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I. PURPOSE AND SCOPE

This Lifting Operations Management Program establishes the minimum requirements to be applied throughout Gallant Builders (Gallant) to help ensure that risks to safety & health from mechanical lifting (hoisting) operations are effectively managed. Where other regulations or requirements apply, the more stringent shall be used.

II. CRANES

PLANNING

Ground Support – Gallant must provide ground condition information to assist the crane user in determining ground support requirements for a crane.

Tower Crane Foundation (Base Block) / Base Ballast – Design must be developed and stamped by a Registered Professional Engineer (RPE), and requires a 3rd party "peer review" and approval, i.e. 2nd RPE stamp. The double-stamped design must be submitted to Gallant.

The Crane User must submit to Gallant, 3rd party inspection reports for soil bearing capacity, reinforcement placement, and concrete strength.

Underground Utility (UG) Information – Gallant must take reasonable measures to locate and identify UG Utilities, and provide information to Crane Users and Operators as applicable to prevent damage, injury or interruption of service.

Overhead Utilities – Gallant must conduct a site-assessment for overhead utility considerations. If lifting activities within 20' of overhead power lines will be necessary, or where voltage exceeds 350Kv, special precautions/provisions are required. (See Power Line Safety Section)

FAA Permit – Contact the Federal Aviation Administration (FAA) to establish what if any Permit, maximum height, lighting, flag, and/or other requirements might be applicable.

Crane Plan – A detailed plan developed and written by a Crane User detailing the set-up and operation of a specific crane, which includes, but is not limited to: Crane Inspection; Operator and other crane personnel Certification documents; blocking details with ground pressure distribution and other ground support calculations; potential interaction with other cranes, overhead/underground utilities and adjacent structures; "Stop Work" action levels for wind speed and other environmental conditions.

Lift Plan – A plan developed and written by the load owner for lifting a specific load.

A Lift Plan written by the Lift Director and reviewed by the Project Crane Coordinator and other applicable Crane / Lift Personnel must be completed for Critical Lifts, and may be required for other lifts as determined by the Project Crane Coordinator and/or the Crane Supervisor.

Critical Lift – (a) Lifts the Gallant Crane Coordinator, the Lift Director, the Crane Supervisor or the Crane Operator believes should be critical, (b) Hoisting personnel (with a crane), (c) Lifts made with more than one crane (tandem

lifts), (d) Lifts where the center of gravity could change (e) Lifts made when the load weight is 75% (or more) of the rated capacity of the crane's load chart, (f) Lifts using more than one hoist-line on the same crane, (g) Lifts involving non-routine or technically complex rigging/rigging methods.

Collision Avoidance Plan – A Collision Avoidance Plan written by the Crane Supervisor and reviewed by the Gallant Project Crane Coordinator when one Crane User has multiple cranes, or where two or more Crane Users are conducting lifting operations and crane-to-crane contact is possible.

III. CRANE / LIFT PERSONNEL DESCRIPTIONS / DEFINITIONS

A Project-Wide system for visually identifying Crane/Lift Personnel should be established and implemented by the Project Crane Coordinator as warranted, e.g. Hard Hat Stickers

- **Project Crane Coordinator** – A Gallant (Crane) Competent Person.
- **Assembly/Disassembly (A/D) Supervisor –** A Qualified and Competent Person designated by the crane supplier or Gallant to supervise the assembly (erection) and disassembly (dismantling) of a crane, including climbing (jumping) of a tower crane.
- **Crane Supervisor** – A Crane Competent Person designated by a Crane User to supervise crane activities for one or more cranes.
- **Lift Director** – A Load Rigging & Crane Signaling Competent Person designated by the Crane User to direct lifting operations.
- **Crane Inspector** – 3rd Party Qualified Crane Inspector who has met the Gallant Inspection and Reporting Criteria, or has been deemed acceptable by the Gallant Safety Director.
- **Crane Operator** – A crane operator who possesses a current NCCCO Certification (or a Gallant accepted equivalent) with the applicable crane-type designation, and a current, passing Physical Examination verification. e.g., DOT Physical Examination Card (or a Gallant accepted equivalent)**.**
- **Crane User** – Company responsible for directing the on-site operation of a crane.
- **Rigger** – A person with verifiable training, qualified to rig loads and inspect load rigging.
- **Signal Person** – A person with certified (typically 3rd party) qualification, trained to provide Lift Signaling to Crane Operators.
- **Ground Guide –** A person with verifiable training who's qualified to perform crane guidance duties that do not include load signaling, but may include guiding cranes while relocating, spotting when a swing-radius barricade is not feasible, spotting when there is potential interaction with other cranes, power lines and adjacent structures. A certified Signal Person is required when the operator cannot see the travel path.

IV. REQUIRED CRANE / LIFT PERSONNEL QUALIFICATION DOCUMENTATION VERIFICATION

Employer Certification must be submitted to Gallant for the following Crane / Lift Personnel.

1. Assembly/Disassembly (A/D) Supervisor
2. Crane Supervisor
3. Lift Director
4. Crane Operator
    a. NCCCO Or equivalent Nationally Accredited Certification (acceptable to Gallant Crane Coordinator, current and for applicable crane)
    b. Physical Card / Medical Examination (acceptable to Gallant Crane Coordinator, current and passing – e.g. DOT)
    c. Local Crane Operator's License (where applicable)
5. Rigger
6. Signal Person
7. Ground Guide

V. CRANE INSPECTION / TEST DESCRIPTIONS / DEFINITIONS

3rd Party Crane Inspections/Tests - The following Inspections/Tests must be completed by a 3rd party Crane Inspector acceptable to the Gallant Safety Director. 3rd Party mobile crane Inspections must include (1) *Configuration* Inspection - as with a Post-Assembly Inspection, (2) *Condition* Inspection (as with a Periodic Comprehensive Inspection), (3) a Functional Test with weight on the hook, and (4) a 110% Rated Load Test.

Periodic Comprehensive Inspection & Functional Test - (aka Annual – *ANSI-ASME B30.5/EM 385-1-1 / OSHA 1926.1400*). Applies to all Cranes (as defined by OSHA, which includes boom trucks). Must be current (less than one year old) and have no (uncorrected) deficiencies noted. For Gallant, this Inspection includes a Functional (operational) Test and is intended to verify that the crane is in proper operating condition *and* functioning properly.

Functional Test (aka Operational Test) – A Test conducted to ensure the crane is *functioning* properly, i.e. boom up/down, swing right/left, cable up/down, etc. NOTE: For Gallant purposes, this test must be conducted under a load weighing 10% - 75% of the crane's rated capacity when done on conjunction with a Comprehensive Periodic (Annual) Inspection.

Post-Assembly/Erection Inspection – Applies to Cranes that require significant on-site assembly (as determined by the Gallant Crane Supervisor). This inspection is intended to verify that the crane is assembled and configured properly. Applies to all Tower Cranes, "assembled" Mobile Cranes.

Note: Gallant Requires a 3rd party Comprehensive Periodic (Annual) Inspection, a Rate Loaded Test and Functional Test to be completed in conjunction with a Post-Assembly/Erection Inspection and Rated Load Test.

Rated Load Test – A Load Test at 110% of the cranes charted capacity. Applies to all Tower Cranes, "assembled" Mobile Cranes. Test test-weights must be kept on site.

Quadrennial Load Test – A Rated Load Test performed before a crane is initially placed into service and at least every four (4) years thereafter.

Post-Extreme Weather Inspection - A 3rd Party Comprehensive (Annual) Inspection must be conducted for cranes following an exposure to extreme weather conditions, (Winds 74 mph or greater, severe icing, or other extreme weather events as determined by the Gallant Crane Coordinator.

Post-Repair / Modification Inspection and Test – Inspection and Testing as required by the Manufacturer.

Pre-Erection Inspection (Tower Cranes Only) - Inspection of Tower Crane components for damage and/or excessive wear (*condition*) prior to erection. NOTE: When 3rd party inspection is not practical (as determined by Gallant Safety Director), may conducted by the A/D Supervisor and/or the A/D Supervisor's designated, qualified appointee.

VI. CRANE USER / SUPPLIER INSPECTIONS / TESTS

Pre-Shift Inspection & Functional Test – Must include a written report. The Crane Supervisor must be notified immediately of any deficiencies.

Monthly Inspection & Report – A Pre-Shift Inspection & Functional Test (with written Report) that includes review and comment on any recommendations made in the Periodic Comprehensive Inspection & Functional Test Report.

VII. REQUIRED CRANE DOCUMENTATION VERIFICATION

The following documents must be submitted to Gallant:

1. Crane Plan
2. Post-Erection / Assembly Inspection (where applicable)
3. Passing, current Comprehensive Periodic Inspection Report
    a. Supplemental Deficiency Correction Report (if applicable)
4. Maintenance Log - Most recent three (3) services (initial visual)
5. Latest Monthly Inspection Report (initial copy)
6. Latest Quadrennial Rated Load Test Report (where applicable)
7. Operating Manual (initial visual)
8. Load Chart(s) (initial visual)
9. Pre-Shift - Operational Inspection & Test Report (initial copy, then random visual)
10. Critical Lift Plan (when applicable) Gallant sign-off
11. Power Line Permit (for work within 20' of Power Lines)
12. Local Crane License (where applicable)
13. Local Equipment License (where applicable)
14. Rigging Inspection Log (initial copy, then random visual)

VIII. POWER LINE SAFETY

Lifting Operations within a boom's / jib's length of a power line:

Electrical Hazard & Safety Awareness Training – When equipment used for Lifting Operations that may come within the boom's/jib's actual or potential length (extensible boom) of an overhead power line, crane/lift personnel must receive documented Electrical Hazard Awareness & Safety Training and be directed not to conduct lifting activities within a Lifting Exclusion Zone.

Work Zone 20' or more from Power Line(s) up to 350Kv – Determine power line voltage and Crane Work Zone (maximum intended working radius). Delineate a Crane Hoisting Exclusion Zone 20' from nearest power line with a raised, high-visibility, warning system.

Work Zone less than 20' from power line(s) or Voltage greater than 350Kv – Contact the Gallant Safety Director.

IX. ENVIRONMENTAL CONSIDERATIONS

Weather – The Project Crane Coordinator should monitor local weather conditions using means such as a weather radio, a lightning/storm detector, local weather website, etc. Maximum operating wind speeds established by the manufacturer shall not be exceeded. A wind-speed indicator (anemometer) is required for Tower Cranes and may be required for other crane types

Functional speed should be reduced as warranted during Lifting Operations conducted during weather conditions that produce limited visibility or icing hoist function conditions.

The Project Crane Coordinator must implement the Gallant Severe Weather Plan, when a local Storm Warning has been issued. (See Gallant Severe Weather Plan which includes lightning protection procedures)

The manufacturer's recommendations must be followed for securing cranes during periods of severe weather or inactivity.

Extreme Weather - A Post-Extreme Weather Inspection must be conducted for cranes following an exposure to extreme weather.

The Crane User must properly dispose of any spilled, leaked or drained liquids associated with the operation of a crane.

Banners, flags, lighting and other items must not be attached to cranes except as permitted by the manufacturer.

Lighting – For operations in dark conditions, lighting adequate to illuminate the working area(s) while not interfering with the Crane Operator's vision must be provided.

X. GENERAL ITEMS

Tower Crane Electrical:

a) Plan for back-up power, e.g. Battery back-up for FAA Lights; Source for quick response generator to operate block and trolley to prevent weathervane snag/collision hazards.
b) Labeled and lockable power disconnect,
c) Ensure necessary clearance at deck openings and other obstructions to prevent power cable pinch/crush hazard.

Crane Access Security – A means of preventing access to Mobile Crane cabs and Tower Crane towers must be provided.

Prohibited Lifting Conditions – Crane/Lifting Operations Personnel must understand that the Operator is prohibited from lifting when the plan /conditions are questionable.

"Anti-Two-Block" Device – Cranes must have a properly functioning "anti-two-block" device for each load lifting line (load-line). This requirement may be waived by the Gallant Crane Coordinator for certain crane operations, e.g. pile driving leads.

Collision Avoidance Plan – A Collision Avoidance Plan must be written by the Crane Supervisor and use a method acceptable Gallant Project Crane Coordinator when one Crane User has multiple cranes, or when two or more Crane Users are conducting lifting operations and crane-to-crane contact is possible. Locating tower cranes where the counter-jib of one could encroach into the working radius of another must be avoided.

Load-Line Tie-Back – Load-lines (load lifting lines) may only be "tied-back" to the crane using a method acceptable to a GALLANT Project Crane Coordinator, which must include a "back-up safety system."

Palletized Loads – **Suspension Lifting** – Palletized loads may only be suspension-lifted overhead using one of the following methods:

- Lifting Forks of adequate capacity with the load stable and secured to the pallet.
- Equipment Lifting Eyes with the pallet removed.
- Properly rigged Lifting Container.
- An alternative method authorized by the Gallant Crane Coordinator.

XI. HOISTS – MATERIAL / PERSONNEL

Hoist Set-Up – Hoist Base Enclosure, Landing Gates, Communication Systems and other considerations should comply with the applicable (Material/Personnel) ANSI Hoist Standards and the Gallant Hoist Set-up Guidelines (See ANSI Standards and Gallant Hoist Set-Up Guidelines)

Hoist Operator – Must be "Hoist User Certified" as Trained and Qualified to operate the specific hoist. Collect a hard copy of Hoist Operator Qualification Document(s), file and log in Tracking Database.

Periodic Inspection and Safety Device Test – Hoists must be inspected and the safety device must be tested (i.e. load- rated, drop-tested) by a 3rd party Hoist Inspector acceptable to the Gallant Safety Director following erection

or "jumping" of a hoist and every 3 months thereafter or as specified by the manufacturer. Some jurisdictions may require a state or local Elevator Inspectors to perform Inspections and tests. A License and/or Permit may be required.

Pre-Shift Inspection & Functional Test – Prior to each shift, the Hoist Operator and/or a Qualified Mechanic must conduct a Pre-Shift Operational Inspection of hoist component and lubrication conditions, and conduct a Functional Test. A report must be completed, filed on the hoist and made available for review.

Post-Extreme Weather Inspection - A 3rd Party Comprehensive Inspection must be conducted for hoists following an exposure to extreme weather conditions, (Winds 74 mph or greater, severe icing, or other extreme weather events as determined by the Gallant Superintendent or Safety Director)

XII. HEAVY EQUIPMENT – SUSPENSION LIFTING

Suspension Lifting (Hoisting) by Heavy Equipment (other than cranes) is prohibited, except when an attachment point and/or lifting device designed and engineered for use with the specific piece of Heavy Equipment is used in conjunction with the applicable load chart. Potentially excessive movement of suspended loads must be controlled, e.g. tag lines.