

**STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

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TITLE 8, DIVISION 1, CHAPTER 4

TITLE 8: Division 1, Chapter 4, Subchapter 7
General Industry Safety Orders
Article 109. Hazardous Substances and Processes

Amend Section 5194.1 as follows:

§5194.1. Retention of DOT Markings, Placards and Labels.

(b) Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the U.S. Department of Transportation Hazardous Materials Regulations shall retain those markings and placards on the freight container, rail freight car, motor vehicle or transport vehicle until the hazardous materials which require the marking or placarding are sufficiently removed to prevent any potential hazards.

(e) For the purposes of this section the term "hazardous material" and any other terms not defined in this section have the same definition as in the U.S. Department of Transportation Hazardous Materials Regulations (~~49 CFR Parts 171 through 180~~).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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TITLE 8: Division 1, Chapter 4, Subchapter 18
Ship Building, Ship Repairing and Ship Breaking Safety Orders
Article 1. Introduction

Amend Section 8351 as follows:

§8351. Medical Services and First Aid.

(a) General requirement. The employer shall ensure that emergency medical services and first aid are readily accessible.

(b) Advice and consultation. The employer shall ensure that healthcare professionals are readily available for advice and consultation on matters of workplace health.

(c) First aid providers.

(1) The employer shall ensure that there are an adequate number of employees trained as first aid providers at each worksite during each work shift unless:

(A) There is an on-site clinic or infirmary with first aid providers during each work shift; or

(B) The employer can demonstrate that outside first aid providers (i.e., emergency medical services) can reach the worksite within five (5) minutes of a report of injury or illness. The employer shall take appropriate steps to ascertain that emergency medical assistance will be readily available promptly if an injury or illness occurs.

(2) The employer shall ensure that a first aid provider is able to reach an injured/ill employee within five (5) minutes of a report of a serious injury, illness, or accident such as one involving cardiac arrest, acute breathing problems, uncontrolled bleeding, suffocation, electrocution, or amputation.

(3) The employer shall use the following factors in determining the number and location of employees who shall have first aid training: size and location of each worksite; the number of employees at each worksite; the hazards present at each worksite; and the distance of each worksite from hospitals, clinics, and rescue squads.

(4) The employer shall ensure that first aid providers are trained to render first aid, including cardiopulmonary resuscitation (CPR).

(5) The employer shall ensure that each first aid provider maintains current first aid and CPR certifications, such as issued by the Red Cross, American Heart Association, or other equivalent organization.

(d) First aid supplies.

(1) The employer shall provide and maintain adequate first aid supplies that are readily accessible to each worksite. An employer's on-site infirmary or clinic containing first aid supplies that are readily accessible to each worksite complies with this requirement.

(2) The employer shall ensure that the placement, content, and amount of first aid supplies are adequate for the size and location of each worksite, the number of employees at each worksite,

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the hazards present at each worksite, and the distance of each worksite from hospitals, clinics, and rescue squads.

(3) The employer shall ensure that first aid supplies are placed in a weatherproof container.

(4) The employer shall maintain first aid supplies in a dry, sterile, and serviceable condition.

(5) The employer shall replenish first aid supplies as necessary to ensure that there is an adequate supply when needed.

(6) The employer shall inspect first aid supplies at sufficient intervals to ensure that they are adequate and in a serviceable condition.

(e) Quick-drenching and flushing facilities. Where the potential exists for an employee to be splashed with a substance that may result in an acute or serious injury, the employer shall provide facilities for quick-drenching or flushing the eyes and body. The employer shall ensure that such a facility is located for immediate emergency use within close proximity to operations where such substances are being used.

(f) Basket stretchers.

(1) The employer shall provide an adequate number of basket stretchers, or the equivalent, readily accessible to where work is being performed on a vessel or vessel section. The employer is not required to provide basket stretchers or the equivalent where emergency response services have basket stretchers or the equivalent that meet the requirements of this subsection.

(2) The employer shall ensure each basket stretcher, or the equivalent, is equipped with:

(A) Permanent lifting bridles that enable the basket stretcher, or the equivalent, to be attached to hoisting gear capable of lifting at least 5,000 pounds (2,270 kg);

(B) Restraints that are capable of securely holding the injured/ill employee while the basket stretcher, or the equivalent, is lifted or moved; and

(C) A blanket or other suitable covering for the injured/ill employee.

(3) The employer shall store basket stretchers, or the equivalent, and related equipment (i.e., restraints, blankets) in a clearly marked location in a manner that prevents damage and protects the equipment from environmental conditions.

(4) The employer shall inspect stretchers, or the equivalent, and related equipment at intervals that ensure the equipment remains in a safe and serviceable condition, but at least once a year.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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TITLE 8: Division 1, Chapter 4, Subchapter 18
Ship Building, Ship Repairing and Ship Breaking Safety Orders
Article 3. Definitions

Amend Section 8354 as follows:

§ 8354. Definitions applicable to this subchapter.

~~(a) Definitions.~~

Accessible Surface. A surface capable of being worked upon without changing, altering, or dismantling the parts concerned.

Additional Safety Measure. A component of the tags-plus system that provides an impediment (in addition to the energy-isolating device) to the release of energy or the energization or startup of the machinery, equipment, or system being serviced. Examples of additional safety measures include, but are not limited to, removing an isolating circuit element; blocking a controlling switch; blocking, blanking, or bleeding lines; removing a valve handle or wiring it in place; opening an extra disconnecting device.

Adjacent Spaces. Those spaces bordering a subject space in all directions, including all points of contact, corners, diagonals, decks, tank tops, and bulkheads.

Affected Employee. An employee who normally operates or uses the machinery, equipment, or system that is going to be serviced under lockout/tags-plus or who is working in the area where servicing is being performed under lockout/tags-plus. An affected employee becomes an authorized employee when the employer assigns the employee to service any machine, equipment, or system under a lockout/tags-plus application.

Alarm. A signal or message from a person or device that indicates that there is a fire, medical emergency, or other situation that requires emergency response or evacuation. At some shipyards this may be called an "incident" or a "call for service."

Alarm System. A system that warns employees at the worksite of danger.

Authorized employee.

(a) An employee who performs one or more of the following lockout/tags-plus responsibilities:

(1) Executes the lockout/tags-plus procedures;

(2) Installs a lock or tags-plus system on machinery, equipment, or systems; or

(3) Services any machine, equipment, or system under lockout/tags-plus application.

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(b) An affected employee becomes an authorized employee when the employer assigns the employee to service any machine, equipment, or system under a lockout/tags-plus application.

Barge. An unpowered, flat bottom, shallow draft vessel including scows, carfloats, and lighters. For purposes of these orders, the term does not include ship-shaped or deep draft barges.

Body Harness. A system of straps that may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, shoulders, chest and pelvis, with means for attaching it to other components of a personal fall arrest system.

Capable of being locked out. An energy-isolating device is capable of being locked out if it has a locking mechanism built into it, or it has a hasp or other means of attachment to which, or through which, a lock can be affixed. Other energy-isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy-control capability.

Certified Industrial Hygienist (CIH). An industrial hygienist who is certified by the American Board of Industrial Hygiene.

Chief. The Chief of the Division of Occupational Safety and Health or designee.

Class II Standpipe System. A 1 1/2 inch (3.8 cm) hose system which provides a means for the control or extinguishment of incipient stage fires.

Coast Guard Authorized Person. An individual who meets the requirement of Appendix B to section 8355 for tank vessels, for passenger vessels, and for cargo and miscellaneous vessels.

Cofferdam. The space between two bulkheads located close together.

Cold Work. Any operation which does not involve heat, fire, or sparks.

Compartment. A subdivision of space or room in a ship.

Contract Employer. An employer, such as a painter, joiner, carpenter, or scaffolding sub-contractor, who performs shipyard-related services or work under a contract to the host employer or to another employer under contract to the host employer at the host employer's worksite. This excludes employers who provide incidental services that are not directly related to ~~do not influence~~ shipyard employment (such as mail delivery, ~~or~~ office supply and food vending services).

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Dangerous Atmosphere. An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (i.e., escape unaided from a confined or enclosed space), injury, or acute illness.

Designated Area. An area established for hot work after an inspection that is free of fire hazards.

Division. Division of Occupational Safety and Health.

Drop Test. A method utilizing gauges to ensure the integrity of an oxygen fuel gas burning system. The method requires that the burning torch is installed to one end of the oxygen and fuel gas lines and then the gauges are attached to the other end of the hoses. The manifold or cylinder supply valve is opened and the system is pressurized. The manifold or cylinder supply valve is then closed and the gauges are watched for at least sixty (60) seconds. Any drop in pressure indicates a leak.

Dummy Load. A device used in place of an antenna to aid in the testing of a radio transmitter that converts transmitted energy into heat to minimize energy radiating outward or reflecting back to its source during testing.

Emergency Operations. Activities performed by fire response organizations that are related to: rescue, fire suppression, emergency medical care, and special operations or activities that include responding to the scene of an incident and all activities performed at that scene.

Energy-Isolating Device. A mechanical device that, when utilized or activated, physically prevents the release or transmission of energy. Energy-isolating devices include, but are not limited to, manually operated electrical circuit breakers; disconnect switches; line valves; blocks; and any similar device used to block or isolate energy. Control-circuit devices (for example, push buttons, selector switches) are not considered energy-isolating devices.

Enter with Restrictions. Denotes a space where entry for work is permitted only if engineering controls, personal protective equipment, clothing, and time limitations are as specified by the Marine Chemist, Certified Industrial Hygienist, or the shipyard competent person.

Entry. The action by which a person passes through an opening into a space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Fire Hazard. A condition or material that may start or contribute to the spread of a fire.

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Fire Protection. Methods of providing fire prevention, response, detection, control, extinguishment, and engineering.

Fire Response. The activity taken by the employer at the time of an emergency incident involving a fire at the worksite, including fire suppression activities carried out by internal or external resources or a combination of both, or total or partial employee evacuation of the area exposed to the fire.

Fire Response Employee. A shipyard employee who carries out the duties and responsibilities of shipyard firefighting in accordance with the fire safety plan.

Fire Response Organization. An organized group knowledgeable, trained, and skilled in shipyard firefighting operations that responds to shipyard fire emergencies, including: fire brigades, shipyard fire departments, private or contractual fire departments, and municipal fire departments.

Fire Suppression. The activities involved in controlling and extinguishing fires.

Fire Watch. A person having knowledge of and qualified in fire prevention and suppression techniques, whose duties include: patrolling areas for the purpose of fire prevention; checking areas that are potential fire hazards, reporting potential fire hazards directly to the nearest person in charge of the job; suppressing any small fires, and immediately reporting all fires to the yard fire department and/or immediate supervisor of the operation.

Fixed Extinguishing System. A permanently installed fire protection system that either extinguishes or controls fire occurring in the space it protects.

Flammable Liquid. Any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

Gangway. Any ramp-like or stair-like means of access provided to enable personnel to board or leave a vessel including accommodation ladders, gangplanks and brows.

Hazardous Energy. Any energy source, including mechanical (for example, power transmission apparatus, counterbalances, springs, pressure, gravity), pneumatic, hydraulic, electrical, chemical, and thermal (for example, high or low temperature) energies that could cause injury to employees.

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Hazardous Substance. A substance that may cause injury, illness, or disease, or otherwise harm an employee likely to cause injury by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating an irritant, or otherwise harmful.

Health care professional. A physician or any other healthcare professional whose legally permitted scope of practice allows the provider to independently provide, or be delegated the responsibility to provide, some or all of the advice or consultation this subchapter requires.

Horse. A device or structure generally used in multiple for supporting a platform of boards or planks. It consists essentially of a single header or ledger supported at each end by two legs assembled in the form of A-frames.

Hose Systems. Fire protection systems consisting of a water supply, approved fire hose, and a means to control the flow of water at the output end of the hose.

Host Employer. An employer who is in charge of coordinating shipyard-related work or who hires other employers to perform shipyard-related work or to provide shipyard-related services, at a multi-employer workplace.

Hot work. Any activity involving riveting, welding, burning, the use of powder-actuated tools or similar fire-producing operations. Grinding, drilling, abrasive blasting, or similar spark-producing operations are also considered hot work except when such operations are isolated physically from any atmosphere containing more than 10 percent of the lower explosive limit of a flammable or combustible substance.

Immediately Dangerous to Life or Health (IDLH). An atmosphere that poses an immediate threat to life or that is likely to result in acute or immediate severe health effects.

Incident Management System. A system that defines the roles and responsibilities to be assumed by personnel and the operating procedures to be used in the management and direction of emergency operations; the system is also referred to as an "incident command system" (ICS).

Incipient Stage Fire. A fire, in the initial or beginning stage, which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

Inert or Inerted Atmosphere. An atmospheric condition where:

(1) The oxygen content of the atmosphere in the space is maintained at a level equal to or less than 8.0 percent by volume or at a level at or below 50 percent of the amount required to support combustion, whichever is less; or

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(2) The space is flooded with water and the vapor concentration of flammable or combustible materials in the free space atmosphere above the water line is less than 10 percent of the lower explosive limit for the flammable or combustible material.

Inerting. The displacement of the atmosphere in a permit space by noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. This procedure produces an IDLH oxygen-deficient atmosphere.

Interior Structural Firefighting Operations. The physical activity of fire response, rescue, or both involving a fire beyond the incipient stage inside of buildings, enclosed structures, vessels, and vessel sections.

Isolated location. An area in which employees are working alone or with little assistance from others due to the type, time, or location of their work. Such locations include remote locations or other work areas where employees are not in close proximity to others.

Labeled. Identified with a sign, placard, or other form of written communication, including pictograms, that provides information on the status or condition of the work space to which it is attached.

Ledger. The horizontal member of a scaffold that runs at right angles to the structure and directly supports the planking of the platform.

Lock. A device that utilizes a positive means, either a key or combination lock, to hold an energy isolating device in a “safe” position that prevents the release of energy and the startup or energization of the machinery, equipment, or system to be serviced.

Lockout. The placement of a lock on an energy-isolating device in accordance with an established procedure, thereby ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lock is removed.

Lockout/tags-plus coordinator. An employee whom the employer designates to coordinate and oversee all lockout and tags-plus applications on vessels or vessel sections and at landside work areas when employees are performing multiple servicing operations on the same machinery, equipment, or systems at the same time, and when employees are servicing multiple machinery, equipment, or systems on the same vessel or vessel section at the same time. The lockout/tags-plus coordinator also maintains the lockout/tags-plus log.

Lockout/tags-plus materials and hardware. Locks, chains, wedges, blanks, key blocks, adapter pins, self locking fasteners, or other hardware used for isolating, blocking, or securing

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machinery, equipment, or systems to prevent the release of energy or the startup or energization of machinery, equipment, or systems to be serviced.

Lower Explosive Limit (LEL). The minimum concentration of vapor in air below which propagation of a flame does not occur in the presence of an ignition source.

Marine Chemist. An individual who possesses a current Marine Chemist Certificate issued by the National Fire Protection Association.

Motor vehicle. Any motor-driven vehicle operated by an employee that is used to transport employees, material, or property. For the purposes of this subchapter, motor vehicles include passenger cars, light trucks, vans, motorcycles, all-terrain vehicles, small utility trucks, powered industrial trucks, and other similar vehicles. Motor vehicles do not include boats, or vehicles operated exclusively on a rail or rails.

Motor vehicle safety equipment. Systems and devices integral to or installed on a motor vehicle for the purpose of effecting the safe operation of the vehicle, and consisting of such systems or devices as safety belts, airbags, headlights, tail lights, emergency/hazard lights, windshield wipers, defogging or defrosting devices, brakes, horns, mirrors, windshields and other windows, and locks.

Multi-Employer Workplace/site. A workplace where there is a host employer and at least one contract employer.

Navy ship's force. The crew of a vessel that is owned or operated by the U.S. Navy, other than a time- or voyage chartered vessel, which is under the control of a Commanding Officer or Master.

Normal production operations. The use of machinery or equipment, including, but not limited to, punch presses, bending presses, shears, lathes, keel press rollers, and automated burning machines, to perform a shipyard-employment production process.

Not Safe for Hot Work. Denotes a space where hot work may not be performed because the conditions do not meet the criteria for Safe for Hot Work.

Nationally Recognized Testing Laboratory (NRTL). An organization recognized by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), in accordance with Appendix A of Title 29 Code of Federal Regulations section 1910.7, which tests for safety and lists or labels or accepts equipment and materials that meet all the criteria found in section 1910.7(b)(1) through (b)(4)(ii).

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NIOSH. The National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Not Safe for Workers. Denotes a space where an employee may not enter because the conditions do not meet the criteria for Safe for Workers.

Oxygen-Deficient Atmosphere. An atmosphere having an oxygen concentration of less than 19.5 percent by volume.

Oxygen-Enriched Atmosphere. An atmosphere that contains 22.0 percent or more oxygen by volume.

Personal Alert Safety System (PASS). A device that sounds a loud signal if the wearer becomes immobilized or is motionless for 30 seconds or more.

Physical Isolation. The elimination of a fire hazard by removing the hazard from the work area (at least 35 feet for combustibles), by covering or shielding the hazard with fire-resistant material, or physically preventing the hazard from entering the work area.

Physically Isolated. Positive isolation of the supply from the distribution piping of a fixed extinguishing system. Examples of ways to physically isolate include: removing a spool piece and installing a blank flange; providing a double block and bleed valve system; or completely disconnecting valves and piping from all cylinders or other pressure vessels containing extinguishing parts.

Platform. A floored elevated area. It may be erected in the scaffolding independent of the staging or elsewhere.

Portable toilet. A non-sewered portable facility for collecting and containing urine and feces. A portable toilet may be either flushable or non-flushable. For purposes of this subchapter, portable toilets do not include privies.

Potable water. Water that meets the standards for drinking purposes of the state or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Primary Water Regulations (40 CFR part 141).

Protected Space. Any space into which a fixed extinguishing system can discharge.

Proximity Firefighting. Specialized firefighting operations that require specialized thermal protection and may include the activities of rescue, fire suppression, and property conservation at

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incidents involving fires that produce very high levels of conductive, convective and radiant heat such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Proximity firefighting operations usually are exterior operations but may be combined with structural firefighting operations. Proximity firefighting is not entry firefighting.

Psi. Pounds per square inch.

Qualified Instructor. A person with specific knowledge, training, and experience in fire response or fire watch activities to cover the material found in Section 8397.13(b) or (c).

Readily accessible/available. Capable of being reached quickly enough to ensure, for example, that emergency medical services and first aid intervention are appropriate or that employees can reach sanitation facilities in time to meet their health and personal needs.

Rescue. Locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and transporting the injured to an appropriate health care facility.

Ribbon. The horizontal member in a scaffold which runs from upright to upright parallel to the hull or structure and is normally placed directly under the ledger.

Safe for Hot Work. Denotes a space that meets all of the following criteria:

- (1) The oxygen content of the atmosphere does not exceed 22.0 percent by volume;
- (2) The concentration of flammable vapors in the atmosphere is less than 10 percent of the lower explosive limit;
- (3) The residues or materials in the space are not capable of producing a higher concentration than permitted in subsections (1) or (2) of the above, under existing atmospheric conditions in the presence of hot work and while maintained as directed by the Marine Chemist or competent person, and
- (4) All adjacent spaces have been cleaned, or inerted, or treated sufficiently to prevent the spread of fire.

Safe for Workers. Denotes a space that meets the following criteria:

- (1) The oxygen content of the atmosphere is at least 19.5 percent and below 22 percent by volume;
- (2) The concentration of flammable vapors is below 10 percent of the lower explosive limit (LEL);
- (3) Any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, or inerting media are within permissible concentrations at the time of the inspection; and

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(4) Any residues or materials associated with the work authorized by the Marine Chemist, Certified Industrial Hygienist, or competent person will not produce uncontrolled release of toxic materials under existing atmospheric conditions while maintained as directed.

Sanitation facilities. Facilities, including supplies, maintained for employee personal and health needs such as potable drinking water, toilet facilities, hand-washing and –drying facilities, showers (including quick-drenching or flushing) and changing rooms, eating and drinking areas, first aid stations, and on-site medical-service areas. Sanitation supplies include soap, waterless cleaning agents, single-use drinking cups, drinking water containers, toilet paper, and towels.

Scaffolding. The structure erected and maintained for the purpose of supporting the staging planks.

Serviceable condition. The state or ability of supplies or goods, or of a tool, machine, vehicle, or other device, to be used or to operate in the manner prescribed by the manufacturer.

Service Line. A small rope or hand line used for hoisting and lowering light loads by hand.

Servicing. Workplace activities that involve the construction, installation, adjustment, inspection, modification, testing, or repair of machinery, equipment, or systems. Servicing also includes maintaining machines, equipment, or systems when performing these activities would expose the employee to harm from the start-up or energization of the system being serviced, or the release of hazardous energy.

Sewered toilet. A fixture maintained for the purpose of urination and defecation that is connected to a sanitary sewer, septic tank, holding tank (bilge), or on-site sewage-disposal treatment facility, and that is flushed with water.

Shield. To install a covering, protective layer, or other effective measure on or around steam hoses or temporary steam-piping systems, including metal fittings and couplings, to protect employees from contacting hot surfaces or elements.

Shipbreaking. Any breaking down of a vessel's structure for the purpose of scrapping the vessel, including the removal of gear, equipment or any component part of a vessel.

Shipbuilding. The construction of a vessel, including the installation of machinery and equipment.

Ship Repair. Repair of a vessel including, but not restricted to, alterations, conversions, installations, cleaning, painting, and maintenance work.

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Shipyards Firefighting. The activity of rescue, fire suppression, and property conservation involving buildings, enclosed structures, vehicles, vessels, aircraft, or similar properties involved in a fire or emergency situation.

Short bight. A loop created in a line or rope that is used to tie back or fasten objects such as hoses, wiring, and fittings.

Small Hose System. A system of hoses ranging in diameter from 5/8" (1.6 cm) up to 1 1/2" (3.8 cm) which is for the use of employees and which provides a means for the control and extinguishment of incipient stage fires.

Space. An area on a vessel or vessel section or within a shipyard such as, but not limited to: cargo tanks or holds; pump or engine rooms; storage lockers; tanks containing flammable or combustible liquids, gases, or solids; rooms within buildings; crawl spaces; tunnels or accessways. The atmosphere within a space is the entire area within its bounds.

Staging. The runways or walkways supported by the scaffolding, and from which or upon which the employees work.

Standard Guardrail. See Article 16, Construction Safety Orders.

Standpipe. A fixed fire protection system consisting of piping and hose connections used to supply water to approved hose lines or sprinkler systems. The hose may or may not be connected to the system.

Suitable. Capable of performing with safety the particular function specified in these orders.

Tag. A prominent warning device that includes a means of attachment that can be securely fastened to an energy isolating device in accordance with an established procedure to indicate that the energy-isolating device and the equipment being controlled shall not be operated until the tag is removed by an authorized employee.

Tags-plus system. A system to control hazardous energy that consists of an energy-isolating device with a tag affixed to it, and at least one additional safety measure.

Toeboard. A board set on edge in the same vertical plane as the railing and whose lower edge is no more than 1/4-inch from the top of the staging, platform or runway.

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Upper Explosive Limit (UEL). The maximum concentration of flammable vapor in air above which propagation of flame does not occur on contact with a source of ignition.

Verification of isolation. The means necessary to detect the presence of hazardous energy, which may involve the use of a test instrument (for example, a voltmeter), and, for other than electric shock protection, a visual inspection, or a deliberate attempt to start-up the machinery, equipment, or system.

Vermin. Insects, birds, and other animals, such as rodents and feral cats, that may create safety and health hazards for employees.

Vessel. Includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

Vessel Section. A sub-assembly, module, or other component of a vessel being built, repaired, or broken.

Visual Inspection. The physical survey of the space, its surroundings and contents to identify hazards such as, but not limited to, restricted accessibility, residues, unguarded machinery, and piping or electrical systems.

Walkway. Any surface, whether vertical, slanted, or horizontal, on which employees walk, including areas that employees pass through, to perform their job tasks. Walkways include, but are not limited to, access ways, designated walkways, aisles, exits, gangways, ladders, ramps, stairs, steps, passageways, and scaffolding. If an area is, or could be, used to gain access to other locations, it is to be considered a walkway.

Work area. A specific area, such as a machine shop, engineering space, or fabrication area, where one or more employees are performing job tasks.

Working surface. Any surface where work is occurring or areas where tools, materials, and equipment are being staged for performing work.

Worksite. A general work location where one or more employees are performing work, such as a shipyard, pier, barge, vessel, or vessel section.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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TITLE 8: Division 1, Chapter 4, Subchapter 18
Ship Building, Ship Repairing and Ship Breaking Safety Orders
Article 4. Control of Hazardous Work

Add new Section 8356 as follows:

§8356. Control of Hazardous Energy (Lockout/Tags-Plus).

(a) Scope, application, and effective dates.

(1) Scope. This section covers the servicing of machinery, equipment, and systems when the energization or startup of machinery, equipment, or systems, or the release of hazardous energy, could endanger an employee.

(2) Application.

(A) This section applies to the servicing of any machinery, equipment, or system that employees use in the course of shipyard employment work and that is conducted:

1. In any landside facility that performs shipyard employment work; and
2. On any vessel or vessel section.

(B) This section applies to such servicing conducted on a vessel by any employee including, but not limited to, the ship's officers and crew unless such application is preempted by the regulations of any federal agency.

(3) When other standards in these Orders and applicable standards in CCR Title 8 require the use of a lock or tag, the employer shall use and supplement them with the procedural and training requirements specified in this section where more protective.

(4) EXCEPTIONS. This section does not apply to:

(A) Work on cord-and-plug-connected machinery, equipment, or system, provided the employer ensures that the machinery, equipment, or system is unplugged and the plug is under the exclusive control of the employee performing the servicing;

(B) Minor servicing activities performed during normal production operations, including minor tool changes and adjustments, that are routine, repetitive, and integral to the use of the machinery, equipment, or system, provided the employer ensures that the work is performed using measures that provide effective protection from energization, startup, or the release of hazardous energy.

(b) Lockout/tags-plus program. The employer shall establish and implement a written program and procedures for lockout and tags-plus systems to control hazardous energy during the servicing of any machinery, equipment, or system in shipyard employment. The program shall cover:

(1) Procedures for lockout/tags-plus systems while servicing machinery, equipment, or systems in accordance with subsection (c);

(2) Procedures for protecting employees involved in servicing any machinery, equipment, or system in accordance with subsections (d) through (m);

(3) Specifications for locks and tags-plus hardware in accordance with subsection (n);

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(4) Employee information and training in accordance with subsection (o);

(5) Incident investigations in accordance with subsection (p); and

(6) Program audits in accordance with subsection (q).

(c) General requirements.

(1) The employer shall ensure that, before any authorized employee performs servicing when energization or startup, or the release of hazardous energy, may occur, all energy sources are identified and isolated, and the machinery, equipment, or system is rendered inoperative.

(2) If an energy-isolating device is capable of being locked, the employer shall ensure the use of a lock to prevent energization or startup, or the release of hazardous energy, before any servicing is started, unless the employer can demonstrate that the utilization of a tags-plus system will provide full employee protection as set forth in subsection (c)(6).

(3) If an energy-isolating device is not capable of being locked, the employer shall ensure the use of a tags-plus system to prevent energization or startup, or the release of hazardous energy, before any servicing is started.

(4) Each tags-plus system shall consist of:

(A) At least one energy-isolating device with a tag affixed to it; and

(B) At least one additional safety measure that, along with the energy isolating device and tag required in subsection (c)(4)(A), will provide the equivalent safety available from the use of a lock.

NOTE TO SUBSECTION (c)(4):

When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of subsection (c)(4)(B) shall not apply, provided that the employer complies with the verification procedures in subsection (g).

(5) After [Effective date], the employer shall ensure that each energy isolating device for any machinery, equipment, or system is designed to accept a lock whenever the machinery, equipment, or system is extensively repaired, renovated, modified, or replaced, or whenever new machinery, equipment, or systems are installed. This requirement does not apply when a shipyard employer:

(A) Does not own the machinery, equipment, or system; or

(B) Builds or services a vessel or vessel section according to customer specifications.

(6) Full employee protection.

(A) When a tag is used on an energy-isolating device that is capable of being locked out, the tag shall be attached at the same location that the lock would have been attached, and;

(B) The employer shall demonstrate that the use of a tags-plus system will provide a level of safety equivalent to that obtained by using a lock. In demonstrating that an equivalent level of safety is achieved, the employer shall:

1. Demonstrate full compliance with all tags-plus-related provisions of this standard; and

2. Implement such additional safety measures as are necessary to provide the equivalent safety available from the use of a lock.

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NOTE TO SUBSECTION (c)(6):

When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of subsection (c)(6)(B)2 do not apply, provided that the employer complies with the verification procedures in subsection (g).

(7) Lockout/tags-plus coordination.

(A) The employer shall establish and implement lockout/tags-plus coordination when:

- 1. Employees on vessels and in vessel sections are servicing multiple machinery, equipment, or systems at the same time; or**
- 2. Employees on vessels, in vessel sections, and at landside facilities are performing multiple servicing operations on the same machinery, equipment, or system at the same time.**

(B) The coordination process shall include a lockout/tags-plus coordinator and a lockout/tags-plus log. Each log shall be specific to each vessel, vessel section, and landside work area.

(C) The employer shall designate a lockout/tags-plus coordinator who is responsible for overseeing and approving:

- 1. The application of each lockout and tags-plus system;**
- 2. The verification of hazardous energy isolation before the servicing of any machinery, equipment, or system begins; and**
- 3. The removal of each lockout and tags-plus system.**

(D) The employer shall ensure that the lockout/tags-plus coordinator maintains and administers a continuous log of each lockout and tags-plus system. The log shall contain:

- 1. Location of machinery, equipment, or system to be serviced;**
- 2. Type of machinery, equipment, or system to be serviced;**
- 3. Name of the authorized employee applying the lockout/tags-plus system;**
- 4. Date that the lockout/tags-plus system is applied;**
- 5. Name of authorized employee removing the lock or tags-plus system; and**
- 6. Date that lockout/tags-plus system is removed.**

NOTE TO SUBSECTION (c)(7):

When the Navy ship's force serves as the lockout/tags-plus coordinator and maintains control of the lockout/tags-plus log, the employer shall be in compliance with the requirements in subsection (c)(7) when coordination between the ship's force and the employer occurs to ensure that applicable lockout/tags-plus procedures are followed and documented.

(d) Lockout/tags-plus written procedures.

(1) The employer shall establish and implement written procedures to prevent energization or startup, or the release of hazardous energy, during the servicing of any machinery, equipment, or system. Each procedure shall include:

(A) A clear and specific outline of the scope and purpose of the lockout/tags-plus procedure;

(B) The means the employer will use to enforce compliance with the lockout/tags-plus program and procedures; and

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(C) The steps that shall be followed for:

1. Preparing for shutting down and isolating of the machinery, equipment, or system to be serviced, in accordance with subsection (e);
2. Applying the lockout/tags-plus system, in accordance with subsection (f);
3. Verifying isolation, in accordance with subsection (g);
4. Testing the machinery, equipment, or system, in accordance with subsection (h);
5. Removing lockout/tags-plus systems, in accordance with subsection (i);
6. Starting up the machinery, equipment, or system that is being serviced, in accordance with subsection (j);
7. Applying lockout/tags-plus systems in group servicing operations, in accordance with subsection (k);
8. Addressing multi-employer worksites involved in servicing any machinery, equipment, or system, in accordance with subsection (l); and
9. Addressing shift or personnel changes during servicing operations, in accordance with subsection (m).

NOTE TO SUBSECTION (d)(1):

The employer need only develop a single procedure for a group of similar machines, equipment, or systems if the machines, equipment, or systems have the same type and magnitude of energy and the same or similar types of controls, and if a single procedure can satisfactorily address the hazards and the steps to be taken to control these hazards.

(2) The employer's lockout procedures do not have to be in writing for servicing machinery, equipment, or systems, provided that all of the following conditions are met:

(A) There is no potential for hazardous energy to be released (or to re-accumulate) after shutting down, or restoring energy to, the machinery, equipment, or system;

(B) The machinery, equipment, or system has a single energy source that can be readily identified and isolated;

(C) The isolation and lock out of that energy source will result in complete de-energization and deactivation of the machinery, equipment, or system, and there is no potential for re-accumulation of energy;

(D) The energy source is isolated and secured from the machinery, equipment, or system during servicing;

(E) Only one lock is necessary for isolating the energy source;

(F) The lock is under the exclusive control of the authorized employee performing the servicing;

(G) The servicing does not create a hazard for any other employee; and

(H) The employer, in utilizing this exception, has not had any accidents or incidents involving the activation or re-energization of this type of machinery, equipment, or system during servicing.

(e) Procedures for shutdown and isolation.

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(1) Before an authorized employee shuts down any machinery, equipment, or system, the employer shall:

(A) Ensure that the authorized employee has knowledge of:

1. The source, type, and magnitude of the hazards associated with energization or startup of the machine, equipment, or system;
2. The hazards associated with the release of hazardous energy; and
3. The means to control these hazards; and

(B) Notify each affected employee that the machinery, equipment, or system will be shut down and de-energized prior to servicing, and that a lockout/tags-plus system will be implemented.

(2) The employer shall ensure that the machinery, equipment, or system is shut down according to the written procedures the employer established.

(3) The employer shall use an orderly shutdown to prevent exposing any employee to risks associated with hazardous energy.

(4) The employer shall ensure that the authorized employee relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy that is connected to the machinery, equipment, or system.

NOTE TO SUBSECTION (e):

When the Navy ship's force shuts down any machinery, equipment, or system, and relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy that is connected to the machinery, equipment, or system, the employer will be in compliance with the requirements in subsection (e) when the employer's authorized employee verifies that the machinery, equipment, or system being serviced has been properly shut down, isolated, and de-energized.

(f) Procedures for applying lockout/tags-plus systems.

(1) The employer shall ensure that only an authorized employee applies a lockout/tags-plus system.

(2) When using lockout systems, the employer shall ensure that the authorized employee affixes each lock in a manner that will hold the energy isolating device in a safe or off position.

(3) When using tags-plus systems, the employer shall ensure that the authorized employee affixes a tag directly to the energy-isolating device that clearly indicates that the removal of the device from a safe or off position is prohibited.

(4) When the tag cannot be affixed directly to the energy-isolating device the employer shall ensure that the authorized employee locates it as close as safely possible to the device, in a safe and immediately obvious position.

(5) The employer shall ensure that each energy-isolating device that controls energy to the machinery, equipment, or system is effective in isolating the machinery, equipment, or system from all potentially hazardous energy source(s).

NOTE TO SUBSECTION (f):

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When the Navy ship's force applies the lockout/tags-plus systems or devices, the employer will be in compliance with the requirements in subsection (f) when the employer's authorized employee verifies the application of the lockout/tags-plus systems or devices.

(g) Procedures for verification of de-energization and isolation.

(1) Before servicing machinery, equipment, or a system that has a lockout/tags-plus system, the employer shall ensure that the authorized employee, or the primary authorized employee in a group lockout/tags-plus application, verifies that the machinery, equipment, or system is de-energized and all energy sources isolated.

(2) The employer shall ensure that the authorized employee, or the primary authorized employee in a group lockout/tags-plus application, continues verifying de-energization and isolation while servicing the machinery, equipment, or system.

(3) Each authorized employee in a group lockout/tags-plus application who will be servicing the machinery, equipment, or system shall be given the option to verify that the machinery, equipment, or system is de-energized and all energy sources isolated, even when verification is performed by the primary authorized employee.

(h) Procedures for testing. In each situation in which a lockout/tags-plus system must be removed temporarily and the machinery, equipment, or system restarted to test it or to position a component, the employer shall ensure that the authorized employee does the following in sequence:

(1) Clears tools and materials from the work area;

(2) Removes nonessential employees from the work area;

(3) Removes each lockout/tags-plus system in accordance with subsection (i);

(4) Restarts the machinery, equipment, or system and then proceeds with testing or positioning; and

(5) After completing testing or positioning, de-energizes and shuts down the machinery, equipment, or system and reapplies all lockout/tags-plus systems in accordance with subsections (e)-(g) to continue servicing.

NOTE TO SUBSECTION (h):

When the Navy ship's force serves as the lockout/tags-plus coordinator, performs the testing, and maintains control of the lockout/tags-plus systems or devices during testing, the employer is in compliance with subsection (h) when the employer's authorized employee acknowledges to the lockout/tags-plus coordinator that the employer's personnel and tools are clear and the machinery, equipment, or system being serviced is ready for testing, and upon completion of the testing, verifies the reapplication of the lockout/tags-plus systems.

(i) Procedures for removal of lockout and tags-plus systems.

(1) Before removing any lockout/tags-plus system and restoring the machinery, equipment, or system to use, the employer shall ensure that the authorized employee does the following:

(A) Notifies all other authorized and affected employees that the lockout/tags-plus system will be removed;

(B) Ensures that all employees in the work area have been safely positioned or removed; and

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(C) Inspects the work area to ensure that nonessential items have been removed and machinery, equipment, or system components are operationally intact.

(2) The employer shall ensure that each lock or tags-plus system is removed by the authorized employee who applied it.

(3) When the authorized employee who applied the lockout/tags-plus system is not available to remove it, the employer may direct removal by another authorized employee, provided the employer developed and incorporated into the lockout/tags-plus program the specific procedures and training that address such removal, and demonstrates that the specific procedures used provide a level of employee safety that is at least as effective in protecting employees as removal of the system by the authorized employee who applied it. After meeting these requirements, the employer shall do the following in sequence:

(A) Verify that the authorized employee who applied the lockout/tags-plus system is not in the facility;

(B) Make all reasonable efforts to contact the authorized employee to inform him/her that the lockout/tags-plus system has been removed; and

(C) Ensure that the authorized employee who applied the lock or tags-plus system has knowledge of the removal before resuming work on the affected machinery, equipment, or system.

NOTE TO SUBSECTION (i):

When the Navy ship's force serves as lockout/tags-plus coordinator and removes the lockout/tags-plus systems or devices, the employer is in compliance with the requirements in subsection (i) when the employer's authorized employee informs the lockout/tags-plus coordinator that the procedures in subsection (i)(1) have been performed.

(j) Procedures for startup.

(1) Before an authorized employee turns on any machinery, equipment, or system after servicing is completed, the employer shall ensure that the authorized employee has knowledge of the source, type, and magnitude of the hazards associated with energization or startup, and the means to control these hazards.

(2) The employer shall execute an orderly startup to prevent or minimize any additional or increased hazard(s) to employees. The employer shall perform the following tasks before starting up the machinery, equipment, or system:

(A) Clear tools and materials from the work area;

(B) Remove any non-essential employees from the work area; and

(C) Start up the machinery, equipment, or system according to the detailed procedures the employer established for that machinery, equipment, or system.

NOTE TO SUBSECTION (j):

When the Navy ship's force serves as lockout/tags-plus coordinator and maintains control of the lockout/tags-plus systems or devices during startup, and the employer is prohibited from starting up the machinery, equipment, or system, the employer is in compliance with the requirements in

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subsection (j) when the employer's authorized employee informs the lockout/tags-plus coordinator the procedures in subsections (j)(2)(A) and (j)(2)(B) have been performed.

(k) Procedures for group lockout/tags-plus.

When more than one authorized employee services the same machinery, equipment, or system at the same time, the following procedures shall be implemented:

(1) Primary authorized employee. The employer shall:

(A) Assign responsibility to one primary authorized employee for each group of authorized employees performing servicing on the same machinery, equipment, or system;

(B) Ensure that the primary authorized employee determines the safe exposure status of each authorized employee in the group with regard to the lockout/tags-plus system;

(C) Ensure that the primary authorized employee obtains approval from the lockout/tags-plus coordinator to apply and remove the lockout/tags-plus system; and

(D) Ensure that the primary authorized employee coordinates the servicing operation with the coordinator when required by subsection (c)(7)(A).

(2) Authorized employees. The employer shall either:

(A) Have each authorized employee apply a personal lockout/tags-plus system; or

(B) Use a procedure that the employer can demonstrate affords each authorized employee a level of protection equivalent to the protection provided by having each authorized employee apply a personal lockout/tags-plus system. Such procedures shall incorporate a means for each authorized employee to have personal control of, and accountability for, his or her protection such as, but not limited to, having each authorized employee:

1. Sign a group tag (or a group tag equivalent), attach a personal identification device to a group lockout device, or performs a comparable action before servicing is started; and

2. Sign off the group tag (or the group tag equivalent), remove the personal identification device, or perform a comparable action when servicing is finished.

NOTE TO SUBSECTION (k)(2):

When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and prohibits the employer from applying or removing the lockout/tags-plus system or starting up the machinery, equipment, or systems being serviced, the employer is in compliance with the requirements in subsections (k)(1)(C) and (k)(2), provided that the employer ensures that the primary authorized employee takes the following steps in the following order: (1) Before servicing begins and after de-energization, (a) verifies the safe exposure status of each authorized employee, and (b) signs a group tag (or a group tag equivalent) or performs a comparable action; and (2) after servicing is complete and before re-energization, (a) verifies the safe exposure status of each authorized employee, and (b) signs off the group tag (or the group tag equivalent) or performs a comparable action.

(l) Procedures for multi-employer worksites.

(1) The host employer shall establish and implement procedures to protect employees from hazardous energy in multi-employer worksites. The procedures shall specify the responsibilities for host and contract employers.

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(2) Host employer responsibilities. The host employer shall carry out the following responsibilities in multiemployer worksites:

(A) Inform each contract employer about the content of the host employer's lockout/tags-plus program and procedures;

(B) Instruct each contract employer to follow the host employer's lockout/tags-plus program and procedures; and

(C) Ensure that the lockout/tags-plus coordinator knows about all servicing operations and communicates with each contract employer who performs servicing or works in an area where servicing is being conducted.

(3) Contract employer responsibilities.

Each contract employer shall perform the following duties when working in a multi-employer worksite:

(A) Follow the host employer's lockout/tags-plus program and procedures;

(B) Ensure that the host employer knows about the lockout/tags-plus hazards associated with the contract employer's work and what the contract employer is doing to address these hazards; and

(C) Inform the host employer of any previously unidentified lockout/tags-plus hazards that the contract employer identifies at the multi-employer worksite.

NOTES TO SUBSECTION (I):

1. The host employer may include provisions in its contract with the contract employer for the contract employer to have more control over the lockout/tags-plus program if such provisions will provide an equivalent level of protection for the host employer's and contract employer's employees as that provided by subsection (I).

2. When the U.S Navy contracts directly with a contract employer and the Navy ship's force maintains control of the lockout/tags-plus systems or devices, that contract employer shall consider the Navy to be the host employer for the purposes of subsection (I)(3).

(m) Procedures for shift or personnel changes.

(1) The employer shall establish and implement specific procedures for shift or personnel changes to ensure the continuity of lockout/tags-plus protection.

(2) The employer shall establish and implement provisions for the orderly transfer of lockout/tags-plus systems between authorized employees when they are starting and ending their work shifts, or when personnel changes occur during a work shift, to prevent energization or startup of the machinery, equipment, or system being serviced or the release of hazardous energy.

(n) Lockout/tags-plus materials and hardware.

(1) The employer shall provide locks and tags-plus system hardware used for isolating, securing, or blocking machinery, equipment, or systems from all hazardous-energy sources.

(2) The employer shall ensure that each lock and tag is uniquely identified for the purpose of controlling hazardous energy and is not used for any other purpose.

(3) The employer shall ensure that each lock and tag meets the following requirements:

(A) Durable.

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1. Each lock and tag shall be capable of withstanding the existing environmental conditions for the maximum period of time that servicing is expected to last;

2. Each tag shall be made so that weather conditions, wet or damp conditions, corrosive substances, or other conditions in the work area where the tag is used or stored will not cause it to deteriorate or become illegible.

(B) Standardized.

1. Each lock and tag shall be standardized in at least one of the following areas: color, shape, or size; and

2. Each tag shall be standardized in print and format.

(C) Substantial.

1. Each lock shall be sturdy enough to prevent removal without the use of extra force or unusual techniques, such as bolt cutters or other metal-cutting tools;

2. Each tag and tag attachment shall be sturdy enough to prevent inadvertent or accidental removal;

3. Each tag attachment shall have the general design and basic safety characteristics of a one-piece, all-environment-tolerant nylon tie;

4. Each tag attachment shall be non-reusable, attachable by hand, self-locking, and non-releasable, and has a minimum unlocking strength of 50 pounds.

(D) Identifiable. Each lock and tag shall indicate the identity of the authorized employee applying it; and

(E) Each tag shall warn of hazardous conditions that could arise if the machinery, equipment, or system is energized and includes a legend such as one of the following: "Do Not Start," "Do Not Open," "Do Not Close," "Do Not Energize," or "Do Not Operate."

(o) Information and training.

(1) Initial training. The employer shall train each employee in the applicable requirements of this section no later than [Effective date plus 3 months].

(2) General training content. The employer shall train each employee who is, or may be, in an area where lockout/tags-plus systems are being used so they know:

(A) The purpose and function of the employer's lockout/tags-plus program and procedures;

(B) The unique identity of the locks and tags to be used in the lockout/tags-plus system, as well as the standardized color, shape or size of these devices;

(C) The basic components of the tags-plus system: an energy-isolating device with a tag affixed to it and an additional safety measure;

(D) The prohibition against tampering with or removing any lockout/tags-plus system; and

(E) The prohibition against restarting or reenergizing any machinery, equipment, or system being serviced under a lockout/tags-plus system.

(3) Additional training requirements for affected employees. In addition to training affected employees in the requirements in subsection (o)(2), the employer also shall train each affected employee so he/she knows:

(A) The use of the employer's lockout/tags-plus program and procedures;

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(B) That affected employees are not to apply or remove any lockout/tags-plus system; and
(C) That affected employees are not to bypass, ignore, or otherwise defeat any lockout/tags-plus system.

(4) Additional training requirements for authorized employees. In addition to training authorized employees in the requirements in subsections (o)(2) and (o)(3), the employer also shall train each authorized employee so he/she knows:

(A) The steps necessary for the safe application, use, and removal of lockout/tags-plus systems to prevent energization or startup or the release of hazardous energy during servicing of machinery, equipment, or systems;

(B) The type of energy sources and the magnitude of the energy available at the worksite;

(C) The means and methods necessary for effective isolation and control of hazardous energy;

(D) The means for determining the safe exposure status of other employees in a group when the authorized employee is working as a group's primary authorized employee.

(E) The requirement for tags to be written so they are legible and understandable to all employees;

(F) The requirement that tags and their means of attachment be made of materials that will withstand the environmental conditions encountered in the workplace;

(G) The requirement that tags be securely attached to energy-isolating devices so they cannot be accidentally removed while servicing machinery, equipment, or systems;

(H) That tags are warning devices, and alone do not provide physical barriers against energization or startup, or the release of hazardous energy, provided by locks, and energy-isolating devices; and

(I) That tags shall be used in conjunction with an energy-isolating device to prevent energization or startup or the release of hazardous energy.

(5) Additional training for lockout/tags-plus coordinator. In addition to training lockout/tags-plus coordinators in the requirements in subsections (o)(2), (o)(3), and (o)(4), the employer shall train each lockout/tags-plus coordinator so he/she knows:

(A) How to identify and isolate any machinery, equipment, or system that is being serviced; and

(B) How to accurately document lockout/tags-plus systems and maintain the lockout/tags-plus log.

(6) Employee retraining.

(A) The employer shall retrain each employee, as applicable, whenever:

1. There is a change in his/her job assignment that presents new hazards or requires a greater degree of knowledge about the employer's lockout/tags-plus program or procedures;

2. There is a change in machinery, equipment, or systems to be serviced that present a new energy-control hazard;

3. There is a change in the employer's lockout/tags-plus program or procedures; or

4. It is necessary to maintain the employee's proficiency.

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(B) The employer also shall retrain each employee, as applicable, whenever an incident investigation or program audit indicates that there are:

1. Deviations from, or deficiencies in, the employer's lockout/tags-plus program or procedures; or
2. Inadequacies in an employee's knowledge or use of the lockout/tags-plus program or procedures.

(C) The employer shall ensure that retraining establishes the required employee knowledge and proficiency in the employer's lockout/tags-plus program and procedures and in any new or revised energy-control procedures.

(7) Upon completion of employee training, the employer shall keep a record that the employee accomplished the training, and that this training is current. The training record shall contain at least the employee's name, date of training, and the subject of the training.

(p) Incident investigation.

(1) The employer shall investigate each incident that resulted in, or could reasonably have resulted in, energization or startup, or the release of hazardous energy, while servicing machinery, equipment, or systems.

(2) Promptly but not later than 24 hours following the incident, the employer shall initiate an incident investigation and notify each employee who was, or could reasonably have been, affected by the incident.

(3) The employer shall ensure that the incident investigation is conducted by at least one employee who has the knowledge of, and experience in, the employer's lockout/tags-plus program and procedures, and in investigating and analyzing incidents involving the release of hazardous energy. The employer may also use additional individuals to participate in investigating the incident.

(4) The employer shall ensure that the individual(s) conducting the investigation prepare(s) a written report of the investigation that includes:

- (A) The date and time of the incident;
- (B) The date and time the incident investigation began;
- (C) Location of the incident;
- (D) A description of the incident;
- (E) The factors that contributed to the incident;
- (F) A copy of any lockout/tags-plus log that was current at the time of the incident; and
- (G) Any corrective actions that need to be taken as a result of the incident.

(5) The employer shall review the written incident report with each employee whose job tasks are relevant to the incident investigation findings, including contract employees when applicable.

(6) The employer shall ensure that the incident investigation and written report are completed, and all corrective actions implemented, within 30 days following the incident.

(7) If the employer demonstrates that it is infeasible to implement all of the corrective actions within 30 days, the employer shall prepare a written abatement plan that contains an

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explanation of the circumstances causing the delay, a proposed timetable for the abatement, and a summary of the steps the employer is taking in the interim to protect employees from hazardous energy while servicing machinery, equipment, or systems.

(q) Program audits.

(1) The employer shall conduct an audit of the lockout/tags-plus program and procedures currently in use at least annually to ensure that the procedures and the requirements of this section are being followed and to correct any deficiencies.

(2) The employer shall ensure that the audit is performed by:

(A) An authorized employee other than the one(s) currently using the energy control procedure being reviewed; or

(B) Individuals other than an authorized employee who are knowledgeable about the employer's lockout/tags-plus program and procedures and the machinery, equipment, or systems being audited.

(3) The employer shall ensure that the audit includes:

(A) A review of the written lockout/tags-plus program and procedures;

(B) A review of the current lockout/tags-plus log;

(C) Verification of the accuracy of the lockout/tags-plus log;

(D) A review of incident reports since the last audit;

(E) A review conducted between the auditor and authorized employees regarding the authorized employees' responsibilities under the lockout systems being audited; and

(F) A review conducted between the auditor and affected and authorized employees regarding their responsibilities under the tags-plus systems being audited.

(4) The employer shall ensure that, within 15 days after completion of the audit, the individual(s) who conducted the audit prepare and deliver to the employer a written audit report that includes at least:

(A) The date of the audit;

(B) The identity of the individual(s) who performed the audit;

(C) The identity of the procedure and machinery, equipment, or system that were audited;

(D) The findings of the program audit and recommendations for correcting deviations or deficiencies identified during the audit;

(E) Any incident investigation reports since the previous audit; and

(F) Descriptions of corrective actions the employer has taken in response to the findings and recommendations of any incident investigation reports prepared since the previous audit.

(5) The employer shall promptly communicate the findings and recommendations in the written audit report to each employee having a job task that may be affected by such findings and recommendations.

(6) The employer shall correct the deviations or inadequacies in the lockout/tags-plus program within 15 days after receiving the written audit report.

(r) Recordkeeping.

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(1) Table 8356(r)(1) specifies what records the employer shall retain and how long the employer shall retain them:

Table 8356(r)(1) – Retention of Records Required by Section 8356

<u>The employer shall keep the following records . . .</u>	<u>For at least . . .</u>
<u>(A) Current lockout/tags-plus program and procedures</u>	<u>Until replaced by updated program and procedures.</u>
<u>(B) Training records</u>	<u>Until replaced by updated records for each type of training.</u>
<u>(C) Incident investigation reports</u>	<u>Until the next program audit is completed.</u>
<u>(D) Program audit report</u>	<u>12 months after being replaced by the next audit report.</u>

(2) The employer shall make all records required by this section available to employees, their representatives, and the Division in accordance with the procedures and time periods specified in General Industry Safety Orders, Section 3204(e).

(s) Appendices. Non-mandatory Appendix A to this section is a guideline to assist employers and employees in complying with the requirements of this section, and to provide them with other useful information. The information in Appendix A does not add to, or in any way revise, the requirements of this section.

Appendix A to §8356 (Non-Mandatory) – Typical Minimal Lockout/Tags-Plus Procedures

General

Lockout/Tags-Plus Procedure
Lockout/Tags-Plus Procedure for

[Name of company for single procedure or identification of machinery, equipment, or system if multiple procedures used.]

Purpose

This procedure establishes the minimum requirements for the lockout/tags-plus application of energy-isolating devices on vessels and vessel sections, and for landside facilities whenever servicing is done on machinery, equipment, or systems in shipyards. This procedure shall be used to ensure that all potentially hazardous-energy sources have been isolated and the machinery, equipment, or system to be serviced has been rendered inoperative through the use of lockout or tags-plus procedures before employees perform any servicing when the energization

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or start-up of the machinery, equipment, or system, or the release of hazardous energy could cause injury.

Compliance With This Program

All employees are required to comply with the restrictions and limitations imposed on them during the use of lockout or tags-plus applications. Authorized employees are required to perform each lockout or tags-plus application in accordance with this procedure. No employee, upon observing that machinery, equipment, or systems are secured using lockout or tags-plus applications, shall attempt to start, open, close, energize, or operate that machinery, equipment, or system.

Type of compliance enforcement to be taken for violation of the above.

Procedures for Lockout/Tags-Plus Systems

(1) Notify each affected employee that servicing is required on the machinery, equipment, or system, and that it shall be isolated and rendered inoperative using a lockout or tags-plus system.

Method of notifying all affected employees.

(2) The authorized employee shall refer to shipyard employer's procedures to identify the type and magnitude of the energy source(s) that the machinery, equipment, or system uses, shall understand the hazards of the energy, and shall know the methods to control the energy source(s).

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machinery, equipment, or system is operating, shut it down in accordance with the written procedures (depress the stop button, open switch, close valve, etc.) established by the employer.

Type(s) and location(s) of machinery, equipment, or system operating controls.

(4) Secure each energy-isolating device(s) through the use of a lockout or tags-plus system (for instance, disconnecting, blanking, and affixing tags) so that the energy source is isolated and the machinery, equipment, or system is rendered inoperative.

Type(s) and location(s) of energy-isolating devices.

(5) Lockout System. Affix a lock to each energy-isolating device(s) with assigned individual lock(s) that will hold the energy isolating device(s) in a safe or off position. Potentially

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hazardous energy (such as that found in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) shall be controlled by methods such as grounding, repositioning, blocking, bleeding down, etc.

(6) Tags-Plus System. Affix a tag to each energy-isolating device and provide at least one additional safety measure that clearly indicates that removal of the device from the safe or off position is prohibited. Potentially hazardous energy (such as that found in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems and air, gas, steam, or water pressure, etc.) shall be controlled by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of hazardous energy—methods used to control them.

(7) Ensure that the machinery, equipment, or system is relieved, disconnected, restrained, or rendered safe from the release of all potentially hazardous energy by checking that no personnel are exposed, and then verifying the isolation of energy to the machine, equipment, or system by operating the push button or other normal operating control(s), or by testing to make certain it will not operate.

CAUTION: Return operating control(s) to the safe or off position after verifying the isolation of the machinery, equipment, or system.

Method of verifying the isolation of the machinery, equipment, or system.

(8) The machinery, equipment, or system is now secured by a lockout or tags-plus system, and servicing by the authorized person may be performed.

Procedures for Removal of Lockout/Tags-Plus Systems

When servicing is complete and the machinery, equipment, or system is ready to return to normal operating condition, the following steps shall be taken:

(1) Notify each authorized and affected employee(s) that the lockout/tags-plus system will be removed and the machinery, equipment, or system reenergized.

(2) Inspect the work area to ensure that all employees have been safely positioned or removed.

(3) Inspect the machinery, equipment, or system and the immediate area around the machinery, equipment, or system to ensure that nonessential items have been removed and that the machinery, equipment or system components are operationally intact.

(4) Reconnect the necessary components, remove the lockout/tags-plus material and hardware, and reenergize the machinery, equipment, or system through the established detailed procedures determined by the employer.

(5) Notify all affected employees that servicing is complete and the machinery, equipment, or system is ready for testing or use.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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TITLE 8: Division 1, Chapter 4, Subchapter 18
Ship Building, Ship Repairing and Ship Breaking Safety Orders
Article 6. Precautions

Amend Section 8376 as follows:

§8376. Ship's Machinery.

(a) Cleaning, repairing, servicing and adjusting ships machinery shall be performed in accordance with Section 3314 of the General Industry Safety Orders and Section 8356 of these Orders as applicable.

(c) Propulsion Machinery.

(1) Before work is performed on the main engine, reduction gear, or connecting accessories, the employer shall ensure that the following steps are taken:

(A) The jacking gear shall be engaged to prevent the main engine from turning over. A sign shall be posted at the throttle indicating that the jacking gear is engaged. This sign shall not be removed until the jacking gear can be safely disengaged.

(B) If the jacking gear is steam driven, the stop valves to the jacking gear shall be secured, and then locked and tagged in accordance with Section 8356. ~~indicating that employees are working on the main engine.~~

(C) If the jacking gear is electrically driven, the circuit controlling the jacking gear shall be de-energized by tripping the circuit breaker, opening the switch or removing the fuse, whichever is appropriate, and then locked or tagged in accordance with Section 8356. ~~The breaker, switch, or fuse location shall be tagged indicating that employees are working on the main engine.~~

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8376.1 as follows:

§8376.1. Ship's Boilers.

(a) Before work is performed in the fire, steam, or water spaces of a boiler where employees may be subject to injury from the direct escape of a high temperature medium such as steam, or water, oil, or other medium at a high temperature entering from an interconnecting system, the employer shall insure that the following steps are taken:

(1) The isolation and shutoff valves connecting the dead boiler with the live system or systems shall be secured, blanked, and then locked or tagged, in accordance with Section 8356, indicating that employees are working on the boiler. This lock or tag shall not be removed nor

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the valves unblanked until it is determined that this may be done without creating a hazard to the employees working on the boiler, or until the work on the boiler is completed, in accordance with Section 8356. When valves are welded instead of bolted, at least two isolation and shutoff valves connecting the dead boiler with the live system or systems shall be secured, and then locked or tagged, in accordance with Section 8356.

(2) Drain connections to atmosphere on all of the dead interconnecting systems shall be opened for visual observation of drainage.

(3) A warning sign calling attention to the fact that employees are working in the boilers shall be hung in a conspicuous location in the engine room. This sign shall not be removed until it is determined that the work is completed and all employees are out of the boilers.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8378 as follows:

§8378. Steam Supply and Hose.

(a) Steam supply system.

(1) ~~(1)~~ Prior to supplying a vessel with steam from a source outside the vessel, the employer shall ascertain from responsible vessel's representatives having knowledge of the condition of the plant, the safe working pressure of the vessel's steam system.

(2) The employer shall install a pressure gauge and a relief valve of proper size and capacity at the point where the temporary steam hose joins the vessel's steam piping system or systems. The relief valve shall be set and capable of relieving at a pressure not exceeding the safe working pressure of the vessel's system in its present condition, and there shall be no means of isolating the relief valve from the system which it protects.

(3) The pressure gauge and relief valve shall be located so as to be visible and readily accessible.

(4) Each relief valve shall be positioned so it is not likely to cause injury if steam is released.

(b) Steam hoses. The employer shall ensure that each steam hose meets the following requirements:

(1) The steam hose and its fittings are used in accordance with manufacturer's specifications;

(2) ~~(a)~~ Steam hose and fittings shall have a factor of safety of at least five.

~~(b) When steam hose is hung in a bight or bights, the weight shall be relieved by appropriate lines.~~

~~(c) When hose may be subject to chafing, gear shall be provided to obviate such chafing.~~

(3) ~~(d)~~ Steam hose shall not be bent at a radius of less than 5 feet which would result in kinking.

~~(e) Steam hose shall be shielded to prevent accidental personal contact, and shall be protected from damage.~~

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(4) Each steam hose is hung tightly with short bights that prevent chafing and to reduce tension on the hose and its fittings;

(5) Each steam hose is protected from damage; and

(6) Each steam hose or temporary steam piping, including metal fittings and couplings, that pass through a walking or working area is shielded to protect employees from contact.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8378.1 as follows:

§8378.1. Ship's Piping Systems.

(a) Before work is performed on a valve, fitting, or section of piping in a piping system where employees may be subject to injury from the direct escape of steam, or water, oil, or other medium at a high temperature, the employer shall insure that the following steps are taken:

(1) The isolation and shutoff valves connecting the dead system with the live system or systems shall be secured, blanked, and then locked or tagged, in accordance with Section 8356, indicating that employees are working on the systems. The lock or tag shall not be removed or the valves unblanked until it is determined that this may be done without creating a hazard to the employees working on the system, or until the work on the system is completed, in accordance with Section 8356. When valves are welded instead of bolted, at least two isolation and shutoff valves connecting the dead system with the live system or systems shall be secured, and then locked or tagged, in accordance with Section 8356.

(2) Drain connections to the atmosphere on all of the dead interconnecting systems shall be opened for visual observation of drainage.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8384 as follows:

§8384. Tools and Equipment.

(d) ~~Infrared electrical heat lamps. All infrared heat lamps shall be equipped with guards that surround the lamps with the exception of the face, to minimize accidental contact with the lamps.~~ Heat lamps. The employer shall ensure that each heat lamp, including the face, is equipped with surround type guards to prevent contact with the lamp and bulb.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend Section 8387 as follows:

§8387. ~~Life Rings, Life Lines, and Safety Belts. (Repealed)~~ Motor Vehicle Safety Equipment, Operation and Maintenance.

(a) Application.

(1) This section applies to any motor vehicle used to transport employees, materials, or property at worksites engaged in shipyard employment. This section does not apply to motor vehicle operation on public streets and highways.

(2) The requirements of this section apply to employer-provided motor vehicles. The requirements of subsections (b)(2), (b)(4), and (c)(2) also apply to employee-provided motor vehicles.

(3) Only the requirements of subsections (b)(1) through (b)(3) apply to powered industrial trucks, as defined in General Industry Safety Orders (GISO) Section 3649. The maintenance, inspection, operation, and training requirements in GISO Article 25 apply to powered industrial trucks used for shipyard employment.

(b) Motor vehicle safety equipment.

(1) The employer shall ensure that each motor vehicle acquired or initially used after [Effective date] is equipped with a safety belt for each employee operating or riding in the motor vehicle. This requirement does not apply to any motor vehicle that was not equipped with safety belts at the time of manufacture.

NOTE: This provision shall not supersede requirements for seat belts already required by other portions of California Title 8 Safety Orders.

(2) The employer shall ensure that each employee uses a safety belt, securely fastened, at all times while operating or riding in a motor vehicle.

(3) The employer shall ensure that vehicle safety equipment is not removed from any employer-provided vehicle. The employer shall replace safety equipment that is removed.

(4) The employer shall ensure that each motor vehicle used to transport an employee has firmly secured seats for each employee being transported and that all employees being transported are using such seats.

(c) Motor vehicle maintenance and operation.

(1) The employer shall ensure that each motor vehicle is maintained in a serviceable and safe operating condition, and removed from service if it is not in such condition.

(2) The employer shall ensure that, before a motor vehicle is operated, any tools and materials being transported are secured if their movements may create a hazard for employees.

(3) The employer shall implement measures to ensure that motor vehicle operators are able to see, and avoid harming, pedestrians and bicyclists at shipyards. Measures that employers may implement to comply with this requirement include:

(A) Establishing dedicated travel lanes for motor vehicles, bicyclists, and pedestrians;

(B) Installing crosswalks and traffic control devices such as stop signs, mirrors at blind spots, or physical barriers to separate travel lanes;

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- (C) Establishing appropriate speed limits for all motor vehicles;
- (D) Establishing “no drive” times to allow for safe movement of pedestrians;
- (E) Providing reflective vests or other gear so pedestrians and bicyclists are clearly visible to motor vehicle operators;
- (F) Ensuring that bicycles have reflectors, lights, or other equipment to maximize visibility of the bicyclist; or
- (G) Other measures that the employer can demonstrate are as effective in protecting pedestrians and bicyclists as those measures specified in subsections (c)(3)(A) through (c)(3)(F).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8391 as follows:

§8391. Housekeeping.

(a) Good housekeeping conditions shall be maintained. Adequate aisles and passageways shall be maintained in all work areas. All staging platforms, ramps, stairways, walkways, aisles, and passageways shall be kept reasonably clear of all tools, materials, and equipment except that which is in use, and of all debris such as welding rod tips, bolts, nuts, and similar material. Hose and electric conductors shall be elevated over or placed under the walkway or working surfaces or covered by adequate cross-over structures.

(b) All working areas on vessels and dry docks shall be kept reasonably free of debris, and construction material shall be so piled or stored as not to present a hazard to employees.

(c) Slippery conditions on walkways or working surfaces shall be eliminated as they occur. If it is not practicable for the employer to remove slippery conditions, the employer shall restrict employees to designated walkways and working surfaces where the employer has eliminated slippery conditions.

(d) ~~Free access shall be maintained at all times to all exits and to all fire alarm boxes or fire extinguishing equipment.~~ The employer shall maintain easy and open access to each fire-alarm box, fire-call station, fire-fighting equipment, and each exit, including ladders, staircases, scaffolds, and gangways.

(e) All oils, paints, thinners, solvents, waste, rags, or other flammable or combustible substances shall be kept in fire-resistant covered containers when not in use.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8391.1 as follows:

§8391.1. Walkways.

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(a) In addition to the requirements in Section 8391, the employer also shall ensure that each walkway:

(1) Provides adequate passage;

(2) Is clear of debris, including solid and liquid wastes, that may create a hazard for employees;

(3) Is clear of tools, materials, equipment, and other objects that may create a hazard for employees; and

(4) Is clear of hoses and electrical service cords. The employer shall:

(A) Place each hose and cord above walkways in a location that will prevent injury to employees and damage to the hoses and cords;

(B) Place each hose and cord underneath walkways;

(C) Place each hose and cord on walkways, provided the hoses and cords are covered by crossovers or other means that will prevent injury to employees and damage to the hoses and cords; or

(D) Protect each hose and cord by other suitable means.

(b) While a walkway or part of a walkway is being used as a working surface, the employer shall cordon off that portion to prevent it from being used as a walkway.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8391.2 as follows:

§8391.2. Working Surfaces.

In addition to the requirements in Section 8391, the employer also shall ensure that each working surface:

(a) Is cleared of tools, materials, and equipment that are not necessary to perform the job in progress;

(b) Is cleared of debris, including solid and liquid wastes, at the end of each work shift or job, whichever occurs first;

(c) Is maintained, so far as practicable, in a dry condition. When a wet process is used, the employer shall maintain drainage and provide false floors, platforms, mats, or other dry standing places.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8391.3 as follows:

§8391.3. Illumination.

(a) General Requirements.

(1) The employer shall ensure that each work area and walkway is adequately lighted whenever an employee is present.

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(2) For landside areas, the employer shall provide illumination that meets the levels set forth in Table F-1.

TABLE F-1 – MINIMUM LIGHTING INTENSITIES IN FOOT-CANDLES

<u>Lumens (foot- candles)</u>	<u>Area or operation</u>
<u>3</u>	<u>General areas on vessels and vessel sections such as access ways, exits, gangways, stairs, and walkways.</u>
<u>5</u>	<u>General landside areas such as corridors, exits, stairs, and walkways.</u>
<u>5</u>	<u>All assigned work areas on any vessel or vessel section.</u>
<u>5</u>	<u>Landside tunnels, shafts, vaults, pumping stations, and underground work areas.</u>
<u>10</u>	<u>Landside work areas such as machine shops, electrical equipment rooms, carpenter shops, lofts, tool rooms, warehouses, and outdoor work areas.</u>
<u>10</u>	<u>Changing rooms, showers, sewered toilets, and eating, drinking, and break areas.</u>
<u>30</u>	<u>First aid stations, infirmaries, and offices.</u>

NOTE TO TABLE F-1: The required illumination levels in this table do not apply to emergency or portable lights.

(3) For vessels and vessel sections, the employer shall provide illumination that meets the levels set forth in Table F-1 or meet ANSI/IESNA RP-7-01, Recommended Practice for Lighting Industrial Facilities, ANSI approved July 26, 2001, which is incorporated by reference.

(4) When adequate illumination is not obtainable by permanent lighting sources, temporary lighting may be used as supplementation.

(5) The employer shall ensure that neither matches nor open-flame devices are used for lighting.

(b) Temporary lights. The employer shall ensure that temporary lights meet the following requirements:

(1) Lights with bulbs that are not completely recessed are equipped with guards to prevent accidental contact with the bulb;

(2) Lights are equipped with electric cords designed with sufficient capacity to safely carry the electric load;

(3) ~~(a)~~ Temporary lights shall be equipped with heavy-duty electric cords with connections and insulation maintained in safe condition. Temporary lights shall not be suspended by their

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electric cords unless cords and lights are designed for this means of suspension; ~~Splices which have insulation equal to that of the cable are permitted.~~

(4) (e) Temporary lighting stringers or streamers shall be so arranged as to avoid overloading of branch circuits;

(5) Each branch circuit shall be equipped with overcurrent protection of capacity not exceeding the rated current-carrying capacity of the cord used;

(6) Splices have insulation with a capacity that exceeds that of the original insulation of the cord; and

(7) Exposed, non-current-carrying metal parts of lights are grounded. The employer shall ensure that grounding is provided either through a third wire in the cord containing the circuit conductors or through a separate wire that is grounded at the source of the current. Grounding shall be done in accordance with the requirements of General Industry Safety Orders, Subchapter 5, Electrical Safety Orders.

(c) Portable lights.

(1) In any dark area that does not have permanent or temporary lights, where lights are not working, or where lights are not readily accessible, the employer shall provide portable or emergency lights and ensure that employees do not enter those areas without such lights.

(2) (b) Where temporary lighting from sources outside the vessel is the only means of illumination, portable emergency lighting equipment shall be available to provide illumination for safe movement of employees.

(d) Explosion-proof, self-contained lights. The employer shall provide and ensure that each employee uses only explosion-proof, self-contained temporary and portable lights, approved for hazardous conditions by a nationally recognized testing laboratory (NRTL), in any area that the atmosphere is determined to contain a concentration of flammable vapors that are at or above 10 percent of the lower explosive limit (LEL).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8391.4 as follows:

§8391.4. Electric Circuits and Distribution Boards.

(a) The provisions of this section shall apply to ship repairing and shipbuilding and shall not apply to ship breaking.

(b) Before an employee is permitted to work on an electrical circuit, except when the circuit must remain energized for testing and adjusting, the circuit shall be de-energized and checked at the point at which the work is to be done to insure that it is actually de-energized.

(1) When testing or adjusting an energized circuit a rubber mat, duck board, or other suitable insulation shall be used underfoot where an insulated deck does not exist.

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(c) De-energizing the circuit shall be accomplished by opening the circuit breaker, opening the switch, or removing the fuse, whichever method is appropriate. The circuit breaker, switch, or fuse location shall then be locked out or tagged in accordance with Section 8356.

(d) When work is performed immediately adjacent to an open-front energized board or in back of an energized board, the board shall be covered or some other equally safe means shall be used to prevent contact with any of the energized parts.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8391.5 as follows:

§8391.5. Safety Color Code for Marking Physical Hazards.

The requirements applicable to shipyard employment under this section are identical to the requirements set forth General Industry Safety Orders, Section 3340, Accident Prevention Signs.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Add new Section 8391.6 as follows:

§8391.6. Accident Prevention Signs and Tags.

The requirements applicable to shipyard employment under this section are identical to the requirements set forth in General Industry Safety Orders Sections 3340 and 3341.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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TITLE 8: Division 1, Chapter 4, Subchapter 18
Ship Building, Ship Repairing and Ship Breaking Safety Orders
Article 8. Miscellaneous Safe Practices

Amend Section 8397.2 as follows:

§8397.2. Electric Power.

(a) When the vessel is supplied with electric power from a source outside the vessel, the employer shall take the following precautions ~~shall be taken~~ prior to energizing any of the vessel's circuits:

(1) ~~If in dry dock, the vessel shall be adequately grounded.~~ Ensure that the vessel is grounded.

(2) The employer shall ascertain from responsible vessel's representatives, having a knowledge of the condition of the vessel's electrical system, that all circuits to be energized are in a safe condition.

(3) All circuits to be energized shall be equipped with overcurrent protection of capacity not exceeding the rated current carrying capacity of the conductors ~~used~~.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8397.3 as follows:

§8397.3. Work in or on Lifeboats.

(a) Before employees are permitted to work in or on a lifeboat, either stowed or in a suspended position, the employer shall ensure that the boat is secured independently of the releasing gear to prevent the boat from falling ~~due to accidental tripping of their releasing gear and movement of the davits~~ or capsizing ~~of a boat in chocks~~.

(b) ~~Employees shall not be permitted to remain in boats while the boats are being hoisted into final stowed position.~~ The employer shall not permit any employee to be in a lifeboat while it is being hoisted or lowered, except when the employer demonstrates that it is necessary to conduct operational tests or drills over water, or in the event of an emergency.

(c) Employees shall not be permitted to work on the outboard side of lifeboats stowed on their chocks unless the boats are secured by gripes or otherwise secured to prevent them from swinging ~~outboard~~.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend Section 8397.4 as follows:

§8397.4. Health and Sanitation.

(a) General requirements.

(1) The employer shall provide adequate and readily accessible sanitation facilities.

(2) The employer shall establish and implement a schedule for servicing, cleaning, and supplying each facility to ensure it is maintained in a clean, sanitary, and serviceable condition.
~~The employer shall provide adequate washing facilities for employees engaged in the application of paints or coatings or in other operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees. The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing of hands and face prior to eating or smoking.~~

(b) Potable water shall be provided in accordance with General Industry Safety Orders, Section 3363.

~~The employer shall not permit employees to eat or smoke in areas undergoing surface preparation or preservation or where shipbreaking operations produce atmospheric contaminants.~~

(c) Non-potable water.

(1) The employer may use non-potable water for other purposes such as firefighting and cleaning outdoor premises so long as it does not contain chemicals, fecal matter, coliform, or other substances at levels that may create a hazard for employees.

(2) The employer shall clearly mark non-potable water supplies and outlets as “not safe for health or personal use.”

~~The employer shall not permit employees to work in the immediate vicinity of uncovered garbage and shall ensure that employees working beneath or on the outboard side of a vessel are not subject to contamination by drainage or waste from overboard discharges.~~

(d) Toilets. *[Ed note: former 8397.4(d) relocated to 8397.4(j)]*

(1) General requirements. The employer shall ensure that sewer and portable toilets:

(A) Provide privacy at all times. When a toilet facility contains more than one toilet, each toilet shall occupy a separate compartment with a door and walls or partitions that are sufficiently high to ensure privacy; and

(B) Are separate for each sex, except as provided in (d)(1)(B)2 of this section;

1. The number of toilets provided for each sex shall be based on the maximum number of employees of that sex present at the worksite at any one time during a work shift. A single occupancy toilet room shall be counted as one toilet regardless of the number of toilets it contains; and

2. The employer does not have to provide separate toilet facilities for each sex when they will not be occupied by more than one employee at a time, can be locked from the inside, and contain at least one toilet.

(C) The employer shall establish and implement a schedule to ensure that each sewer and portable toilet is maintained in a clean, sanitary, and serviceable condition.

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(2) Minimum number of toilets.

(A) The employer shall provide at least the following number of toilets for each sex. Portable toilets that meet the requirements of subsection (d)(3) may be included in the minimum number of toilets.

TABLE F-2

Number of employees of each sex	Minimum number of toilets per sex
1 to 15	1
16 to 35	<u>2</u>
36 to 55	<u>3</u>
56 to 80	4
81 to 110	<u>5</u>
111 to 150	<u>6</u>
Over 150	1 additional toilet for each additional 40 employees.

NOTE TO TABLE F-2: When toilets will only be used by men, urinals may be provided instead of toilets, except that the number of toilets in such cases shall not be reduced to less than two-thirds of the minimum specified.

(3) Portable toilets.

(A) The employer shall provide portable toilets, pursuant to subsection (d)(2)(A) and Table F-2, only when the employer demonstrates that it is not feasible to provide sewerred toilets, or when there is a temporary increase in the number of employees for a short duration of time.

(B) The employer shall ensure that each portable toilet is vented and equipped, as necessary, with lighting.

(4) Exception for normally unattended worksites and mobile work crews. The requirement to provide toilets does not apply to normally unattended worksites and mobile work crews, provided that the employer ensures that employees have immediately available transportation to readily accessible sanitation facilities that are maintained in a clean, sanitary, and serviceable condition and meet the other requirements of this section.

(e) Hand washing facilities.

(1) The employer shall provide hand washing facilities at or adjacent to each toilet facility.

(2) The employer shall ensure that each hand washing facility:

(A) Is equipped with either hot and cold or lukewarm running water and soap, or with waterless skin-cleansing agents that are capable of disinfecting the skin or neutralizing the contaminants to which the employee may be exposed; and

(B) If the facility uses soap and water, it is supplied with clean, single-use hand towels stored in a sanitary container and a sanitary means for disposing of them, clean individual sections of continuous cloth toweling, or a hand-drying air blower.

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- (3) The employer shall inform each employee engaged in the application of paints or coatings or in other operations in which hazardous or toxic substances can be ingested or absorbed about the need for removing surface contaminants from their skin's surface by thoroughly washing their hands and face at the end of the work shift and prior to eating, drinking, or smoking.
- (f) Showers. Showers shall be provided in accordance with General Industry Safety Orders Section 3366(f).
- (g) Changing rooms. When an employer provides protective clothing to prevent employee exposure to hazardous or toxic substances, the employer shall provide the following:
- (1) Changing rooms that provide privacy for each sex; and
 - (2) Storage facilities for street clothes, as well as separate storage facilities for protective clothing.
- (h) Eating, drinking, and break areas. The employer shall ensure that food, beverages, and tobacco products are not consumed or stored in any area where employees may be exposed to hazardous or toxic substances.
- (i) Waste disposal.
- (1) The employer shall provide waste receptacles that meet the following requirements:
 - (A) Each receptacle is constructed of materials that are corrosion resistant, leak-proof, and easily cleaned or disposable;
 - (B) Each receptacle is equipped with a solid tight-fitting cover, unless it can be kept in clean, sanitary, and serviceable condition without the use of a cover;
 - (C) Receptacles are provided in numbers, sizes, and locations that encourage their use; and
 - (D) Each receptacle is emptied as often as necessary to prevent it from overflowing and in a manner that does not create a hazard for employees. Waste receptacles for food shall be emptied at least every day, unless unused.
 - (2) ~~(e)~~ The employer shall not permit employees to work in the immediate vicinity of uncovered garbage.
 - (3) The employer ~~and~~ shall ensure that employees working beneath or on the outboard side of a vessel are not subject to contamination by drainage or waste from overboard discharges.
- (j) ~~(d)~~ No minor under 18 years of age shall be employed in ship breaking or related employments.
- NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8397.5 as follows:

§8397.5. Radar and ~~Radio~~ Communication Systems.

- (a) The employer shall service each vessel's radar and communication systems in accordance with Section 8356, Control of Hazardous Energy. ~~No employees other than radar or radio technicians shall be permitted to work on masts, king posts or other aloft areas unless the radar~~

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~~and radio are secured or otherwise made incapable of producing radiation. In either event, the radio and radar shall be appropriately tagged.~~

(b) The employer shall secure each vessel's radar and communication system so it is incapable of energizing or emitting radiation before any employee begins work:

(1) On or in the vicinity of the system;

(2) On or in the vicinity of a system equipped with a dummy load; or

(3) Aloft, such as on a mast or king post.

~~Testing of radar or radio shall not be done until the employer can schedule such tests at a time when no work is in progress aloft personnel can be cleared from the danger area according to minimum safe distances established for a based on the type, model, and power of the equipment.~~

(c) When a vessel's radar or communication system is operated, serviced, repaired, or tested, the employer shall ensure that:

(1) There is no other work in progress aloft; and

(2) No employee is closer to the system's antenna or transmitter than the manufacturer's specified safe minimum distance for the type, model, and power of the equipment.

(d) The employer shall ensure that no employee enters an area designated as hazardous by manufacturers' specifications while a radar or communication system is capable of emitting radiation.

(e) The requirements of this section do not apply when a radar or communication system is incapable of emitting radiation at levels that could injure workers in the vicinity of the system, or if the radar or communication system is incapable of energizing in a manner than could injure workers working on or in the vicinity of the system.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

Amend Section 8397.6 as follows:

~~§8397.6. Uses of Fissionable Material in Shipbuilding. [Repealed]~~ Working Alone.

(a) Whenever an employee is working alone, such as in a confined space or isolated location, the employer shall account for each employee:

(1) Throughout each work shift at regular intervals appropriate to the job assignment to ensure the employee's safety and health; and

(2) At the end of the job assignment or at the end of the work shift, whichever occurs first.

(b) The employer shall account for each employee by sight or verbal communication.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.