

Subchapter 7. General Industry Safety Orders
Group 13. Cranes and Other Hoisting Equipment
Article 97. Hoists, Auxiliary Hoisting Equipment and Hoisting Operations

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§4970. Limit Device:

Each overhead electric hoist shall be equipped with an effective enclosed-type limit device which will stop the travel before the hook/load block passes the highest and, where applicable, lowest point of safe travel.

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

HISTORY

1. Renumbering of former Article 97 (Sections 4990-5009) to Article 98 (Sections 4990-5009) and renumbering of former Article 96 (Sections 4970-4987) to Article 97 (Sections 4970-4987) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).
2. Amendment of Article 97 heading and Section 4970 filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4971. Brakes:

(a) The braking system shall perform the following functions:

(1) Arrest and hold the load promptly when controls are released with loads up to 125 percent of rated capacity.

(2) Limit the speed of load during lowering to a maximum of 120 percent of rated lowering speed.

(b) Holding brakes on hoists shall have ample thermal capacity for the frequency of operation required by the service.

(c) The braking system shall have provision for adjustments where necessary to compensate for wear.

(d) Where the prime mover is an electric motor, a self-setting electric motor brake, or other self-setting brake, shall be provided to prevent drum rotation in the event of power failure.

(e) The hoist shall be so designed that, when the actuating force is removed, it will automatically stop and hold any load up to 125 percent of the rated load.

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

HISTORY

1. Amendment of subsections (a)(1), (b) and (d) filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4972. Hoist Trolley Frames:

Trolley frames shall be constructed to avoid excessive spreading under load. Trolley frames which show signs of excessive spreading under load shall not be used until repaired or replaced.

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

HISTORY

1. Amendment filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4973. Capacity Marking:

Each hoist designed to lift its load vertically shall have its rated load legibly marked on the hoist or load block or some equally visible space.

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

HISTORY

1. New NOTE filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4974. Stops:

(a) Stops shall be provided at the limits of travel of the trolley. A stop engaging the tread of the wheel shall be of a height at least equal to the radius of the wheel. Stops engaging other parts of the trolley are preferable.

(b) An automatic stop shall be provided at each switch, dead-end rail or turntable to prevent the trolley running off when the switch is open.

(c) Every overhead monorail system of tracks, which employs the use of traveling transfer bridges between stationary rails, shall be equipped with automatic locking devices which positively lock the traveling bridge rail to the stationary rails when the bridge is positioned for trolley travel from stationary rails to movable bridge or vice versa.

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

HISTORY

1. Amendment of subsections (b) and (c) filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4975. Control Equipment:

Operating controls shall be plainly marked to indicate the function or direction of travel or motion.

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

HISTORY

1. Amendment filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4976. Warning Device:

Each cage controlled hoist shall be equipped with an effective warning device.

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

HISTORY

1. New NOTE filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4977. Sheaves:

- (a) Sheaves carrying ropes which can be momentarily unloaded shall be provided with close-fitting guards or other suitable devices to guide the rope back into the groove when the load is applied again.
- (b) Sheave grooves shall be smooth and free from surface defects which could cause rope damage.
- (c) The sheaves in the bottom block shall be equipped with close-fitting guards that will prevent ropes from becoming fouled when the block is lying on the ground with ropes loose.
- (d) Pockets and flanges of sheaves used with hoist chains shall be of such dimensions that the chain does not catch or bind during operation.
- (e) All running sheaves shall be equipped with means for lubrication.

NOTE: Permanently lubricated, sealed and/or shielded bearings meet this requirement.

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

HISTORY

1. Amendment of subsection (a) and new subsections (b), (c), (d) and (e) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).
2. Amendment filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4980. Hoisting Chains and Ropes:

(a) All chains, ropes, and fiber ropes used for hoisting purposes shall be of sufficient strength to safely lift or otherwise handle the loads. The maximum allowable working loads shall be based on manufacturer's tables.

(b) Every hoist chain, rope, and fiber rope on hoisting drums shall be of sufficient length for the entire range of movement for the application, with no less than two full wraps of rope on the drum at all times. Where this is not practicable, lower-limit switches shall be used to restrict the downward limit of travel.

EXCEPTION: Chain hoists employing pocket sheaves instead of drums.

(c) Rope end shall be anchored by a clamp securely attached to the drum, or by a socket arrangement approved by the crane or rope manufacturer.

(d) Wherever exposed to temperatures, at which fiber cores would be damaged, rope having an independent wire-rope or wire-strand core, or other temperature-damage resistant core shall be used.

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

HISTORY

1. New subsections (c) and (d) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).

2. Amendment of subsection (b) filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4981. End Attachments:

- (a) Socketing shall be done in a manner specified by the manufacturer of the rope.
- (b) Eye splices shall develop maximum splice efficiencies as set forth in manufacturer's tables.
- (c) Rope clip attachments shall be made with U-bolts on the dead or short end of the rope and the saddle on the live end. The number of clips for end attachments shall be in accordance with the manufacturer's tables. Clips shall be drop forged steel and spaced at a distance equal to at least six times the diameter of the rope. All clip or clamp bolts shall be kept tight while rope is under tension.
- (d) No "contractor's standby" (knot and clip) attachment shall be used as an end connection on any permanent hoisting sling or rope.
- (e) Swaged, compressed, or wedge socket fittings shall be applied in a manner specified by the manufacturer.

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

HISTORY

1. Amendment of subsection (c) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).
2. Amendment of subsections (a)-(c) filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4982. Chain Splices: (Repealed)

HISTORY

1. Repealer filed 2-6-76; effective thirtieth day thereafter (Register 76, No. 6).

§4983. Defective Hoist or Sling Hooks, Rings, and Chain Links: (Repealed)

HISTORY

1. Amendment of subsection (a) and new subsection (b) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).
2. Amendment filed 7-17-75; effective thirtieth day thereafter (Register 75, No. 29).
3. Repealer filed 2-6-76; effective thirtieth day thereafter (Register 76, No. 6).

§4984. Sheave Nip-Points:

All nip or contact points between ropes and sheaves which are permanently located within 7 feet of the floor or working platform shall be guarded.

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

HISTORY

1. New NOTE filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4985. Hoisting Operations:

(a) Only those persons whose duties requires them to be present shall be in the hoist room or station.

(b) The hoist operator shall be informed of changes which effect safe hoisting operations.

(c) No one shall be permitted to oil the hoist while it is in operation.

EXCEPTION: Oiling of wire hoist rope when not under load.

(d) Appropriate operating rules shall be established and posted at the operator's station of the hoist.

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

HISTORY

1. Amendment filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4986. Mobile Towers, Hoists and Similar Equipment:

NOTE: Does not include cranes or earth-moving machines.

(a) The platform of a mobile hoist unit used to transport any rolling equipment, such as wheelbarrows, concrete buggies, etc., shall be provided with an adequate means to hold such equipment and its load securely in place.

(b) All mobile towers, hoists, and similar equipment must comply with applicable provisions of Article 14 of the Construction Safety Orders.

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

HISTORY

1. Amendment filed 5-1-87; operative 5-31-87 (Register 87, No. 19).

§4987. Tramways:

- (a) All hoists shall be equipped with at least two means of stopping and holding the maximum expected load on the maximum slope. (Friction brake plus stopping engine.)
- (b) The locking dog or ratchet or suitable, positive, tell-tale device shall be in plain view of operator's position.
- (c) There shall be a positive means of communication between the hoist operator and signaler at all times.
- (d) No person shall ride the tramway unless all rigging provides a safety factor of at least six.
- (e) All workers below shall be cleared from the danger area while material is being moved.
- (f) Every machine used to hoist workers shall be equipped with a control that will return to the "stop" position when the hand of the hoist operator is removed from the control lever. The brakes shall be automatically applied and the power from the machine cut off whenever the control lever is in the "stop" position. There shall be no friction gearing or clutch mechanism by which the motor or other power source can be disconnected from the hoisting drum.

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

HISTORY

1. New section filed 7-17-75; effective thirtieth day thereafter (Register 75, No. 29).
2. Amendment filed 5-1-87; operative 5-31-87 (Register 87, No. 19).