14XX Definitions

actual load: the weight of the load being lifted including all additional equipment such as wire rope, blocks, slings, etc. as defined by the manufacturers Rated Capacity Chart.

angle indicator (boom): an accessory that measures the angle of the boom to the horizontal. ANSI, 1910.180(a)(8).

anti-two-block device: a device that, when activated, disengages all crane functions whose movement can cause two-blocking. ANSI.

anti-two-block device: device which, when activated, disengages, all functions whose movement can cause any part of the lower load block or hook assembly to come into contact with the upper load block, boom or jib point sheave assembly(ies). ISO.

anti-two blocking device: a crane system which senses impending contact between the lower load block or overhaul ball and the boom or jib point sheaves. The system may warn the crane operator of the impending contact, or it may disengage power from all crane functions, e.g. hoisting, luffing out, or telescoping out, which create a more severe condition of contact. It also sets all associated brakes and valves to prevent dropping or falling. SCRA.

articulating boom crane: a crane with a boom that has sections that are articulated by hydraulic cylinders. The boom may have a telescoping section. The crane can be stationary or mounted on a vehicle, track, locomotive, etc. and is used to lift, swing, and lower loads.

automatic boom stop: a device which automatically disengages power when a crane boom reaches a predetermined maximum operating angle above horizontal. The device also automatically sets brakes or valves to prevent the boom from falling. *ALSO: boom hoist shut-off.*

backstop: a device which physically prevents a boom, jib, or mast from rotating above the highest recommended operating angle. SCRA.

bail: (1) a structural frame equipped with sheaves and connected to a latticed boom crane's gantry to raise and lower the boom. (2) a U-shaped component of a bucket, socket, or other fitting.

boom: a member hinged to the superstructure or a crane/derrick and used for supporting hoisting tackle. COE.

boom: a member hinged to the front of the rotating superstructure with the outer end supported by ropes leading to a gantry or A-frame and used for supporting the hoisting tackle. NCDOT.

boom-angle: the angle above or below the horizontal of the longitudinal axis of the base of the boom section. COE.

boom angle: the angle above or below horizontal of the longitudinal axis of the base boom section. ANSI.

boom angle: the angle between the longitudinal centerline of the boom base section and the horizontal plane. ISO.

boom angle: the angle between the longitudinal centerline of the boom and the horizontal. The boom longitude centerline is a straight line between the boom foot pin (heel pin) centerline and boom point sheave pin centerline. NCDOT.

boom angle indicating system: a crane-mounted device which measures and displays boom angle.

boom-angle indicator: a device that measures the angle of the boom to the horizontal. COE.

boom angle indicator: an accessory device which measures the angle of the boom relative to horizontal. SCRA.

boom hoist limiting device: a device which disengages boom hoist power when the boom reaches a predetermined maximum operating angle. It also sets brakes or closes valves to prevent the boom from lowering after power is disengaged.

boom length: boom length is the straight line thru the centerline of boom pivot pin to the centerline of the boom point load hoist sheave pin, measured along the longitudinal axis of the boom.

boom length indicating system: a boom length indicating device applied to a crane which measures and displays the length of a variable length, telescopic boom.

boom stop (crane): a device used to limit the angle of the boom at the highest position. ANSI.

boom stop (crane): a device used to limit the angle of the boom to the horizontal. COE.

boom stop: a device designed to restrict the boom from moving above a certain maximum angle and toppling over backward. It may combine the function of disengaging the boom hoist power along with physically stopping the boom as it reaches a predetermined maximum angle.

brake: a device used for retarding or stopping motion by friction or power means.

brake, holding: a friction brake for a hoist that is automatically applied and prevents motion when power to the brake is off.

brake, mechanical load: an automatic type of friction brake used for controlling loads in a lowering direction. The unidirectional device requires torque from the motor to lower a load but does not impose any additional load on the motor when lifting a load.

buffer: an energy-absorbing device for reducing impact when a moving crane or trolley reaches the end of its permitted travel.

bumper (buffer): a device for reducing impact when a moving crane or trolley reaches the end of its permitted travel, or when two moving cranes or trolleys come into contact. This device may be attached to the bridge, trolley, or runway stop.

bumper outrigger: a hydraulic cylinder or manual jack located on the front bumper of a truck crane carrier to provide additional stability and extend the crane's working range over the front of the carrier. *ALSO: fifth outrigger.*

clutch: a means of engagement or disengagement of power. ANSI.

clutch: a friction, electromagnetic, hydraulic, pneumatic, or positive mechanical device for engagement or disengagement of power. OSHA.

clutch: a device for engaging and disengaging power in a drive system. Clutches many employ high friction, material, mechanical, electromagnetic, hydraulic, or pneumatic systems to control and transmit the power.-SCRA.

crab (trolley): an assembly designed to traverse the suspended load.

crab-traversing speed: rate of traverse of the crab under steady conditions of motion. It is determined when the crab moves on a horizontal path under the maximum working load and at a wind speed under 3 m/s at a height of 10 m.

crane operator aids: devices that are used to assist a crane operator in the safe operation of the crane, including: two-block warning devices, two-block prevention devices, load and load moment indicator devices, boom angle and radius indicators, boom and jib stops, boom hoist disengaging devices, limit switches, drum rotation indicators, etc.

deadman control: a spring loaded mechanism in a crane control lever which automatically disengages power by returning that lever to the neutral position when the lever is released. This system also sets any associated brake(s) to stop movement when the lever is released. *ALSO: deadman switch.*

derricking (luffing): angular motion of the jib in a vertical plane. ISO.

derricking: operation of changing boom angle by varying the length of the boom suspension ropes. *ALSO: luffing, booming (in/out), topping. SEE: boom hoist.* SCRA.

derricking-speed: average rate of horizontal displacement of the working load under steady conditions of motion. It is determined when the radius changes from the maximum to the minimum values, the crane standing on a level path and at a wind speed under 3 m/s at a height of 10 m.

dog: a pawl used in conjunction with a ratchet built into one flange of a rope drum to lock the drum from rotation in the spooling-out direction; also, one of a set of projecting lugs that support the weight of a tower crane.

drag brake: a brake mechanism which can be set to provide a slight constant retarding force.

drum rotation indicator: an operator aid device on a crane or hoist which indicates in which direction and at what relative speed a particular hoist drum is turning.

duty cycle: operations involving repetitive pick and swing, such as with a dragline, grapple, or clamshell: such operations are conducted primarily for production as opposed to placement.

electric baffle: conductors that are wired to cut off electric power to approaching motor-driven equipment if track switches, drop sections, and other movable track devices are not properly set for passage of equipment.

fail-safe: this term applies to brake systems which are automatically applied should a loss of power (pneumatic, hydraulic, or electric) occur. These brakes will not release until the power has been restored and then only when deliberately released. SCRA.

fail-safe: a provision designed to automatically stop or safely control any motion in which a malfunction could occur. DOE.

fairlead: a device to guide wire rope for proper spooling onto drums. On a dragline crane, such a device typically consists of a set of sheaves and/or rollers mounted on a swiveling crane at the front of the crane's upperstructure to guide the drag inhaul rope onto its drum.

foot pedal brake locks: a mechanical device, usually a latch system, which temporarily secures a brake foot pedal in the applied position.

friction clutch: a mechanical device which utilizes high friction material for engaging and disengaging the drive in the transmission of power from a crane's engine to its operating functions.

function kick-out system: a device which when activated prevents the loading on the crane to be increased beyond the point at which the FKO occurred.

function limiter: a device which interrupts and overrides the normal operation of equipment functions upon sensing a predetermined condition. An example of a function limiter is a Rated Capacity Limiting System which prevents hoisting, booming out, or telescoping out with a load when an overload condition is sensed on a crane. *ALSO: cutout, function lockout, hydraulic cutout, or hydraulic kickout.*

ground straps: safety device used to prevent static sparks from igniting fuel vapors when refueling the machine.

grounding mat: grounding device used when a crane will be working in a relatively fixed location which is near electrical hazards. Equipment is placed on the mat and bonded to it. The grounding mat area is usually enclosed with a fence to prevent personnel from stepping on and off the mat during operation of the machine. *ALSO: grounding grid.*

grounding rod: grounding device used when a crane will be working in a relatively fixed location which is near electrical hazards. The ground lead is connected to the rod and to the machine, with the rod placed as close to the machine as possible.

grouser: lug or bar projecting from the bottom of crawler track shoes to provide additional traction.

holding brake: a motion retarding device which is controlled in either an "on" or an "off" position rather than being applied in a graduated manner. This type of brake is typically used to stop motion when power is off.

jib: on hammerhead cranes, the horizontal structural member attached to the rotating superstructure of a crane and upon which the load trolley; on mobile cranes, an extension attached to the boom to provide added boom length for lifting specified loads.

jib backstop: a device that will restrain the jib from turning over backward.

limit switch: an electro-mechanical device which senses when an extreme of some operation is reached and sends a control signal to restrict that operation. For example, an anti-two block system utilizes a limit switch to sense the proximity of the hook block or overhaul ball to the boom tip and sound a warning or shut off power.

load block: an assembly of hook or shackle, swivel, pins, and frame.

load indicating device: a device which measures and displays the weight of the load being lifted.

load indicating system: a load indicating device applied to a crane including all mounting and crane components that directly affect the performance criteria specified in SAE J376, Section 4.

load indicator: a device that measures the weight of the load. ANSI.

load indicator: a device for measuring and displaying the net load being lifted. SCRA.

load-lifting (-lowering) speed: rate of vertical displacement of the working load under steady conditions of motion.

load moment indicator (rated capacity indicator): a device that indicates the bending moment on a crane by measuring both the load on a boom and the horizontal distance from the load (boom point) to the crane's axis of rotation. Load moment indicators are often equipped with warning devices or disengaging devices that are actuated before a crane is overloaded. COE.

load moment indicator: a system which aids the crane operator by sensing the overturning moment on a crane, i.e. load multiplied by radius. It compares this lifting condition to the crane's rated capacity, and indicates to the operator the percentage of capacity at which the crane is working. Lights, bells, or buzzers may be incorporated as a warning of an approaching overload condition. *ALSO: rated load indicator, rated capacity indicator*. SCRA.

mechanical load brake: a type of friction brake mechanism for controlling the descent of hoisted loads which is applied through a mechanical linkage system as opposed to a hydraulic, electric, or pneumatic system.

operational aid: an accessory that provides information to facilitate operation of a crane or that takes control of particular crane functions without action of the operator when a limiting condition is sensed.

overload protection system: a system of sensors and limit switches on a tower crane to determine the onset of an overload condition and shut down the crane's power, hopefully before damage occurs.

pawl (dog): a device for positively holding a member against motion in one or more directions. ANSI.

pawl: a hinged, ratchet type mechanical device which blocks rotation of an object in one direction by engaging a tooth system. It allows rotation in the opposite direction. Crane drums are often equipped with pawl systems to prevent rotation in a lowering direction unless the pawl is deliberately disengaged. SCRA.

power-controlled lowering: a system or device in the power train, other than the load hoist brake, which can control the lowering rate of speed of the load hoist mechanism. ANSI.

power load lowering device: a system for driving a load down under engine power and thereby controlling the speed of descent at a rate proportional to engine speed; i.e. accelerating the engine increases lowering speed and throttling back the engine retards lowering speed. *ALSO: power lowering.* SCRA.

primary upper-limit device: the first device that, when actuated, limits hoisting motion in the upward direction. B30.2.

push-button station: an electrical control device consisting of push-button operated contacts, in an enclosure used by the operator for control of the powered motions of the crane, carrier, hoist, and other auxiliary equipment.

radius: the horizontal distance from a crane's centerline of rotation to the center of gravity not a freely suspended load. *ALSO: load radius, operating radius, working radius.*

radius-of-load: the horizontal distance from a vertical projection of the crane's axis of rotation to the supporting surface, before loading, to the center of the vertical hoist line or tackle with rated load applied.

radius-of-load indicating system: a crane-mounted device which measures parameters and displays the radius-of-load.

rail clamp: a device for fastening a traveling crane to its rails to limit wind-induced travel. B30.4.

rail clamp: a tong-like metal device mounted on a locomotive crane car, which can be connected to the track. B30.5.

rail clamp: device which can be tightened to the rail to prevent a rail-mounted crane being blown along the track when not in use. ISO.

rail sweep: a device attached to the crane and located in front of the crane's leading wheels to push aside loose obstructions.

ratchet: a wheel with angular teeth on the edge into which a pawl drops or catches to prevent a reversal of motion.

rated capacity: maximum gross load that applies to a given crane condition. ISO.

rated capacity: the value shown on the applicable Rated Capacity Chart of the crane for the particular configuration, boom length, angle, and/or function of these variables. For radii and/or angles outside those shown on the Rated Capacity Chart, the rated capacity is considered to be zero. SAE.

rated capacity: the maximum hook load that a piece of hoisting equipment is designed to carry; also the maximum load that an industrial truck or a sling, hook, shackle, or other rigging tackle is designed to carry.

NOTE: At the option of the user, a rated capacity can be assigned that is less than the design-rated capacity.

rated capacity indicator: a system consisting of devices, when applied to a crane, sense crane loading, boom length (telescopic only), boom angle, and which automatically provide an audible/visual signal when the Actual Load approaches, reaches, and/or exceeds the Rated Capacity Value. SAE.

rated capacity indicator: a device that automatically monitors radius, load weight, and load rating and warns the crane operator of an overload condition. ANSI.

rated capacity indicator: device that automatically provides acoustic and/or visual warnings. ISO.

rated capacity (load) limiter: a device that automatically monitors radius, load weight, and load rating and prevents movements of the crane which would result in an overload condition. ANSI.

rated capacity limiter: device that automatically prevents the crane from handling loads in excess of its rated capacity by more than a specified value. ISO.

rated capacity limiter: a system consisting of devices which, when applied to a crane, sense crane loading, boom length (telescopic only), boom angle, and which automatically provide an audible/visual signal when the loading conditions approach, reach, and/or exceed the rated capacity values. When the Actual Load exceeds the Rated Capacity, the system supplies a signal to a function kick-out system. SAE.

rated capacity limiter: a system which aids the crane operator by sensing the overturning moment on a crane, i.e. load multiplied by radius. It compares this lifting condition to the crane's rated capacity, and when the rated capacity is reached, it shuts off power to those crane functions which can increase the severity of loading on the crane, e.g. hoisting, telescoping out, or luffing out. Typically, those functions which decrease the severity of loading on the crane remain operational, e.g. lowering, telescoping in, or luffing in. SCRA.

rigging switch: a switch which can be used to override any or all of the function limiters (cutouts) which have been activated on the crane during crane set up and rigging. *ALSO: system override switch.*

rope drum rotation indicating device: a device used to indicate to the crane operator by visual, audible or tactile means the movement of a rope drum.

remote controlled: controlled by a control station located at a point not mechanically attached to the device being controlled.

safe load indicator: weighing device used in cases where the assessment of load weight is difficult; used prior to hoisting with crane.

service brake: a type of braking system which allows the brake to be applied or released in a graduated manner during normal operation of the mechanism.

slewing: angular motion of the revolving part in the horizontal plane of a bridge, portal, or cantilever crane.

slewing speed: angular slewing speed of turntable of the crane under steady conditions of motion. It is determined at maximum radius at the working load with the crane on a level site and a wind speed under 3 m/s at a height of 10 m.

stabilizer: stabilizers are extendable or fixed members 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 wheels or tracks. ANSI.

stabilizers: outrigger-like arms for increasing the stability of a crane. They are attached to the crane base but unlike outriggers, they are not capable of lifting the cranes wheels or tracks off the ground for leveling purposes. SCRA.

stop: a device to limit travel of a trolley or crane bridge. This device normally is attached to a fixed structure and normally does not have energy absorbing ability. B30.17.

stop: a device to limit travel of a carrier or crane and which normally does not have energy-absorbing ability. B30.11.

stripper: a device that aids the load chain in leaving the load sprocket.

swing (slew): rotation of the superstructure for movement of loads in a horizontal direction about the axis of rotation.

swing brake: a brake system used to retard the swing motion of crane upperstructure through the action of a friction brake. A swing brake can be either a holding type brake which is set to hold a crane relatively fixed against swinging or a service type brake which can be applied gradually to slow swing motion when desired.

swing lock: a device which rigidly secures the upperstructure against swing movement by engaging a positive locking mechanism. *ALSO: house lock.*

switch (valve): a device for making, breaking, or changing the connections in an electric, hydraulic, or pneumatic circuit.

switch, cross-track: a track switch containing one straight section of track, pivoted about the center, which can be rotated to align with other crossing tracks to allow passage of the carrier through the junction without changing the direction of the carrier motion.

switch, emergency stop: a manually actuated switch to disconnect power independently of the regular operating controls.

switch, glide (slider): a track switch with a movable inner frame containing straight or curved sections of track. The inner frame can be moved to align these sections of track with other fixed tracks to permit routing of carriers.

switch, limit: a device that is actuated by the motion of a part of a power-driven machine or equipment to alter or disconnect the electric, hydraulic, or pneumatic circuit associated with the machine or equipment.

switch, main (crane disconnect): a switch on the crane controlling the main power supply from the runway conductors.

switch, master: switch that dominates the operation of contractors, relays, or other remotely operated devices.

switch, master, spring-return: a master switch that, when released, will return automatically to a neutral (OFF) position.

switch, runway disconnect: a switch, usually at floor level, controlling the main power supply to the runway conductors.

switch, tongue: a track switch containing one straight section of track, pivoted at one end, which can be swung to various positions to connect with fixed tracks for routing of carriers.

switch, track: a device with a moving section of track that can be moved to permit passage of a carrier from incoming fixed track(s) to outgoing fixed track(s).

telescoping boom: consists of a base boom from which one or more boom sections are telescoped for additional length.

telescoping boom stop: mechanical device utilizing two tubes sliding inside each other to prevent a crane boom from moving above a predetermined boom angle.

three hundred sixty degree swing lock: a mechanical device to positively fix a crane's upperstructure against rotation which can be set at any rotational orientation as opposed to being set at only a few predetermined positions.

travelling: movement of the crane as a whole when in its operational form.

travelling speed: rate of travel of a crane under steady conditions of motion. It is determined when the crane travels on a horizontal path with its working load and at a wind speed under 3 m/s at a height of 10 m.

travel swing lock: a mechanical device to positively fix a crane's superstructure against rotation only when facing directly over the front or rear of a carrier as would be required for travel. *ALSO: two position swing lock.*

traversing (direction): movement of the crab along the bridge, track ropes, jib or cantilever.

turntable: a track device with a movable inner frame containing a straight section of track which can be rotated with a loaded carrier on it to align the section of track with other tracks for the transfer of carriers from one track to another.

two-block damage prevention device: device which, when activated, reduces the wire rope pull caused by contact of the lower load block or hook assembly and upper load block, boom or jib point sheave assembly(ies). ISO.

two-block damage prevention device: a system that will stall when two-blocking occurs without causing damage to the hoist rope or crane machinery components. COE.

two-block damage prevention feature: a system that will stall when two-blocking occurs without causing damage to the hoist rope or crane machinery components. ANSI.

two-blocking: the condition in which the lower load block or hook assembly comes in contact with the upper load block or boom point sheave assembly. ANSI.

two-blocking: contact of the lower load block or hook with the upper load block, boom point, or boom point machinery. SAE.

two-blocking: the condition when the lower load block or hook assembly comes in contact with the upper load block, or when the load block comes in contact with the boom tip. COE.

two-blocking: the act of continued hoisting in which the load-block and head-block assemblies are brought into physical contact, thereby preventing further movement of the load block and creating shock loads to the rope and reeving system. DOE.

two-block warning device: a warning device to alert the operator of an impending two-blocking condition.

two-block limit system: a device applied to cranes which prevents two-blocking.

two-block sensor: a device which senses impending two-blocking.

two-block warning feature: a warning device to alert the operator of an impending two-blocking condition.

two-block warning system: a device applied to cranes which warns of impending two-blocking.

wind velocity device: a device, such as an anemometer, that has a readout giving wind speeds.