

Title 09
MARYLAND DEPARTMENT OF LABOR
Subtitle 12 DIVISION OF LABOR AND INDUSTRY
Chapter 38 General Industry Standard for Personnel Platforms Suspended from Cranes,
Derricks, and Hoists

Authority: Labor and Employment Article, §§2-106(b)(4) and 5-312, Annotated Code of Maryland

.01 Scope.

This chapter applies to the design, construction, testing, use, and maintenance of personnel platforms, and the hoisting of personnel platforms on the load lines of cranes, derricks, and hoists.

.02 Definitions.

A. In these regulations, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Competent designated person" means a knowledgeable person approved or assigned by the employer who has the authority to take prompt corrective measures to eliminate identified existing or predictable hazards in the surroundings, working conditions, or equipment which may be dangerous to employees.

(2) Crane.

(a) "Crane" means a machine driven manually or by power for lifting and lowering a load and moving it horizontally, with the hoisting mechanism an integral part of the machine.

(b) "Crane" also includes derricks.

(3) "Failure" means load refusal, breakage, or separation of components.

(4) "Hoist" means a device used to lift or lower a load.

(5) "Hoisting" or "to hoist" means all crane or derrick functions, such as lowering, lifting, swinging, booming in and out or up and down, or suspending a personnel platform.

(6) "Jib" means a structural extension added to the boom tip for the purpose of handling loads at higher elevations than they would otherwise be handled by the main boom.

(7) "Live boom" means a boom in which lowering is controlled by a brake without aid from other devices which slow the lowering speeds.

(8) "Load refusal" means the point where the ultimate strength is exceeded.

(9) "Main boom" means the structural component as designed by the manufacturer which enables cranes or derricks to handle loads at various radii.

(10) "Maximum intended load" means the total load of all employees, tools, and materials reasonably anticipated to be applied to a personnel platform or personnel platform component at any one time.

(11) "Qualified" means one who, by possession of a recognized degree, certificate, or professional standing, has successfully demonstrated their ability to design mechanical or structural objects.

.03 Restricted Use.

A. Except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform, or scaffold either would be more hazardous, or is not possible because of structural design or worksite conditions, the use of a crane, derrick, or hoist to hoist employees on a personnel platform is prohibited.

B. When used, a personnel platform shall meet the applicable requirements of this chapter.

.04 Operational Criteria.

A. Free fall is prohibited.

B. The use of machines having live booms is prohibited.

C. A jib, boom extension, or similar attachment may not be used to hoist a personnel platform.

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D. Except where the electrical distribution, transmission, and service lines have been deenergized and visibly grounded at the point of work or where insulating barriers not a part of or an attachment to the cranes and hoists have been erected to prevent physical contact with the lines, cranes and hoists shall be operated proximate to, under, over, by, or near powerlines only in accordance with the following:

(1) For a line rated 50 kilovolts or below, the minimum clearance between the line and any part of the crane, hoist, or load shall be 10 feet;

(2) For a line rated over 50 kilovolts, the minimum clearance between the line and any part of the crane, hoist, or load shall be either 10 feet plus 0.4 inch for each 1.0 kilovolt over 50 kilovolts or twice the length of the line insulator, but never less than 10 feet.

E. Hoisting of the personnel platform shall be performed in a slow, controlled, cautious manner with no sudden movements of the crane, hoist, or the platform.

F. Load lines shall be capable of supporting, without failure, at least double the current safety factor for the specific type of crane being used by applying the 50 percent derating of the crane and hoist capacity.

G. Load and boom hoist drum brakes, swing brakes, and locking devices, such as pawls or dogs, shall be engaged when the occupied personnel platform is in a stationary working position.

H. Mobile cranes shall comply with the following:

(1) Only the main boom shall be used to hoist a personnel platform;

(2) The crane shall be uniformly level within 1 percent of level grade and located on firm footing;

(3) All pneumatic tired cranes used to lift or lower personnel platforms shall be equipped with outriggers or stabilizers;

(4) All outriggers or stabilizers, or both, shall be fully extended and set;

(5) Carrier wheels within the boundary of the outriggers shall be relieved of their weight;

(6) On a crawler crane, the track shall be fully extended.

I. The total weight of the loaded personnel platform and related rigging may not exceed 50 percent of the rated capacity for the radius and configuration of the crane.

.05 Instruments and Components.

A. A crane with variable angle booms shall be equipped with a boom angle indicator, readily visible to the operator.

B. A crane with telescoping booms shall be marked or equipped with a device to indicate clearly to the operator at all times the boom's extended length.

C. Except for an electric crane, the load line hoist drum shall have a system or device on the power train, other than the load hoist brake, that:

(1) Regulates the lowering rate of speed of the hoist mechanism; and

(2) Prevents free fall.

D. An electrical crane shall meet the requirements of 29 CFR §1910.179(f)(1), (2), and (3)(ii).

E. Damage Prevention Device. A crane and hoist shall be equipped with a:

(1) Positive acting device, such as anti-two block, which prevents contact between the load block or overhaul ball and the boom tip; or

(2) System, such as a two block damage prevention feature, which deactivates the hoisting action before damage may occur to the load block, overhaul ball, or boom tip.

.06 Personnel Platforms.

A. Design Criteria.

(1) A personnel platform and suspension system shall be designed by a qualified engineer or a qualified person competent in structural design.

(2) Before a rigid suspension system is used with a personnel platform, the suspension system shall be approved by a qualified engineer.

(3) The suspension system shall be designed to minimize tipping of the platform due to movement of employees occupying the platform.

(4) The personnel platform shall be capable of supporting, without failure, its own weight and at least five times the maximum intended load.

B. Platform Specifications.

(1) Each personnel platform shall be equipped with a fall protection guardrail system which meets the requirements of 29 CFR §1910.23(e), and shall be enclosed at least from the toeboard to midrail with either solid construction or expanded metal, having openings no greater than 1/2 inch (1.27 centimeters).

(2) A grab rail shall be installed inside the entire perimeter of the personnel platform.

(3) A point of attachment for a lanyard shall be:

(a) Provided for each employee occupying the platform; and

(b) Appropriate for the hardware of the particular lanyard being used.

(4) Access gates, if installed, may not swing outward.

(5) Access gates, including sliding or folding gates, shall be equipped with a restraining device to prevent accidental opening.

(6) Headroom shall be provided which allows employees to stand upright in the platform.

(7) Except over water, when employees are exposed to falling objects, in addition to the use of head protection, employees shall be protected by an overhead structure on the personnel platform.

(8) All rough edges exposed to contact by employees shall be surfaced or smoothed in order to prevent injury to employees from punctures or lacerations.

(9) All welding of the personnel platform and its components shall be performed by a qualified welder familiar with the weld grades, types, and material specified in the platform design.

(10) Identification Plate.

(a) The personnel platform shall be conspicuously posted with a plate or other permanent marking which indicates the following:

(i) Occupancy is limited to four persons;

(ii) Weight of the platform;

(iii) Rated load capacity or maximum intended load; and

(iv) Platform identifying number.

(b) The identification plate or marking shall remain legible.

C. Safety Belts, Lifelines, and Lanyards.

(1) A lifeline, safety belt, and lanyard shall be used only for employee safeguarding.

(2) A lifeline, safety belt, or lanyard subjected to impact as a result of a full restraint of an employee's weight during a fall:

(a) Shall be immediately removed from service; and

(b) May not be used again for employee safeguarding.

(3) A lifeline or lanyard attached to a safety belt shall be secured to a structural member capable of supplying a sufficient safety factor of 5,400 pounds per person secured to that structural member.

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(4) Safety Belt Lanyard.

(a) A safety belt lanyard shall be a minimum of 1/2 inch diameter nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet.

(b) The lanyard shall have a nominal breaking strength of 5,400 pounds.

(5) Safety Belt and Lanyard Hardware.

(a) All safety belt and lanyard hardware shall be drop-forged or pressed steel, and cadmium plated in a commercially accepted manner.

(b) Surfaces shall be smooth and free of sharp edges.

(c) All safety belt and lanyard hardware, except rivets, shall be capable of withstanding a tensile loading of 4,000 pounds without cracking, breaking, or becoming permanently deformed.

(d) A lanyard hook shall be:

(i) Of a self-closing design; and

(ii) Used only in accordance with manufacturer specifications.

D. Personnel Platform Loading.

(1) The personnel platform may not be loaded in excess of its rated load capacity.

(2) When a personnel platform does not have a rated load capacity, then the personnel platform may not be loaded in excess of its maximum intended load.

(3) The number of persons occupying the personnel platform shall be limited to:

(a) The number of employees required for the work being performed; and

(b) A maximum of four persons.

(4) A personnel platform:

(a) Shall be used only to move or transport the employees, tools, and materials necessary to perform the work; and

(b) When not hoisting employees, may not be used to hoist materials or tools.

(5) Personnel Lift.

(a) Before a personnel lift, materials and tools shall be:

(i) Evenly distributed within the confines of the platform to ensure the platform remains level while suspended; and

(ii) Secured to prevent displacement.

(b) During a personnel lift, materials and tools shall remain secured.

.07 Rigging.

A. When a wire rope bridle is used to connect the personnel platform to the load line, each bridle leg shall be connected to a master link or shackle in such a manner to ensure that the load is evenly divided among the bridle legs.

B. A hook on an overhaul ball assembly, a lower load block, or other attachment assembly shall be:

(1) Of a type that can be closed and locked, eliminating the hook throat opening; or

(2) A forged steel anchor type shackle with either a forged alloy steel bolt with nut and retaining clip, or a forged alloy steel pin with retaining clip.

C. Wire rope, shackles, rings, master links, and other rigging hardware shall be capable of supporting, without failure, at least five times the maximum intended load applied or transmitted to that component.

D. When rotation resistant rope is used, the slings shall be capable of supporting, without failure, at least ten times the maximum intended load.

E. An eye in a wire rope sling shall be fabricated with thimbles.

F. A bridle and associated rigging for attaching the personnel platform to the hoist line:

- (1) Shall be used only for the platform and the necessary employees, their tools, and the materials necessary for them to perform their work; and
- (2) When not hoisting personnel, may not be used for any other purpose.

.08 Trial Lift.

A. Mobile Cranes.

- (1) A trial lift with the unoccupied personnel platform loaded at least to the weight of the maximum intended load shall be:
 - (a) Made from ground level, or any other location where employees will enter the platform, to each location to which the personnel platform will be hoisted and positioned; and
 - (b) Performed immediately before placing employees on the platform.
- (2) A trial lift may be performed at one time for all locations that are to be reached from a single set up position.
- (3) When the crane or derrick is moved and set up in a new location or returned to a previously used location, a trial lift shall be repeated before hoisting employees.

B. Fixed-Track Mounted Cranes.

- (1) A trial lift with the unoccupied personnel platform loaded at least to the weight of the maximum intended load shall be:
 - (a) Made from ground level or any other location where employees will enter the platform, to the location at which the personnel platform will be hoisted and positioned once along the route of the track; and
 - (b) Performed during each shift when employees will be lifted, immediately before the first lift.
- (2) A trial lift may be performed at one time for all locations that are to be reached from a single set up position.

C. Fixed Cranes and Hoists. A trial lift with the unoccupied personnel platform loaded at least to the weight of the maximum intended load shall be:

- (1) Made from ground level at each location at which the personnel platform is to be hoisted and positioned; and
- (2) Performed during each shift, immediately before the first lift.

D. Operator Requirements. For each trial lift performed under §§A, B, and C of this regulation, the employer shall ensure that the operator determines that:

- (1) All systems, controls, and safety devices are activated and functioning properly;
- (2) No interferences exist; and
- (3) All configurations necessary to reach each work location will allow the operator to remain under the 50 percent limit of the rated capacity of the crane or hoist, as provided in Regulation .04F of this chapter.

E. Materials and tools to be used during the actual lift may be loaded in the platform as provided, in Regulation .06D(5) of this chapter, for the trial lift.

F. Inspections.

- (1) Before each personnel lift, the platform, with maximum intended load, shall be hoisted a few inches and inspected to ensure that it is secure and properly balanced.
- (2) Before an employee is hoisted, the employer shall ensure that:
 - (a) Hoist ropes shall be free of kinks;
 - (b) Multiple part lines may not be twisted around each other;
 - (c) The primary attachment shall be centered over the platform; and
 - (d) If the load rope is slack, the hoisting system is inspected to ensure all ropes are properly seated on drums and in sheaves.

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(3) Visual Inspection.

(a) Immediately after the trial lift, a visual inspection of the crane, hoist, rigging, personnel platform, and the base support or ground shall be conducted by a competent designated person to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure.

(b) The inspection shall include, but not be limited to, all wire rope, hooks, brakes, the boom, safety devices, and other mechanical, structural, and rigging equipment.

(4) Any defect found during the trial lift or inspection which creates a safety hazard shall be corrected before hoisting personnel.

.09 Prooftesting of Platform and Rigging.

A. An employer may not hoist employees on a personnel platform until the following prooftesting requirements are satisfied.

B. The platform and rigging shall be prooftested to 125 percent of the platform's rated capacity.

C. Prooftesting shall be performed by holding the platform in a suspended position for 5 minutes with the test load evenly distributed on the platform.

D. After prooftesting:

(1) A competent designated person shall inspect the platform and rigging; and

(2) If any deficiency is found, then before employees are hoisted:

(a) It shall be corrected, and

(b) Another prooftest shall be conducted.

E. The platform and rigging shall be prooftested:

(1) Before the first use to lift personnel;

(2) Annually after that; and

(3) After any repair or modification.

F. The prooftesting may be performed concurrently with any trial lift conducted at a time set forth in Regulation .08A, B, or C of this chapter.

.10 Certification Record.

A. The employer shall prepare a certification record which includes:

(1) The date the personnel platform items were inspected;

(2) The signature of the person who inspected the personnel platform items;

(3) A serial number, or other identifier, for the personnel platform inspected; and

(4) The date of the prooftest.

B. The most recent certification record shall be maintained on file until a new one is prepared.

.11 Work Practices.

A. Except for an occupant of the platform performing the duties of a signal person, employees shall keep all parts of the body inside the platform during raising, lowering, and positioning.

B. When employees are to exit or enter a hoisted personnel platform that is not landed, the platform shall first be secured to the structure where access or egress is to take place, unless securing to the structure creates an unsafe situation.

C. When employees work from the platform, the platform may not be secured to any structure other than the crane, derrick, or hoist.

D. Tag lines shall be used unless their use creates an unsafe condition.

E. The crane operator shall remain at the controls at all times when the platform is occupied.

F. The hoisting of employees shall be promptly discontinued upon indication of any weather condition or other impending condition which could adversely affect the safe hoisting of personnel on a platform.

G. Except as noted in §H, of this regulation, employees being hoisted shall remain in continuous sight of, and in direct communication with, the operator or signal person.

H. When direct visual contact with the operator is not possible and the use of a signal person would create a greater hazard for that person, direct communication alone, such as a two-way radio system, may be used.

I. Except over water, employees occupying the personnel platform shall use a body belt/harness system with lanyard appropriately attached to the lower load block or overhaul ball, or to a structural member within the personnel platform capable of sustaining a fall impact.

J. While personnel are suspended on a platform, a lift may not be made on any other loadline of the crane or hoist.

K. An employee shall be permitted to stand on or to work from only the floor of the platform.

L. Head protection shall be worn by all employees while using personnel platforms.

M. When employees are working over or adjacent to water, an employer shall comply with the following requirements:

(1) Totally enclosed personnel platforms or platforms with overhead structures are prohibited;

(2) Personal flotation devices:

(a) Coast Guard approved personal flotation devices shall be:

(i) Provided by the employer, and

(ii) Worn by all employees while using the personnel platform;

(b) Before and after each use, personal flotation devices shall be inspected for defects which would alter their strength or buoyancy;

(c) A defective personal flotation device may not be used;

(3) Ring buoys:

(a) Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations;

(b) The distance between ring buoys and the work being performed may not exceed 200 feet;

(4) At least one lifesaving skiff shall be immediately available.

.12 Traveling.

A. Except for a crane which travels on a fixed track, while a crane is traveling it may not be used to hoist an employee.

B. When using a crane that travels on a fixed track, an employer may hoist employees on a personnel platform while the crane is traveling, upon implementing the following procedures to safeguard employees:

(1) The boom shall be parallel to the direction of travel;

(2) A complete trial run to test the route of travel:

(a) Shall be performed before employees are allowed to occupy the platform, and

(b) May be performed at the time of the trial lift required by Regulation .08 of this chapter.

.13 Prelift Meeting.

A prelift meeting shall be:

A. Held to review the appropriate requirements of this chapter and the procedures to be followed;

B. Held before each trial lift;

C. Repeated for any employee newly assigned to the operation; and

D. Attended by the crane or hoist operator, signal person, employee or employees to be lifted, and the person responsible for the task to be performed.

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Administrative History

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