a "Permit Required Confined Space," proper training in Confined Space Entry and Lock Out/Tag Out is required.
- Contractors will supply all necessary equipment and support personnel required to enter a "Permit Required Confined Space."
- Your Contractor Coordinator will coordinate obtaining all "Permit Required Confined Space" entry permits with Emergency Services and will provide information regarding permit space hazards and entry operations.
- Non-permit required confined space entries require use of a buddy system and continuous air monitoring. Exceptions to this requirement must be in writing from the site EH&S manager.

**P&W EH&S personnel reserve the right to deny entry.**

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## Cranes and Hoisting Equipment

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- Contractors shall operate and maintain cranes and hoisting equipment in accordance with manufacturer's specifications and limitations.
- Operator must be certified to operate cranes.
- Equipment will be maintained and inspected in accordance with regulatory requirements.
- The Contractor Coordinator must notify the Environmental Health and Safety department and the Security department at least 30 days before air lift operations will occur.
- Riding on crane hooks and headache balls is prohibited.
- Eyes on crane hooks shall have a safety latch.
- Outriggers must be fully extended and pedestals lowered for any lift.
- Contractors shall provide a documented lift plan for critical lifts (lifts over process equipment, lifts over 10 tons, etc.) to their Contractor Coordinator.
- Crane components used for overhead work must be rated for the load. No self-fabricated lifting devices/components shall be used.
- Cranes and derricks shall not be refueled while in operation.
- Cranes and derricks not in use shall be properly secured.
- Rated load capacities and recommended operating speeds, special hazard warnings or instruction shall be conspicuously posted on all equipment.
- Accessible areas within the swing radius of the rear of the rotating superstructure of the crane shall be barricaded to prevent an employee from being struck or crushed.

If a crane exceeds the height of the tallest structure on site it must be flagged and/or equipped with a warning light.

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Fabricated rigging system designs shall:

- have a safety factor of 2.5
- be approved by a structural engineer if the system will attach to a building structure
- account for the possibility of accidental side loading of up to 60 degrees from vertical, even if the design is for a vertical lift only
- When making a lift with a crane:
  - One person shall supervise the lift.
  - One person, proficient in hand signals, shall perform signaling. Signals will comply with ANSI standards for the type of crane used. An illustration of the signals will be posted at the job location.
  - Crane operator and signal person will maintain continuous visual contact during lifting operation.
  - Area shall be cleared and roped or barricaded off.
  - No one shall stand or pass under suspended loads.
- See section on Elevated Work for fall protection requirements.

### **Slings**

- Slings shall not be loaded in excess of their rated capacities. Annual inspection tags shall be affixed to chain slings.
- All slings other than wire rope slings shall be labeled for their load capacity.
- Slings shall be padded or protected from sharp edges of loads and will not be pulled from under a load when the load is resting on the sling.
- Each day, prior to use, slings and all fastenings and rigging attachments shall be inspected for damage or defects. Damaged or defective slings will be immediately tagged "Do Not Use" and removed from service.

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- Wire rope and synthetic web slings shall be removed from service and destroyed when they become worn, damaged or their load markings become illegible.

### **Chainfalls and Come-Alongs**

- Safety latches shall be installed and functional on hanging hooks and load hooks.
- Chains, cables and hooks shall be in good physical condition. Hanging hooks shall be free to pivot when lifting or pulling a load.
- Load chains and cables shall not be used as slings.
- Capacities of chainfalls and come-alongs shall be adequate for the load to be lifted or pulled.
- Chainfalls and come-alongs shall be inspected annually, and the most recent inspection date shall be clearly indicated on the equipment.



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## Dumpster Management

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- Dumpsters must not be stored over a storm drain.
- Dumpsters must be provided with an impermeable cover such as a tarp or be maintained under a roof at all times to prevent entry of storm water.
- Dumpsters must be labeled for the materials they are permitted to contain and the name of the contractor who owns them.
- If a Dumpster's cover is damaged, it must be replaced immediately.
- Drain plugs must remain intact.
- Dumpsters must be structurally sound (no puncture holes, severe dents, etc.).

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## Electrical Safety

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- Exposed live electrical parts will be de-energized and locked out before working on or near them whenever practical.
- If determined by the Contractor Coordinator that de-energizing exposed live electrical parts introduces additional hazards, or is not feasible due to equipment design or operational limitations, specific safety related energized work practices will be developed by qualified contractor personnel and the Contractor Coordinator. Work practices will protect against direct body contact or indirect contact by means of tools or materials and be suitable for work conditions and the exposed voltage level.
- Extension cords will be listed or approved as assemblies by a nationally recognized testing agency.
- Extension cords will not be used in a manner that could cause damage to the outer jacket or cause tripping hazards.
- When crossing over aisles with extension cords appropriate overhead clearance must be maintained.
- Never route extension cords through door or window openings.
- Portable electric equipment and extension cords will be approved for the work environment and kept in good condition.
- Outlets on construction sites that are not a part of the permanent wiring of the building or structures will have approved ground fault circuit interrupters (GFCI).
- Contractor Coordinator will designate an exclusion zone around exposed, energized sources.
- Energized panels will be closed after normal working hours. Temporary wiring will be de-energized when not in use.

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- Only qualified electrical contractor employees may enter substations and/or transformer vaults and only after being specifically authorized by the Contractor Coordinator. All others must be accompanied at all times by P&W qualified personnel.
  - Contractors must provide ground-fault circuit interrupters (GFCI's) at all times when using electric power cords in order to protect employees from ground-fault hazards.
  - Use of electrical tape for temporary repair of frayed cords is prohibited.
  - Extension cords shall not be fastened with staples, hung from nails or suspended by wire.
  - Temporary illumination of construction areas, ramps, corridors, offices and storage areas shall be lighted to satisfy the minimum illumination intensities listed in 29 CFR 1926.56, Table D-3 (U.S. facilities) or equivalent.
  - All lamps for general illumination shall be protected from accidental contact or breakage. Metal-case sockets must be grounded.
  - Temporary lights shall not be suspended by their cords, unless they are so designed. Temporary lighting circuits shall be used for lighting only.
  - The requirements of NFPA 70E 2004 shall be followed for all live electrical work. This covers requirements for PPE, flash clothing, insulated tools, live work permits and establishing a blast radius for all work to be performed.

***P&W East Hartford Only*** Electrical work in substations must be performed by at least a Journeyman Electrician. A substation qualified UTC individual must accompany all others, including non-electrical workers. Job briefing shall be conducted and documented prior to any substation entry.

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## Elevated Work

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- Employees or contractors performing elevated work 6 ft. (1.83m) and higher without the benefit of an engineered fall protection system (such as guardrails, fencing, or walls) shall be required to wear personal fall protection equipment.
- For any employee working six feet (1.83m) or more above an exposed work surface, contractors shall provide primary fall protection whenever possible and secondary fall protection only when primary fall protection is not practical.
- For work that requires disconnection from an anchorage point, a full body harness with two shock absorbing lanyards and locking snaphooks shall be used. Contractors must attach the second lanyard to a suitable anchorage point prior to disconnection from the original anchorage point.
- The anchorage point must be at waist level or higher; and capable of supporting at least 5,000 lbs. per employee attached.

### **Primary Fall Protection System**

- Primary fall protection systems (e.g. guard rails) provide protection for walking and working surfaces in elevated areas with open sides, including exposed floor openings.
- Primary fall protection systems include, but are not limited to, fixed guardrails, as well as scaffolds, aerial lifts and other approved personnel lifting devices.

### **Secondary Fall Protection Systems**

- A secondary fall protection system consists of an approved full body harness and two shock-absorbing lanyards.
- A secondary fall protection system shall be worn when primary fall protection is not practical or feasible.
- Use of a secondary fall protection system shall include the prior establishment of a rescue plan for the immediate rescue of an employee in the event they experience a fall while using the system.

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## Life Line Systems

- Vertical lifeline systems shall be made from materials (including the line itself) designed specifically for fall protection.
- Vertical lifeline systems must be capable of supporting at least 5,000 lbs. for one person only.
- Lifelines may be mounted either vertically or horizontally and are generally intended to provide mobility to personnel working in elevated areas.
- Horizontal lifelines must withstand at least 5,000 lbs. impact and pulled tight enough to prevent deflection.
- Horizontal lifelines shall be positioned to provide points of attachment at waist level or higher.
- Vertical lifelines used for vertical mobility will be equipped with sliding rope grabs or may consist of self-retracting reel type lanyard/lifeline attached directly to a safety harness. Retractable lifelines shall be attached to supports capable of 5,000 lbs. impact loading.
- Sliding rope grabs, approved for the size rope used, are the only method for securing a safety lanyard to a vertical lifeline. Lanyards shall not be attached to lifelines by means of knots and loops.
- All fall protection devices used in elevated work shall be inspected by a competent person prior to initial use (and annually thereafter) and by the user prior to each use.
- Defective equipment shall be tagged "Do Not Use" and immediately removed from service.
- All contractor employees who will be required to perform elevated work shall be fully trained in elevated work practices and the care and use of safety equipment.
- Safety nets shall be used only with prior approval of the Contractor Coordinator.

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## Fire Protection and Prevention

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- Do not block emergency exits unless authorized by Contractor Coordinator.
- Access to fire fighting equipment, fire control and emergency vehicles shall be maintained at all times.
- Contractor shall familiarize employees with the method used at the facility for reporting a fire, the location of fire alarms and the requirements for the conduct of employees in the event of an alarm.
- Contractors shall provide their own fire extinguisher for protection against hazards they introduce to the job location.
- Contractor fire extinguishers shall be inspected annually by a certified person, and visually inspected monthly and documented by the contractor.
- Flammable and combustible liquids dispensed at one time in quantities greater than 5 gallons (18.9 L) shall:
  - Be dispensed in an area separated from other areas of operation by 25 feet (7.6m) or by construction having at least a one-hour fire resistance rating.
  - Be stored in FM approved safety cans or drums.
  - Be controlled with ventilation to prevent the development of concentrations above 10% of the lower flammable limit.
  - Be only transferred between containers that are electrically interconnected
  - Not be transferred by mean of air pressure.
- Flammable liquids shall be kept in closed containers when not in use and shall not be allowed, under any circumstances, within 50 feet (15.2m) of an open flame or ignition source.
- In the event of an alarm, contractor shall evacuate the area. Contractors are also required to evacuate during drills.
- **Smoking is prohibited on P&W property.**

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## Floor and Wall Openings/Barricades

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- A cover or a standard railing and toe board shall guard floor openings. The railing shall be provided on all exposed sides, except entrances to stairways.
- Wall openings, from which there is a drop of more than four feet, and the bottom of the opening is less than three feet above the working surface, shall be guarded.
- A standard railing or equivalent shall guard every open-sided floor or platform four feet or more above an adjacent floor or ground level. A toe-board shall be provided wherever persons can pass beneath the open sides or there is moving machinery or equipment which falling material could create a hazard.
- Employees shall be protected at all open sides and edges during the performance of built-up roofing work on low-pitched roofs.
- Contractors will post, install, and maintain signs, signals and barricades to detour passage of persons and vehicles at locations where potential hazards exist.
- Barricades shall be placed where necessary to warn employees against hazardous conditions and activities, such as overhead work, floor and wall openings and trenches.

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## Hot Work Permits

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Contractors shall comply with the facility's hot work permit requirements as described below.

- A hot work permit shall be requested from the site department designated by the Contractor Coordinator for any activity that produces a source of ignition. Such activities include but are not limited to:
  - Gas welding and cutting
  - Electric arc welding
  - Heating torches and other open flames
  - Tar pots and kettles
  - Other activities that produce a spark.
- In some work activities, other hazards must be addressed before hot work may be safely undertaken. These hazards may involve:
  - Energized equipment
  - Pressurized or contaminated piping
  - Entry into confined spaces.
- Hot work permits are issued for one contractor's continuous work shift for a specific operation and will be displayed at the job site.
- Hot work permits are not transferable across Contractor shifts.
- Suitable fire extinguishing equipment (e.g., fire blankets, non-combustible heat shields, flash curtains and fire extinguishers) shall be provided by the contractor and shall be immediately available in all welding, cutting and brazing locations.
- The following fire prevention activities shall be completed before hot work can begin:



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- Combustibles shall be moved at least 35 feet (10.7m) from the hot work operations. If combustibles cannot be removed, they shall be protected using flame-retardant covers or curtains.
  - Flammable liquids shall be removed from the area or totally isolated from the vicinity of the hot work. Emergency Services is to be notified if any fire extinguishing equipment has been discharged.
  - Tarpaulins used as hot work barriers will be flame resistant.
  - Lines previously containing a flammable or combustible fluid must be purged, protected by inert gases, and verified safe for exposure to ignition sources.
  - Floor, wall and other openings shall be closed or covered, including floor drains.
  - Combustible dust shall be cleaned from the vicinity of the hot work operations.
  - Surrounding floors made of combustible construction shall be protected with a flame-retardant cover.
  - Where electrical equipment is not involved, the floors may be swept clean and wetted with water.
  - Contractor's employees shall be informed of the location of the nearest fire alarm pull box.
  - Contractors are required to bring their own fire extinguishers of the appropriate class for the hazards involved.
  - Fire watch and operator shall be trained in use of portable fire extinguisher.

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- Emergency Service shall be notified if a fire extinguisher is used in response to an incident directly related to hot work in progress.
  - For hot work involving open flame or high heat generation, a fire watch may be required during the conduct of the work as determined by Emergency Services. A fire watch is required for a minimum of 60 minutes after completion of the job, as directed by our insurance carrier Factory Mutual. The contractor shall provide the manpower for the watch.

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## Ladders

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- A stairway or ladder shall be provided for access where there is a break in elevation of 19 inches (0.5m) or more and no ramp, runway, sloped embankment or personnel lift is provided.
- Portable metal or conductive ladders shall not be used near energized lines or equipment.
- Fabricated ladders are prohibited.
- Conductive or metal ladders shall be prominently marked as conductive and all necessary precautions shall be taken when used in specialized work.
- No ladders other than Type 1 or Type 1A shall be used. Fiberglass ladders are mandatory for electrical tasks or when working in close proximity to electrical services where accidental electrical contact is a foreseeable event.
- Ladders will be secured to keep them from shifting, slipping, being knocked or blown over. Ladders will never be tied to facility services piping, conduits, or ventilation ducting. Ladders will be lowered and securely stored at the end of each workday.
- Ladders will not be placed in front of doors or door openings unless the door is either monitored by an attendant or blocked open to prevent contact with the ladder. If all traffic around the ladder work area cannot be re-routed, the ladder must be secured to prevent accidental knock down. The Contractor Coordinator will arrange closure of aisles, walkways and selection of alternative traffic routes. Appropriate warning signs, tape and cones will be deployed around ladder work to define exclusion zones.
- Stepladders will not be used as straight ladders. The top or first step below the top of ordinary stepladders will not be used as a step or a stool.
- Ladders will only be used for the purposes for which they are designed.
- Extension ladders will not be separated.

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- The following requirements shall apply to the use of all ladders:
    - Ladders used for access to an upper landing surface shall have side rails that extend at least 3 feet (1 m) above the landing surface.
    - Ladders shall be maintained free of oil, grease and other slipping hazards.
    - Non-self-supporting ladders shall be tied off or otherwise secured to prevent accidental displacement.
    - Non-self-supporting ladders shall be used at an angle where the horizontal distance from the top support to the foot of the ladder is approximately one quarter of the working length of the ladder.
    - When ascending or descending a ladder, the user shall face the ladder and shall use at least one hand to grasp the ladder; user shall not carry any object or load that could cause him/her to lose balance and fall.
    - Ladders will be visually inspected by a competent person and approved for use before being put into service. Each user shall inspect ladders visually before using.
    - Ladders with structural defects shall be tagged "Do Not Use," immediately taken out of service, and removed from the site by the end of the day.
    - Wooden ladders shall not be painted.

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# Lockout/Tagout of Hazardous Energy Sources

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- Contractors shall restrict access to work areas by unauthorized employees where energy sources have been de-energized.
- All affected employees shall be notified. Where applicable, the area shall be secured and signs posted to alert employees that a de-energizing activity is in progress.
- Contractors shall obtain specific site lockout instructions from the Contractor Coordinator.
- Standardized lockout devices and "Danger" tags shall be used to prevent the operation of switches, valves, pieces of equipment, etc., where personal injury may occur or equipment may be damaged.
- Each contractor and subcontractor employee performing operations where equipment or systems require de-energizing shall place his/her own lock and tag on each energy source requiring de-energizing; each employee shall sign and date the tag. The tag shall include the name of the contractor for whom they are employed.
- Only standard "Danger - Do Not Operate" (black, red and white) tags will be used.
- If equipment for de-energizing is in a confined space, the confined space will be cleared of all employees prior to testing the energy source for deactivation.
- Stored energy systems and equipment, such as electrical capacitors, mechanical springs, steam lines, and hydraulic systems, shall be put in a "zero energy" state.
- Contractor employees shall remove only their own locks and tags when they complete their work.
- Used danger tags will be destroyed; tags will not be reused unless designed for reuse.
- Extended lock out requirements shall be coordinated with the Contractor Coordinator.

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- When more than one crew, trade, or contractor, etc., is used on a project that requires equipment lockout/tagout, one specific employee shall be designated to coordinate affected work forces and to ensure continuity of protection.
  - For work that involves multiple trades and or contractors, a qualified lead person for each party shall verify that a zero energy state has been achieved for each hazardous energy source that must be locked out. If any party does not have an employee that is qualified to perform the verification (e.g. an employee qualified to assess electrical hazards), then the lead person must witness the verification performed by a designated qualified employee of one of the other parties or a qualified UTC employee. Upon confirmation, all lead persons must sign a document attesting to their witnessing the verification. Contractor Coordinators should coordinate these requirements at a pre-job hazard review.

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## Motor Vehicle Safety

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- Contractor employees shall park their personal vehicles only in those areas designated by P&W Emergency Services or the Contractor Coordinator. P&W assumes no responsibility for vehicles, or articles in vehicles, parked on P&W property.
- Vehicles and equipment shall not block exits, walkways, loading areas, fire hydrants or emergency equipment.
- Contractor diesel and gas powered vehicles are prohibited inside buildings unless prior approval and arrangements for ventilation have been made with the Contractor Coordinator, Emergency Service and the EH&S department.
- Contractors will not perform extensive maintenance or repairs of vehicles while on P&W property.
- Drivers shall obey all traffic regulations and signs, and carry a current driver's license for any vehicles they operate.
- All vehicles are subject to inspection when entering or leaving the location.
- Vehicle's engines shall be turned off when parked.
- Passengers are not allowed to ride in beds of pick-up trucks.
- Drivers shall be mindful of pedestrian traffic at all times.
- Equipment, including rentals, brought to this facility, used inside or outside, will be identified with the name of the contractor utilizing the equipment.
- All accidents will be reported immediately to the site emergency number.
- Vehicles brought on site carrying equipment must be inspected daily.
- All cargo and equipment on vehicles shall be properly loaded and secured. Vehicles shall not be overloaded.

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- Operators of vehicles with high overhead clearance must pre-plan travel routes on site to ensure overhead utilities, obstructions and or personnel will not be at risk of impact.



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## Overhead Work

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- Loads shall not be suspended over any persons or over occupied building areas.
- Contractors shall secure area with safety stanchions or caution tape and post warning signs to alert pedestrians and area occupants of overhead work. The distance the [barricade](#) is set up away from the work area must take into consideration the length of materials in use and the potential for materials to be projected horizontally or to rebound from the ground surface or surrounding structures if they fall from overhead. The set-up distance should allow for these types of hazards to be contained within the barricaded area.
- When work is limited to a visual inspection without tools, Caution Tape or safety cones at a minimum of two feet from the work (no potential for falling objects) may be used.

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# **Personal Protective Equipment**

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- Contractors shall furnish and require the use of personal protective devices and equipment (PPE) by their employees and by their subcontractor employees.
- PPE shall not be modified or used in any manner other than which it was designed.

## **Minimum PPE Requirements**

- Employees shall wear safety glasses with side shields that meet the specifications of ANSI Z87 or equivalent federal, state or provincial, specification.
- Safety glasses with side shields shall be worn under welding hoods and face shields.
- Safety glasses with side shields shall be worn under chemical goggles unless the goggles are manufactured with high impact lenses.
- Safety glasses with side shields shall be worn throughout the manufacturing facility and in outdoor work areas, except in the office and cafeteria areas, unless performing work activities.
- Tinted safety glasses are not permitted indoors, unless needed for the job hazards.

## **Hearing Protection**

- Hearing protection is required in designated and posted high noise areas and when performing high noise producing activities.

## **Respiratory Protection**

- Contractors shall have a Respiratory Protection Program that includes proper training of employees if employees are at risk of exposure to airborne contaminants.
- Contractors shall provide their employees with respiratory protection to protect them from exposure to harmful dust, mist, fumes, gases or vapors when engineering and administrative controls are not adequate.

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- Site EH&S representatives will advise the contractor of specific location requirements for respiratory protection.

### **Gloves**

- Contractors shall ensure that their employees wear gloves to protect their hands from chemical agents, heat, cold, etc.
- Gloves should not be worn around moving machine parts such as belts, pulleys and gears.

### **Protective Footwear**

- ANSI Z-41 or equivalent federal, state, or provincial specification rated safety shoes or work boots are required for construction and maintenance activities.

### **Hard Hats**

- ANSI Z-89 or equivalent federal, state, or provincial specification rated hard hats are required on all construction sites and shall be worn as designed, unless a waiver signed by EHS and the Contractor Coordinator is posted at the work location.

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## Powered Industrial Vehicles (PIVs)

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- Contractors must provide their own PIVs that are in proper working order and comply with safety standards
- Contractors must maintain a copy of an annual inspection performed by a qualified person on each vehicle brought on site.
- A copy of this inspection must be on the vehicle at all times
- Inspections must have been performed within the last year.
- Contractors are responsible for daily inspections of PIVs and a record of this must be kept in the vehicle at all times. (Sample available from EH&S-site). They shall be checked by the operator at the beginning of each shift to ensure that all parts, equipment and accessories that affect safe operation are in proper operating condition and free from defects. All defects shall be corrected before the vehicle is placed in service.
- Any vehicle found deficient must be removed from the site and will not be allowed back until the items have been repaired and a new inspection and maintenance report has been presented.
- The Contractor EH&S Inspection Program will verify compliance with the requirement for inspection sheets.
- This requirement applies to all contractor vehicles whether owned, rented, or leased.
- Operators of PIVs shall be trained in their safe operation, and shall carry proof of training with them in some form (a permit, wallet card, copy of a training record, etc.) and provide such proof upon request.
- Only vehicles required for the job are permitted inside the buildings.
- Powered industrial vehicles include, but are not limited to, fork trucks, electric buggies, aerial lifts, earth-moving equipment, cranes and hoisting equipment.
- LPG tanks shall be stored outdoors at a location specified by the Contractor Coordinator.
- Makeshift fork extensions and use of C-clamps are prohibited.
- Contractors shall not use any motor vehicle, earth moving or compacting equipment having an obstructed view to the rear unless

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the vehicle has a reverse signal alarm distinguishable from the surrounding noise level.

- Diesel and gas powered vehicles are prohibited inside buildings unless prior approval and arrangements for ventilation have been made with the Contractor Coordinator, Emergency Services and the EH&S department.
- Areas within the facility where vehicles will be operated shall be assessed for hazardous conditions, and only vehicles designed for use under any identified hazardous conditions may be used in that area.
- Parked forklifts shall have forks resting at ground level.
- Vehicles shall not be left running while unattended.
- Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried.
- In the event of an indoor facility emergency notification, vehicles shall be pulled over to the side of the aisle and motors switched off.
- Actively leaking vehicles or equipment are prohibited from exiting the facility.
- The contractor shall repair or contain any leaking vehicle or equipment before exiting the facility. Emergency response personnel shall be notified by dialing the emergency phone number for the facility.
- Riding construction equipment as a passenger is prohibited.
- Towing or otherwise pulling loads with the forks on a forklift is prohibited.
- PIV use shall be restricted or minimized during shift changes to minimize P&W employee exposure to PIV traffic.
- PIV operators must abide local rules (e.g., speed limits, restricted areas).
- PIV operators shall wear their seat belt at all times during operation when their PIV is provided with one by the manufacturer.

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- Powered industrial vehicles operated in parking lots or on roadways must be operated with flashing lights/strobes. If such operation will involve multiple trips for several hours or more, the Contractor Coordinator should work with the site EH&S organization to coordinate the activity with other operations at the facility that may be impacted (e.g. vehicle and pedestrian traffic flow) Contractors are not permitted to use UTC vehicles without authorization from the designated manager for that facility.

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## Roof Work/Access

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- Access to roof work requires prior authorization from the Contractor Coordinator.
  - Employees performing work within ten feet (3.0m) of the leading edge of the roof shall review fall protection compliance requirements with the Contractor Coordinator prior to commencing the task.
  - Contractors working on roofs 6ft. (1.83 m) and higher with an unprotected edge shall be protected from falls by one of the following methods:
    - (a.) Construction of an approved temporary guardrail system
    - (b.) Personal fall protection equipment (either fall restraint or fall arrest)
    - (c) Fall prevention safety monitoring system
- Note:** Method (c.) shall be employed only if methods (a.) & (b.) are not feasible.
- Contractor employees working alone on the roof must get prior approval from their Contractor Coordinator.
  - Employees are not permitted on the roof in severe weather unless authorized by a Contractor Coordinator.

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## Scaffolding

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- All scaffolds shall be inspected by the contractor competent person prior to use and shall be tagged and signed as acceptable.
- The contractor competent person shall inspect the scaffold daily to ensure its integrity.
- The footings or anchorage for scaffolds shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement.
- Guardrails and toe-boards shall be installed on all open sides and ends of scaffold platforms that are more than four feet (1.2m) above the ground or floor.
- Scaffolds shall be provided with an access ladder or equivalent safe access. Employees shall not climb or work from scaffold handrails, mid-rails or brace members.
- When freestanding, manually propelled scaffolds are used, the height shall not exceed four times the minimum base dimension.
- Employees shall not ride on mobile scaffolds when they are being moved.



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## **Stacks and Drains**

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- Operational exhaust systems shall not be compromised in any way without prior approval from your Contractor Coordinator.
- Stacks and drains shall not be painted, installed, relocated, or altered in any manner or their identification changed without prior approval from your Contractor Coordinator and the Environmental Health and Safety Department.
- Jobs that require removal or installation of stacks require coordination with the Environmental Health Safety department for proper stack identification management.

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## Tools

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- Hand tools shall be kept in good condition, i.e., sharp, clean, oiled, dressed and not abused.
- Tools subject to impact (chisels, star drills, and caulking irons) tend to "mushroom" and shall be kept dressed to avoid flying spalls. Any tool that has already mushroomed shall be immediately taken out of service.
- Tools shall not be used beyond their capacity; e.g., extending the handle using a piece of pipe or other means. Use the proper tool for the job.
- Tools and other materials shall not be left on stepladders, scaffolds, roofs or other places where they may be dislodged and fall.
- Non-sparking tools are required in areas where flammable solvents are handled and where sparks could create an explosion.
- Wooden handles of tools shall be kept free of splinters and cracks, and be kept tight in the tool.
- Contractors shall maintain all portable power tools, electrical cords and pneumatic hoses in good condition and proper working order.
- Faulty or damaged tools and hoses shall be tagged "Do Not Use" and removed from service immediately.
- When powered tools are designed to accommodate guards, they shall be equipped with the manufacturer's guards in operable and original condition, when the tool is in use.
- Cords and hoses shall be protected from damage and shall be routed through the job area in a manner that prevents tripping hazards and cord or hose damage.
- Portable electric power tools shall be double-insulated or electrically grounded using three-conductor cord and three-prong plugs.
- Double-insulated tools shall be clearly marked.
- Pneumatic power tools shall be secured by some positive means to prevent the tool from becoming accidentally disconnected.
- Tools shall not be hoisted or lowered by their hoses/cords.

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- All pneumatically driven nailers, staplers and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi of pressure at the tool, shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
  - Powder actuated tools require advanced written approval prior to use.
  - Powder actuated tool operators shall possess a certificate for operation.
  - Warning signs shall be posted when powder actuated tools are in use.
  - Powder actuated tools shall never be left unattended. When not in use, they shall be secured under lock and key.
  - Powder actuated tools shall not be used in explosive or flammable atmospheres.
  - Contractors are not permitted to use P&W tools and equipment without authorization from the manager of site Facilities and Services.

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## Trenching and Excavating

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- Underground lines, equipment and electrical cables shall be identified and located by the Contractor Coordinator prior to beginning work. Any local "Call Before You Dig" program must be contacted as well.
- Contractor shall assign a competent person to all trenching and excavation work. This person shall be clearly identified to all employees assigned to the job.
- Contractors will not initiate work without prior approval of the Contractor Coordinator.
- Walls and faces of trenches and excavations, four or more feet deep, shall be shored, sloped or shielded as required by the type of soil encountered.
- Prior approval from the Contractor Coordinator and EH&S personnel is required before commencing, or continuing, with trenching deeper than four feet.
- A confined space entry permit shall be required where oxygen deficiency or a hazardous atmosphere exists or could exist.
- A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are four feet or more in depth so as to require no more than 25 feet (7.6m) of lateral travel for employees.
- Daily inspections shall be conducted by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems or other hazardous conditions.
- Employees shall not be permitted underneath loads handled by lifting or digging equipment.
- Employees shall be protected from excavated or other materials and equipment that could cause a hazard by falling or rolling into the excavation.
- Physical barriers shall be placed around or over trenches and excavations. Flashing light barriers shall be provided at night.
- Erosion control measures to minimize storm water pollution shall be reviewed approved by the Contractor Coordinator prior to implementation.

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## Waste Management

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- Contractors shall have a waste management policy that ensures they do not adversely affect the health and safety of contractor employees, P&W employees, the public, or the environment.
- Contractors must have pre-approval from P&W EH&S personnel for processes that will generate waste of any kind, discharged water, or will result in air emissions.
- Waste material will be categorized as hazardous and/or non-hazardous with the assistance of site EH&S personnel and placed into appropriate containers as instructed by site EH&S personnel.
- No waste material shall be disposed of or transported off-site without the approval of the Contractor Coordinator.
- Contractors shall provide trash removal containers for construction debris and general trash.
- All waste generated on location shall be disposed of as approved by the Contractor Coordinator and site EH&S.
- For waste approved for disposal by the contractor, a report must be issued to the Contractor Coordinator indicating date, a description of the waste, the amount in weight (lbs.), the transporter and the destination facility, including their name, address and phone number.
- Wastes (includes rinse from washing of equipment, PPE, tools, etc) are not to be poured into sinks, drains, toilets, or storm sewers, or onto the ground.
- Solid or liquid wastes that are hazardous or regulated in any way are not to be disposed of in refuse dumpsters.
- All spent (used) or unused chemicals must be disposed of in accordance with all applicable solid waste and hazardous waste regulations.
- Contractor may be responsible for handling and offsite disposal of non-regulated construction debris (e.g., concrete, steel, wood, plastic) that they generate. Disposal method shall be approved by EH&S.

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- Regulated materials generated will be placed in pre-labeled, DOT-approved containers provided by P&W through the Waste Operations departments.
  - Exceptions to this include roll-off or other containers specifically arranged through the job's contract.
  - P&W EH&S personnel will manage the removal and disposal of regulated materials or chemicals unless specifically arranged otherwise.
  - Waste containers brought on site by the contractor shall be identified with the contractor's name.
  - Sinks in restrooms and drains will not be used for disposal of any materials.
  - Deliberate and/or unauthorized discharges and releases to the environment are prohibited.
  - When a contractor uses a P&W waste container (indoor or outdoor), the contractor shall ensure that it be kept closed at all times. When the container is full, the contractor shall write in the "Full Date" on the container's label and notify the P&W Waste Operation department for removal and storage of the full container. Contractor will be asked for the container's location and number located on the lower right side of the white label.
  - Waste materials that no longer have use such as paints, spray paint cans (including empty ones), used varnish, thinners, other types of solvents, oil, antifreeze, kerosene or rags contaminated with any of these materials are controlled waste. Contact your Contractor Coordinator for more information on their disposal.
  - Containers stored outdoors shall be covered at all times to keep out precipitation, except when actively in use. This includes roll-off containers. The following are key factors for meeting this requirement:
    - Containers shall be covered upon delivery and until removed from the site. The party that supplies the container (Contractor Coordinator, Contractor, etc.) shall provide the cover.

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- The Contractor Coordinator shall inspect containers upon delivery for damage and discrepancies and approve them for use by the contractor.
  - Active use includes adding or removing materials and the time that transfers of material are made to and from the container as long as there is no current or forecasted precipitation. In other words, anyone who places material in the container is responsible for replacing the cover immediately afterward, unless materials will be added for extended periods throughout the day, in which case the cover must be replaced after the last load of the day is placed in the container. However, the cover must be replaced immediately after each load is placed in the container if there is current or forecasted precipitation, regardless if materials will be added for extended periods throughout the day.
  - If the cover is flexible (e.g., a tarp), it must be kept taut to minimize pooling of precipitation. Any pooling that does occur must be eliminated before the cover is removed.
  - All dumpsters with a drain plug shall have the plug secured and an attached cover.
  - Containers shall be located in areas that minimize the risk to storm drains in the event leakage occurs and/or the area storm drain must be protected against any unplanned leakage during storage or transfer.
  - Immediate responsibility for maintaining protection belongs to the Contractor while the project is underway. When the project is completed or is not manned, the Contractor Coordinator assumes the responsibility until the container is removed from the site or the contractor mans the project again.
- Removal of soils from, or adding soils to, storage areas requires approval from P&W for each job. Soil removed and placed in these areas is characterized for specific uses and is subject to tracking. Dumping of concrete and debris in these areas is not allowed. Contact your Contractor Coordinator or the EH&S department for guidance.

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## Welding, Cutting and Brazing

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- A hot work permit must be obtained prior to welding, cutting, soldering, brazing operations, open flame work, and use of spark/heat producing equipment or powder actuated tool operations.
- The permit must be countersigned by the Contract Coordinator.
- Suitable fire extinguishing equipment shall be immediately available in all welding, cutting and brazing locations.
- Objects to be welded, cut or heated shall be moved to a designated safe location, or, if they cannot be readily moved, all movable fire hazards in the vicinity shall be taken to a safe place. If fire hazards cannot be removed, a pre-job assessment shall be performed and control measures established to protect the immovable fire hazards from heat, sparks and slag.
- Personnel working around or below the welding, burning, or grinding operation shall be protected from falling or flying objects.
- Should a pre-job assessment identify that an unsafe accumulation of contaminants could develop, then suitable mechanical ventilation or respiratory protective equipment shall be provided.
- When curtains or other barriers may not be feasible, "Don't Watch the Arc" signage shall be used at safe approach distances to warn passers by about the hazards of looking into the arc.

### Gas Welding and Cutting

- All hoses and torches carrying acetylene, oxygen, fuel gas, or any substance that may ignite or be harmful to employees shall be inspected at the beginning of each shift.
- Defective hoses and torches shall be tagged "Do Not Use" and immediately removed from service.
- Acetylene cylinders shall not be stored on their side.
- Torches shall be lighted from friction lighters and not by matches or from hot work.



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- Directional gas flow fittings (back-flow valves) shall be provided on hoses to prevent reverse gas flow or back flow.
  - Torches shall be turned off and removed from confined spaces when not in use.

### **Arc Welding and Cutting**

- Arc welding and cutting operations shall be shielded by non-combustible or flame-retardant screens to protect employees and other persons working in the vicinity from the direct rays of the arc.
- Arc welding and cutting cables shall be of the completely insulated, flexible type, capable of handling the maximum current requirement of the work in progress. Cables in need of repair shall not be used.
- The power supply switch to the equipment shall be opened when the welder or cutter has to leave the work or to stop work for any appreciable length of time, or when the welding or cutting machine is to be moved.
- All ground return cables and all arcs welding and cutting machine grounds shall be in accordance with regulatory requirements.
- Ground connections shall be made directly to the material being welded.