

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

Attachment No. 1

Page 1 of 5

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

TITLE 8: Division 1, Chapter 4, Subchapter 4. Construction Safety Orders  
Article 12. Pile Driving and Pile Extraction

Amend Section 1600 as follows:

§1600. Pile Driving.

(a) A danger zone shall be clearly delineated around the operating hammer where employees involved in cutting, chipping or welding operations shall be prohibited so as to protect them from the hazards of falling objects.

(1) The employer shall establish the danger zone.

(2) The danger zone shall be maintained under the supervision of a competent person.

(b) A blocking device or other effective means capable of safely supporting the weight of the hammer shall be provided ~~for placement in the leads under~~ to secure the hammer in the leads and shall be used at all times ~~while~~ when any employees are ~~is~~ working under the hammer.

~~Exception: Where it is necessary for a worker, momentarily, to lean through the leads to spot a pile under hammer, it is not required that the hammer be secured in the leads.~~

(c) Pressurized Lines and Hoses. ~~Steam and air hammer hose connections.~~

(1) All pile driver hose connections including those to pile driver hammers, pile ejectors, or jet pipes shall be securely tethered with an adequate length of at least 1/4 inch (0.635 cm) alloy steel chain having 3,250 pounds (1,500 kg) rated capacity (working load limit), or equivalent strength alloy steel cable to prevent the line from thrashing around in case the coupling becomes disconnected.

(A) ~~(2)~~ Chains or wire rope shall not be shortened with knots, bolts or other makeshift devices.

(2) Steam and compressed air line controls shall consist of two shutoff valves. At least one shutoff valve shall be equipped with a quick-acting lever within easy reach of the pile hammer operator.

(d) When used, platforms shall be of sufficient size so that the employee can easily avoid contact with the hammer. It shall be surrounded on all sides, except between the hammer leads, with a railing or guard line 42 to 45 inches in height. Guard lines shall be taut and at least 3/8 inch wire rope or equivalent. If railings are used, they shall be constructed in accordance with Section 1620.

Exception: Pipe or structural steel railings of equivalent strength may be used.

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

Attachment No. 1

Page 2 of 5

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

(e) Precautions shall be taken to ensure that objects are secured against wind and accidental displacement, to prevent tools, material, and equipment from falling off elevated platforms. Toeboards shall be installed on all sides of the platform in accordance with Section 1621(b).

(f) Access to Pile Leads.

(1) Leads shall be provided with a continuous ladder or horizontal bracing that is uniformly spaced at intervals no greater than 18 inches, and the leads shall be equipped with adequate anchorages, rings, or similar attachment points, so that the employee may engage a personal fall protection system to the leads. The personal fall protection system shall comply with the requirements of Article 24.

(2) The operator of the equipment will apply all brakes and necessary safety switches to prevent uncontrolled motion of the equipment before an employee may access the leads.

(g) Sheet Pile Access.

(1) ~~Stirrups shall be provided for use on sheet piles or a mechanical device shall be used to guide the pile into place.~~ If an employee is required to go aloft on sheet piling, the employee shall use an aerial device or ladder.

~~Exception: Where it is unsafe to use an aerial device or ladder, a boatswain's chair may be used in accordance with Section 1662.~~

(A) ~~(H)~~ Employee(s) shall not ride the hammer, crane load block or overhaul ball.

(B) A crane suspended personnel platform may be used for access if used in accordance with Section 5004.

(2) Sheet piling shall be firmly stabilized before workers are permitted to work on them.

(3) Stirrups shall be provided for use by employees who must take a position on sheet piles.

(h) Specific Pile Driving Requirements.

(1) ~~(H)~~ Where work is to be performed, walkways at least 20 inches in width shall be provided across piles or other open work with the exception of those piles on which the driver is standing.

(2) Before any type of pile is placed in position for driving, the pile head must be cut square to the driving head and free of concrete spall, steel fragments, or other debris.

(3) ~~(H)~~ Where a drop hammer is used for driving piling other than sheet piling, a driving head or bonnet shall be provided to bell the head of the pile and hold it true in the leads.

(i) Pile Hammer Requirements.

(1) General.

(A) The pile hammer, clamp, power unit and supply hoses shall be inspected in accordance with their manufacturer's recommendations. Associated equipment such as the couplings, support and lifting equipment, rigging and retaining bolts shall be inspected before each shift and periodically during use.

(B) Driving heads shall be kept aligned with the pile and pile hammer as a pile is driven.

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

Attachment No. 1

Page 3 of 5

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

(2) Vibratory pile hammers.

(A) When driving with a crane-suspended vibratory pile hammer, the person operating the remote on/off clamp switch shall be in direct visual contact with the signal person.

(B) The exciter (vibratory pile hammer) shall not be unclamped from the pile when there is any line pull on the suspension or when the pile hammer is still vibrating.

(j) (~~k~~) Ring buoys shall be provided in accordance with Article 13 and located where readily available at intervals not exceeding 200 feet on all structures over water under the course of construction.

Where employees are concentrated in groups, there shall be additional ring buoys consisting of not less than 1 additional buoy for each 25 employees in that area. Portable standards or equivalent means to hold the ring buoys in plain view shall be provided. Life saving boats shall be provided in accordance with Article 13.

(k) (~~l~~) All floating rigs, with the exception of small work rafts or pontoons, shall be equipped with at least 2 ring buoys.

(l) (~~m~~) In every crew there shall be a designated signaler, and the engine or winch operator shall receive signals from no other except, that when an employee is aloft, the hammer shall not be moved except on the signal of the employee aloft.

Note: For recommended standard hand signals, see Plate C-11.

(m) (~~n~~) All deck engines, not operated by an operator on the throttle sides, shall be equipped with a cross extension of the throttle that is within the reach of the spool tender.

(n) Hoist Drums.

(1) (~~2~~) Every hoisting drum used on a pile driver that uses a pawl dog and ratchet arrangement to hold it in position shall be equipped with an adequate dog effective pawl and ratchet capable of holding the rated load capacity when it is suspended.

(2) This pawl dog shall be readily visible from the engine operator's station or shall be provided with a directly connected and positive telltale device that will be visible.

(3) (~~4~~) ~~No arrangement of counterweights or springs on the dog shall be permitted which will allow the dog to be automatically disengaged.~~ Pawls which automatically disengage either by relieving the load or rotating the drum are prohibited.

(o) Pile Leads.

(1) (~~2~~) Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block.

(2) Guards or devices shall be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

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

Attachment No. 1

Page 4 of 5

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

(3) ~~(#)~~ When the leads must be inclined in the driving of batter piles, provisions shall be made to stabilize the leads.

(4) Pile gates, when used, shall be of a size sufficient to secure piling at the bottom of the leads during driving operations.

~~(s) Steam line controls shall consist of two shutoff valves, one of which shall be a quick acting lever type within easy reach of the hammer operator.~~

(p) Pile Driving Rig Stability.

(1) ~~(#)~~ Guys, outriggers, thrustouts, or counter-balances shall be provided as necessary to maintain stability of pile driver rigs.

(2) Hammers shall be lowered to the bottom of the leads while the pile driver is being moved (traveling).

(3) ~~(#)~~ All employees shall be kept clear when piling is being hoisted into the leads.

(q) ~~(#)~~ When steel tube (pipe) piles are being “blown out,” employees shall be kept well beyond the range of falling materials.

(r) ~~(#)~~ When driving jacked piles, all access pits shall be provided with ladders and bulkheaded curbs to prevent material from falling into the pit.

Note: Section 5158 of the General Industry Safety Orders prescribes the minimum standards for preventing employee exposure to dangerous air contamination and/or oxygen deficiency in confined spaces.

(s) ~~(#)~~ Hoisting of piling shall be done by hooks provided with a means to prevent accidental disengagement or a shackle shall be used in place of a hook.

(t) ~~(#)~~ Taglines shall be used for controlling unguided piles and free hanging (flying) hammers.

~~(z) Hammers shall be lowered to the bottom of the leads while the pile driver is being moved.~~

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

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

Attachment No. 1

Page 5 of 5

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

Add new Section 1600.1 as follows:

§1600.1 Pile Extraction.

(a) The rated capacity of the hammer's suspension shall not be exceeded. The manufacturer's recommendations for extracting piling shall be observed at all times.

(b) The provisions of Subsection 1600(i) shall apply to the extraction process.

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

Amend Section 1601 as follows:

§1601. Methods of Unloading and Storing Piles.

Piles shall be unloaded and stored in a controlled manner so that employees are not exposed to the hazard of rolling or falling piles.

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