

## **1926.550 Tower Crane Inspection Checklist**

### **General Requirements:**

#### **1926.550(a)**

**1926.550(a)(1)**: The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer.

**1926.550(a)(2)**: Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he is at his control station.

**1926.550(a)(4)**: Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals shall be posted at the job site.

**1926.550(a)(5)**: The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

**1926.550(a)(6)**: A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.

**1926.550(a)(7)**: Wire rope shall be taken out of service when any of the following conditions exist:

(i): In running ropes, six randomly distributed broken wires in one lay or three broken wires in one strand in one lay;

(ii): Wear of one-third the original diameter of outside individual wires. Kinking, crushing, bird caging, or any other damage resulting in distortion of the rope structure;

(iii): Evidence of any heat damage from any cause;

(iv): Reductions from nominal diameter of more than one-sixty-fourth inch for diameters up to and including five-sixteenths inch, one-thirty-second inch for diameters three-eighths inch to and including one-half inch, three-sixty-fourths inch for diameters

nine-sixteenths inch to and including three-fourths inch, one-sixteenth inch for diameters seven-eighths inch to 1 1/8 inches inclusive, three-thirty-seconds inch for diameters 1 1/4 to 1 1/2 inches inclusive;

(v): In standing ropes, more than two broken wires in one lay in sections beyond end connections or more than one broken wire at an end connection.

(vi): Wire rope safety factors shall be in accordance with American National Standards Institute B 30.5-1968 or SAE J959-1966.

**1926.550(a)(8):** Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or other moving parts or equipment shall be guarded if such parts are exposed to contact by employees, or otherwise create a hazard. Guarding shall meet the requirements of the American National Standards Institute B 15.1-1958 Rev., Safety Code for Mechanical Power Transmission Apparatus.

**1926.550(a)(9):** Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, shall be barricaded in such a manner as to prevent an employee from being struck or crushed by the crane.

**1926.550(a)(10):** All exhaust pipes shall be guarded or insulated in areas where contact by employees is possible in the performance of normal duties.

**1926.550(a)(11):** Whenever internal combustion engine powered equipment exhausts in enclosed spaces, tests shall be made and recorded to see that employees are not exposed to unsafe concentrations of toxic gases or oxygen deficient atmospheres.

**1926.550(a)(12):** All windows in cabs shall be of safety glass, or equivalent, that introduces no visible distortion that will interfere with the safe operation of the machine.

**1926.550(a)(13)**

(i): Where necessary for rigging or service requirements, a ladder, or steps, shall be provided to give access to a cab roof.

(ii): Guardrails, handholds, and steps shall be provided on cranes for easy access to the car and cab, conforming to American National Standards Institute B30.5.

(iii): Platforms and walkways shall have anti-skid surfaces.

**1926.550(a)(14):** Fuel tank filler pipe shall be located in such a position, or protected in such manner, as to not allow spill or overflow to run onto the engine, exhaust, or electrical equipment of any machine being fueled.

**(i):** An accessible fire extinguisher of 5BC rating, or higher, shall be available at all operator stations or cabs of equipment.

**(ii):** All fuels shall be transported, stored, and handled to meet the rules of Subpart F of this part.

**1926.550(a)(15):** Except where electrical distribution and transmission lines have been deenergized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, equipment or machines shall be operated proximate to power lines only in accordance with the following:

**(i):** For lines rated 50 kV. or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet;

**(ii):** For lines rated over 50 kV., minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV. over 50 kV., or twice the length of the line insulator, but never less than 10 feet;

**(iii):** In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV., and 10 feet for voltages over 50 kV., up to and including 345 kV., and 16 feet for voltages up to and including 750 kV.

**(iv):** A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means;

**(v):** Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the requirements of any other regulation of this part even if such device is required by law or regulation;

**(vi):** Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded;

**(vii):** Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane. The following precautions shall be taken when necessary to dissipate induced voltages:

**(a):** The equipment shall be provided with an electrical ground directly to the upper rotating structure supporting the boom; and

**(b):** Ground jumper cables shall be attached to materials being handled by boom equipment when electrical charge is induced while working near energized transmitters. Crews shall be provided with nonconductive poles having

large alligator clips or other similar protection to attach the ground cable to the load.

(c): Combustible and flammable materials shall be removed from the immediate area prior to operations.

**1926.550(a)(16)**: No modifications or additions which affect the capacity or safe operation of the equipment shall be made by the employer without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

**1926.550(a)(17)**: The employer shall comply with Power Crane and Shovel Association Mobile Hydraulic Crane Standard No. 2.

**1926.550(a)(19)**: All employees shall be kept clear of loads about to be lifted and of suspended loads.

### **Hammerhead Tower Cranes.**

#### **1926.550(c)**

**1926.550(c)(1)**: Adequate clearance shall be maintained between moving and rotating structures of the crane and fixed objects to allow the passage of employees without harm.

**1926.550(c)(2)**: Each employee required to perform duties on the horizontal boom of hammerhead tower cranes shall be protected against falling by guardrails or by a personal fall arrest system in conformance with subpart M of this part.

**1926.550(c)(3)**: Buffers shall be provided at both ends of travel of the trolley.

**1926.550(c)(4)**: Cranes mounted on rail tracks shall be equipped with limit switches limiting the travel of the crane on the track and stops or buffers at each end of the tracks.

**1926.550(c)(5)**: All hammerhead tower cranes in use shall meet the applicable requirements for design, construction, installation, testing, maintenance, inspection, and operation as prescribed by the manufacturer.