CHAPTER 4
LIFTING PERSONNEL

This chapter describes requirements for lifting personnel.

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4.1 GENERAL

a. This chapter specifies the operation, design, testing, and inspection requirements for the use of personnel lift platforms or baskets suspended from mobile or overhead cranes. This chapter implements the requirements of 29 CFR 1926.550(g) "Cranes and Derricks" and ASME B30.5, "Mobile Cranes."

b. The manager specifically responsible for the overall work function to be performed shall determine that the erection, use, and dismantling of conventional means of reaching the work site (i.e., scaffold, ladder, stairway, aerial lift, or elevating work platform) would be more hazardous or is not possible because of structural design or worksite conditions.

c. For each personnel lifting procedure, the manager responsible for the task shall authorize the use of a crane-suspended work platform and attest to the need for the operation through a written justification attesting to that need. A statement describing the operation and its time frame shall be included. The statement, after being approved by the authorizer, shall be retained at the job site.

d. These special procedures shall be followed when lifting personnel:

1. The crane shall be inspected daily prior to lifting personnel, in accordance with the requirements for frequent inspections for the type of equipment being used.

2. The lifting and supporting shall be made under controlled conditions and under the direction of a designated leader. A qualified signaler shall be appointed.

3. Prior to use each working shift, the personnel lift platform and rigging shall be inspected.

4. At each new job site (and at least annually) prior to hoisting personnel, the personnel platform, rigging, and hook block shall be proof-tested by a qualified inspector to twice the personnel platform's rated capacity by holding it suspended for 5 min with the test load suitably distributed on the personnel platform. After proof-testing, any deficiencies revealed by inspection, or by the proof test, shall be corrected and another proof-test conducted. Any modification to the personnel platform or rigging shall require retesting.

5. Prior to lifting personnel and after the proof test, the qualified operator and signaler shall conduct a trial lift with the personnel platform loaded to at least the maximum anticipated load. The trial lift shall be made from ground level (or any other location where employees will enter the platform) to each location at which the platform is to be hoisted and positioned. The designated leader and the operator shall determine that:

   i. Crane (mobile) footing is adequate.

   ii. System controls and safety devices are activated and functioning properly.

   iii. No interferences exist.

   iv. Configurations necessary to reach work locations will allow the crane to remain under 50 percent of rated capacity.

NOTE: Materials and tools to be used during the actual lift, if secured to prevent displacement, can be in the platform for the test lift.

NOTE: A single trial lift may be performed for all locations to be reached from a single setup position.

6. The trial lift shall be repeated prior to hoisting employees whenever:

   i. The crane (mobile) travels or is moved and set up in a new location or returned to a previously used location.

   ii. The lift route is changed, unless the operator determines that the safety of the hoisted personnel is not affected.

7. A visual inspection of the crane, rigging, and personnel platform shall be conducted by a qualified inspector immediately after the trial lift, prior to lifting personnel. Any defects found that create a safety hazard shall be corrected prior to hoisting personnel.

8. After the trial lift and just before hoisting personnel, the platform shall be lifted a few inches and inspected to ensure that it is secure and properly balanced. Personnel shall not be hoisted unless the following conditions exist:

i. Hoist ropes are free of kinks.

ii. Multiple-part lines are not twisted around each other.

iii. The primary attachment is centered over the platform.

iv. Ropes are properly seated on drums and sheaves.

9. Prior to the trial lift, a meeting shall be held with the designated leader, qualified operator, signaler, persons to be lifted, and the person responsible for overall worksite safety to plan and review procedures to be followed. Procedures for entering and leaving the personnel platform or other device and the points at which persons will enter and leave the device shall be reviewed.

10. Communications between the crane operator, signaler, and persons being lifted shall be maintained throughout the lift.

11. The employees being hoisted, moved, or positioned shall remain in continuous sight of, and in direct communication with, the operator or signaler. In situations where direct visual contact with the operator is not possible and the use of a signaler would create a hazard for that person, direct communication alone (such as a two-way radio) may be used.

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

13. The crane shall be operated so that lowering will be power-controlled (no free-fall).

14. When welding is done by personnel from the platform or basket, the electrode holders shall be protected from contact with metal components of the personnel platform or basket.

15. Employees working from a platform shall wear body belts/harnesses with lanyards attached to the lower load block or overhaul ball, or to a structural member within the platform that is capable of supporting a fall impact. When working above water, the requirements of 29 CFR 1926.106 (Occupational Safety and Health Regulations for Construction) shall also apply.

16. The operator shall remain at the controls when the personnel platform is occupied.

17. Movement of the personnel platform shall be done in a slow, controlled, cautious manner with no sudden movements of it or the crane. The lifting or lowering speed shall not exceed 100 ft/min (30 m/min).

18. The total weight of the lifted load (including personnel) shall not exceed 50 percent of the crane rating under the planned conditions of use.

19. Suspended personnel platforms shall be used only for personnel, their tools, and sufficient materials to do their work. They shall not be used for transporting bulk materials.

20. Personnel shall keep all parts of their bodies inside the suspended personnel platform during raising, lowering, and positioning to avoid pinch points. Personnel shall not stand on or work from the top rail, midrail, or toeboard of the suspended personnel platform.

21. If the personnel platform cannot be landed, it should be tied to the structure before personnel get off or on.

22. Personnel platforms should not be used in winds greater than 15 mph (25 km/h), electric storms, snow, ice, sleet, or other adverse weather conditions that could affect the safety of personnel.

23. After the personnel platform is positioned, all brakes and locks on the lift crane shall be set before personnel perform any work.

24. No lifts shall be made on another of the crane's load lines while personnel are suspended on the platform.

4.2 MOBILE CRANES

Mobile cranes are designed and intended for handling materials, not personnel. In addition to the general requirements in Section 4.1, "General," the following requirements shall be met when lifting personnel with a mobile crane:

a. Personnel are permitted to ride only in one of the following:

1. A personnel platform that is supported from the crane's hook which meets the requirements of Section 4.4, "Personnel Platform."

2. A personnel basket attached directly to the boom which is approved by the crane manufacturer.

b. Cranes and derricks with variable-angle booms shall be equipped with a boom-angle indicator that is readily visible to the operator.

c. Cranes with telescoping booms shall be equipped with a device to indicate clearly to the operator, at all times, the boom's extended length, or an accurate determination of the load radius to be used during the lift shall be made prior to hoisting personnel.

d. A positive-acting device shall be used that prevents contact between the load block or overhaul ball and the boom tip (anti-two-blocking device), or a system shall be used that deactivates the hoisting action before damage occurs in the event of a two-blocking situation (two-block damage-prevention feature).

e. The crane shall be uniformly level within 1 percent of level grade and located on firm footing.

f. Cranes shall not travel while personnel are on a personnel platform or in the basket.

g. Cranes with outriggers shall have the outriggers fully extended and blocked.

4.3 OVERHEAD CRANES

Overhead cranes are designed and intended for handling materials, not personnel. In addition to the general requirements in Section 4.1, the following requirements shall be met when lifting personnel with an overhead crane.

a. Personnel are permitted to ride only in a personnel platform that is supported from the crane's hook which meets the requirements of Section 4.4.

b. A hoist-limit switch/device shall be provided in the hoisting direction to stop the hoisting motion to prevent two-blocking.

4.4 PERSONNEL PLATFORM

Use only personnel platforms that are specifically designed and constructed for the purpose of suspending personnel according to the following:

a. The personnel platform shall be designed by a qualified person competent in structural design. All welding of the platform shall be performed by a certified welder familiar with the weld grades, types, and material specified in the design.

b. The personnel platform shall be limited to carrying six persons.

c. The personnel platform and rigging shall be capable of supporting, without failure, at least five times the maximum intended load.

d. The personnel platform shall bear a plate specifying its empty weight and the maximum number of persons and weight for which it is rated.

e. The personnel platform shall have perimeter protection consisting of a top rail approximately 45 in. (115 cm) high, a toeboard at least 4 in. (10 cm) high, and a midrail approximately halfway between the top rail and the toeboard.

f. A grab rail shall be provided inside the personnel platform to minimize hand exposure.

g. The sides of the platform shall be enclosed from the toeboard to the midrail with solid construction or expanded metal having openings no greater than ½ in. (1.27 cm).

h. If access doors are installed, they shall open only to the interior of the personnel platform. Access doors shall be equipped with a device to prevent them from opening unintentionally.

i. The personnel platform shall have overhead protection when there is an overhead hazard.

j. Sufficient headroom shall be provided to allow employees to stand upright in the platform.

k. Rough edges exposed to contact by employees shall be surfaced (ground smooth) to prevent injury.

l. The personnel platform shall be easily identifiable by high-visibility color or marking.

m. All welding procedures and welding operator qualifications shall be in accordance with ANSI/AWS D1.1 when welding is to be performed on load-sustaining members. Where special steels or other materials are used, the manufacturer shall provide welding procedures. Welds shall be inspected by a qualified inspector.

n. When being supported by a crane, the platform shall be attached to the hoist rope by a hook of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy-steel anchor shackle with a bolt, nut, and retaining pin may be used.

o. All eyes in wire-rope slings shall be fabricated with thimbles. No rigging accessories for attaching the personnel platform to hoist lines shall be used for any other purpose when not hoisting personnel.

p. The suspension system shall minimize inclination of the personnel platform due to the movement of personnel on it.