

DRAFT
PROPOSED
STANDARD

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C-DAC CONSENSUS DOCUMENT

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2,000 pounds or less.

1400 Scope

(a) This standard applies to power-operated equipment used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as fixed jib ("hammerhead boom"), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; side-boom tractors; derricks; and variations of such equipment. However, items listed in paragraph 1400(c) are excluded from the scope of this standard.

(b) *Attachments.* This standard applies to equipment included in paragraph 1400(a) when used with attachments. Such attachments, whether crane-attached or suspended include, but are not limited to: hooks, magnets, grapples, clamshell buckets, orange peel buckets, concrete buckets, drag lines, personnel platforms, augers or drills and pile driving equipment.

(c) *Exclusions.* This Subpart does not cover:

(1) Equipment included in paragraph 1400(a) while it has been converted or adapted for a non-hoisting/lifting use. Such conversions/adaptations include, but are not limited to, power shovels, excavators and concrete pumps.

(2) Power shovels, excavators, wheel loaders, backhoes, loader backhoes, track loaders. This machinery is also excluded when used with chains, slings or other rigging to lift suspended loads.

(3) Automotive wreckers and tow trucks when used to clear wrecks and haul vehicles.

(4) Service trucks with mobile lifting devices designed specifically for use in the power line and electric service industries, such as digger derricks (radial boom derricks), when used in these industries for auguring holes to set power and utility poles, or handling associated materials to be installed or removed from utility poles.

- (5) Equipment originally designed as vehicle-mounted aerial devices (for lifting personnel) and self-propelled elevating work platforms.
- (6) Hydraulic jacking systems, including telescopic/hydraulic gantries [We need a picture/drawing of this].
- (7) Stacker cranes.
- (8) Powered industrial trucks (forklifts).
- (9) Mechanic's truck with a hoisting device when used in activities related to equipment maintenance and repair.
- (10) Equipment that hoists by using a come-a-long or chainfall.
- (11) Dedicated drilling rigs.
- (12) Gin poles used for the erection of communication towers.
- (13) Tree trimming and tree removal work.
- (14) Anchor handling with a vessel or barge using an affixed A-frame.
- (15) Roustabouts.

(d) All Sections of this standard apply to the equipment covered by this standard unless specified otherwise.

(e) The duties of controlling entities under this subpart include, but are not limited to, the duties specified in Sections 1402(c), 1402(e) and 1424(b).

(f) Where provisions of this standard direct an operator, crewmember, or other employee to take certain actions, the employer shall establish, effectively communicate to the relevant persons, and enforce work rules, to ensure compliance with such provisions.

1401 Definitions

<i>A/D Supervisor</i>	means an individual who meets this standard's requirements for an A/D supervisor, irrespective of the person's formal job title or whether the person is non-management or management personnel.
<i>Alongside</i>	means the part of the fall zone that is outside the area directly under the load.

<i>Appointed Person</i>	Means a person assigned specific responsibilities by the employer or by the employer's representative.
<i>Articulating crane</i>	a crane whose boom consists of a series of folding, pin connected structural members, typically manipulated to extend or retract by power from hydraulic cylinders.
<i>Assist crane</i>	A crane used to assist in assembling or disassembling a crane.
<i>Attachments</i>	means any device that expands the range of tasks that can be done by the equipment. Examples include, but are not limited to: an auger, drill, magnet, pile-driver, and boom-attached personnel platform.
<i>Audible signal</i>	means a signal made by a distinct sound or series of sounds. Examples include, but are not limited to, sounds made by a bell, horn, or whistle.
<i>Blind pick</i>	A lift in which the operator's view of the load is obstructed.
<i>Blocking</i>	(also referred to as "cribbing") is wood or other material used to support equipment or a component and distribute loads to the ground. Typically used to support latticed boom sections during assembly/ disassembly and under outrigger floats.
<i>Boatswain's chair</i>	A single-point adjustable suspension scaffold consisting of a seat or sling (which may be incorporated into a full body harness) designed to support one employee in a sitting position.
<i>Bogie</i>	See "travel bogie."
<i>Boom (equipment other than tower crane)</i>	an inclined spar, strut, or other long structural member which supports the upper hoisting tackle on a crane or derrick. Typically, the length and vertical angle of the boom can be varied to achieve increased height or height and reach when lifting loads. Booms can usually be grouped into general categories of hydraulically extendible, cantilevered type, latticed section, cable supported type or articulating type.
<i>Boom (tower cranes)</i>	On tower cranes: if the "boom" (i.e., principle horizontal structure) is fixed, it is referred to as a jib; if it is moveable up and down, it is referred to as a boom.
<i>Boom angle indicator</i>	A device which measures the angle of the boom relative to

	horizontal.
<i>Boom hoist limiting device</i>	includes boom hoist disengaging device, boom hoist shut-off, boom hoist disconnect, boom hoist hydraulic relief, boom hoist kick-outs, automatic boom stop device, or derricking limiter. This type of device disengages boom hoist power when the boom reaches a predetermined operating angle. It also sets brakes or closes valves to prevent the boom from lowering after power is disengaged.
<i>Boom length indicator</i>	indicates the length of the permanent part of the boom (such as ruled markings on the boom) or, as in some computerized systems, the length of the boom with extensions/attachments.
<i>Boom stop</i>	includes boom stops, (belly straps with struts/standoff), telescoping boom stops, attachment boom stops, and backstops. These devices restrict the boom from moving above a certain maximum angle and toppling over backward.
<i>Boom suspension systems</i>	A system of pendants, running ropes, sheaves, and other hardware which supports the boom tip and controls the boom angle.
<i>Builder</i>	means an employer builder/constructor of equipment.
<i>Calculate</i>	includes use of a calculator.
<i>Center of gravity</i>	The center of gravity of any object is the point in the object around which its weight is evenly distributed. If you could put a support under that point, you could balance the object on the support.
<i>Certified welder</i>	A welder who meets nationally recognized certification requirements applicable to the task being performed.
<i>Climbing</i>	The process in which a tower crane is raised to a new working height, either by adding additional tower sections to the top of the crane (top climbing), or by a system in which the entire crane is raised inside the structure (inside climbing).
<i>Come-a-long</i>	means a mechanical device typically consisting of a chain or cable attached at each end that is used to facilitate movement of materials through leverage.
<i>Competent Person</i>	means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
<i>Controlled load</i>	means lowering a load by means of a mechanical hoist

<i>lowering</i>	drum device that allows a hoisted load to be lowered with maximum control using the gear train or hydraulic components of the hoist mechanism. Controlled load lowering requires the use of the hoist drive motor, rather than the load hoist brake, to lower the load.
<i>Controlling Entity</i>	means a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the project – its planning, quality and completion.
<i>Counterweight</i>	Weight used to supplement the weight of equipment in providing stability for lifting loads by counterbalancing those loads.
<i>Crane/derrick</i>	Includes all equipment covered by this Subpart.
<i>Crawler crane</i>	Equipment that has a type of base mounting which incorporates a continuous belt of sprocket driven track.
<i>Crossover points</i>	Locations on a wire rope which is spooled on a drum where one layer of rope climbs up on and crosses over the previous layer. This takes place at each flange of the drum as the rope is spooled onto the drum, reaches the flange, and begins to wrap back in the opposite direction.
<i>Dedicated Channel</i>	A line of communication assigned by the employer who controls the communication system to only one signal person and crane/derrick or to a coordinated group of cranes/derricks/signal person(s).
<i>Dedicated pile-driver</i>	is a machine that is designed to function exclusively as a pile-driver. These machines typically have the ability to both hoist the material that will be pile-driven and to pile-drive that material.
<i>Dedicated spotter (power lines)</i>	In order to be considered a dedicated spotter, the requirements of Section 1428 (signal person requirements) must be met and his/her sole responsibility is to watch the separation between the power line and: the equipment, load line and load (including rigging and lifting accessories), and ensure through communication with the operator that the applicable minimum approach distance is not breached.
<i>Directly under the load</i>	means a part or all of an employee is directly beneath the load.
<i>Dismantling</i>	includes partial dismantling (such as dismantling to shorten a boom or substitute a different component).
<i>Drum rotation indicator</i>	A device on a crane or hoist which indicates in which direction and at what relative speed a particular hoist

	drum is turning.
<i>Electrical contact</i>	When a person, object, or equipment makes contact or comes in close proximity with an energized conductor or equipment that allows the passage of current.
<i>Employer-made equipment</i>	means equipment designed and built by an employer for its own use.
<i>Encroachment</i>	is where any part of the crane, load line or load (including rigging and lifting accessories) breaches a minimum clearance distance that this Subpart requires to be maintained from a power line.
<i>Equipment</i>	means equipment covered by this subpart.
<i>Equipment criteria</i>	means instructions, recommendations, limitations and specifications.
<i>Fall protection equipment</i>	means guardrail systems, safety net systems, personal fall arrest systems, positioning device systems or fall restraint systems.
<i>Fall restraint system</i>	means a fall protection system that prevents the user from falling any distance. The system is comprised of either a body belt or body harness, along with an anchorage, connectors and other necessary equipment. The other components typically include a lanyard, and may also include a lifeline and other devices.
<i>Fall zone</i>	means the area (including but not limited to the area directly beneath the load) in which it is reasonably foreseeable that partially or completely suspended materials could fall in the event of an accident.
<i>Flange points</i>	A point of contact between rope and drum flange where the rope changes layers.
<i>Floating cranes/derricks</i>	means equipment designed by the manufacturer (or employer) for marine use by permanent attachment to a barge, pontoons, vessel or other means of flotation.
<i>For example</i>	means "one example, although there are others."
<i>Free fall (of the load line)</i>	Where only the brake is used to regulate the descent of the load line (the drive mechanism is not used to drive the load down faster or retard its lowering).
<i>Free surface effect</i>	Uncontrolled transverse movement of liquids in compartments which reduce a vessel's transverse stability.
<i>Hoist</i>	A mechanical device for lifting and lowering loads by winding rope onto or off a drum.
<i>Hoisting</i>	The act of raising, lowering or otherwise moving a load in

	the air with equipment covered by this standard. As used in this standard, "hoisting" can be done by means other than wire rope/ hoist drum equipment.
<i>Include/including</i>	means "including, but not limited to"
<i>Insulating link/device</i>	an insulating device approved by a Nationally Recognized Testing Laboratory.
<i>Jib stop</i>	also referred to as a jib backstop, is the same type of device as a boom stop but is for a fixed or luffing jib.
<i>Land crane/derrick</i>	Equipment not originally designed by the manufacturer for marine use by permanent attachment to barges, pontoons, vessels, or other means of floatation.
<i>List</i>	Angle of inclination about the longitudinal axis of a barge, pontoons, vessel or other means of floatation.
<i>Load</i>	the weight of the object being lifted or lowered, including the weight of the load-attaching equipment such as the load block, ropes, slings, shackles, and any other ancillary attachment.
<i>Load moment (or rated capacity) indicator</i>	A system which aids the equipment operator by sensing the overturning moment on the equipment, i.e. load X radius. It compares this lifting condition to the equipment's rated capacity, and indicates to the operator the percentage of capacity at which the equipment is working. Lights, bells, or buzzers may be incorporated as a warning of an approaching overload condition.
<i>Load moment (or rated capacity) limiter</i>	A system which aids the equipment operator by sensing the overturning moment on the equipment, i.e. load X radius. It compares this lifting condition to the equipment's rated capacity, and when the rated capacity is reached, it shuts off power to those equipment functions which can increase the severity of loading on the equipment, e.g., hoisting, telescoping out, or luffing out. Typically, those functions which decrease the severity of loading on the equipment remain operational, e.g., lowering, telescoping in, or luffing in.
<i>Locomotive crane</i>	a crane mounted on a base or car equipped for travel on a railroad track.
<i>Luffing Jib limiting</i>	is similar to a boom hoist limiting device, except that it

<i>device</i>	limits the movement of the luffing jib.
<i>Marine hoisted personnel transfer device</i>	a device, such as a "transfer net", that is designed to protect the employees being hoisted during a marine transfer and to facilitate rapid entry into and exit from the device. Such devices do not include boatswain's chairs when hoisted by equipment covered by this standard.
<i>Marine worksite</i>	a construction worksite located in, on or above the water.
<i>Mobile Cranes</i>	A lifting device incorporating a cable suspended latticed boom or hydraulic telescopic boom designed to be moved between operating locations by transport over the road. These are referred to in Europe as a crane mounted on a truck carrier.
<i>Moving point-to-point</i>	Means the times during which an employee is in the process of going to or from a work station.
<i>Multi-purpose machine</i>	means a machine that is designed to be configured in various ways, at least one of which allows it to hoist (by means of a winch or hook) and horizontally move a suspended load. For example, a machine that can rotate and can be configured with removable tongs (for use as a forklift) or with a winch pack, jib (with a hook at the end) or jib used in conjunction with a winch. When configured with the tongs, it is not covered by this Subpart. When configured with a winch pack, jib (with a hook at the end) or jib used in conjunction with a winch, it is covered by this Subpart.
<i>Nationally recognized accrediting agency</i>	is an organization that, due to its independence and expertise, is widely recognized as competent to accredit testing organizations.
<i>Nonconductive</i>	means that, because of the nature and condition of the materials used, and the conditions of use (including environmental conditions and condition of the material), the object in question has the property of not becoming energized (that is, it has high dielectric properties offering a high resistance to the passage of current under the conditions of use).
<i>Operational Controls</i>	levers, switches, pedals and other devices for controlling equipment operation
<i>Operational aids</i>	devices that assist the operator in the safe operation of the crane by providing information or automatically taking control of a crane function. These include, but are not

