**Site Specific Safety and Health Plan Example**

This Safety and Health Plan (SHP) Template is to be used in conjunction with the Subcontractor’s safety and health program/manual, and for purposes of providing the information required in completion of the JPL Subcontractor Environmental, Health, and Safety Requirements (JPL Form 2885) requirements. This template is not all-inclusive and is provided to contractors as an example ONLY. Subcontractors are expected when creating their own site specific to address create their own site-specific safety plan that ensure the health and safety of their employees while working at JPL. If any portion of this example safety and health plan is used, JPL takes no responsibility for its content. It is the sole responsibility of the contractor to create and submit a safety plan that meets regulatory compliance and address all potential hazards that may occur to their employees during the course of their work activities at JPL. It is expected that the contractor reviews the materials and All employees are expected to review and be familiar with the SHP and sign the acknowledgement form at the end of this document prior to starting work. All work shall be conducted in compliance with Cal/OSHA Code of Federal Regulations (CFR) Title 8 Subchapter 4 and JPL Form 2885.

 **Company Information and Key Contacts**

|  |  |
| --- | --- |
| Company Name: | Work Location (bld.-Room): |
| Person Writing the Safety Plan: | Phone # | Date: |
| Project Manager:  | Project Manager Phone #: |
| Site Supervisor: | Site Supervisor Cell Phone #: |
| Site Safety Officer: | Site Safety Officer Cell Phone #: |
| JPL Construction Administrator:  | JPL Construction Administrator Phone #: |
| JPL Incident Reporting\* (all incidents, mishaps and close calls shall be reported ASAP and within 8 hours): | 818-393-3333 (do NOT use 911) |

**Subcontractors Covered by this Site Specific Safety Plan (where applicable)**

|  |  |  |
| --- | --- | --- |
| **Subcontractor Name**  | **Tasks/Role** | **Contact** |
|  |  |  |
|  |  |  |

**Detailed Work Scope (Derived from Contract)**

|  |
| --- |
| Detailed Description of Work (per contract):  |

**Qualified/Competent Persons (where applicable)**

Some job tasks require involvement from specially qualified and designated personnel. A Cal/OSHA "qualified person" is defined as “one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.” A Cal/OSHA "competent person" is defined as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them". By way of training and/or experience, a competent person is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them. Some standards add additional specific requirements, which must be met by the competent person. *The table below identifies some of the job tasks that require a competent person, qualified person or a registered engineer. This list is not all-inclusive; it is the responsibility of the subcontractor to identify the required personnel and staff the job appropriately.*

|  |  |  |
| --- | --- | --- |
| **Job Type** | **Qualification Type** | **Employee Name** |
| Supervise Safety on the Job Site | Competent |  |
| Supervise Demolition Activities  | Competent |  |
| First Aid/CPR Trained Personnel | Trained |  |
| Fall Protection Supervision/Inspection  | Competent |  |
| Fall Protection Plan Development/Anchors | Qualified |  |
| Ladder Inspections | Qualified |  |
| Supervise Scaffold Erection/Dismantlement | Competent |  |
| Scaffold Inspection | Competent |  |
| Supervise Trench/Excavation Activities | Competent |  |
| Approval of Sloping and Benching Systems | Qualified |  |
| Protective Systems for Excavations > 20 ft.  | Registered Engineer |  |
| Heavy Equipment Operation | Qualified |  |
| Electrical Workers (working near/on energized parts) | Qualified |  |
| Crane Safety | Competent |  |
| Rigging Safety  | Competent |  |
| Powder Actuated Tool Use | Qualified/ Licensed |  |
| Steel Erection Design | Qualified |  |
| Steel Erection Oversight | Competent |  |
| Falsework Design | Registered Engineer |  |
| Silica Exposure Control Plan | Competent |  |

**Minimum Personal Protective Equipment that will be used on this project \***

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  Hard Hat | [ ]  Safety Vest | [ ]  Safety Glasses | [ ]  Steel Toe Shoes |
| [ ]  Leather Gloves  | [ ]  Nitrile Gloves | [ ]  Ear Plugs | [ ]  Ear Muffs |
| [ ]  Face Shield | [ ]  Cloth Face Covering | [ ]  Dust Mask | [ ]  Respirator (Type:\_\_\_) |

\*Additional required PPE should be identified in the control column of the task hazard analysis

**Task Specific Hazard Analysis**

A task analysis is required to identify all potential hazards/risk and identify the needed controls (engineering, administrative and PPE) to control potential injuries and/or exposures.

**How to complete the task specific hazard analysis**

Step 1 – Define the task (see examples below)

Step 2 - List all each hazard associated with the task as a separate entry in column 1.

Step 3 – Identify all controls that will be utilized to reduce the likelihood and severity of injury in column 2.

Below are example of hazard analysis and controls for common tasks that may be associated with your work at JPL. The task specific hazard analyses below, demonstrate the minimum level of detail expected for the hazard analysis. If you elect to use this information, it must be reviewed and modified by your company safety professional and project management to fit your specific scope of work, and company policies. JPL is providing the material for reference use only, and accepts no liabilities regarding its completeness.

 **Task: Hand Operated Power Tool Use**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Shock | * Ensure tool casing is free from cracks and is properly grounded.
* Use tool connected to GFCI if cord powered.
* Wear insulated gloves.
* Ensure tool is unplugged before changing any part of the tool.
 |
| Hand lacerations | * Wear appropriate gloves (e.g., leather gloves) when changing out/handling blades, where applicable.
* Ensure tool is unplugged before changing any part of the tool.
* Check that the guard is in working condition and in the proper position, if applicable.
 |
| Eye and other physical injuries | * Always wear safety goggles; wear hearing protection where applicable.
* Do not wear loose clothing.
* Ensure that material being operated on is secured.
* Make sure the blade or bit is not binding as it goes into the work. If blade or bit is binding, cease operation of the tool and evaluate reasons for binding.
 |

**Task: Ladder Use**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Falls from ladders | * Select proper ladder.
* Do not use light household ladder for a heavy construction job.
* Do not exceed ladder duty rating.
* Inspect ladder before use to ensure it is clean and free of defects.
* Maintain 4:1 slope ratio with straight ladders.
* Use 3-point contact while climbing.
* Extend ladder 36” if climbing onto another surface.
* Do not use top step of stepladder and top 3 rungs of a straight ladder.
* Secure all extension ladders from movement.
* Ensure ladder is not placed on a loose object or on uneven footing.
* To prevent slipping, equip the ladder with non-slip points or safety shoes. If not, secure the ladder firmly by lashing it with rope or wire.
* Do not lean ladders against a moveable objects or window sashes.
* Fasten a board securely across the top of the ladder to give a bearing on each side of the window.
* If there is a danger of a person or vehicle bumping into the ladder, have a helper guard or rope off the space with caution tape around the ladder.
* Remove any oil or grease from the soles of your shoes before use.
* Do not over reach and do not push or pull if it will cause the ladder to move. If you are far away from something, you have to reach, take time to move the ladder closer.
* Do not straddle the space between the ladder and another object.
 |

**Task: Mobile Elevated Work Platform (MEWP) Use (e.g. scissor lifts, boom lifts, JLG’s, etc.)**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Lift failure/tip over | * All elevated work platforms must be used in accordance with Cal/OSHA and manufacturers use instructions.
* Personnel must be trained, qualified and approved to operate all elevated platforms and boom lifts.
* Inspect lift before use.
* Do not use left on unstable ground or on angles over the lifts cap. Look for Drop-offs, holes, or unstable surfaces such as loose/soft dirt.
* All operators, occupants, MEWP task supervisor and nearby personnel will be trained in the specific MEWP operating manual, and the controls. MEWP operators and occupants will have proficiency training on the specific equipment assigned, prior to use.
* All training for MEWP operators, MEWP occupants, maintenance and repair personnel, supervisor and nearby personnel shall meet Cal/OSHA and ANSI A92.24-2020.
 |
| Falls | * Fall protection must be used in accordance with the manufacturers’ recommendations on all elevated platforms and boom lifts.
* Use Class A Self Retracting Lanyard with shock absorber or positioning lanyard that allows for lateral movement but ensures personnel are restrained within the guardrails of the platform.
 |
| Damaged/broken equipment | * Elevated work platforms must be used and inspected in accordance with the manufacturer’s instruction for each specific model and type of elevated work platform being used.
* All elevated work platforms (e.g. scissors lifts, aerial platforms, etc.) and the assigned qualified /competent person must inspect boom lifts prior to acceptance for use at the laboratory.
* A trained and qualified operator prior to each use must inspect elevated work platforms and boom lifts.
* Document the inspection on the work platform inspection tag.
* If the elevated work platform or boom lift, does not pass inspection, remove the inspection tag, and replace it with a red “Do Not Use” tag and remove from service.
 |

**Task: Working in Roadways and Parking Lots**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Possible pedestrian or vehicle traffic in work area  | * Secure work area to keep unauthorized personnel out of work area.
* Schedule work in such a manner to limit exposure to people and property.
 |
| Struck by Vehicles | * Signs shall be used to slow/control vehicular traffic.
* Signal/traffic/flagman personnel will wear reflective vests.
* Flaggers will be trained and comply with Cal/OSHA Title 8 Section 1599, in the fundamentals of flagging moving traffic before being assigned as flaggers. Training requirements will be consistent with the California Manual on Uniform Traffic Control Devices, Chapter 6, will be provided by a person with the qualifications and experience necessary to effectively instruct employees, and will be available onsite.
* Only trained and authorized employees will work in the roadway.
 |

**Task: Scaffold Use**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Falls  | * Scaffold height: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (list in feet)
* All scaffolds must be erected and used in accordance with CAL/OSHA and manufacturer’s requirements.
* When working off scaffolds that are 6 feet or more above a walking/working surface, fall protection or CAL/OSHA compliant handrails are required.
 |
| Damaged/broken equipmentImproper assemblyImproper use | * Scaffolds must be designed by a qualified person (a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.
* Scaffolds will be erected under the supervision of a competent person.
* Scaffold competent person will inspect scaffolds prior to each work shift and denote inspection on a green scaffold inspection tag.
* Incomplete, and/or defective scaffolds will be removed from service and tagged with a red “do not use” tag.
* Scaffolds must be used and inspected in accordance with the manufacturer’s instruction for each specific model and type of scaffold being used.
* All wheels equipped with locking devices must be locked prior to climbing, all bolts and nuts must be tight, and all cotter pins must be in place and secured before use.
* Scaffolds greater than 36 feet require a Cal/OSHA permit.
* Scaffolds > 125 feet must be designed by a professional engineer.
 |

**Task: Painting**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Inhalation of paint, lung damage  | * Paint in well-ventilated areas.
* Wear a respirator when in areas with limited ventilation.
* Review Safety Data Sheet (SDS).
 |
| Skin irritation  | * Wear long-sleeved, loose fitting clothing covering exposed skin.
* Wear gloves that are impervious to paint and thinners.
* Wash exposed areas thoroughly with soap and water after handling.
* Do not wash skin with paint thinner or lacquer thinner, use hand cleaner.
 |
| Eye irritation | * Wear goggles that seal eyes from paint.
 |
| Fall from ladder or scaffold | * Receive ladder and mobile scaffold user training prior to use.
* Inspect ladders and scaffolds for defects prior to use.
* Following manufacturer’s instructions for ladder and scaffold use.
* Do not overreach when working off a ladder or scaffold.
 |

**Task: Arc Welding**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Flashing, sparks, slag splatter to Passerby’s, and welder | * Close welding curtain to shield outsiders from flashing.
 |
| Radiant heat | * Wear welding jacket, apron, gloves, work shoes.
 |
| Inhalation of fumes | * Use exhaust fan (where applicable); weld in a well-ventilated area.
* Wear welding hood.
 |
| Flashing, sparks, slag splatter to welder | * Wear welding jacket, apron, gloves, work shoes.
* Wear clear polycarbonate safety glasses with side shields and face shield.
 |
| Eye damage to welder | * Wear clear polycarbonate safety glasses with side shields and face shield.
* Wear ANSI-compliant welding helmet with auto darkening lenses which allow welders to keep their helmets down at all times, preventing the neck strain that can come from trying to flip down a face shield when striking the arc. Helmets also can reduce the need for wearing secondary safety lenses under the shield.
 |
| Pinch to fingers | * Keep fingers away from pinch points.
 |
| Burn to hands or fingers | * Wear leather gloves.
* Chalk mark welded area “Hot”.
 |
| Eye damage by flying debris from hammer strikes | * Wear clear polycarbonate safety glasses with side shields.
 |
| Injuring fingers with hammer | * Use caution to avoid striking fingers or hands with hammer.
 |
| Electrical hazards | * Inspect the arc welder before starting any operation.
* Look for frayed welding leads and any damage to the welder.
* Ground the welder case so that if a problem develops inside the welder a fuse will blow, disconnecting the power and letting you know that repair is required.
* Use mats of plywood, rubber or some other dry insulation to stand or lie upon.
* Insulate your body from the metal you are welding.
* Do not rest your body, arms, or legs on the work piece (the metal being welded); especially if your clothing is wet or bare skin is exposed.
* Do not touch the electrode or metal parts of the electrode holder with skin or wet clothing.
* Wear dry gloves in good condition when welding.
 |
| Tripping | * Take care to keep wire untangled and free from under feet.
 |

**Task: Brazing/Welding/Cutting**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Flashing, sparks, slag splatter to passerby’s, and welder | * Close welding curtain to shield outsiders from flashing
 |
| Fire | * Remove all combustible materials from the work area.
* Request and receive a JPL issued hot work permit and follow requirements listed. A Fire Watch as required by the Permit.
* All personnel engaged in welding or cutting job tasks shall wear all industry recognized PPE to protect from burns either to the skin or the eyes. All workers assigned to the job will review the hot work permit.
* A 20-pound Type ABC fire extinguisher shall be readily accessible and immediately available when any open flame work is performed.
* Combustibles and flammables must be kept clear of the open flame work area.
* Fire watches shall be trained and competent in the use of fire suppression equipment. Fire extinguishers must be checked monthly. Fire watches must have the means and know to call the JPL Fire Department in case of an emergency. Fire watches are to remain 30 minutes after completion of open flame work is stopped.
* Store oxygen and acetylene cylinders in a secured in an upright position with caps in place with a minimum of 20 feet separation or separated by a noncombustible barrier at least 5 feet high having a fire resistance rating of one half hour except when in an approved cart ready for use. Proper signage regarding “No Smoking” or “Ignition Sources” must be posted.
* Smoking is only allowed in designated smoking areas.
* Butane (e.g., Bic) lighters are not allowed to be carried by contractor employees engaged in welding or torch cutting/brazing or soldering operations.
* All torch set cylinders must have the valves closed and the system de-pressured before going to breaks or lunch.
 |
| Flashing, sparks, slag splatter welder | * Wear welding jacket, apron, gloves, work shoes.
* Wear clear polycarbonate safety glasses with side shields and face shield.
 |
| Burn to hands or fingers | * Wear leather gloves.
* All oxygen/acetylene set-ups must be equipped with flash back arrestors or check valves.
 |
| Slag splatter | * Wear welding jacket, apron, gloves, work shoes.
 |
| Tripping | * Take care to keep wire untangled and free from under feet.
 |
| Pinch to fingers | * Keep fingers away from pinch points.
 |
| Inhalation of fumes | * Use exhaust fan (where applicable); weld in a well-ventilated area.
* Wear welding hood.
 |

**Task: Excavation Activities**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Risk of Injury to bystanders | * Work area should be delineated off from Un-Authorized personnel & signs posted.
* All personnel must use caution when working around excavation equipment and open excavations.
* Assigned PPE (e.g., safety eyewear, earplugs, etc.) shall be worn by adjacent personnel, as required by their proximity to the work task.
 |
| Risk of hitting underground utilities | * Review all area underground utility drawings with JPL construction administrator.
* Have the area of excavation surveyed with a ground penetrating radar and Electro-magnetic RF instrument prior to the commencement of digging.
* Obtain an Excavation Permit from JPL prior to the commencement of any digging activities (exception hand digging, <12”).
* Use hand excavation techniques around all known utilities.
* Ensure all areas to be excavated has been cleared of potential utilities.
 |
| Inhalation hazards from dust from excavation activities | * Wear appropriate PPE to protect from dust. This is usually a half-face air-purifying respirator with dust cartridges.
 |
| Risk of exposure to physical hazards from moving machinery | * Personnel on the ground should keep away from the work area and backhoe unless they are required for the task.
* Do not approach heavy equipment without eye contact/acknowledgement from backhoe operator.
* Use standard hand signals when noise levels inhibit auditory communication.
* Ensure that all heavy machinery have audible back-up signals.
* NEVER work alone when operating heavy machinery.
* Avoid moving parts of machinery. Keep fingers, hands, and arms away from backhoe bucket and other pinch points.
* Wear leather gloves when using hands for activities other than sampling, hardhat, safety glasses, and steel-toed boots.
 |
| Noise | * Wear ANSI approved safety ear plugs or muffs when working close enough to backhoe that you have to speak louder than your normal voice to someone standing next to you.
 |
| Cave in | * Ensure a trained and appointed competent person supervises all activities.
* Ensure excavation is properly sloped or shoring is used if employees are to enter.
 |

**Task: Pipe Cutting (Using a Pipe Threader)**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Skin or eye injury from adding/replacing cutting oil  | * Review Safety Data Sheets (SDS) prior to performing the task.
* Wear nitrile gloves, and safety glasses.
 |
| Muscle strain while handling pipe | * Use buddy system and/or safe lifting techniques.
 |
| Foot or leg injuries from dropping the cut piece of pipe | * Wear safety shoes.
 |
| Hand injury setting the cutter; clamping the pipe  | * Wear leather gloves or similar protection.
 |
| Hand injury/muscle strain while sliding pipe through pipe threader | * Wear leather gloves or similar protection.
* Position pipe without reaching over the threader.
 |
| Injuries due to catching the clothing | * Do not wear loose clothing while operating the threader/cutter.
* Keep your gloved hands away from the pipe.
 |
| Skin or eye injury from the cutting oil being delivered to the pipe | * Review Safety Data Sheets (SDS) prior to performing the task.
* Wear nitrile gloves, safety glasses, and face shield.
 |
| Hand injuries from removing pipe from the threader | * Remove foot from the safety switch, flip the switch off, and ensure the pipe has stopped rotating.
* Remove foot from the safety switch, flip the switch off, and ensure the pipe has stopped rotating.
* Wear leather gloves or similar protection.
 |

**Task: Lifting / Crane Use**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Possible pedestrian or vehicle traffic in work area  | * Secure work area as appropriate to keep unauthorized personnel out of the lifting zone.
* Position crane and delivery truck in such a manner to limit exposure to people and property.
 |
| Crane or rigging failure | * Submit JPL lift plan with crane ratings, load charts, rigging diagrams, crane certifications, and operator certification.
* Review all crane and rigging safety requirements prior to lift.
* Verify weight of items to be lifted and distance from center pin of crane.
* Daily inspections of the crane will be performed and documented.
 |
| Workers struck by load  | * Only workers trained and authorized to perform rigging and signal activities will be involved in the lift.
* Signal person wear a high visibility vest and remain in visual or radio contact with crane operator at all times.
* Wear hardhat.
 |

**Task: Masonry Work**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Tripping on scraps and debris | * Properly store all materials in work area.
* Perform clean up and housekeeping duties a minimum of once per day to remove all scraps and debris for the work area.
* Remove all nails from formwork immediately after stripping forms.
 |
| Exposure to particulates, concrete, and grout. | * Review Safety Data Sheets (SDS’s) for all chemicals being used and use the following PPE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| Exposure to silica | * Employees shall wear hard hats, high impact safety glasses, heavy-duty gloves, and earplugs. If any visible dust is present, an appropriate respirator as determined by an exposure analysis will be required.
* Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Develop written exposure control plan per Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html) that contains the following elements:
* A description of the tasks in the workplace that involve exposure to respirable crystalline silica.
* A description of the engineering controls, work, practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
* A description of the housekeeping measures used to limit employee exposure.
* A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by others.
* Designate a competent person.
* Follow Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica as listed in Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html)
* Train all employees with potential exposure to silica, in the exposure control plan contents, and in the following topics: Health hazards associated with exposure to respirable silica; Specific tasks that could result in exposure; Specific control measures including engineering, work practices and respirators and; contents of the standard. Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Alert other trades working downwind from the operation and, if possible, try to complete your operation when it will affect as few workers as possible.
* Half face respirators are required.
* Respirator Program with medical evaluation & fit test shall be in place for all personnel performing this operation and assigned a respirator to use.
 |
| Pedestrian or vehicular traffic in work area. | * Provide spotters and signal persons where necessary to control traffic and back-up concrete trucks during pours.
 |

**Task: HVAC Installation/Repair**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Trip or fall hazards  | * Employ daily housekeeping activities.
* Cover any openings left by the removal of HVAC equipment.
 |
| Possible back injury  | * Use proper body mechanics in lifting and moving objects to avoid injury. Ask for assistance when needed.
 |
| Lifting strain | * Use proper lifting techniques; Ergonomic training; use dolly/cart.
 |
| Passerby’s struck by falling objects | * Be aware of people in and around work site and proceed cautiously.
* Rope off area with caution tape.
* Use second person to keep work area clear of people.
 |
| Potential electric shock | * Ensure all tools are properly grounded.
* Avoid working around electrical equipment or outlets.
* Ensure insulation on electrical cord is unbroken.
* Shut-off and lockout-tag out electricity if possible; call in electrician for electrical repair/connection.
 |
| Cuts, crush, pinch, etc. during operation and/or maintenance of powered equipment (electrical, pneumatic, hydraulic, etc.)  | * Keep protective guards in place
* Disconnect from power source before servicing
* Use lockout-tag out; use appropriate PPE (e.g., gloves).
 |
| Burns and other injuries from welding/propane torch/steam/hot water pipes  | * Complete JPL Hot Work Permit before starting work.
* Only use trained employees to weld, braze.
* Wear assigned PPE (e.g., leather gloves, apron, long sleeves, safety glasses and appropriately shaded mask where applicable).
* Cut/weld only in well-ventilated areas.
 |
| Falls from ladders | * Select proper ladder for the job.
* Do not use light household ladder for a heavy construction job.
* Inspect ladder before use.
* Do not exceed the duty rating of the ladder.
* Do not lean a ladder against a moveable object or against windows.
* See that a helper stands guard in dangerous circumstances, as when a ladder is in front of a door. If there is a danger of a person or vehicle bumping into the ladder, have a helper stand guard or rope off the space with caution tape around the ladder.
* Ensure ladder is not placed on a loose object or on uneven footing.
* To prevent slipping, equip the ladder with non-slip points or safety shoes. If not, secure by lashing it with rope or by other means.
* Maintain 4:1 slope ratio with straight ladders.
* Use 3 point contact while climbing and descending
* Secure all extension ladders from movement.
* Do not use top step of stepladder and top 3 rungs of straight ladder.
* Remove any oil or grease from shoes before using the ladder.
* Do not over reach and do not push or pull if it will cause the ladder to move. If you are far away from something, you have to reach, take time to move the ladder closer.
* Do not straddle the space between the ladder and another object.
* Extend ladder 36” if climbing onto another surface.
 |

**Task: Working in a Confined Space**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Slips, trips, falls | * Ensure adequate illumination.
* Keep housekeeping clean.
* Wear lace up safety shoes at all times.
* Watch where you are walking.
* Do not run or rush.
* Fall protection will be provided as necessary.
 |
| Confined space, entrapment, oxygen deficiency, toxic & explosive atmospheres, and asphyxiation uncontrolled energized equipment | * Prepare written operating procedures & train employees.
* Use Confined Space Entry Permit.
* Follow JPL procedures for entering confined spaces per JPL Form 2885.
* Lines containing hazardous substances must be disconnected, blinded, or blocked. Apply lockout/tag out controls as appropriate.
* Utilities that may discharge into the area will be locked out/ blocked out.
* The air must be tested for dangerous contamination or oxygen deficiency. The test will be for Carbon Monoxide, Lower Explosive Limit, Hydrogen Sulfide and Oxygen Level.
* Ventilation is required if testing reveals any hazard.
* Confined spaces where dangerous air contamination exists require Half mask respirator with chemical filter required (SCBA as needed); Provision made for feasible entry and exit; One standby employee (with respirator) trained in first aid and CPR, plus one additional employee within sight or call; and an effective means of communication between the employee in the confined space and the standby employee.
* Ongoing surveillance of the surrounding area to avoid hazards such as vapors drifting from nearby tanks, piping and sewers shall also be required.
* A rescue/retrieval system will be used ingress/ egress is not easily available.
 |
| Fire | * A fire extinguisher will be available if flammable materials are present.
 |

**Task: Electrical Cutovers and Work on Electrical Equipment**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Contact with energized parts | * All workers working on energized equipment will Arc-Flash protective clothing I accordance with NFPA 70E consisting of flame retardant clothing or flash suits, eye, face, hand, head, and foot protection as necessary. A flash boundary will be established and only trained and authorized individuals will be allowed in the flash boundary.
* Keep all covers and barriers guarding live parts in place except when required to be removed for testing.
* Place adequate grounding jumpers to clear fault currents. .
 |
| Inadvertent start-up of electrical equipment | * Review Lockout/Tag out (LOTO) procedures with workers and JPL prior to starting work.
* De-energize electrical equipment and apply JPL approved red locks and tags per JPL form 2885 and company Lockout/Tag out procedure.
* All employees are instructed to verify lockouts are in place and equipment is de-energized prior to beginning any work.
 |

**Task: Use of Mobile Elevating Work Platform (MEWP) to Access Install Conduit/Equipment/Material and Wire**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Slips, trips and falls on tools and material | * Maintain active housekeeping.
* Keep tools and material out of travel path.
 |
| Lift failure/tip over | * Employees must be trained and certified to use lift.
* Inspect lift before use
* Do not use left on unstable ground or on angles over the lifts cap. Look for Drop-offs, holes, or unstable surfaces such as loose/soft dirt.
* All operators, occupants, MEWP task supervisor and nearby personnel will be trained in the specific MEWP operating manual, and the controls. MEWP operators and occupants will have proficiency training on the specific equipment assigned, prior to use.
* All training for MEWP operators, MEWP occupants, maintenance and repair personnel, supervisor and nearby personnel shall meet Cal/OSHA and ANSI A92.24-2020.
 |
| Falls | * Fall protection must be used in accordance with the manufacturers’ recommendations on all elevated platforms and boom lifts.
* Use Class A Self Retracting Lanyard with shock absorber or positioning lanyard that allows for lateral movement but ensures personnel are restrained within the guardrails of the platform.
 |
| Tool drop from lift | * Keep area under bucket clear.
* Set cones/barricades to prevent pedestrian traffic. Use ground man/flag to direct traffic when it is present.
 |
| Pinch points to hands and body while moving lift | * Keep hands inside lift when moving; use ground man to assist in checking clearances.
 |
| Pedestrian and Vehicle traffic entering work area | * Set cones/barricades to prevent pedestrian traffic. Use ground man/flag to direct traffic when it is present.
 |
| Flying debris from use of cordless drill to modify/ mount material | * Wear safety glasses and gloves. Wear sealed eye wear/face shield when drilling above eye level (or when required).
 |
| Noise when drilling | * Wear ear plus or equivalent hearing protection.
 |
| Bumps, cuts, scrapes to hands from tool use | * Wear general work gloves.
* Keep hands clear of pinch points.
 |
| Pinch points between conduit/objects | * Wear general work gloves.
* Keep hands clear of pinch points.
 |
| Bumps, cuts and scrapes to hands, when pulling wire; pinch points | * Wear general work gloves.
* Keep hands clear of between wire and conduit to avoid hands being pulled in when feeding wire.
 |
| Strain when pulling wire | * Do not overexert and get help if wire is too hard to pull.
* Use pulling soap as needed to lubricate wire.
* Review Safety Data Sheets (SDS) prior to first use
* Wear required PPE and safety glasses.
 |

**Task: Underground Duct Bank and Conduit Installation, Including Excavation, Encasement, and Backfill**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Contact with active utility lines | * Review all area underground utility drawings with JPL construction administrator.
* Have the area of excavation surveyed with a ground penetrating radar and Electro-magnetic RF instrument prior to the commencement of digging.
* Obtain an Excavation Permit from JPL prior to the commencement of any digging activities (exception hand digging, <12”).
* Use hand excavation techniques around all known utilities.
 |
| Possible pedestrian or vehicular traffic in work area and falls into open trenches | * Provide barricades or fencing around site as necessary to protect personnel and equipment.
* Provide pedestrian walkway over trenches where emergency egress from building is required.
* Provide traffic rated steel plates at traffic crossings and ensure plates are secure from displacement.
 |
| Collapse of trenches | * A competent person in trenching, excavations, and protective systems will inspect soil.
* Protective systems will be used for any trench or excavation 5 feet or deeper or made in unstable soil.
 |
| Excavation equipment striking worker | * Workers will make every attempt to stay clear of moving equipment.
* Workers will wear high visibility clothing when working in close proximity to moving equipment.
 |
| Materials falling into trench | * Keep all spoils and materials at least 2 feet away from the edge of trench.
 |

 **Task: Installation of Electrical Conduit, Switches, Receptacles and other Electrical Current Devices**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Potential electric shock | * Use proper tools, testing techniques, and proper test equipment.
* De-energize load center while making final connection.
* Check continuity of wires for shorts before energizing.
* Check for proper voltage and amp draw.
* Energize under no load situation.
* Wear nonconductive gloves.
 |
| Slips, trips, falls | * Ensure proper illumination is present.
* Keep housekeeping clean.
* Wear lace up safety shoes at all times.
* Ensure shoelaces are properly tied.
* Watch where you are walking.
* Do not run or rush.
* Ensure pits are covered.
 |
| Falls from ladders | * Choose the right ladder type and the appropriate duty-rating ladder for the task.
* Do not use Type III (Light Duty) ladders.
* Do not exceed ladder duty rating.
* Inspect ladder before use.
* Insure ladder is clean and free of defects before use.
* Maintain 4:1 slope ratio with straight ladders.
* Remove any oil or grease from the soles of your shoes before using the ladder.
* Use 3-point contact while climbing.
* Extend ladder 36” if climbing onto another elevated surface.
* Do not use top step of stepladder and top three rungs of straight ladder.
* Secure all extension ladders from movement.
* Ensure ladder is not placed on a loose object or on uneven footing.
* To prevent slipping, equip the ladder with non-slip points or safety shoes, if practical. If not, secure the ladder firmly by lashing it with rope or by other means.
* Do not lean ladders against a moveable objects or against window sashes.
* Fasten a board securely across the top of the ladder to give a bearing on each side of the window.
* See that a helper stands guard in dangerous circumstances, as when a ladder is in front of a door. If there is a danger of a person or vehicle bumping into the ladder, have a helper stand guard or rope off the space with caution tape around the ladder.
* Do not over reach and do not push or pull if it will cause the ladder to move. If you are far away from something, you have to reach, take time to move the ladder closer.
* Do not straddle the space between the ladder and another object.
 |

**Task: Install Conduit/Equipment/Material and Wire**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Slips/trips/falls due to poor housekeeping | * Maintain active housekeeping; keep tools and material out of travel path. Perform post job clean up.
 |
| Lifting/moving material/ strain from improper lifting  | * Lift with legs and not back, bend at the knees; get help to lift material as needed.
 |
| Bumps, cuts and scrapes to hands from tool use | * Wear general work gloves.
 |
| Fall from ladder used to access elevated work | * Choose the right ladder type and the appropriate duty-rating ladder for the task.
* Do not use Type III (Light Duty) ladders.
* Do not exceed ladder duty rating.
* Inspect ladder before use.
* Insure ladder is clean and free of defects before use.
* Maintain 4:1 slope ratio with straight ladders.
* Remove any oil or grease from the soles of your shoes before using the ladder.
* Use 3-point contact while climbing.
* Extend ladder 36” if climbing onto another elevated surface.
* Do not use top step of stepladder and top 3 rungs of a straight ladder.
* Secure all extension ladders from movement.
* Ensure ladder is not placed on a loose object or on uneven footing.
* To prevent slipping, equip the ladder with non-slip points or safety shoes, if practical. If not, secure the ladder firmly by lashing it with rope or by other means.
* Do not lean ladders against a moveable objects or against window sashes.
* Fasten a board securely across the top of the ladder to give a bearing on each side of the window.
* See that a helper stands guard in dangerous circumstances, as when a ladder is in front of a door. If there is a danger of a person or vehicle bumping into the ladder, have a helper stand guard or rope off the space with caution tape around the ladder.
* Do not over reach and do not push or pull if it will cause the ladder to move. If you are far away from something, you have to reach, take time to move the ladder closer.
* Do not straddle the space between the ladder and another object.
 |
| Physical hazards from use of cordless drill to modify/ and or mount hardware/material | * Inspect tools before use.
* Wear safety glasses and gloves.
* Wear sealed eye wear/face shield when drilling above eye level.
* Wear hearing protection when operating.
* Keep hands and body clear of line of fire.
 |
| Injury to hands while pulling/installing wire | * Wear general work gloves.
* Keep hands clear of between wire and conduit to avoid hands being pulled in when feeding.
* Use pulling soap as needed to lubricate wire.
 |

**Task: Install Lamps and/or Ballasts**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Slips, trips and falls on tools and material. | * Maintain active housekeeping.
* Keep tools and material out of travel path.
 |
| Electrical shock | * De-energize fixture if replacing ballast;
* Follow Lockout/Tag out procedure and JHA.
 |
| Fall from ladder | * Choose the right ladder with the appropriate duty rating for the task.
* Do not use Type III (Light Duty) ladders.
* Do not exceed ladder duty rating.
* Inspect ladder before use.
* Insure ladder is clean and free of defects before use.
* Maintain 4:1 slope ratio with straight ladders.
* Remove any oil or grease from the soles of your shoes before using the ladder.
* Use 3-point contact while climbing.
* Extend ladder 36” if climbing onto another elevated surface.
* Do not use top step of stepladder and top 3 rungs of straight ladder.
* Secure all extension ladders from movement.
* Ensure ladder is not placed on a loose object or on uneven footing.
* Equip the ladder with non-slip points or safety shoes, if practical. If not, secure the ladder firmly by lashing it with rope or by other means.
* Do not lean ladders against a moveable objects or window sashes.
* Fasten a board securely across the top of the ladder to give a bearing on each side of the window.
* See that a helper stands guard in dangerous circumstances, as when a ladder is in front of a door. If there is a danger of a person or vehicle bumping into the ladder, have a helper stand guard or rope off the space with caution tape around the ladder.
* Do not over reach and do not push or pull if it will cause the ladder to move. If you are far away from something, you have to reach, take time to move the ladder closer.
* Do not straddle the space between the ladder and another object.
 |
| Bumps, cuts and scrapes to hands | * Keep hands clear of pinch points.
* Wear gloves.
 |
| Physical hazards from dropping tools  | * Wear hardhat.
* Keep area under work clear.
 |
| Flying parts to face/eye from cordless drill use | * Wear sealed eye wear/face shield when drilling above eye level (or when required).
 |
| Noise from cordless drill  | * Wear earplugs or equivalent hearing protection.
 |

**Task: Potholing**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Risk of hitting underground utilities | * Review all area underground utility drawings with JPL construction administrator. Contact utility companies directly, whenever possible, to verify underground utility locations.
* Visually inspect the entire planned digging path for structures that indicate potential underground utilities (e.g., gas meters and manhole covers).
* Have the area of excavation surveyed with a ground penetrating radar and Electro-magnetic RF instrument prior to the commencement of digging.
* Underground service locators typically cannot provide depth information for utility lines. Implement safe work practices that always verify the depth of utility lines near the planned drill path to prevent hitting them.
* Obtain an Excavation Permit from JPL prior to the commencement of potholing activities
* Use hand excavation techniques around all known utilities.
* Ensure all areas to be excavated has been cleared of potential utilities.
 |
| Inhalation hazards from dust from excavation activities | * Wear appropriate PPE to protect from dust. This is usually a half-face air-purifying respirator with dust cartridges.
* Use wet methods to wet down soil prior to drilling to minimize dust.
 |
| Risk of exposure to physical hazards from drill equipment | * Personnel on the ground should keep away from the work area drill equipment unless they are required for the task.
* Do not approach heavy equipment without eye contact/acknowledgement from backhoe operator.
* Avoid moving parts of machinery. Keep fingers, hands, and arms away from auger, other moving parts. and potential pinch points.
* Use standard hand signals when noise levels inhibit auditory communication.
* Ensure that all heavy machinery have audible back-up signals.
* NEVER work alone when operating heavy machinery.
* Wear leather gloves when using hands for activities other than sampling, hardhat, safety glasses, and steel-toed boots.
 |
| Noise | * Wear ANSI approved safety ear plugs or muffs when working close enough to backhoe that you have to speak louder than your normal voice to someone standing next to you.
 |
| Tripping Hazard (open hole) | * Cover hole to prevent trip/falls.
* Patch hole or barricade hole appropriately if in an area of travel.
 |
| Risk of Injury to bystanders | * Work area should be delineated off from Un-Authorized personnel & signs posted.
* All personnel must use caution when working around excavation equipment and open excavations.
* Assigned PPE (e.g., safety eyewear, earplugs, etc.) shall be worn by adjacent personnel, as required by their proximity to the work task.
 |

**Task: Demolition**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Asbestos and Lead | * Asbestos and lead reports will be reviewed and all hazardous materials will be identified prior to the start of any demolition work.
* Asbestos and lead work plans will be submitted detailing work procedures, controls, and PPE for all work, which may disturb asbestos and lead containing materials.
 |
| Fire | * All utilities shall be located, shut off, capped, or otherwise controlled.
* Fire extinguishers shall be available on site and Emergency Services numbers shall be posted.
 |
| Contact with energized utilities | * Review demo plan with JPL and verify all utilities have been de-energized prior to any demolition work.
* Follow Lockout/Tag out (LOTO) procedures as described in JPL Form 2885 and company LOTO program (include as an Attachment).
 |
| Cutting/Welding Operations | * A JPL Hot Work Permit will be completed prior to starting any hot work.
* During welding/cutting operations, proper welding gloves and a full-face, and UV-ray protective shield shall be worn to prevent injuries to the operator.
* When practical, the object to be welded, cut, or heated will be moved to a designated safe location away from flammable liquids and other combustibles. If the object cannot be moved, positive means will be taken to confine the heat, sparks, and slag.
* A 20 lb., ABC dry chemical extinguisher (or equivalent) will be immediately available in the work area and must be maintained in a state of readiness for instant use.
* Garbage and trash shall not be allowed to accumulate on the premises, as it may be ignited by the sparks or slag.
* When welding is being performed on a higher level where there is an exposure to workers below, the area directly below the welding shall be cleared and marked as a "Do Not Enter Zone", to protect any workers passing underneath from being hit by sparks or slag.
* A fire watch shall be maintained at least 30 minutes after the hot work is completed.
* Trained, certified workers shall perform welding/cutting operations.
 |
| Eye injury from projectiles | * All workers performing demolition activities will wear safety glasses and face shield as required.
 |
| Cuts, scraps, and punctures | * All workers will wear leather glove protection and appropriate clothing during demolition activities.
 |
| Inhalation of dust. | * Water will be used to minimize dust generation.
* All workers will wear an air-purifying respirator (list type) or dust mask as necessary during demolition.
 |
| Exposure to silica dust | * Employees shall wear hard hats, high impact safety glasses, heavy-duty gloves, and earplugs. If any visible dust is present, an appropriate respirator as determined by an exposure analysis will be required.
* Where respirators are required, employees will complete a medical evaluation & be fit tested to the specific respirator assigned.
* Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Develop written exposure control plan per Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html)that contains the following elements:
* A description of the tasks in the workplace that involve exposure to respirable crystalline silica.
* A description of the engineering controls, work, practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
* A description of the housekeeping measures used to limit employee exposure.
* A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by others.
* Designate a competent person.
* Follow Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica as listed in Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html)
* Train all employees with potential exposure to silica, in the exposure control plan contents, and in the following topics: Health hazards associated with exposure to respirable silica; Specific tasks that could result in exposure; Specific control measures including engineering, work practices and respirators and; contents of the standard. Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Alert other trades working downwind from the operation and, if possible, try to complete your operation when it will affect as few workers as possible.
 |
| Collapse of structure | * The Competent Person shall survey the integrity of the structure prior to the start of demolition operations.
* All required permits shall be obtained.
* Prior to the start of the demolition, abatement of all asbestos or lead, by a licensed removal company, will be completed.
* Proceed with demolition in a systematic manner, working from the top of the structure downwards.
* Any worker signaling the operator shall be in plain sight of the operator at all times.
* All workers shall remain at least 8-10 feet from the equipment used to perform the demolition. Only workers necessary to the operation shall be permitted in the work zone during this operation.
* Barrels and caution tape will be used to demarcate the demolition zone.
* Debris removal will not begin until the removal can be safely performed without exposure to structural collapse or falling debris.
* Structural framing members shall not be removed until all stories above them have been demolished and removed.
* Workers shall be instructed to possess heightened awareness of their surroundings during the demolition and removal of debris.
 |

**Task: Concrete / Form Work**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Pedestrian or vehicular traffic in work area | * Provide spotters and signal persons where necessary to control traffic and back-up concrete trucks during pours.
 |
| Worker impalement on rebar | * Steel plated rebar caps will be placed on all vertical and horizontal rebar.
 |
| Strains, sprains, cuts and lacerations from installing rebar and forms  | * Use leather gloves when handling rebar and tie-wire.
* Use legs to lift, do not bend at the waist, team lift if needed
* Use proper hand placement on rebar to avoid pinching when installing rebar.
 |
| Struck-by/Crushed by Forms being placed | * Maintain eye contact with crane operator.
* Use tag lines to control form movement and placement.
 |
| Struck-by/Crushed by concrete truck | * Setup safe access and barricade for concrete trucks.
* Use a spotter for concrete trucks.
* Wear high visibility reflective vests.
* Use chute man to swing concrete chute back & forth & signal concrete truck driver. Chute man needs to commute with rest of crew when moving chutes or repositioning truck.
 |
| Slips, trips, falls when placing concrete | * Inspect work area, move material that may cause trips.
* Use mesh over rebar to cover holes produced by rebar. Exposed mesh will be trip hazards until concrete placed. Keep mesh ends tied down.
 |
| Tripping on scraps and debris | * Inspect work area, move material that may cause trips prior to working.
* Properly store all materials in work area.
* Perform clean up and housekeeping duties a minimum of once per day to remove all scraps and debris for the work area.
* Remove all nails from formwork immediately after stripping forms.
 |
| Chemical burns from concrete | * Use rubber gloves, safety glasses/face shields and wash off splattered concrete ASAP with fresh water or neutralizing solution.
 |
| Exposure to Silica (if applicable) | * Employees shall wear hard hats, safety glasses, heavy-duty gloves, and earplugs. If any visible dust is present, an appropriate respirator as determined by an exposure analysis will be required.
* Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Develop written exposure control plan per Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html)that contains the following elements:
* A description of the tasks in the workplace that involve exposure to respirable crystalline silica.
* A description of the engineering controls, work, practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
* A description of the housekeeping measures used to limit employee exposure.
* A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by others.
* Designate a competent person.
* Follow Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica as listed in Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html)
* Train all employees with potential exposure to silica, in the exposure control plan contents, and in the following topics: Health hazards associated with exposure to respirable silica; Specific tasks that could result in exposure; Specific control measures including engineering, work practices and respirators and; contents of the standard. Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Alert other trades working downwind from your operation and, if possible, try to complete your operation when it will affect as few workers as possible.
 |

**Task: Concrete Cutting/Coring**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Risk of Injury to bystanders | * Work area should be delineated off from un-authorized personnel & signs posted.
* All personnel must use caution when in or around saw cutting areas
* Assigned PPE (e.g., safety eyewear, earplugs, etc.) shall be worn by adjacent personnel, as required by their proximity to the work task.
 |
| Risk of hitting underground utilities | * Complete a JPL Excavation Permit.
* Ensure all areas to be cut, cored or drilled have been scanned.
 |
| Risks of injury from improper set up or operation | * All operators of this equipment shall be trained on that piece of equipment.
* All connections, mountings, guards & controls on the equipment must be inspected prior to use.
* All required guards shall be in place.
* Inspect and test saw prior to use.
* Make sure all manufacturer's protective devices (guards) are in place and operational.
* Electric saws should be approved, double insulated. If not, they should be properly grounded and plugged into a GFCI-protected outlet.
* Blade shall be inspected for damage.
* Ensure there has been an approved JPL Excavation/Penetration Permit briefing & permit is signed & on site.
* The saw operator should use any auxiliary handles that are on the saw to maintain control.
* Operator must wear proper PPE. (Face shield, safety glasses & hearing protection minimum).
 |
| Risk of exposure to noise and other physical hazards | * User shall wear safety glasses, a face shield, heavy-duty gloves, and earplugs.
 |
| Risk of exposure to silica based products | * Employees shall wear hard hats, high impact safety glasses, heavy-duty gloves, and earplugs. If any visible dust is present, an appropriate respirator as determined by an exposure analysis will be required.
* Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Develop written exposure control plan per Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html) that contains the following elements:
* A description of the tasks in the workplace that involve exposure to respirable crystalline silica.
* A description of the engineering controls, work, practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
* A description of the housekeeping measures used to limit employee exposure.
* A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by others.
* Designate a competent person.
* Follow Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica per Cal/OSHA [Title 8 section 1532.3](http://www.dir.ca.gov/title8/1532_3.html)
* Train all employees with potential exposure to silica, in the exposure control plan contents, and in the following topics: Health hazards associated with exposure to respirable silica; Specific tasks that could result in exposure; Specific control measures including engineering, work practices and respirators and; contents of the standard. Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Alert other trades working downwind from your operation and, if possible, try to complete your operation when it will affect as few workers as possible.
* Use dust-free power tools that are equipped with a vacuum.
* Use watering to keep down the dust, and have dust masks available for workers who might request them.
* Alert other trades working downwind from your operation and, if possible, try to complete your operation when it will affect as few workers as possible.
* As a minimum, Half face respirators are required for cutting and/or core drilling into concrete. Contractor site safety manager is responsible for evaluating specific respiratory protection to meet Cal/OSHA requirements.
* Respirator Program with medical evaluation & fit test shall be in place for all personnel performing this operation and assigned a respirator to use.
 |

**Task: Paving**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Slips, trips, falls | * Keep housekeeping clean.
* Wear lace up safety shoes at all times.
* Watch where you are walking. Do not run or rush.
* Ensure pits are covered.
 |
| Heat stress | * Train employees in company heat stress procedures.
* Keep supplies of clean cool water within work area.
* Drink at least two glasses of water every hour particularly in hot weather.
* Rotate staff if able or ensure adequate breaks.
* Take preventative cool-down rest in the shade to protect from overheating.
* Take adequate breaks per Cal/OSHA Title 8 §3395. Heat Illness Prevention.
 |
| Working with hot mix/asphalt | * Long sleeved clothing, protective footwear.
* Handle hot mix with shovel or mechanical aid.
* No direct contact. If need to touch hot mix, wear protective gloves.
* Wear thermal protective gloves as required.
 |
| Manual handling asphalt | * Use skid steer loader to pick up and spread asphalt when possible.
* Ensure shovels and rakes are in good condition before use.
* Warm up and stretch muscles prior to work.
* Place feet apart and assure adequate footing.
* Use legs to drive shovel into mix.
* Bend your legs, keep your back straight.
* Hold shovel close to body.
* Shift feet with load, do not twist body.
* Do not overload the shovel beyond your physical capacity.
* Keep shovel and rake lubricated with release agent.
* Use shovel to spread large amounts of asphalt prior to raking; do no push large amounts of asphalt with rake.
 |
| Fumes | * Ensure mix is at the specified temperature to avoid excessive fuming.
* Do not use excessive release agent in hopper or in truck bodies.
* Wear supplied P2 N95 respirators as required.
 |
| Moving parts / entanglement – paver | * Do not clear hopper with shovel while slat conveyor is operational.
* Do not raise or lower hopper wings without first checking for the presence of workers.
* Stay clear of augers.
* Spotter required to watch for vehicle movement whilst crewmember cleans front of paver.
* Wear thermal protective gloves as required.
 |
| Roller traffic (when heating joints) | * Carry out with two people wherever possible.
* Wear reflective vest.
* Heat from side of roller wherever possible.
* Roller to maintain a min 1.5 m clearance.
* Roller to travel no quicker than ground personnel.
* Roller to stop when directed or if contact lost with ground personnel.
 |
| Burns from hot tools, paver or other hot surfaces | * Do not touch any part of the paver, which may be hot.
* Wear thermal protective gloves if contact with hot tools or paver surface is necessary.
 |
| Burns, fire from gas torch (used to heat joints) | * Complete JPL Hot Work Permit.
* Ensure regulator and hose connections are sound and well maintained.
* Point gas torch away from personnel when lighting and when alight.
* Do not leave torch unattended when gas torch is alight.
* Have a monthly inspected and annually serviced fully charged fire extinguisher in the immediate work area.
* Crewmembers must be familiar with location of nearest extinguishers and trained in its use.
* Maintain fire watch for 30 minutes after torch activities.
 |
| Struck by machinery | * Wear high visibility vest.
* Check for oncoming vehicles or plant prior to moving.
* Remain alert to vehicle and plant movements around you.
* Do not walk behind reversing plant.
* Remain clear of paver and trucks if your presence is not required.
* Do not walk between reversing trucks and the paver.
* Remain in operator’s view.
* Do not rely on operators to see you, remain vigilant.
* Do not use mobile phone.
 |

**Task: Roof Replacement**

|  |  |
| --- | --- |
| **HAZARDS** | **CONTROLS** |
| Falls from rooftop | * Develop site-specific fall protection procedure/plan, per JPL Form 2885.
* Wear hardhat and fall protection as required.
* All employees are to read and be trained in the job specific fall protection plan/procedures.
* All employees are to be trained in the use, limitations and inspections of specific fall protection equipment assigned.
* Employees to inspect all personal fall protection equipment prior to use.
* Trained Cal/OSHA / ANSI Z359 Fall Protection Competent Person on site to oversee work operations.
* Fall Protection Competent Person to inspect all fall protection equipment before work begins and daily to ensure the equipment is free from damage and installed/used correctly.
 |

**Special Tasks that Require Additional Information to be submitted to JPL**

**Task: Work from Unbarricaded Elevations 6 feet or Greater**

When there is a potential fall of 6 feet or more, a detailed fall protection plan will be submitted as part of the Site-Specific Safety Plan.

**Task: Work which has the Potential to Disturb Asbestos or Lead Containing Building Materials**

A detailed asbestos related work plan or lead abatement will be submitted as part of the Site-Specific Safety Plan.

**Personnel Acknowledgement**

All personal performing work associated with the contract identified must acknowledge that (1) he/she has read and reviewed the SHP (2) has been instructed in the contents of this SHP document and understands the information pertaining to the specified work, and (3) will comply with the provisions contained therein.

The contractor shall keep a copy of this SHP onsite and require all personal to review and sign before starting work. Acknowledgement page with employee signatures shall be kept on site and available for review by JPL Occupational Safety Program Office personnel upon asking at any time throughout the course of the project.

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| **Personnel Acknowledgement** |
| **Print Name** | **Signature** | **Company** | **Date** |
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