

**WAC 296-155-52902 Definitions. Accredited crane certifier.** A crane inspector who has been accredited by the department.

**A/D director (assembly/disassembly) director.** An individual who meets the requirements in this part for an A/D director, irrespective of the person's formal job title or whether the person is nonmanagement or management personnel.

**Angle of loading.** The acute angle between horizontal and the leg of the rigging, often referred to as horizontal angle. See Figures 18 and 33.

**Anti two-block device.** A device that, when activated, disengages all crane functions whose movement can cause two-blocking.

**Apprentice operator or trainee.** A crane operator who has not met requirements established by the department under RCW 49.17.430.

**Articulating boom crane.** 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.

**Assembly/disassembly.** The assembly and/or disassembly of components or attachments covered under this part. With regard to tower cranes, "erecting and climbing" replaces the term "assembly," and "dismantling" replaces the term "disassembly." Regardless of whether the crane is initially erected to its full height or is climbed in stages, the process of increasing height of the crane is an erection process.

**Assist crane.** A crane used to assist in assembling or disassembling a crane.

**Attachments.** Any device that expands the range of tasks that can be done by the crane/derrick. Examples include, but are not limited to: An auger, drill, magnet, pile-driver, and boom-attached personnel platform.

**Audible signal.** 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.

**Basket hitch.** A method of rigging a sling in which the sling is passed around the load and both loop eyes or end fittings are attached to the lifting device.

**Below-the-hook lifting device.** A device used for attaching loads to a hoist. The device may contain components such as slings, hooks, rigging hardware, and lifting attachments.

**Bird caging.** The twisting of fiber or wire rope in an isolated area of the rope in the opposite direction of the rope lay, thereby causing it to take on the appearance of a bird cage.

**Blocking (also referred to as "cribbing").** Wood or other material used to support equipment or a component and distribute loads to the ground. It is typically used to support latticed boom sections during assembly/disassembly and under outrigger and stabilizer floats.

**Boatswain's chair.** 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.

**Bogie.** See "travel bogie."

**Boom (other than tower crane).** 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.

**Boom (tower cranes).** On tower cranes: If the "boom" (i.e., principal 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.

**Boom angle indicator.** A device which measures the angle of the boom relative to horizontal.

**Boom hoist limiting device.** 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.

**Boom length indicator.** 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.

**Boom stop.** Includes boom stops (belly straps with struts/stand-off), telescoping boom stops, attachment boom stops, and backstops. These devices restrict the boom from moving above a certain maximum angle and toppling over backward.

**Boom suspension systems.** A system of pendants, running ropes, sheaves, and other hardware which supports the boom tip and controls the boom angle.

**Braided wire rope.** A wire rope formed by plaiting component wire ropes.

**Bridle wire rope sling.** A sling composed of multiple legs with the top ends gathered in a fitting that goes over the lifting hook.

**Builder.** The builder/constructor of derricks.

**Cable laid endless sling-mechanical joint.** A wire rope sling made endless from one continuous length of cable laid rope with the ends joined by one or more metallic fittings.

**Cable laid grommet-hand tucked.** An endless wire rope sling made from one continuous length of rope formed to make a body composed of 6 ropes around a rope core. The rope ends are tucked into the body, thus forming the core. No sleeves are used.

**Center of gravity.** 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.

**Certified crane inspector.** A crane certifier accredited by the department.

**Certified welder.** A welder who meets nationally recognized certification requirements applicable to the task being performed.

**Choker hitch.** A method of rigging a sling in which the sling is passed around the load, then through one loop eye, end fitting, or other device, with the other loop eye or end fitting attached to the lifting device. This hitch can be done with a sliding choker hook or similar device.

**Climbing.** The process in which a tower crane is raised or lowered to a new working height, either by adding or removing tower sections to the top of the crane (top climbing), or by a system in which the entire crane is raised or lowered inside the structure (inside climbing).

**Come-a-long.** A mechanical device typically consisting of a chain or cable attached at each end that is used to facilitate movement of materials through leverage.

**Competent person.** 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.

**Construction work.** (For the purposes of this part) all or any part of excavation, construction, erection, alteration, repair, demolition, and dismantling of buildings and other structures and all related operations; the excavation, construction, alteration, and repair of sewers, trenches, caissons, conduits, pipelines, roads, and all related operations; the moving of buildings and other structures, and the construction, alteration, repair, or removal of wharfs, docks, bridges, culverts, trestles, piers, abutments, or any other related construction, alteration, repair, or removal work. Construction work does not include the normal day-to-day activities at manufacturing facilities or powerhouses.

**Controlled load lowering.** Lowering a load by means of a mechanical hoist 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.

**Controlling entity.** An employer that is a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the projects, its planning, quality, and completion.

**Counterjib (counterweight jib).** A horizontal member of the tower crane on which the counterweights and usually the hoisting machinery are mounted.

**Counterweight.** Weight used to supplement the weight of equipment in providing stability for lifting loads by counterbalancing those loads.

**Crane.** Power-operated equipment used in construction that can hoist, lower, and horizontally move a suspended load. "Crane" includes, but is not limited to: Articulating boom 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; multipurpose 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.

**Crane/derrick type.** Cranes or derricks as established by American Society of Mechanical Engineers (ASME). Crane operator means an individual engaged in the operation of a crane.

**Crane level indicator.** A device for determining true horizontal (also see safety devices).

**Crawler crane.** Equipment that has a type of base mounting which incorporates a continuous belt of sprocket driven track.

**Critical lift.** A lift that:

- Exceeds 75 percent of the crane or derrick rated load chart capacity; or
- Requires the use of more than one crane or derrick.

**Cross rod.** A wire used to join spirals of metal mesh to form a complete fabric. See Figure 22.

**Crossover points.** 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.

**Dedicated channel.** 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 persons.

**Dedicated drilling rig.** A machine which creates bore holes and/or shafts in the ground.

**Dedicated pile-driver.** 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.

**Dedicated spotter (power lines).** To be considered a dedicated spotter, the requirements of WAC 296-155-53302 (Signal person qualifications) must be met and his/her sole responsibility is to watch the separation between the power line and the equipment, the 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.

**Derrick.** An apparatus consisting of a mast or equivalent member held at the end by guys or braces, with or without a boom, for use with a hoisting mechanism and operating ropes.

**Design factor.** The ratio between nominal or minimum breaking strength and rated load.

**Digger derrick.** A multipurpose vehicle-mounted machine which is primarily designed to accommodate components that dig holes, set poles, and position materials and apparatus.

**Directly under the load.** A part or all of an employee is directly beneath the load.

**Dismantling.** Includes dismantling (such as dismantling to shorten a boom or substitute a different component).

**Drum rotation indicator.** A device on a crane or hoist which indicates in which direction and at what relative speed a particular hoist drum is turning.

**Electrical contact.** When a person, object, or equipment makes contact or comes close in proximity with an energized conductor or equipment that allows the passage of current.

**Employer-made equipment.** Floating cranes/derricks designed and built by an employer for your own use.

**Encroachment.** Where any part of the crane, load line or load (including rigging and lifting accessories) breaches a minimum clearance distance that this part requires to be maintained from a power line.

**Equipment criteria.** Instructions, recommendations, limitations and specifications.

**Fabric (metal mesh).** The flexible portion of the sling exclusive of end fittings consisting of a series of transverse spirals and cross rods.

**Fall protection equipment.** Guardrail systems, safety net systems, personal fall arrest systems, positioning device systems or fall restraint systems.

**Fall restraint system.** 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.

**Fall zone.** 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.

**Flange points.** A point of contact between rope and drum flange where the rope changes layers.

**Floating cranes/derricks.** Equipment designed by the manufacturer (or employer) for marine use by permanent attachment to a barge, pontoons, vessel or other means of flotation.

**Free fall (of the load line).** When 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).

**Free rated load test.** Testing stability and operation of crane, carrier, wheels, tires, tracks, brakes, etc., under load, when lifting without outriggers and/or traveling with the load are permitted at the activity for the type of crane being tested.

**Free surface effect.** The uncontrolled transverse movement of liquids in compartments which reduce a vessel's transverse stability.

**Functional testing.** The testing of a crane, typically done with a light load or no load, to verify the proper operation of a crane's primary function, i.e., hoisting, braking, booming, swinging, etc. A functional test is contrasted to testing the crane's structural integrity with heavy loads.

**Gin pole derrick.** A boom without a mast which has guys arranged from its top to permit leaning the mast in one or more directions. The load is lifted and lowered by ropes reeved through sheaves or blocks at the top of the mast and the lower block.

**Ground conditions.** The ability of the ground to support the crane/derrick (including slope, compaction, and firmness).

**Ground crew.** Those individuals who are involved in the personnel lift, other than the hoisting equipment operator and the platform occupants. These individuals include riggers, signal persons, and supervision.

**Gudgeon pins.** A pin connecting the mast cap to the mast allowing rotation of the mast.

**Guy.** A rope used to steady or secure the mast, boom, or other member in the desired position.

**Hairpin anchors.** A hairpin-shaped, guy-supporting anchor that is placed in footings or walls before concrete is poured and held in place by the cured concrete.

**Hitch (hitched).** A method of rigging (attaching) a sling temporarily to a load or object for the purpose of lifting.

**Hoist.** A mechanical device for lifting and lowering loads by winding rope onto or off a drum.

**Hoisting.** 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.

**Hoisting equipment.** A machine for lifting and lowering a load and moving it horizontally. The machine may be fixed or mobile and be driven manually, by power, or by a combination of both.

**Hook latch.** A mechanical device used to close the throat opening of a hook.

**Insulating link/device.** An insulating device listed, labeled, or accepted by a nationally recognized testing laboratory in accordance with 29 C.F.R. 1910.7.

**Intermediate rail.** The middle member of a barrier along the edges of a platform, located approximately one-half the distance between the platform floor and top rail.

**Jib.** An extension attached to the boom point to provide added boom length for lifting specified loads. The jib may be in line with the boom or offset to various angles in the vertical plane of the boom. For tower cranes, see boom (tower cranes).

**Jib stop (also referred to as a jib backstop).** The same type of device as a boom stop but is for a fixed or luffing jib.

**Land crane/derrick.** Equipment not originally designed by the manufacturer for marine use by permanent attachment to barges, pontoons, vessels, or other means of flotation.

**List.** The angle of inclination about the longitudinal axis of a barge, pontoons, vessel, or other means of flotation.

**Live boom.** A boom whose lowering is controlled by a brake without the aid of other lowering retarding devices (free-fall capable).

**Live load line.** A load line whose lowering is controlled by a brake without the aid of other lowering retarding devices (free-fall capable).

**Load.** 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 auxiliary attachment.

**Load moment (or rated capacity) indicator.** 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.

**Load moment (or rated capacity) limiter.** 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.

**Load ratings.** A set of rated loads for stipulated hoisting equipment configurations and operating conditions.

**Load sustaining/bearing parts.** Those parts of a crane that support the crane or load and upon failure could cause dropping, uncontrolled shifting, or uncontrolled movement of the crane or load.

**Locomotive crane.** A crane mounted on a base or car equipped for travel on a railroad track.

**Luffing boom.** A member hinged to the rotating superstructure and used for supporting the hoisting tackle.

**Luffing jib limiting device.** Similar to a boom hoist limiting device, except that it limits the movement of the luffing jib.

**Marine worksite.** A construction worksite located in, on or above the water.

**Master coupling link.** An alloy steel welded coupling link used as an intermediate link to join alloy steel chain to master links.

**Master link.** Forged or welded steel link used to support all members (legs) of an alloy steel chain sling or wire rope sling.

**Mechanical coupling link (alloy steel chain).** A nonwelded, mechanically closed link used primarily to attach fittings to alloy steel chain.

**Mobile cranes.** 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.

**Moving point-to-point.** The times during which an employee is in the process of going to or from a work station.

**Multipurpose machine.** 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 forks/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 forks/tongs, it is not covered by this part. 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 part.

**Multiple lift rigging.** A rigging assembly manufactured by wire rope rigging suppliers that facilitates the attachment of up to 5 independent loads to the hoist rigging of a crane.

**Nationally recognized accrediting agency.** An organization that, due to its independence and expertise, is widely recognized as competent to accredit testing organizations.

**Nonconductive.** 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).

**Nonstandard tower crane base.** Any deviation from the structural support or base configuration recommended by the crane manufacturer.

**Occasional or routine maintenance and repair work.** Regular, customary and foreseeable work necessary to keep equipment in good repair and/or condition. This also includes regular, customary and foreseeable work necessary to return equipment to sound condition after damage.

**Operational aid.** An accessory that provides information to facilitate operation of a crane or that takes control of particular functions without action of the operator when a limiting condition is sensed. Examples of such devices include, but are not limited to, the following: Anti-two-block device, rated capacity indicator, rated capacity (load) limiter, boom angle or radius indicator, lattice boom hoist disconnect device, boom length indicator, drum rotation indicator, load indicator, and wind speed indicator.

**Operational controls.** Levers, switches, pedals and other devices for controlling equipment operation.

**Operator.** A person who is operating the equipment.

**Outriggers.** Extendable or fixed members attached to the mounting base, which rests on supports at the outer ends, used to support the crane.

**Overhead/bridge and gantry cranes.** Includes overhead/bridge cranes, cranes on monorails, under hung cranes, semigantry, cantilever gantry, wall cranes, storage bridge cranes, launching gantry cranes, and similar equipment, irrespective of whether it travels on tracks, wheels, or other means.

**Pendants.** Includes both wire and bar types. Wire type: A fixed length of wire rope with mechanical fittings at both ends for pinning segments of wire rope together. Bar type: Instead of wire rope, a bar is used. Pendants are typically used in a latticed boom crane system to easily change the length of the boom suspension system without completely changing the rope on the drum when the boom length is increased or decreased.

**Personal fall arrest system.** A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, and a body harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these.

**Personnel lifting.** Raising, lowering, or transporting personnel using a crane/derrick.

**Personnel platform - Boom attached.** A platform attached to the boom of the crane.

**Personnel platform - Suspended.** A platform attached to a crane/derrick using wire rope, chain, or a jointed attachment and that has no installed motion controls for the platform itself.

**Personnel platform suspension system.** The rope or chain slings and other components, including fastening devices, used to connect the crane/derrick to the personnel platform.

**Platform occupant.** A person who is within the guardrail barrier while the personnel platform is in a hoisted position.

**Platform rating.** The maximum capacity of a personnel lifting platform, established by the platform manufacturer, in terms of total weight and the number of occupants allowed.

**Portal crane.** A type of crane consisting of a rotating upper structure, hoist machinery, and boom mounted on top of a structural gantry which may be fixed in one location or have travel capability. The gantry legs or columns usually have portal openings in between to allow passage of traffic beneath the gantry.

**Power controlled lowering.** A system or device in the power train, other than the load hoist brake, that can regulate the lowering rate of speed of the load hoist mechanism.

**Powerhouse.** A plant wherein electric energy is produced by conversion from some other form of energy (e.g., chemical, nuclear, solar, mechanical, or hydraulic) by means of suitable apparatus. This includes all generating station auxiliaries and other associated equipment required for the operation of the plant. Not included are stations producing power exclusively for use with communication systems.

**Power lines.** Electrical distribution and electrical transmission lines.

**Procedures.** Include, but are not limited to: Instructions, diagrams, recommendations, warnings, specifications, protocols, and limitations.

**Proximity alarm.** A device that provides a warning of proximity to a power line that has been listed, labeled or accepted by a nationally recognized testing laboratory in accordance with 29 C.F.R. 1910.7.

**Qualified crane operator.** A crane operator who meets the requirements established by the department under RCW 49.17.430.

**Qualified evaluator (not a third party).** A person employed by the signal person's or the rigger's employer (as applicable) who has demonstrated that he/she is competent in accurately assessing whether individuals meet the qualification requirements in this part for a signal person or a rigger.



**Qualified evaluator (third party).** An entity that, due to its independence and expertise, has demonstrated that it is competent in accurately assessing whether individuals meet the qualification requirements in this part for a signal person or a rigger.

**Qualified person.** A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

**Qualified rigger.** A rigger who meets the requirements in WAC 296-155-53306.

**Qualified signal person.** A signal person who meets the requirements in WAC 296-155-53302.

**Range control limit device.** A device that can be set by an equipment operator to limit movement of the boom or jib tip to a plane or multiple planes.

**Range control warning device.** A device that can be set by an equipment operator to warn that the boom or jib tip is at a plane or multiple planes.

**Rated capacity.** The maximum working load permitted by the manufacturer under specified working conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radii, boom length, and other parameters of use.

**Rated capacity indicator.** See load moment indicator.

**Rated capacity limiter.** See load moment limiter.

**Repetitive pickup points.** Refer to, when operating on a short cycle operation, the rope being used on a single layer and being spooled repetitively over a short portion of the drum.

**Rotation resistant rope.** A type of wire rope construction which reduces the tendency of a rope to rotate about its axis under load. Usually, this consists of an inner system of core strands laid in one direction covered by an outer system of strands laid in the opposite direction.

**RPE.** A registered professional engineer licensed under RCW 18.43.040(1).

**RPSE.** A registered professional structural engineer licensed under RCW 18.43.040(1).

**Running wire rope.** A wire rope that moves over sheaves or drums.

**Runway.** A firm, level surface designed, prepared and designated as a path of travel for the weight and configuration of the crane being used to lift and travel with the crane suspended platform. An existing surface may be used as long as it meets these criteria.

**Safety devices.** Examples of safety devices are, but are not limited to, the following: Horn, boom/jib or trolley stops, crane level indicator, hydraulic holding device/check valve, rail clamps, rail stops, brakes, deadman control or forced neutral return control, emergency stop switch, guards, handrails, audible and visual alarms, etc.

**Safety or health standard.** A standard adopted under this chapter.

**Section.** A section of this part, unless otherwise specified.

**Side-boom crane.** A track-type or wheel-type tractor having a boom mounted on the side of the tractor, used for lifting, lowering, or transporting a load suspended on the load hook. The boom or hook can be lifted or lowered in a vertical direction only.

**Sling.** An assembly to be used for lifting when connected to a lifting mechanism. The upper portion of the sling is connected to the lifting mechanism and the lower supports the load, as described in this part.

**Special hazard warnings.** Warnings of site-specific hazards (for example, proximity of power lines).

**Spiral.** A single transverse coil that is the basic element from which metal mesh is fabricated.

**Stability (flotation device).** The tendency of a barge, pontoons, vessel, or other means of flotation to return to an upright position after having been inclined by an external force.

**Stabilizer.** An extendable or fixed member attached to the mounting base to increase the stability of the crane, but that may not have the capability of relieving all of the weight from the wheels or tracks.

**Standard method.** The hand signals established in the applicable ASME B30 series and WAC 296-155-56400, Mobile crane hand signal chart.

**Standing wire rope.** A supporting wire rope which maintains a constant distance between the points of attachment to the two components connected by the wire rope.

**Superstructure.** See upperworks.

**Supporting materials.** Blocking, mats, cribbing, marsh buggies (in marshes/wetlands), or similar supporting materials or devices.

**Taglines.** A rope (usually fiber) attached to a lifted load for purposes of controlling load spinning and pendular motions or used to stabilize a bucket or magnet during material handling operations.

**Tender.** An individual responsible for monitoring and communication with a diver.

**Tilt up or tilt down operation.** Raising/lowering a load from the horizontal to vertical or vertical to horizontal.

**Toe board.** A vertical barrier at foot level, along the edges of the platform, to protect against material from falling over the edge.

**Top rail.** The top member of a barrier along the edges of a platform to protect against persons from falling off the platform.

**Tower crane.** A type of lifting structure which utilizes a vertical mast or tower to support a working boom (jib) in an elevated position. Loads are suspended from the working boom. While the working boom may be of the fixed type (horizontal or angled) or have luffing capability, it can always rotate to swing loads, either by rotating on the top of the tower (top slewing) or by the rotation of the tower (bottom slewing). The tower base may be fixed in one location or ballasted and moveable between locations. Mobile cranes that are configured with a luffing jib and/or tower attachments are not considered tower cranes under this part.

**Travel.** The function of the hoisting equipment moving under its own power from one location to another.

**Travel bogie (tower cranes).** An assembly of two or more axles arranged to permit vertical wheel displacement and equalize the loading on the wheels.

**Trim.** The angle of inclination about the transverse axis of a barge, pontoons, vessel or other means of flotation.

**Two blocking.** A condition in which a component that is uppermost on the hoist line such as the load block, hook block, overhaul ball, or similar component, comes in contact with the boom tip, fixed upper block or similar component. This binds the system and continued application of power can cause failure of the hoist rope or other component.

**Unavailable procedures.** Procedures that are no longer available from the manufacturer, or have never been available from the manufacturer.

**Upperstructure.** See upperworks.

**Upperworks.** The revolving frame of equipment on which the operating machinery (and many cases the engine) are mounted along with the operator's cab. The counterweight is typically supported on the rear of the upperstructure and the boom or other front end attachment is mounted on the front.

**Up to.** Means "up to and including."

**Vertical hitch.** A method of rigging a sling in which the load is attached to the loop eye or end fitting at one end of the sling and the loop eye or end fitting at the other end is attached to the lifting device. Any hitch less than 5 degrees from the vertical may be considered a vertical hitch.

**Wire rope.** A flexible rope constructed by laying steel wires into various patterns of multiwired strands around a core system to produce a helically wound rope.

**Working load.** The external load applied to the hoisting equipment, including the personnel lifting platform, its contents, and the load attaching equipment, such as lowered load block, shackles, and slings.

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