

Chapter 10

CONSTRUCTION SAFETY MANUAL

ADMINISTRATIVE POLICIES

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Revised 06/10

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10.1 Subcontractor Safety Policy

10.1.1 General

Lawrence Berkeley National Laboratory (LBNL) is committed to providing and maintaining the safest possible work conditions for all workers by promoting the integration of safety management into all construction processes.

Project managers, construction managers, superintendents, assistant/area superintendents, safety representatives, and foremen are responsible for implementing and maintaining an effective safety program. It is the responsibility of these individuals to ensure workers under their supervision maintain safe work areas and perform their tasks in a safe manner. It is also the responsibility of each worker to follow every precaution and LBNL safety rule and policy to protect themselves and their fellow workers.

LBNL will monitor subcontractor safety programs and performance to ensure compliance with LBNL requirements. LBNL safety audits will be available to the LBNL Procurement Office for evaluation of the subcontractor's safety performance. When performing work at LBNL, each subcontractor:

- is responsible for the safety of their employees and/or visitors as required by the rules and regulations of this chapter; 10 CFR 851 "Worker Safety & Health Program"; the California Code of Regulations, Title 8, Construction Safety Orders; 29 CFR 1926 Safety Standards for the Construction Industry; and all other local, state, and federally recognized current standards and codes.
- is required to understand and follow the contents of this chapter.
- is responsible for training and educating their employees, and/or visitors, as to the contents of this chapter and requirements for conduct of work under the LBNL Integrated Safety Management (ISM) Plan. (Documentation of all training is the responsibility of the subcontractor.)

Where conflict between cited standards or safe practices occur, the EHS Division will determine which standard shall apply.

10.2 Scope

10.2.1 General

This policy applies to all construction activities performed by LBNL employees; contract employees under the direct technical supervision of an LBNL employee, referred to as "contract employees"; and non-Laboratory employees under the supervision of subcontractors, referred to as "construction subcontractors." Construction activities may originate from construction subcontracts, service contracts, purchase orders, and in-house work orders.

10.2.2 Department of Energy 10 CFR 851, "Worker Safety & Health Program"

The subcontractor shall comply with the Department of Energy's Worker Safety and Health Program regulation, 10 CFR 851, which enforces worker safety and health requirements including but not limited to standards of the Occupational Safety and Health Administration (OSHA) as incorporated in the LBNL Worker Safety and Health Program. Violations of safety and health provisions of 10 CFR 851 may subject subcontractor to penalties. The subcontractor shall follow the provisions of its Cal/OSHA mandated Injury and Illness Prevention Plan (IIPP) and submit it to LBNL when requested. The subcontractor shall also follow all LBNL safety procedures and policies communicated in it.

10.2.3 Contract Employees

The safety rights and obligations of contract employees are the same as those of Laboratory employees. Those supervisors assigned to direct the work of contract employees must verify that contract employees are afforded conditions equivalent to those provided to Laboratory employees, including training and personal protective equipment (PPE).

10.3 Subcontractor Safety Qualification

Subcontractor selection shall include an evaluation of the subcontractor's prior safety performance, the subcontractor's current written safety programs, and qualifications of key EH&S personnel to assure LBNL that the subcontractor is capable of meeting its safety performance goals. All subcontractors being considered to perform construction activities at LBNL-controlled sites and property shall undergo such an evaluation.

The LBNL project management and procurement team shall evaluate the information submitted by the subcontractors. Subcontractors shall demonstrate an equivalent process in the selection of lower-tier subcontractors and submit evaluation criteria and results to LBNL.

10.4 Subcontractor On-site Health and Safety Representative Qualifications

The subcontractor shall provide a qualified on-site Health and Safety Representative, accepted by the LBNL Project Manager, with the authority to enforce all of the safety requirements of this program, including implementation of the subcontractor's Injury and Illness Prevention Program and Project EH&S Plan.

LBNL project management and EH&S will make a risk-based decision as to the qualification level of the subcontractor EH&S representative. Requirements may range from a full-time on-site safety professional (Certified Safety Professional) to a craft supervisor with competency as measured by experience training.

During periods of active construction (i.e., excluding weekends, weather delays, or other periods of work inactivity), the subcontractor must have a designated representative on the construction worksite who is knowledgeable of the project's hazards and has full authority to act on behalf of the subcontractor. The subcontractor's designated representative must make frequent and regular inspections of the construction worksite to identify and correct any instances of noncompliance with the project health and safety requirements.

10.4.1 Qualification Evaluation

Based on the level of EH&S qualification determined necessary by LBNL, the subcontractor shall submit the following documentation, for review and acceptance by the LBNL Project Manager, in support of the proposed candidate:

- Professional certifications (CSP, CIH, ASP, etc.).
- Curriculum vitae detailing work experience and EH&S responsibilities on projects of similar scope for the previous five years, at a minimum.
- Evidence of construction safety training with a minimum of the 10-hour OSHA training (the requirement will be modified as necessary and may require the 30-hour OSHA construction supervision training or successful completion of the OSHA 500 program).
- Proof of Competent Person or Qualified Person status attained by the proposed on-site EH&S representative.

A subcontractor shall replace his or her EH&S Representative at the discretion of the LBNL Project Manager within 24 hours upon written notification if the EH&S Representative is unsuccessful in enforcing project safety requirements.

10.4.2 Subcontractor Health and Safety Representative Responsibilities

The subcontractor EH&S Representative shall:

- Assist in the development of the subcontractor's safety plan and job site management system
- Support training of subcontractor personnel
- Evaluate the subcontractor safety process continuously
- Respond to questions regarding the subcontractor safety process
- Attend pre-job meetings to discuss their site-specific safety plan
Conduct and document job site safety audits.
- Assist in the identification of jobs requiring an activity-based hazard analysis.

10.4.3 Competent Person

Each subcontractor shall provide to LBNL a written list of those persons on-site who are capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Subcontractors shall ensure that each competent person listed has been trained in the following areas as applicable:

- Asbestos
- Cranes
- Confined Space
- Demolition
- Excavations
- Fall Protection
- Ladder
- Scaffold
- Steel Erection
- Underground Construction

10.4.4 Qualified Person

Each subcontractor shall provide to LBNL a written list of those persons on-site who by possession of a recognized degree, certification, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project. Subcontractors shall ensure that each qualified person listed has been trained in the following areas as applicable:

- Asbestos
- Hazardous Waste Operation
- Crane

- Chemical Hazards
- Concrete & Masonry Const.
- Electrical, Overhead Lines (for more information, see [Chapter 8 \(Electrical Safety\)](#) and [Chapter 18 \(Lockout/Tagout and Verification\)](#))
- Steel Erection, Open Joists, Site Layout, and Plan
- Hoist & Rigging
- Scaffold
- Underground Const.
- Gases, Vapors, Dust, Mist,
- Ventilation
- Material Hoisting, Personnel Hoist, Elevators
- Excavation

10.5 Subcontractor Injury and Illness Prevention Program (IIPP)

Each subcontractor shall provide LBNL with a written IIPP. The IIPP or the IIPP with a Site Specific Safety Plan shall contain at a minimum:

- The name of the On-site Health and Safety Representative who is responsible for the implementation of the plan their qualifications and what roles this person will play during the project.
- The company policy and senior company officer statement on environment, safety and health.
- The company safety management and safety oversight plan and correlation with LBNL Integrated Safety Management Plan.
- A list of those project activities for which subsequent activity-based hazard analysis are to be performed.
- The company policy on substance abuse and testing policies if applicable.
- Code of Safe Practices.
- How and when each contractor will conduct their toolbox safety talks.
- Provisions for conducting and documenting job site safety inspections by supervision.
- Training methods used to meet OSHA training requirements to ensure that LBNL Safety Program requirements are communicated all subcontractor personnel.
- Incident reporting, first aid, and emergency procedures. Details for the management of work related injuries.
- The company safety recognition/incentive policy that will be in effect for this project.
- List of all competent persons overseeing those tasks in which OSHA requires such person(s), such as excavation, confined space, fall protection, etc.
- All other requirements as in the LBNL Construction Specifications section 01020, EH&S General Requirements as tailored to the project.

Lower tier subcontractors may utilize and abide by the general contractor's written (IIPP) or Site-specific safety program. General contractors that engage lower tier subcontractors shall submit written documentation for each lower tier subcontractor that demonstrates the methods of compliance with the site specific EH&S plan requirements.

10.6 Job Hazards Analysis

Subcontractors shall submit an Activity-Based Hazard Analysis i.e., Job Hazards Analysis (JHA) or Activity Hazard Analysis (AHA) for those construction activities meeting the requirements for performing JHA in section 10.6.1 The JHA shall be approved by the LBNL Project Manager before work commences.

Each employee scheduled to work in the activities identified below shall receive safety training in those activities prior to working on them. The subcontractor shall maintain proof of employee training at the work site and make it available to the LBNL Project Manager upon request (Toolbox safety meetings are an acceptable forum to meet this requirement).

Subcontractor shall be responsible for submitting a JHA and work procedures to LBNL Project Manager for review a minimum of seven days prior to the start of work for most work activities.

The subcontractor must maintain 2 copies of the LBNL approved JHA. The first copy to be maintained with the project files. The second copy shall be posted on the jobsite/project in a conspicuous location.

10.6.1 JHA Requirements

A JHA shall be written based on the following conditions:

- Jobs with the highest injury or illness rates
- Jobs with the potential to cause severe or disabling injuries or illness, even if there is no history of previous accidents
- Jobs in which one simple human error could lead to a severe accident or injury
- Jobs that are new to your operation or have undergone changes in processes and procedures
- Jobs complex enough to require written instructions.

If not otherwise specified in a particular project specification, the JHA shall be performed in accordance with the OSHA 3071 JHA processes. In general the JHA will include:

- Description of work phase or activity
- Identification of potential hazards associated with the activity
- Address further hazards revealed by supplemental site information (e.g., site characterization data, as-built drawings) provided by the subcontractors construction manager.
- A list of the Subcontractor's planned controls to mitigate the identified hazards
- Identification of specialized training required
- Identification of special permits required
- Name of the Subcontractor's Competent persons responsible for inspecting the activity and ensuring that all proposed safety measures are followed.

Construction activities for which a Job Hazards Analysis may be required include, but are not limited to:

- Roofing
- Hoisting and handling of materials
- Excavations

- Trenching and drilling
- Concrete placement and false work
- Welding
- Steel erection
- Work performed six foot or higher above ground
- Electrical work
- Demolition
- Work in confined spaces
- Work that causes the release of silica such as demolition or drilling of concrete or work with materials that contain silica
- Work with epoxy coatings
- Work with or around hazardous materials
- Work on hilly terrain
- Use and handling of flammable materials

10.6.2 Additional Requirements for Reporting Hazardous Conditions

Workers must be instructed to report to the subcontractor's designated representative hazards not previously identified or evaluated. If immediate corrective action is not possible or the hazard falls outside of project scope, the construction subcontractor must immediately notify affected workers, post appropriate warning signs, implement needed interim controls measures, and notify the LBNL Construction Manager of the action taken. The subcontractor or the designated representative must stop work in the affected area until appropriate protective measures are established.

10.6.3 Coordination and Tracking of EH&S Construction Safety Package Reviews

The EH&S Division Construction Safety Engineer (CSE) is responsible for coordination, tracking, quality assurance and final approval for the ES&H review of LBNL Construction Projects. The Construction Managers/Project Managers (CM/PMs) receive all required safety documents from the subcontractors and forward them as a package to the CSE. Most safety document packages will require review by several EH&S Subject Matter Experts (SMEs, i.e., Radiation Safety, Environmental, Industrial Safety, Industrial Hygiene, Occupational Medicine, etc.). The CSE reviews the packages and distributes appropriate parts to the appropriate SMEs for their review, comment and approval. The SMEs then return their completed documents to the CSE, who combines comments, identifies and resolves conflicts, and performs a quality review to assure all required submittals are included in the final safety document package. The CSE signs the final package and returns it to CM/PM to begin construction. Copies of the final safety document package, and review comments are maintained by the CSE for use during construction. When the construction work is completed the safety document package is filed with the Project file.

10.7 Engineered Protective Systems

Subcontractor shall submit for review to the LBNL's Project Manager, any worker, environment or property protective system required by EH&S regulation to be designed by a registered professional engineer. LBNL's review of such system is solely to verify that the subcontractor

has had the required protective systems prepared and stamped by a registered professional engineer.

LBNL's review of any documents showing the design or construction of protective systems for worker and property protection shall not relieve the subcontractor of its obligations to comply with applicable laws and standards for the design and construction of such protective work. Subcontractor shall indemnify and hold harmless LBNL and the Architect Engineer from any and all claims, liability, costs, actions and causes of action arising out of or related to the failure of such protective systems. The subcontractor shall defend LBNL, its officers, employees and agents and the Architect-Engineer in any litigation or proceeding brought with respect to the failure of such protective systems.

The cost of required safety engineering services required for safety and protective systems shall be borne solely by the subcontractor and shall be deemed to have been included in the amount bid for the work as stated in the subcontract.

10.8 Procurement of Hazardous Material

The subcontractor shall submit to the LBNL Project Manager, for review by the LBNL's EHS Division, any proposed procurement, stocking, installing, or other use of materials containing asbestos, cadmium, chromates, or lead. Additionally, the subcontractor shall submit the product Material Safety Data Sheet (MSDS) for architectural and surface coatings, solvents, adhesives, sealants, oils, compressed gases, pesticides, herbicides, welding materials, or other chemicals used in the construction process, for review and acceptance by the LBNL EHS Division prior to the start of work.

All materials and applications shall comply with requirements of any and all of the Bay Area Air Quality Management Districts Regulations, including, but not limited to architectural coatings, general solvent and surface coatings, solvent cleaning operations, adhesive and sealants, visible emissions, and asbestos.

Subcontractor shall keep and maintain proof of compliance with the above-referenced regulations, including any recordkeeping obligations, for a period of two years after completion of the project. Subcontractor shall make such documents or evidence available if so requested by BAAQMD or Lawrence Berkeley National Laboratory.

10.9 Safety Training and Education

Subcontractors shall provide a workforce that is trained to the requirements set forth in general and in the specific substance-and subject-specific standards of 10 CFR 851, 29 CFR 1926 (and as applicable 29 CFR 1910), and California Code of Regulations, Title 8, Construction Safety Orders. Subcontractors shall be able to demonstrate satisfaction of training requirements.

10.9.1 Site Orientation and Pre-job Training

All subcontractors and their lower tier subcontractors shall require and administer pre-job training/orientation on LBNL and subcontractor safety program requirements to all employees prior to engaging in work activities. The Subcontractor shall maintain on the work site a detailed outline of the orientation and a signed and dated roster of all employees who have completed the project EHS indoctrination. The orientation program shall address the following elements at a minimum:

- LBNL Integrated Safety Management Core Functions
- Employee rights and responsibilities
- Responsibility for Stop Work Order (imminent danger)
- Construction subcontractor responsibilities
- Alcohol and drug abuse policy
- Subcontractor's disciplinary procedures
- First aid and medical facilities
- Site and project specific hazards
- Hazard recognition and procedures for reporting or correcting unsafe conditions or practices
- Procedures for reporting accidents and incidents
- Fire fighting and other emergency procedures to include local warning and evacuation systems
- Hazard Communication Program
- Access to employee exposure monitoring data and medical records
- Protection of the environment, including air, water, and storm drains from construction pollutants
- Location of and access to reviewed project Illness and Injury Prevention Program, Hazard Analysis and Hazard Abatement Plan
- Location and contents of required posting

10.9.2 Weekly Safety Toolbox Talks

All subcontractors are required to conduct and document weekly safety toolbox talks. These talks shall be conducted at the site and contain safety information that will increase safety awareness on this project. ***The weekly tool box talks must relate to the work that is underway or immediately forthcoming.*** Attendance by all site personnel is mandatory. An attendance roster of signatures shall be collected and filed with a copy of the toolbox talk. Copies of the attendance roster and toolbox talk shall be forwarded to LBNL upon request. Subcontractors may attend 'All Hands' toolbox talks if a separate list of signatures identifying the subcontractor personnel is maintained. Each subcontractor is responsible for ensuring employee attendance at the Toolbox Safety Talks.

10.9.3 Safety Instruction for Employees

- When workers are first employees they shall be given instruction regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.
- The subcontractor shall permit only qualified persons to operate equipment and machinery.
- Where employees are subject to known job site hazards, such as flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall

be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

10.10 Emergency Procedures

An emergency is any situation that poses an immediate threat to life or property. This would include but not be limited to collapse of a building or a portion thereof, fire, explosion, equipment failure such as collapse of a crane, release or exposure to toxic liquids, vapors, or fumes, presence of gas or other explosive atmospheres, flood, earthquake, etc. Violent or suspicious behavior may also be cause for initiating emergency procedures.

10.10.1 Procedures

Each subcontractor must ensure that they maintain one person currently qualified in American Red Cross or equivalent CPR and First Aid on site at all times. In the event of a life threatening of other serious incident (fire, injury, etc.) requiring the assistance of outside personnel, contact LBNL emergency services immediately at:

- Call 7-9-1-1 for assistance or from outside line call 9-1-1

Upon calling, the person shall state their name, their contractor's name, the location of the emergency, and the type of emergency. The caller must stay on the call until released by the emergency dispatcher. The LBNL project Manager shall be contacted as soon as practicable.

The LBNL Project Manager will provide direction to the subcontractor on evacuation procedures as the job progresses. For emergencies involving evacuation, all subcontractor personnel shall follow the developed, posted evacuation routes to their designated assembly point, remain there until they are accounted for, and an "all clear" or alternate directive is given. Subcontractors shall disclose designated assembly points for their employees to LBNL. In the event of an evacuation, the subcontractor shall immediately notify LBNL of any missing personnel.

Following the occurrence of an emergency, the contractor shall ensure that all proper incident reports are completed and distributed in the required timeframe.

A list of "key" on-site and home office personnel (with 24 hour phone numbers) shall be developed by each subcontractor and submitted to the LBNL Project Manager prior to commencement of work.

The LBNL Project Manager or designated LBNL management team member in off-hours will take charge in the event of a major catastrophe. One or all steps are to be followed:

- Stop work
- Take whatever actions are needed to make people on the project safe.
- Call 7-9-1-1 for assistance or from outside line call 9-1-1
- If necessary, call for site evacuation with role call and clear site access roads
- Issue instructions to all supervisors and employees
- Set up security control at the emergency area

- Refer all media requests to the LBNL Media Affairs Office.

10.11 Incident Reporting

In the event a job site accident occurs, the subcontractor shall immediately implement controls and restrictions on the accident site to ensure the site remains undisturbed until released in-writing by the LBNL Project Manager to resume work.

10.11.1 Procedures

Near Miss / Injury-free Event

It is the responsibility of the subcontractor, to complete all Near Miss investigation, and to report these occurrences with recommendations / implementation of corrective actions. The report will be submitted to the LBNL Project Manger within 24 hours.

First Aid Event

It is the responsibility of the subcontractor to collect and log the contractors' incident reports and recommend corrective action. The incident logs and work hour statistics will be sent to the LBNL Construction Safety Engineer by the 1st of each month.

Medical Treatment Event

If the injury is considered an emergency, immediately call 7- 9-1-1 from Lab phones and 9-1-1 from any cell phone. It is the responsibility of the subcontractor to immediately notify the LBNL Project Manager. The subcontractor shall furnish a copy of their OSHA Form 301(or equivalent) to the LBNL Project Manager within 5 days of the injury.

Serious Injury Event

It is the responsibility of the Prime subcontractor to immediately notify the LBNL Project Manager, of any serious event requiring medical treatment. Refer ALL media inquiries to LBNL Media Relations, Media Affairs Office, at office phone 510-486-7586, or cell phone 510-610-3991.

Fatality

It is the responsibility of the subcontractor to notify the LBNL Project Manager who will then notify the appropriate DOE office. It is the responsibility of the subcontractor to notify Cal/OSHA within 8 hours. Refer ALL media inquiries to the LBNL Management Contact, Media Affairs Office at office phone 510-486-7586, or cell phone 510-610-3991.

10.12 Stop Work Order

A stop work order must be given when imminent danger is identified or where significant damage to equipment or property or environmental degradation could occur if the operation continued. When a stop work order is issued, only those areas of a construction project immediately involved in the identified hazardous situation are to be included in the order.

Any employee that observes an imminent-danger situation is responsible for stopping the work and reporting it to the subcontractor representative at the work site;

Immediately after stopping work, the person issuing the order must report to the LBNL Project Manager, LBNL Construction Safety Engineer, of his/her action. The LBNL Project Manager, LBNL Construction Safety Engineer will be dispatched to the site to verify that the operation has stopped and that the stop order was exercised in a justifiable and responsible manner.

Work cannot restart until the LBNL Project Manager has agreed that the imminent danger has been eliminated. Notification to restart work will be passed to the construction subcontractor by the LBNL Project Manager.

10.12.1 Stop Work Memorandum Safety Deficiency Notice

Following a Stop Work action, a Safety Deficiency Notice will be issued to the subcontractor by LBNL Construction Safety Engineer; it will reference the appropriate OSHA regulation and the subcontractor provision that caused the work stoppage.

10.12.2 Difference of Opinion

Differences of opinion regarding a stop work order between the LBNL Project Manager, LBNL Construction Safety Engineer, and others involved must be immediately referred to their respective functional supervisors for resolution. The recommendations of the LBNL Construction Safety Engineer must be followed until a final decision is made. Final determination will come from the LBNL EHS Division Director.

10.13 Employee Noncompliance to Safety Policies

In an effort to ensure compliance to this program and all other established OSHA standards, LBNL hereby implements this procedure of non compliance to all subcontractors working on LBNL controlled property. This is established to promote safety and eliminate offenders and repeat offenders, and may lead up to contract termination with a subcontractor. This program may be used or may be superseded with more severe discipline based on the degree of the infraction(s). In any case LBNL Project Team has sole authority in the type of discipline action to include removal from the project.

- First offence, give a verbal warning keep written record of the offence/notify his/her supervisor
- Second offence, give a written warning with his/her supervision is brought into the office for a "discussion" with the subcontractor Superintendent and the LBNL Project Manager along with the LBNL Construction Safety Engineer. A copy of the written warning is sent to the offending

Workers Company's office, with a statement to the effect that if this happens again the worker will be removed from the project and could lead to a termination of the contract.

- Third offence the worker is removed from the project.
- If repeat occurrences with other crewmembers are found the supervisor of said offenders shall be subject to removal from the project.

10.14 Visitors

All visitors are required to report to the project field office upon entering the project site. Access to the site shall be denied to any individual who does not have justifiable business on the job site.

Requests for tours of the project site shall be carefully screened and limited in frequency and numbers of people. Tours of the site shall be approved by the LBNL Project Manager and LBNL Construction Manager and shall be conducted during non-working hours.

LBNL shall establish the time and travel route for any tour. Areas which may present hazards to the tour groups shall be prohibited. The tour's travel route shall be cleared of any tripping hazards, cleaned, and properly protected to avoid potential personal injury. A designated member of the LBNL management team shall guide the approved tours. All members of a tour group shall sign a release prior to touring the site.

Any project site visitors who are permitted access to the site but are not on official on-site business shall sign the release before being authorized to proceed beyond the project office.

All visitors must wear long pants, shirts with sleeves over the shoulder, hard hats, safety glasses, and hard-soled work shoes or boots when on site. No penny loafers, dress shoes, etc. shall be permitted.

10.15 Glossary

10.15.1 Terms

ANSI: means American National Standards Institute

Authorized person: means a person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the jobsite.

Competent person: means 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.

Confined Space: is a space that (1) is large enough and so configured that an employee can enter bodily, (2) has limited or restricted means for entry or exit (e.g., tanks, vessels, vaults, shafts, pits), and (3) is not designed for continuous occupancy.

Construction Manager: is the LBNL employee responsible for the supervision and field management of day-to-day needs of a construction project. It may be a project superintendent, a craft supervisor, or a lead person.

Construction Safety Engineer: is the LBNL Environment, Health and Safety Division's representative responsible for overseeing the safety and health management of construction activities. This person monitors and documents compliance with the applicable safety and health codes, standards, and regulations.

Construction work: For purposes of this section, "Construction work" means work for construction, alteration, and/or repair, including painting and decorating. **Construction:** is any combination of engineering, procurement, erection, installation, assembly, demolition, or fabrication used to create a new facility, or to alter, add to, rehabilitate, dismantle, or remove an existing facility. It also includes the alteration and repair (including dredging, excavating, and painting) of buildings, structures, or other real property, as well as any construction and excavation activities conducted as part of environmental remediation efforts. This definition will be used to determine the applicability of DOE orders in lieu of the Davis-Bacon Act definition, which is used to determine wage rates. Accordingly, projects defined as maintenance projects under the Davis-Bacon Act definition may be defined as construction projects under this definition.

Controlled Access Zone (CAZ): means an area in which certain work (e.g., overhead bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled

ISM Plan: Department of Energy's systematic approach to analyzing work and hazards and implementing controls.

Imminent Danger: is any condition or practice that could reasonably be expected to cause death or serious physical harm (permanent or prolonged impairment of the body or temporary disablement requiring hospitalization) to employees or the public unless immediate actions are taken.

Project Inspector: is the Facilities Department's representative responsible for monitoring construction quality and verifying compliance with the terms and conditions of the design documents.

Project Manager: is the LBNL employee representative with overall responsibility for a project. This person ensures subcontractor compliance with subcontract documents, including performance, schedule, budget, and safety.

Shall: means mandatory

Should: means recommended

Subcontractor: is a firm that has sole contractual responsibility for execution of the construction work related to a project, and for compliance with all safety, health, and environmental codes, standards, and regulations.

Qualified Person: 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.

10.16 Codes & Standards

Subcontractors shall comply with the requirements, in case of conflict or overlap of the above references, the most stringent provision shall apply.

- 10 CFR 851, Worker Safety and Health Program
- Occupational Safety and Health Act (OSHA)
- 29 CFR 1926, Occupational Safety and Health Standards for Construction
- 29 CFR 1910, Occupational Safety and Health Standards for General Industry
- California Code of Regulations (CCR), Title 8, Construction Safety Orders
- California Fire Code (CFC)
- National Electrical Safety Code, ANSI C2
- National Fire Protection Association (NFPA) 70E 2005, Standards for Electrical Safety in the Workplace
- Lawrence Berkeley National Laboratory's [Health and Safety Manual, PUB-3000](#)
- California Code of Regulations Title 8, Industrial Safety; Title 17, Air Resources; Title 19, Public Safety; Title 22, Hazardous Waste; Title 23, Hazardous Materials
- NFPA 51B, *Fire Prevention During Welding, Cutting, and Other Hot Work* (2003 edition)
- NFPA 241, *Safeguarding Construction, Alteration, and Demolition Operations* (2004 edition)
- Material hoists shall conform to the regulations of ANSI A10.5 and Cal/OSHA, Construction Safety Orders, sections 1605.1 to 1605.21 and personnel hoists to ANSI A10.4 and Cal/OSHA, Construction Safety Orders, section 1604.I, 1604.30
- Tools shall meet requirements of the latest edition of ANSI A10.3
- Signaling directions by flagmen shall conform to American National Institute D6.1-I971
- ANSI Z88.2 – 1992 Respiratory Protection
- ANSI (Z 308.1) First aid kit on this job site
- ACGIH TLV 2005
- ANSI Z49 Section 4.3 and E4.3

10.17 Related LBNL/PUB-3000 Chapters

For additional information on LBNL/PUB-3000 policies outside the scope of Construction Safety, refer to:

- [Chapter 4 \(Industrial Hygiene\)](#)
- [Chapter 5 \(Occupational Safety\)](#)
- [Chapter 8 \(Electrical Safety\)](#)
- [Chapter 12 \(Fire Prevention and Protection\)](#)

- [Chapter 13 \(Gases\)](#)
- [Chapter 18 \(Lockout/Tagout and Verification\)](#)
- [Chapter 19 \(Personal Protective Equipment\)](#)
- [Chapter 21 \(Radiation Safety\)](#)

10.18 References

For additional information on LBNL safety policies outside the scope of Construction Safety, refer to:

- [LBNL Confined Space Entry Program](#)
- [LBNL Lead Program](#)
- [LBNL Respiratory Program](#)

Chapter 10 Appendices

- [Appendix A. Code of Safe Practices](#)
- [Appendix B: Environmental Policies](#)

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