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I. Design Criteria and Site Installation

Cranes and Derricks shall be constructed and installed to adequately meet all stress imposed on main members and components under normal operation conditions when handling loads not exceeding manufacturer's load ratings. They must be designed, constructed, installed, tested, maintained, inspected and operated as prescribed in the ANSI Codes.

A positive acting device shall be used which prevents contact between the load block for overhaul ball and the boom tip (anti-two-blocking device), or a system shall be used which deactivates the hoisting action or sends an audible alarm to the operator before damage occurs in the event of a two-blocking situation. This requirement applies to all cranes, except tower cranes and cranes outfitted to drill piers.

The crane operator is responsible for inspections, proper maintenance and the safe operation of his crane. If an operator feels that a situation is unsafe he will be expected to stop the operation until the unsafe act or condition is corrected. Equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer’s specifications for adequate support and degree of level of the equipment are met.

Pre-operation hazard assessment will be performed to identify the work zone and determine if any part of the equipment could reach closer than 20 feet to a power line. The work zone shall be identified by demarcating boundaries such as flag and range limiting devices, or defining the work zone as 360 degrees around the equipment up to the maximum working radius. The hazard assessment must determine if any part of the equipment could get closer than 20 feet to a power line.

If it is determined that any part of the equipment, load line or load could get closer than 20 feet to a power line then at least one of the following measures must be taken:

1) Ensure the power lines have been de-energized and visibly grounded

2) Ensure no part of the equipment, load line or load gets closer than 20 feet to the power line

3) Determine the line's voltage and minimum approach distance permitted in Table A

II. Installation Crane Signals

Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI Standard for the type of crane in use. Workers that are to direct or flag cranes shall be in plain site or have communication with the operator via radio.

A signal person must be provided if the operator's view is obstructed, if site specific safety concerns require it, or if the operator determines that it is necessary.

1) The point of operation is not in full view of the operator
2) The view is obstructed when the equipment is traveling

3) The operator or the person handling the load determines it is necessary due to site specific concerns

A stop signal must be obeyed regardless of who gives it.

Prior to initial use of a crane on the project, the trade contractor/vendor shall furnish Gallant Builders' project manager with a copy of the following:

- Cranes on a Gallant project will be required to have documentation of a current annual inspection. [The exceptions are tower cranes and pier drilling rigs]

Trade Contractor/Vendor shall furnish a competent person for the following:

- Provide supervision of the erection, assembly and dismantling. The competent person shall also verify that the crane has been assembled as per the manufacturers' recommendations.
- Inspect and test the crane following initial erection or any other major alteration.
- Provide a continuing program of maintenance and inspection of the crane.
- Annual crane inspection shall, preferably, be performed by an independent agency.
- Copies of all maintenance and inspection records shall be maintained and kept in the cab of the crane.
- Operators must be determined to be qualified before they are permitted to operate any crane. Only those employees qualified by training or experience shall be allowed to operate equipment and machinery.

Within 4 years of November 8th 2010, employers must ensure operators be qualified/certified by one of the following methods:

1. Certification by an accredited crane operator testing organization
2. Qualification by an audited employer program
3. Qualification by the U.S. military
4. Licensing by a government entity

- Operators must be capable of interpreting all hand signals for cranes and must comply with the instruction on decals, in instruction manuals.
- Operators must be able to read and use the load chart provided for the crane in operation, which shall be kept in the cab for reference. The operator shall have access to procedures applicable to the operation of the equipment. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operator's manual.

Operators that are employed by trade contractors fall under the contractual requirements for the subcontractor. Gallant Builders reserves the right to drug test any worker on any jobsite for any reason at any time.

- The operation of any equipment, other than for its intended use, is prohibited.
- All outriggers should always be fully extended prior to beginning any operation. All wheels should be off the ground. If they are not, the crane has an inside tipping axis on its tires, capacity is lost and the "on-rubber" load chart must be used. Outrigger mats shall be used on disturbed earth.
- After set-up, all cranes should be level. Additional blocking may be required under the

outrigger floats to achieve the leveling due to the terrain. blocking shall be solid.

- No modification, changes or additions which affect the structural competence, capacity or safe operation of the crane shall be permitted without written approval of the manufacturer or a registered professional engineer.
- No repairs, adjustments or lubrication should be done on moving machinery, unless required and so stated by the manufacturer.
- All cranes should have "high voltage" warning signs posted as follows:

  a. One sign that is readily visible to the operator when at the controls.
  b. Two signs (one on each side of the crane) that are readily visible from a distance of 12'.

- All cranes except crawler and fixed cranes shall be equipped with a functioning backup alarm. The alarm should activate immediately when the equipment is put in reverse. Bells attached to the wheels are unacceptable and not permitted.
- All cranes shall be equipped with a functioning warning horn.
- Area surrounding counter weights shall be flagged.
- Aviation warning lights should be provided as required be local FAA requirements and maintained in operational condition at all times.
- An operator must not eat, read, sleep, or otherwise divert his/her attention while operating a crane. Practical jokes are forbidden. An operator who is given a prescription drug by a physician should obtain written assurance that it will not prevent him or her from operating the crane in a safe manner before returning to work.
- The operator shall never exceed the rated capacity of the crane. Be sure to include the weight of the blocks, hooks, and special handling devices when figuring the total weight of a load, and KNOW you are not exceeding capacity when preparing to lift a load.
- The operator shall never leave the controls when a load is suspended on the hook.
- Operators shall never block out safety devices, such as limit switches, in order to allow operation of the crane in a manner not intended by the manufacturer.
- Operators have the authority to stop and refuse to handle loads whenever there is a safety concern.
- Identify hazard areas by marking the boundaries of the crane swing radius with warning lines, railings or similar barriers.

III. Inspection of Hoisting Equipment

- 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.
- Inspection procedure for cranes and derricks in regular service is divided into two general classifications based upon the intervals at which inspection should be performed. The intervals in turn are dependent upon the nature of the critical components of the crane or derrick and the degree of their exposure to wear, deterioration, or malfunction. The two general classifications are herein designated as "frequent" and “periodic" with respective intervals between inspections defined as:
- Frequent inspection - Daily to monthly intervals
- Periodic inspection - 1 to 12 month intervals

- Hoisting equipment shall be inspected before being operated. These inspections are to be conducted in accordance with the OSHA crane and derrick inspection requirements. Those inspections, which OSHA requires to be documented, shall be maintained on site, readily available for review.

- Prior to making any lift, the employee assigned to operate a crane or derrick shall completely fill out a daily crane inspection report. If, in the opinion of the operator, the equipment is unsafe to operate, they must immediately notify their supervisor of the unsafe condition.
- The manufacturer's procedures and prohibitions must be complied with when assembling and
- Equipment must be inspected monthly by a competent person. The inspection must be documented. Documentation must include the following: items checked, results of inspection, and name and signature of the inspector. Documentation must be retained for 3 months. (Documented monthly inspection not required if the daily inspection is documented and records are retained for 3 months).

IV. Rigging / Hoisting

- Barrels should not be hoisted by burning or cutting holes in the drum and attaching hooks or a bar through the holes.
- Hoisting of personnel in a "man basket" is not a standard practice and should be avoided in most all cases. If it is decided that a man basket is needed for a particular task, the Loss Prevention director shall be called and a meeting will be set up with Gallant Builders and all parties involved. All the standards for hoisting personnel shall be adhered to before, during and after the task is completed.
- All equipment and/or material should be properly rigged and/or hoisted in a properly constructed container. At no time shall open-ended containers be used.
- No riders shall be permitted on loads, hooks or buckets.
- Hoisting shall stop anytime when:

  a. improper or conflicting signals are given;
  b. signal person demonstrates incompetence;
  c. visual contact with the signal man is poor or lost;
  d. an unsafe condition develops;
  e. a stop signal is given, regardless of who gives it;
  f. voice contact is interrupted when using radios.

- Each Trade Contractor using rigging equipment shall coordinate an inspection program covering all rigging equipment and accessories for hoisting. All rigging equipment should be given a brief inspection prior to being placed in service each day and periodically during use as deemed necessary by the rigger or superintendent. All defective equipment shall be destroyed, removed from the project or marked with a **"DANGER - DO NOT USE"** tag.
- Rigging equipment not in use shall be removed from the immediate work area so as not to present a hazard to employees.
- Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin m
- All employees shall be kept clear of loads about to be lifted and of suspended loads.

All loads are required to have a tagline, unless the load is not to leave the riggers hands.

V. Material, Personal Hoist, and Elevators

Erection of Hoist

Material / Personnel hoists shall be operated by designated individuals that are trained in their safe and proper operation. The manufacturers' recommendations for operation shall be followed on all equipment.

- Hoist tower must be level, plumb, and securely guyed at intervals not to exceed 25 feet.
- The operator must have overhead protection of at least a 2" lumber support to develop full strength.
- Hoist towers must be electrically grounded.
- Enclose either the entire hoist tower with 1/2" mesh of #18 gauge wire or the hoist platform on all sides with 1/2" mesh of #14 gauge wire and a roof of 3/4" plywood or equivalent.
- A 1" mesh enclosure of #18 wire at least 66 inches high shall be provided to prevent access into the space at the bottom of the hoist tower under the hoist platform. Entrances to hoists shall be protected by gates or bars running the full width of the landing entrance.
- Gates must be at least 6'-6" high and located no more then 4" from floor edge.
- Bars equivalent of 2" x 4" shall be located 42" high and 2' from floor edge.

VI. Operation of Hoist

- Hoist to handle materials only - No person is permitted to ride the hoist platform.
- Material and equipment should be kept off ramps to hoist tower at the various elevations until hoist platform has been spotted and gate opened

VII. Controls

Automatic Control

- The most desirable control system is automatic to the extent that the hoist will go to a designated floor and will not leave until a button is pushed at that floor to reactivate it.

Signal System

- A battery-powered telephone system may be used to transmit instruction between hoist operator and elevated landing level, particularly on multi-level non-automatic hoist.
- Standard bell signals may be applied where hoist is used with only one elevated landing. Regulations and signal instructions are to be posted at both levels of operation and at the hoist engine or motor location.

Brakes

- Hoist brakes must be capable of stopping 150% of the maximum allowable load.
- The hoist engine cable drum shall be equipped with ratchet and pawl to hold the load.
- The hoist platform shall be equipped with brakes that will hold the tower rails if hoist cable falls.

Brakes in both above must set automatically (“**Dead Man Control"**).

VIII. Inspection

Mechanical

- The appropriate Contractor's Supervision shall be responsible for the regular inspection of the mechanical phases of the hoist.

Electrical

- The appropriate Contractor's Supervision shall be responsible for the inspections daily, before use, of the electrical interlock system and telephones.
- Subcontractor will comply with the manufacturers’ specifications and limitations applicable to any and all cranes. Subcontractor is responsible for all state, federal and OSHA requirements set forth in Subpart N.