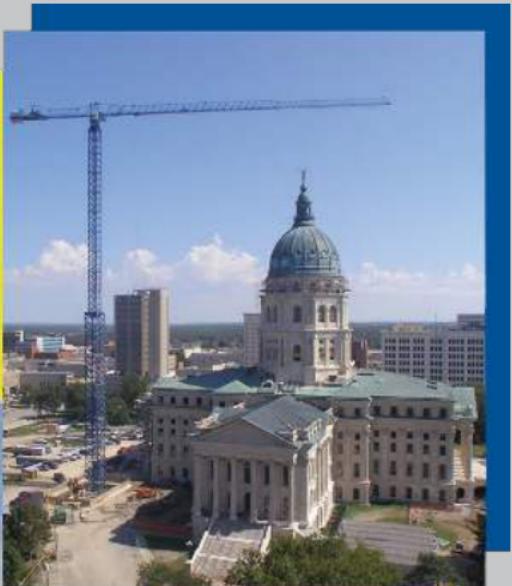




BLUE HAT CRANE®

Hoisting Policy Manual



2016 Edition

Revision 1

Published: November 2017

Any revisions to this manual should
be communicated via email.

Suggestions for changes must be submitted to the
National Hoisting Manager via the Superintendent
or direct via E Mail/Memo.

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ACKNOWLEDGMENT CARD

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ACKNOWLEDGEMENT CARD

The Hoisting Policy Manual was given to:

Employee (*Please print name*)

Employee Signature / Date

Employer Signature / Date

I have read and understand the Hoisting Policy Manual. I acknowledge that I must strictly adhere to the policies in the manual.

If you are a Personnel / Material Hoist Operator, please acknowledge by checking here

CRANE OPERATORS ONLY

Check all crane designations that apply

LBT Lattice Boom Truck Crane

LBC Lattice Boom Crawler Crane

TSS Small Telescopic Boom Crane

(less than 17.5.tons)

TLL Large Telescopic Boom Crane

(more than 17.5 tons)

TC Tower Crane

All hoisting providers, JE Dunn owned or subcontractor provided job site supervision, Project Managers, users/crew and operators are required to read and sign the Hoisting Policy Manual and return this Acknowledgement Card to the National Logistics Safety Manager prior to mobilization.

Preface

Purpose: To outline policy for hoisting operations for all JE Dunn jobsites and external customers.

Applicability: All Blue Hat Crane, JE Dunn Construction Company, Company 65 employees and trade partners providing hoisting equipment on JE Dunn Construction jobsites.

Scope: This policy addresses all hoisting activities.

Requirements: All employees and subcontractors providing hoisting equipment are required to adhere to this policy, industry standards and regulatory guidance. All employees and subcontractors providing hoisting equipment or hoisting services will review the policy and complete and return the Acknowledgement Card to the National Logistics Safety Manager, JE Dunn Construction Company.

The Acknowledgement Card must be signed by:

- All Field Supervisors,
- All key Project Management Team personnel,
- All Blue Hat Crane personnel,
- All Technicians and Iron Workers,
- All Crane and Personnel Hoist Operators,
- All key Safety Personnel, and
- All subcontractors providing hoisting equipment or hoisting services
- Any other designated personnel.

Once the card is signed, it is to be sent to the National Logistics Safety Manager.

Introduction

Team members,

1 January 2016

This policy is implemented for the safety protection of personnel, equipment and the environment. It should be used in conjunction with manufacturers' requirements, Federal, State, and local regulations. Where there is a conflict between the directives of this manual and any manufacture requirements and/or Federal, State, Local regulations, the more stringent regulation shall apply.

The directives in this manual pertain to all hoisting equipment on company job sites, whether company owned or under a contract or a subcontract to the company as well as Blue Hat Crane, providing hoisting equipment. All Hoisting Providers, Job Site Supervision, Project Managers and Users and Crew are required to: Read this manual, sign and return the Acknowledgement Card prior to mobilization.

It is important that you become familiar with this manual because it will answer many of your questions regarding the equipment and its use. Many of the policies and requirements are mandated by manufacturer, OSHA, Federal, State and Local agencies. Others were incorporated because someone identified an issue or simply offered a best practice.

We urge you to offer comments or suggestions concerning these policies directly to the Logistics Safety Manager via a phone call or email. You also can forward comments through your immediate Foreman or Superintendent who will forward the comments to the Logistics Safety Manager.

We review each comment and give it the utmost attention. Any changes, modifications and/or additions are immediately communicated via memo to the Field and Project Management Teams as an addendum, and subsequently incorporated into the revised publication of this manual.

These policies are in place for your protection and to provide a safe and efficient work environment.

A handwritten signature in blue ink, appearing to read "Gordon Lansford".

Gordon Lansford
President & CEO

I. Job Site Responsibilities

Superintendent

- a. The Superintendent is responsible for scheduling crane or hoist delivery along with associated accessories and provisions including rigging, mats, temporary road, or other items required for safe crane operations. The Superintendent shall review these requirements with the Project Manager.
- b. The Superintendent shall schedule time each day to allow the Operator to accomplish all required equipment inspections and maintenance activities and any other prestart checklist requirements. If the schedule does not permit these requirements during normal working hours, then the Operator should begin work earlier to allow sufficient time to perform the pre-start checklist.
- c. The Superintendent manages and directs daily use of hoisting equipment and is responsible for proper usage, maintenance and safety of the hoisting equipment while on the job site.
- d. The Superintendent briefs the erection plan to the operator and A/D Director.

Foreman

- a. The Foreman is responsible for ensuring proper rigging techniques and standard hand signals are utilized in accordance with ASME B30.5.
- b. The Foreman shall ensure rigging is inspected daily for non-compliance or damaged components.
- c. The foreman shall notify the Superintendent on issues raised including load limits, rigging, site conditions or communications.

- d. The Foreman is responsible for stopping any hoisting operation deemed unsafe due to load capacity, obstructions, and weather or maintenance issues.

The Assembly/Disassembly (A/D) Director:

- a. Is responsible for coordinating on-site erection, dismantle or jacking operations for tower cranes and for assembly and disassembly of mobile cranes,
- b. Is responsible for the structural components for all erection, dismantle, and jacking equipment and operations,
- c. Coordinates all assembly or disassembly activities on site,
- d. Validates all rigging equipment and ensures all required personnel are qualified riggers,
- e. Coordinates and executes all structural repair activities, and
- f. Conducts or designates the Lead Iron Worker to perform the pre-climb meeting for all tower crane and personnel hoist, erection, dismantle and jacking operations.
- g. Inspects and validates all rigging prior to authorizing the lift for all tower crane erection and dismantle operations.

Operator

- a. The Operator is the final authority for any pick.
- b. The Operator shall comply with the manufacturer's operator and maintenance manual(s) ("manufacturer's manuals") and policies set forth in this manual. Where the two conflicts, the more stringent requirement shall apply.

- c. The operator is not authorized to engage the override control of the crane without explicit approval from:
 - i. If Blue Hat Crane Machine: Mobile Crane Manager
 - ii. If Third Party Crane: Competent person from the JE Dunn Project Management Team.
- d. Operators must be qualified to operate assigned equipment. (See Operator section on page 11 under Operator Qualifications.)
- e. The Operator has primary responsibility to ensure safe operation of the equipment under his/her control.
- f. The Operator must recognize signals from only one person designated as the signal person. The signal person serves as the “eyes” of the crane operator.
- g. The Operator has the primary responsibility for performing daily maintenance and inspection of the equipment under his/her control and for completing all inspection reports in a legible and complete manner.
- h. The Operator is responsible for stopping any hoisting operation deemed unsafe due to load capacity, obstructions, weather, maintenance issues or the alarm sounding.
- i. The operator shall immediately notify the superintendent regarding any issue with daily maintenance or inspections which may jeopardize the safe operation of the equipment or safety of the personnel. In those cases, the equipment will be taken out of service. Corrective action must be taken prior to placing the unit back into service.

- j. The operator must review the Erection Plan on a daily basis and identify any loads exceeding 75% of the crane's configuration. For loads exceeding 75% a critical lift plan must be on hand and a critical lift meeting must be conducted.
- k. Two-way radios and hand signals are the primary source of communication between the Crane Operator and rigging and signaling personnel. Cellular phone use is permitted with a hands-free device and for operational purposes only (i.e. crane relocation or administrative purposes). When a situation arises where the use of a cellular phone is required, the operator shall cease all operations associated with the equipment under their control.
- l. The operator must not leave the controls while a load is suspended.

The Project Management/Field Supervision Team is responsible for:

- a. Securing the FAA permit for the permanent building structure,
- b. Ensuring third-party hoisting vendors coordinate for their temporary structure FAA permits,
- c. Ensuring that nothing (including formwork) is placed or constructed within 18 inches of the tower when a Tower crane is installed within the confines of a building,
- d. Securing the mast at multiple levels, which is required when a tower crane is erected within the confines of a building. An eight-foot wall will be built around the mast to prevent unauthorized personnel from accessing the tower. Refer to the base protection requirements for construction of the wall on pages 45, 46 and 47 of this manual and Appendix C,

- e. Coordinating all street/lane closures with the appropriate agencies,
- f. Coordinating with local police to provide street/lane closure support, and
- g. Ensuring all key personnel read the Hoisting Policy Manual, sign the Acknowledgement Card and return them to the Logistics Safety Manager.

Riggers

- a. Riggers must be qualified in accordance with current ASME and OSHA regulations.
- b. The Rigger is responsible for inspecting all rigging equipment.
- c. The Rigger is to utilize proper rigging techniques in accordance with manufacturers' recommendations, ASME standards and OSHA requirements.
- d. The Rigger is responsible for stopping any hoisting operation that is deemed unsafe due to load capacity, obstructions, and weather or maintenance issues.

Signal Person

- a. Signal Persons must be qualified in accordance with current ASME and OSHA regulations.
- b. The Signal Person is responsible for ensuring proper hand signals and radio communications are provided to the Operator.
- c. The Signal Person must have constant communication with the Operator and not have any other responsibilities when providing hand or radio communication to the Operator.
- d. The Signal Person is responsible for stopping any hoisting operation when hand signals or

radio communication becomes unclear or an unsafe situation arises.

Lift Director

- a. The person designated to directly oversee the work being performed by a crane and the associated rigging crew.
- b. Must have a thorough understanding of the technical aspects and personnel roles involved with lifting operations.
- c. The site supervisor and the lift director maybe the same person.

II. Blue Hat Crane Responsibilities

The National Hoisting Manager:

- e. Is responsible for all tower crane and personnel hoist equipment operations, equipment and managing and coordinating personnel,
- f. Maintains a national calendar for all tower crane and personnel hoist activities,
- g. Ensures all activities (erection/dismantle/jacking) are executed within the allocated budget and timeline,
- h. Manages all FAA permitting for temporary structures, and
- i. Is responsible for managing all operators outside the Kansas City metro area.

The Hoisting Field Manager:

- a. Is responsible for supervising all major tower crane and personnel hoist repairs.
- b. Is responsible for training Tower crane and personnel hoist technicians, and

- c. Coordinates with tower crane and personnel hoist technicians to ensure equipment is properly prepared for hoisting operations.

The Mobile Crane Manager:

- a. Is responsible for ensuring that mobile cranes are properly prepared for operations,
- b. Manages equipment repairs and schedules inspections,
- c. Is responsible for managing all union operator assignments,
- d. Is responsible for ensuring that all hoisting operators meet the operator requirements listed on page 11 under Operator Qualifications.
- e. Validates all hoisting configurations
- f. Authorizes the use of the crane override controls.

The Tower Crane and Personnel Hoist Manager:

- a. Validates all tower crane and personnel hoist position/locations, designs and configurations.
- b. Provides technical support for all tower crane and personnel hoist operations, and
- c. Interfaces with designated engineer for all hoisting designs and peer reviews.

The Hoisting Technician/Mobile Crane Mechanic:

- a. Is responsible for performing maintenance, assembly and inspections in accordance with manufacturers' requirements, company policies, ASME standards and OSHA regulations,

- b. Conducts scheduled and unscheduled service calls and addresses issues regarding inspections with the Hoisting Support Technician, National Hoisting Manager and Mobile Crane Manager, and
- c. Verifies proper working condition of the equipment immediately following inspection or repair work.

The National Logistics Safety Manager:

- a. Ensures all employees are trained and aware of the appropriate OSHA, company, local, state, and federal safety regulations, policies and requirements,
- b. Conducts all tower crane and personnel hoist, dismantle and jacking meetings and prepares and publishes meeting minutes,
- c. Monitors and advises pre-climb/pre-lift meetings on safety aspects, and
- d. Ensures daily inspection reports are completed and submitted on time.

The Hoisting Support Technician:

- a. Schedules equipment repairs and all safety and maintenance (including the four (4)-week/300-hour inspections), for all tower cranes and personnel hoists.
- b. Manages unscheduled maintenance requirements and assigns Technicians to conduct repairs,
- c. Manages the inspection process and tracks all repair actions, and
- d. Tracks all maintenance downtime and maintains the historical data.

III. Third Party Hoisting Equipment

1. Third party hoisting vendors, subcontractors and their equipment are subject to the operating, inspection and lift planning criteria as prescribed in this policy.
2. The project management team is responsible for ensuring that all subcontractors, hoisting providers and operators read and understand this policy manual.
3. The Project Management Team or Superintendent must notify the National Hoisting Manager (Tower Cranes and Hoists) or the Mobile Crane Manager (Mobile Cranes) any time 3rd Party hoisting is planned.

IV. General Information

Hoisting Operation Meetings

Pre-erection/dismantle/climbing meetings

1. A mandatory meeting will be conducted prior to erection, dismantle and climbing operations. The purpose is to ensure all personnel involved with these operations understand the requirements for safely erecting, climbing and dismantling cranes and hoists of any type.
2. As a rule, the meeting is scheduled at least one (1) week prior to the operation.
3. Attendees include but are not limited to the:
 - a. Job site Safety Manager,
 - b. National Logistics Safety Manager,
 - c. Superintendent,
 - d. Project Management Team,
 - e. National Hoisting Manager or Mobile Crane Manager,

- f. A/D Director,
- g. Lead Iron Worker,
- h. Lead Hoisting Technician,
- i. Tower crane & Personnel Hoist Manager,
- j. Hoisting Support Technician,
- k. Trucking Manager, and
- l. Operator/Oiler (when available)

4. Meeting notes will be provided as required and published via email.

Pre-climb hoisting meeting

1. The Assembly Director will conduct the pre- climb meeting.
2. This mandatory meeting will take place at the job site prior to any A/D operation.
3. The purpose of the meeting is to brief personnel on safety requirements and assigned tasks, review the Job Safety Analysis (JSA), and inspect all rigging gear, fall protection equipment and tools.
4. The Assembly Director is to turn pre- climb meeting documents in to the National Logistics Safety Manager.

Multiple cranes on a single project

When operating more than one (1) crane on a single project, the Superintendent shall develop a site plan to establish rules and guidelines designed to prevent contact and to ensure a safe operating environment. The plan shall include but is not limited to:

1. Outlining designated work zones for each tower crane to include any mobile crane working in the operating radius of the tower crane,
2. Method of identifying crane work zones,

3. Operational guidelines for each crane,
4. Communication guidelines between Crane Operators and ground, and
5. Communication guidelines between Crane Operators.

When two or more Tower Cranes/Mobile Cranes are in operation within the swing radius of each other, the following criteria will be followed.

1. The Operators must have clearly defined work zones of operation to avoid crane-to-crane contact.
2. The lower tower crane may be operated without an operator in the seat of the taller crane, provided the hook on the taller crane is raised and the trolley is retracted in accordance with the requirements listed on pages 43 and 44, items 2c and 2d.
3. If the taller crane in the swing radius is in operation, the lower crane or cranes must have an operator in the seat.

Each operator shall have at least two (2) radios.

1. The first radio on a primary designated channel is for cab-to-ground communications.
2. The second radio, on a designated private channel, will only be used for cab-to-cab communication.

Operators

Qualifications

1. Crane Operators must be qualified under the current OSHA and ASME Rule and specific State or Local requirements and NCCO preferred. Please refer to OSHA 29 CFR 1926, Subpart CC and ASME B30.3, B30.4 and B30.5 for current requirements for Crane Operators.

2. Training of Crane Operators

- a. Local Operating Engineers 101 Jurisdictional Area: It is the responsibility of the local Operating Engineer Union. However, if the need arises and the local Operating Engineers are unable to provide a trained crane operator, or when an oiler expresses the intent to be trained as an operator, the following process shall be followed.
 - i. The appropriate Crane Manager will make all necessary arrangements to establish an approved training program for the operator in training.
 - ii. The assigned Operator must be present at the Operator's station during all lift operations.
 - iii. The Supervising Operator shall notify all workers within working proximity of the lifting operation.
 - iv. Once the operator in training has demonstrated sufficient skill levels to be assigned as an operator, the Superintendent and appropriate Crane Manager determines whether he or she may operate the crane without direct supervision of the assigned operator.
- b. All union operators outside of the Local Operating Engineers 101 jurisdiction area will be hired through local union halls if an agreement is in place.
- c. In non-union areas operators will be hired using the HR processes.
- d. There will be no training of crane operators outside of the Local Operating Engineers 101 jurisdictional area.

V. Safety

Accident and Incident Reporting

- 1. In the event of an accident involving equipment and resulting in possible injury to person(s) and/or property and/or equipment:**
 - a. The Operator shall immediately stop all operation, secure equipment, and notify the Site Superintendent,
The Site Superintendent will notify the National Logistics Safety Manager once medical and site conditions are secure,
 - b. The Site Superintendent shall notify the responsible Safety Manager,
 - c. No movement of equipment shall occur until qualified individual(s) dispatched by the National Logistics Safety Manager or the appropriate Hoisting Manager are on the site, or unless directed by emergency personnel,
 - d. Under no circumstance shall a piece of equipment be placed back into service until directed to do so by the appropriate Hoisting Manager, and
 - f. The Operator will be required to submit to a drug and alcohol screening as soon as possible. The National Logistics Safety Manager will provide the location of the nearest authorized drug screening location.
- 2. In the event of accidents or incidents without injury to persons and/or property:**
 - a. Responses will be the same as item above with the addition of:
 - i. Boom contact, including boom contact with a load block(s) shall warrant

notification of the National Logistics Safety Manager, Tower Crane Manager and/or the Mobile Crane Manager,

- ii. Any incident where hoisting equipment is damaged, and
- iii. All hoist cable contact with any foreign object.

VI. Lift Planning

Cranes support jobsites for two purposes. One, a service crane to increase productivity by providing day to day hoisting support to all the trades. Second, a specific purpose crane to place pre-cast, steel, tilt-up, or in a drive by scenario for a single/multiple lift by an All-Terrain crane.

In any event, JE Dunn's job-site management team is responsible for the safe operation of any hoisting asset supporting their operation. Regardless of who provides the crane, the operator, or the erection crew, the superintendent must ensure all parties have read and understand the Hoisting Policy Manual.

It is strictly prohibited to operate outside the manufacturer's load chart and manufacturer's operating specifications for the equipment he/she is operating.

The below listed criteria is to be followed with regard to lift planning and the safe operation of cranes.

Service Crane:

- 1. The operator reviews and fills out the Pre-Lift Checklist (Appendix L) daily prior to commencing hoisting operations and provides the completed Checklist to the superintendent at the end of each day.
- 2. Load charts are the primary means for

determining crane capacity and load placement.

- a. The load chart posted in the crane or hoist cab must reflect the proper configuration for the crane on site and shall be strictly adhered to.
- b. Any time a load exceeds 75% of the crane's capacity in that specific configuration a Critical Lift Meeting must be convened and a Critical Lift Plan drawn up.

Specific Purpose Crane:

1. To support pre-cast, steel erection or tilt-up.
2. To support drive by services for specific lift operations.
3. Pre-cast, steel erection or tilt-up. This is generally defined by three distinct meetings between the material supplier, erector, crane supplier, and the project management team prior to conducting hoisting operations.
 - a. Due Diligence Meeting:
 - a. Establish assumptions for the erection project
 - b. Determine potential crane size, type and availability
 - c. Discuss erection sequence, crane positions and special provisions
 1. How many picks are > 75% of the crane's capacity
 - d. Determine Lift Planning capability and requirement for the erector
 1. 3D for all picks is desired
 2. 2D with Elevation and Plan View is acceptable
 - e. Communicate the Piece Mark requirement

- f. Communicate the Daily Lift Log requirement. (For Steel erection, only lifts > 75% of the crane capacity is required.)
- g. Provide Hoisting Packet (Pre-Cast/Steel) to the material supplier, erector, and crane supplier.

b. Pre-Install Meeting:

- a. Confirm or deny all assumptions
- b. Validate the crane size.
 1. Model, tonnage and lift capabilities
 2. Boom length & JIB configuration (if any)
 3. Rigging weight and type to be employed
- c. If the crane size has decreased the erector must verify the new crane's ability to make all lifts within the crane's available chart for all positions of the crane during the erection process.
- d. Discuss the Work Zone perimeters and power lines (if any)
- e. Identify the Lift Director and crane operator for this operation
- f. Review all Lift Plans based on item 3.a.iv and 3.b.ii above.
- g. Review the Daily Lift Log and determine the number of Critical Lift Plans that need to be created
- h. Review the Hoisting Policy Packet as it pertains to this erection process

(Pre-Cast/Steel)

- i. Discuss conditions for crane locations, subsurface conditions and any special crane pad requirements.
- c. Mob/Start Up Meeting:
 - i. Validate that the agreed upon crane in the Pre-Install Meeting is what showed up at the job site
 - ii. Ensure operator has the proper load chart for the erection process
 - iii. Review the Erection Plan with operator
 - iv. Validate, verify and ensure the operator clearly understands Work Zone & power line locations (if any)
 - a. Validate that all ground and crane pad preparation is complete for the initial set-up
 - b. Validate accredited certification qualifications for the operator
 - c. Verify the Annual Inspection Tag for the crane on site. If the tag is out of date the crane cannot be utilized until an annual inspection is conducted. Keep a copy of the inspection on file
 - d. Review the Hoisting Policy Manual with the Lift Director and the operator
 - e. Determine when, where, and frequency of Critical Lift Plan Meetings
- d. Daily Routine:
 - a. Review the Daily Lift Log and identify any Critical Lifts.
 - b. Ensure the necessary critical lift

- plans are developed, on hand, and are followed
- c. Conduct Critical Lift Plan Meeting, if required
- d. Operator performs Daily Pre-Lift Checklist
- e. Review any crane re-locations for that day and ensure all site preparations are made prior to re-locating the crane
- f. The load chart posted in the crane or hoist cab must reflect the proper configuration for the crane on site and shall be strictly adhered to.
- g. It is strictly prohibited to operate outside the manufacturer's load chart and manufacturer's operating specifications for the equipment he/she is operating.

4. Drive by scenario for a single/multiple lift by an All-Terrain crane.

- a. Generally defined by short duration jobs with short lead times.
- b. To provide specific hoisting of equipment or material (HVAC equipment, architectural materials, specialty steel, etc.).
- c. The hoisting asset is provided by either Blue Hat Crane or a Third Party Vendor.

5. If by Blue Hat Crane:

- a. Site Condition:
 - i. Initial verification of site is conducted via Google Earth.
 - ii. Determine if this is an unfamiliar

site or if BHC has recently conducted hoisting activities at that site. If recent activities were conducted, a mobile crane qualified manager verifies with the jobsite superintendent if there are any changes to the site conditions. If the site conditions have not changed, a physical site visit is not required.

- iii. If this is an unfamiliar site or the site conditions have changed a mobile crane qualified manager will determine if a physical site visit is required:
 - 1. Recon the route for the crane crew
 - 2. Validate the crane configuration with the jobsite Superintendent
 - 3. Assess suitability of the site for access and maneuverability
 - 4. Determine if mats or cribbing are required
- b. Are there any critical lifts: See Item 6 and 7 below.
- c. High Risk Lifts: When the determination is made that a lift puts the Company at a risk of greater loss Blue Hat Crane shall convene a committee to determine if additional insurance coverage is required to conduct this lifting operation or if the lift entails too great a risk for the Company to accept. The committee shall consist of, but is not limited to:
 - 1. The Sr VP - Director of Construction Operation

2. The Sr VP – Chief Logistics Officer
3. The Sr VP – Director of Risk Management
4. The VP – Logistics Division Operations Director
5. The Director for Mobile Crane Operations
6. The Logistics Division Safety Manager
7. Attorney – Required when the determination is made that the risk is unacceptable and a customer must be notified of non-support. Otherwise only as necessary.
8. The Mobile Crane Manager will provide the lift plan with the associated 3D Lift Planner documents to the committee and will explain all the details associated with the lift. The committee shall then determine if:
 - a. The lift is acceptable / unacceptable
 - b. Additional insurance is required / not required
 - c. Additional safety measures need to be employed to mitigate the risk
 - d. Pre-Install Meeting:
- d. Pre-Crane Deployment Meeting with the crane crew:
 - i. Review the route with the crane crew

- ii. Validate the crane configuration with the crane crew
- iii. Review all Lift Plans with the crew and ensure they have the proper rigging if provided by BHC
- iv. Review suitability of the site for access and maneuverability with the crew
- v. Validate any mat or cribbing requirements
- vi. Review equipment deployment and staging of counter weight trucks

e. Mob/Start Up Meeting – crane crew to conduct on site:

- i. Validate the crane size and location/position with the job site superintendent
- ii. Verify that all site prep for the crane has been completed and is acceptable to the crane operator
- iii. Identify the Lift Director
- ii. Review all Lift Plans with the Lift Director, job site superintendent, and erection crew.
- iii. Identify any critical lifts and conduct initial Critical Lift Plan Meeting if required
- iv. Review the Hoisting Policy Manual as it pertains to this erection process

f. Daily Routine:

- i. Review the days' lifts and identify and review any Critical Lifts

- ii. Ensure the necessary critical lift plans are on hand and are executed according to the plan. If there are any changes the critical lift must be reviewed and re-validated.
- iii. Review any crane re-locations for that day and ensure all preparations are made prior to re-locating the crane
- iv. Review the Pre-Lift Checklist prior to making any picks

6. If by Third Party crane provider:

- a. Initial Coordination with the crane provider:
 - i. Provide information regarding the picks to be made
 - ii. Determine the crane size.
 - iii. Request crane provider produces Lift Plans based on item 3.a.iv and 3.b.ii above.
 - iv. Identify a Lift Director
 - v. Review all picks and determine the number of Critical Lift Plans that need to be created
 - vi. Provide the crane provider with a copy of the Hoisting Policy Manual as it pertains to this erection process
 - vii. Request a site visit be conducted by the crane provider to validate the crane size and any special site preparation that needs to be accomplished prior to the crane showing up at the jobsite

b. Mob/Start Up Meeting:

- i. Validate that the agreed upon crane in the Initial Coordination Meeting is what showed up at the job site
- ii. Validate the crane location/position and that all ground and crane pad preparation is complete for the initial set-up
- iii. Review and coordinate any required crane re-locations and validate ground and crane pad preparations are complete
- iv. Verify the Annual Inspection Tag for the crane on site. If the tag is out of date the crane cannot be utilized until an annual inspection is conducted. Keep a copy of the inspection on file
- v. Validate NCCO qualifications for the operator
- vi. Review the Hoisting Policy Manual with the Lift Director and the operator
- vii. Determine when, where, and frequency of Critical Lift Plan Meetings

c. Daily Routine:

- i. Review the Daily Lift Log and identify any Critical Lifts
- ii. Ensure the necessary critical lift plans are developed and on hand
- iii. Conduct Critical Lift Plan Meeting, if required
- iv. Review any crane re-locations for

that day and ensure all preparations are made prior to re-locating the crane

- v. Provide the operator with a copy of the Pre-Lift Checklist and insure he uses it prior to making any picks

7. Load charts

- a. It is strictly prohibited to exceed the manufacturer's specifications for crane, hoisting or rigging equipment and could result in disciplinary action up to and including termination of employment.
- b. The load charts are the primary means for determining crane capacity and load placement.
- c. The load charts posted in the crane or hoist cab shall be strictly adhered to.
- d. The load chart shall be the only reference utilized to determine load-lift capacities.
- e. Any hoisting outside of the established load chart is prohibited without the manufacturer's authorization.

8. Critical lifts

- a. A critical lift plan shall be developed prior to making a lift when at least one (1) or more of the following criteria is present, including:
 - i. When the lift exceeds 75 percent of the crane capacity based on its configuration at the time of the lift. This applies to mobile cranes and tower cranes utilizing four-part reeving,

- ii. When any crane is used in tandem with any other piece of equipment/crane to perform a lift,
- iii. When lifts are made within 20 feet of power lines,
- iv. When lifts are made involving specialized, unique or complex rigging equipment,
- v. When hoisting personnel in suspended work platforms, and
- vi. When hoisting specialized equipment in which a long lead time is required to replace the equipment if it is damaged during hoisting operations.

9. Critical Lift Plan

- a. The purpose of a Critical Lift Plan is to verify feasibility and decrease risk by identifying potential hazards to both personnel and property.
- b. The superintendent fills out the Critical Lift Plan Form, available at (see Appendix M and portal link), and will use it to brief the plan to the jobsite safety manager for approval.
- c. Once approved, the superintendent will meet with the Lift Director, operator and erector and go over the plan for proper execution.
- d. The plan shall address, but is not limited to:
 - i. Verifying the crane lift radius for ALL points of the lift and protective measures.
 - ii. Verifying the crane capacity based upon actual configuration
 - iii. Establishing the total gross weight applied to the crane, including rigging load and

- all chart deductions prescribed by the manufacturer
- iv. An evaluation of the crane set-up area to include
 1. Above ground and underground hazards to avoid
 2. Clear area required for crane
 3. Suitable ground bearing capacity and requirements for outrigger pads or stabilizer
 4. Proximity to slopes and excavations
 5. Identifying the Work Zone and control of vehicle and pedestrian traffic
- v. Establish rigging type and configuration
- vi. Establishing a communication plan from the signal person to the operator
- vii. Identifying places where the load may be landed if the lift must be aborted
- viii. Providing a plan for preventing access to the hoisting (danger) zone of unauthorized personnel
 - e. This plan must include 3D of a combination of 2D (plan view and elevation view) sketches to verify feasibility and eliminate interference issues with existing obstacles
 - f. For mobile cranes only: See Third Party Critical Lift Procedures under Section VIII. Mobile Cranes for procedures concerning 3rd party customer situations where special critical lift circumstances exist.

10. Work Zones

- a. The superintendent and operator will coordinate daily and identify the designated

work zone for the hoisting equipment under the operator's control

- b. If a crane is re-located the work zone must be re-coordinated and properly identified.

Safety equipment

1. Rigging

- a. Riggers must be designated and qualified in accordance with current ASME and OSHA regulations.
- b. Rigging equipment including fastening devices and attachments shall be inspected before use by a competent person
- c. Any rigging that does not meet the minimum requirements of this manual shall be tagged and removed from service. If the rigging device is rendered not usable or not repairable, the equipment shall be cut in half before discarding in the trash.
- d. Additional inspection criteria for chains slings is required
- e. Hooks shall have safety latches except: when setting trusses, beams and other such material when it has been proven that a hook without a safety latch is a safer alternative
- f. Special designed hooks, clamps or other special rigging devices shall be marked with the maximum safe working load and be proof loaded to 125% of rated load
- g. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load
- h. Sling legs shall not be kinked
- i. Slings used in a basket hitch shall have the loads balanced to prevent slippage

j. All Rigging equipment shall:

1. Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicates recommended capacity, size
2. Never be loaded in excess of the manufacturer recommended working capacity
3. Not be shortened with knots or bolts or other makeshift devices
4. Be padded or protected from sharp edges of loads
5. Not be shock loaded
6. Not be pulled from under a load when the load is resting on the sling
7. Be removed from the immediate work area when not in use so not to present a hazard to employees

k. When utilizing four individual single legged slings to rig a load, the total capacity of rigging shall be figured by only using three legs

1. Rigging at angles greater than 30 degrees is prohibited unless approved by the qualified rigger

m. Synthetic slings: Shall be immediately removed from service if any of the following conditions are present:

1. Snags, punctures, tear or cut
2. Broken or worn stitches
3. Melting or charring of any part of the sling surface
4. Acid or caustic burns
5. Nylon, polyester, and polypropylene web slings shall not be used where fumes, vapors, sprays, mists or liquids of acids or

phenolic are present

6. Synthetic web slings of polyester and nylon shall not be used at temperatures in excess of 180 deg. F (82.2deg. C). Polypropylene web slings shall not be used at temperatures in excess of 200 deg. F (93.33deg. C).

n. Wire rope slings: Shall be removed from service if any of the following conditions are present:

1. If in any length of eight diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires.
2. If there are more than 5 visible broken wires in one strand of a lay length or 10 broken wires in any part of the rope in one lay length
3. If the rope shows other signs of excessive wear, corrosion or defect
4. Protruding ends of strands in splices on slings and bridles shall be covered or blunted.
5. Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering or pulling loads, shall consist of one continuous piece without knot or splice
6. Eyes in wire rope bridles, slings or bull wires shall not be formed by wire rope clips or knots.

o. Chain Slings: Shall be removed from service if any of the following conditions are present:

1. Bent, twisted or deformed links
2. Cracked links

3. Gouges, chips or cuts
4. Small dents, peen marks and bright polished surfaces which usual indicate fatigue
5. Severe corrosion or pitting resulting in material loss
6. Worn links at the point of link contact
7. Only alloy type chain slings shall be used for hoisting a load. Load or log chains or any chain without at tag identifying its capacity as a hoisting chain shall not be used
8. Employers must not use alloy steel-chain slings with loads in excess of the rated capacities (i.e. working load limits) indicated on the sling by permanently affixed and legible identification marking prescribed by the manufacturer
9. In addition to the inspection criteria above for all rigging, Chains shall be inspected annually at internals no greater than 12 months. A record of the most recent month in which each chain was inspected shall be maintained and made available for examination
10. Whenever wear at any point of any chain link exceeds that shown in appendix E table (b) the chain shall be removed from service
11. Chains not meeting the inspection requirements of this section shall be tagged and removed from service
12. Chains shall not be welded on

2. Tag lines

- a. Tag lines shall be used on every item or material being hoisted unless it creates a greater hazard.
- b. The only exception is concrete buckets being utilized for placement purposes.
- c. It is the responsibility of the Foreman and Rigger to ensure each suspended load is tagged and monitored.

3. Fall protection

- a. All employees shall adhere to the 100 percent fall-protection requirement set forth in the company's Safety Procedures Manual.
- b. A full-body harness with a lanyard attached at the middle of the back, secured to a lifeline or an object capable of supporting a 5,000-pound load, shall be worn by employees when:
 - i. They are not protected from a fall of more than six (6) feet by other methods such as guardrails, catch platform, nets, etc., and
 - ii. If situations or conditions dictate the use of fall protection.

4. Hearing protection

- a. Approved hearing protection shall be worn when noise from operations is greater than 85 decibels or when near workers whose jobs require them to wear hearing protection. Cotton or paper shall not be used as a substitute for proper hearing protection.

5. Standard PPE

- a. All hoisting employees on any project shall wear PPE when outside of the cab of equipment on the job site and outside of any

logistics facility buildings with the exception of the designated parking areas for personnel vehicles.

- b. All cranes shall be marked or lighted in accordance with FAA guidelines.

Hazards

1. Overhead power lines

- a. The jobsite management team shall provide the voltage load of any power line within the jobsite work zone.
- b. The crane work zone must be identified in accordance with work zone on Page 13.
- c. When working near overhead power lines, OSHA-required limits will be adhered to, except that a 20-foot minimum will apply up to 350,000 volts. If the line's voltage is more than 350,000 volts, a 50-foot clearance must be maintained.
- d. When site work is not feasible without breaching the minimum distance, the job site will contact the owner of the utility and request the lines be de-energized and grounded or covered. If the lines cannot be de-energized, then steps must be taken to maintain the required minimum clearance distance as outlined in OSHA 29 CFR 1926.1408.
- e. A signal person must be designated when power lines cannot be de-energized.

2. Wind

- a. Manufacturer's recommendations must be followed when operating in windy conditions. No crane or hoist shall be operated in wind speeds that exceed 35 mph.
- b. Crane operations shall be halted whenever the wind velocity endangers load handling for the operating staff or others on the project.
- c. If the Crane Operator determines the wind velocity to be an endangerment, the Operator has the authority to halt operations.

3. Storm and lightning procedures

- a. When a local storm warning has been issued, the Project Management team and the Operator shall determine whether it is necessary to implement manufacturer's recommendations for securing the equipment.
- b. During erection, jacking or dismantling operations, the A/D Director, along with the Project Superintendent, will monitor rain events. The A/D Director will make the go/no-go decision in the event of inclement weather.
- c. During normal hoisting operations, the Operator, Project Superintendent and Site Safety Manager will confer and make the decision to shut down hoisting operations due to rain. However, if the operator determines the weather conditions to be unsafe, he has the authority to cease operations.
- d. During weather conditions that produce icing of the crane, hoisting equipment and structure or create any reduced visibility, the Project Superintendent, Operator and Safety Manager will evaluate the hoisting activity to be performed and establish a plan

to safely accomplish hoisting tasks given the conditions and use signaling means appropriate to the situation. **However, if the operator determines the weather conditions to be unsafe, he has the authority to cease operations.**

- e. When conditions are such that lightning is detected within a six-mile radius of a project, all crane and hoisting operations shall cease for a period of 30 minutes. Detection can be by lightning meter or by counting the seconds between lightning observation and the sound of thunder. Then divide that number by five, which gives you an estimate of the distance in miles. **Example: 15 seconds between flash and sound divided by five equals three miles away.** If lightning is not observed within the 30-minute period, hoisting operations may resume. If lightning is observed within the 30-minute period, wait time for resuming work will start over, allowing 30 minutes between subsequent observations prior to resuming work. Note: During a lightning storm, the Operator should stay in the cab for his or her safety.

4. Lightning strike

- a. In the event that lightning strikes hoisting equipment, all hoisting operations shall cease. Injury to personnel needs to be addressed first. Then, the Blue Hat Crane National Hoisting Manager, Mobile Crane Manager or Safety Manager are to be notified. The affected hoisting equipment will not be operated until a Hoisting Technician or Mobile Crane Mechanic has inspected the equipment and made all necessary repairs. After hoisting equipment is repaired, the appropriate Hoisting Manager or

Mobile Crane Manager will give clearance for the hoisting equipment to resume operation.

- b. The project supervisory team is to provide a report of the incident to the Blue Hat Crane Safety Manager.

5. Extended duration or severely adverse weather procedures

- a. Tower cranes

- i. If the job site is in the direct path/eye of a storm and enough time to dismantle crane assets is available, every attempt should be made to dismantle the tower crane.
- ii. If the above is not feasible, then the crane should be placed in weather vane mode with all swing brakes disengaged.
- iii. The power must be terminated at the trolley cabinet on the tower crane located near the Operator's cab.
- iv. Backup power for aviation obstruction lights must be provided.

- b. Personnel hoists

- i. If the job site is in the direct path/eye of a storm, every effort should be made to remove the hoist from the job site.
- ii. If the above is not feasible, the hoist(s) should be raised a minimum of two (2) floors above the anticipated storm surge level.
- iii. Power must be terminated at the base of the personnel hoist, locked out and tagged appropriately.

- c. Mobile cranes

- i. Rough and all-terrain: If a job site is in

the direct path/eye of storm, coordinate to have the crane(s) removed from site to a safe storage area until the storm passes.

d. Crawler cranes

- i. If a job site is in the direct path/eye of a storm, every effort should be made to demobilize and remove the crane from the job site.
- ii. If the above is not possible, then the crane must be boomed down per the manufacturer's specifications. Cribbing and dunnage will be required.

6. Cell Phones

- a. The use of cell phones by operator is prohibited while operating any hoisting equipment.
- b. When operating in the vicinity of hospitals and helipads, cell phone communication with the aircraft or hospital staff may be the only means available. When that is the case, the crane operator must stop crane operations during the use of the cell phone.
- c. Cell phones are not to be used for crane to ground communication.

Crane-suspended work platforms

1. Personnel platform

- a. Hoisting personnel by crane shall not be conducted without first contacting the Logistics National Safety Manager.
- b. The Superintendent, National Hoisting Manager and the Blue Hat Crane Safety Manager will discuss the use and intent of the platform.

- c. Permission may be granted only after all OSHA requirements concerning the inspection, maintenance and use of the personnel platforms and the following criteria are met.
 - i. The Superintendent can demonstrate that the use of standard methods such as ladders, scaffolds, etc., are not feasible due to building design or work location.
 - ii. The use of the personnel platform is safer than other methods.
 - iii. The platform is approved for transporting employees and is properly attached to the hoist line.
 - iv. Personnel riding on the platform shall be in constant communication with the crane operator by radio.
- d. The crane used to hoist personnel must meet the following requirements, including:
 - i. Limited to 50 percent of the rated capacity of the crane at the required configuration for the specific operation,
 - ii. Equipped with an anti-two-block device and a hook equipped with a locking latch that eliminates the throat opening
 - iii. The crane shall be within 1 percent of level.
- e. Personnel involved in the hoisting operation must:
 - i. Attend a pre-lift meeting to review requirements,
 - ii. Wear a safety harness and lanyard that is attached to the platform, and
 - iii. Keep all parts of their bodies inside the platform while hoisting.
 - iv. Platform shall not be hoisted during winds in excess of 20 mph.

- f. If individual being hoisted is not an employee of the company, such person(s) shall sign the appropriate liability waiver prior to the hoisting activity.
- g. The Superintendent and job site Safety Manager shall establish an agreed upon emergency landing zone, ensure that it is marked accordingly and understood by all job site personnel.

Hoisting over public right-of-way

- 1. Hoisting over an occupied building is prohibited, unless under the following circumstances and conditions:**
 - a. The Project Supervision Team shall decide what safety measures are to be taken to keep Personnel out of harms-way and enforce those safety measures, when hoisting over a building occupied only by JE Dunn employees and Trade Partners.
 - b. The Project Supervision Team shall collaborate with the Owner of a building before hoisting over that building when jointly occupied by JE Dunn Employees, Trade Partners and the Owner. A written safe work plan will be developed to ensure the safety of JE Dunn employees, trade partners, owner employees and the public. Safety precautions may include: evacuation of personnel inside of the building, defined exclusion zones, means of communication to inform personnel inside of the building, provisions of overhead protection (if applicable), etc.
 - c. In cases where it is necessary to swing any load over a neighboring structure that is not under the Project foot print, the Project Supervision Team shall obtain permission from the Owner. The

Project supervision team shall collaborate with the owner in making a written safe work plan to ensure the safety of JE Dunn employees, trade partners, owner employees and the public

- d. If hoisting over an occupied building is necessary when employed by a 3rd party, the Crane Operator is to inform the appropriate Blue Hat Crane Manager and follow the guidelines of the 3rd Party Contractor

2. Public street or sidewalk

- a. No load shall be hoisted over an active street, sidewalk or covered sidewalk unless appropriate barricades and warnings are in place to keep pedestrians out of the danger zone and flagmen are present to halt pedestrians and traffic, as applicable.

Equipment modifications

It is prohibited to modify company owned or third-party rental equipment is prohibited without prior written approval from the Chief Logistics Officer. Modification of equipment without written approval could result in disciplinary action up to and including termination of employment.

Modifications to equipment could include, but are not limited to:

1. Adjustment of operating controls, safety devices, limits, gates or interlocks,
2. All violations of structural integrity,
3. Any attachments to tower crane or personnel hoist masts,
4. Electrical devices, microwaves, heaters or air conditioning units, windshields and partial cab enclosures, and

5. Painting, flags, banners or other signage.

Emergency services notification process

The emergency services notification process creates an open line of communication between the job site and the appropriate responding agency in the event an incident occurs.

1. To verify who will respond in any given emergency, the Project Management Team will contact local fire department and provide the following information.
 - a. Location of the project
 - b. Entrance and exit points
 - c. Erection/dismantle/climbing schedule
 - d. Estimated number of employees involved
 - e. Structural information (height, swing radius)
 - f. Any traffic-related closures associated with the operation that may hinder an emergency response to the project
2. If the Commander (Fire Chief, Battalion Chief, Captain, etc.) requests an onsite visit, a Blue Hat Crane Hoisting Technician will accompany the crew to the base of the tower crane for a brief introduction.

Communicating with aircraft

1. Responsibilities

- a. The Superintendent shall ensure that all crane operations are properly briefed with regard to procedures for in/outbound aircraft near helipad locations.
- b. The Superintendent conducts all internal and

external coordination.

- c. The below listed procedures define the process. The Superintendent initiates contact with hospital helipad operations and provides the following information.
 - i. The obstruction data includes:
 - 1. Location of crane,
 - 2. Height of crane,
 - 3. Swing radius,
 - 4. Color of crane,
 - 5. Illumination and flagging,
 - 6. Weather-vane procedures,
 - 7. Contact numbers of Project Management Team and the Tower Crane Operator, and
 - 8. Duration of crane on site.
- d. The Project Team is responsible for providing a cell phone to the Tower Crane Operator. The Operator is to be informed that the cell phone will only be used for communication with hospital helipad operations and to cease operations when in contact with hospital helipad operations.
- e. In some cases, the hospital's Emergency Department will provide the crane operator with a radio or cell phone.
- f. The job site Safety or Project Manager sets up a coordination meeting to discuss the procedures in effect. Attendees include:
 - i. Project Management Team,
 - ii. Hospital Emergency Department staff,
 - iii. Helipad operations, and

iv. Crane Operator.

Note: The project management team must notify owner, hospital and helipad operations staff that the crane must weather vane at night.

2. Communication for inbound aircraft

- a. Hospital helipad operations notifies the Tower Crane Operator of inbound aircraft by phone.
- b. If hospital helipad operations cannot contact the crane operator, it will contact the Project Management Team.
- c. The helipad operations will provide:
 - i. ETA of aircraft,
 - ii. Aircraft approach, and
 - iii. Estimated duration.
- d. Crane Operator will advise hospital helipad operations of the crane JIB direction (Cardinal – East, West, North, and South)
- e. Crane Operator ceases operation to allow the aircraft to approach and land.

3. Communication for outbound aircraft:

- a. The hospital helipad operations notifies the Tower Crane Operator of outbound aircraft by phone.
- b. If hospital helipad operations cannot contact the Operator, it will contact the Project Management Team.
- c. The hospital helipad operations will provide:
 - i. ETA of departure, and
 - ii. Aircraft departure direction.
- d. Crane Operator ceases operation to allow the aircraft to depart.

- e. The Superintendent will contact hospital helipad operations to ensure the outbound aircraft has departed and will notify the Crane Operator to recommence crane operations.

Job site visitors

Job site visitors and non-logistics employees are not permitted to climb any tower crane.

VII. Tower cranes

Inspections

1. Daily inspections

- a. Daily inspections shall be conducted by the operator prior to conducting crane operations utilizing the company tower crane daily inspection form. (Appendix P)
- b. The superintendent collects all daily inspection forms weekly from the operator.
- c. Tower Crane daily Inspection forms are to be submitted every Monday for the previous week to the Logistics National Safety Manager.

2. Four (4) Week / 300-hour inspection is comprised of but not limited to:

- a. Mast,
- b. Jib,
- c. Slewing,
- d. Hoisting mechanisms, and
- e. Electrical systems.

3. Post-erection inspection

- a. All tower cranes will be inspected by a Blue Hat Crane or qualified Hoisting Technician

after initial erection and prior to placing the unit into service.

- b. The Technician will monitor the tower crane operations for at least (4) hours after the equipment is turned over to ensure the unit is operating properly and to make any final adjustments.
- c. If a third-party inspection is required, the National Hoisting Manager will coordinate the vendor for the inspection. The job is responsible for the cost.
- d. For JE Dunn tower cranes ROTEC Micrometer inspection must be completed on all tower cranes.
- e. Test weights are not to be relocated without a hoisting technician present.

4. Pre-dismantle inspection

- a. All units will be inspected immediately prior to dismantling operations by a Blue Hat Crane or qualified Hoisting Technician.
- b. For JE Dunn tower cranes ROTEC Micrometer inspection must also be completed on the tower crane.

5. Tower crane mast inspection

The Operator shall climb either up or down the entire mast from base to turntable a minimum of once daily to visually inspect the masts on the tower crane under his/her operation.

6. Tower crane micrometer inspections

- a. Micrometer inspections of the slewing/ROTEC bearing will be conducted as part of:
 - i. The four (4) week/300-hour inspection,
 - ii. Prior to pulling ropes before dismantle and

- immediately after crane is erected, and
- iii. Any time a crane is shock loaded during normal operations.
- b. Records of these inspections will be maintained on file.

7. Tower crane magnetic particle inspection

These inspections are required:

- a. Every time the crane is in maintenance between jobs,
- b. Anytime a structural question arises, and
- c. After every structural repair involving welding.

Note: The above inspections are to be maintained on file.

8. Inspection reports

- a. The Hoisting Technician will complete an inspection report for every inspection.
- b. The report is to be completed within two working days after inspection.
- c. Any deficiencies noted during these inspections which could cause an unsafe condition or cause damage to the unit must be corrected immediately and prior to continued use of the equipment.
- d. All other corrections noted during the inspection will be corrected in order of priority and scheduled maintenance.
- e. All maintenance and repair must be sustained via a Work Order.

9. Inspection scheduling

- a. The Hoisting Support Technician will coordinate with the Superintendent for all scheduled inspections.

- b. All inspections should be planned during normal working hours.
- c. If a weekend inspection is necessary, the inspection is to be coordinated at least seven (7) days prior to the inspection to ensure Hoisting Technician and ironworker availability.
- d. Weekend inspections will be charged out at the time and a half and double time standards respectively.
- e. As a rule, Superintendents should plan a minimum of three hours to inspect tower cranes (height dependent).
- f. Rescheduling an inspection should be avoided. However, if a revision to the schedule is necessary, the Superintendent must contact the Hoisting Support Technician or third party crane provider to coordinate and re-schedule. Prior commitments have priority.
- g. Inclement weather cancellations will be rescheduled at the first available opportunity.
- h. If a third-party inspection is required, the National Hoisting Manager and/or the Mobile Crane Manager will coordinate the vendor for the inspection.
- i. The cost of inspections are charged as time and material or as per negotiated agreement with the jobsite.

Procedures

1. Maintenance procedure on tower crane slewing bearing

Routine – Tower Crane Slewing (ROTEC) Bearing: (Comansa Models)

- a. The manufacturer requires the use of

“Lubriplate No 1200-2” grease. Grease to be applied by manual grease gun only.

- b. The operator or oiler shall apply a minimum of three tubes of grease into the bearing at least once a week. Use of power grease guns is prohibited.
- c. An adequate amount of grease is applied when white grease materializes outside the outer and inner bearing. More grease must be applied if this does not occur.
- d. At least once daily, the crane must be rotated 360 degrees to ensure the grease is equally distributed around the perimeter of the bearing.
- e. Clean zerks after the grease process is completed and report any zerks that are not functioning correctly on the Daily Inspection Report.
- f. When in doubt concerning maintenance procedures, refer to manufacturer's specifications.
- g. Ensure the maintenance is recorded as part of the daily inspection.
- h. Failure to comply with the above could result in disciplinary action up to and including termination of employment.
- i. For 3rd party cranes coordinate with respective crane provider.

2. Tower crane shut-down procedure

- a. At the end of the day or any time the crane is unmanned, the Operator shall free up the slewing brakes to allow the jib to weather vane.
- b. Refer to the manufacturer's manual for instructions for disengaging the slewing brakes.

- c. All loads (including rigging) shall be removed from the hook block and parked no further than 10 feet from final-up limit.
- d. The trolley shall be parked no further than 10 feet from inner final limit.
- e. For third-party tower cranes, refer to the manufacturer's specifications for weather vaning.
- f. Power to the crane shall be turned off at the designated cabinet. When a locking mechanism is available, the power cabinet shall also be locked at the end of the shift.

3. Tower crane test weights

- a. Test weights must be picked daily, to verify load limits prior to placing the crane into service.
- b. Ensure test weights are stored properly using dunnage, to prevent freezing to the ground.
- c. The point weight is to remain in the same location. If relocation of the point weight is necessary, a Blue Hat Crane Technician is to take a ROTEC Bearing reading prior to and after the relocation of the point weight.
- d. For 3rd party Tower Cranes other than Comansa Models refer to the manufacture requirements for load limit testing.

4. Tower crane bases, erection, dismantle and climbing operations

- a. These operations must be coordinated and approved by the National Hoisting Manager.
- b. All bases and tie backs must be engineered by a company-approved structural engineer.
- c. When using a non-company approved engineer, a peer review must be conducted.

The job is responsible for this cost.

- d. The National Hoisting Manager will provide the name of the peer review firm.
- e. Job site must plan sufficient time to design and manufacture non-standard tie backs, with a minimum of at least four months.

5. Safety during erection, dismantle and climbing operations

- a. The National Hoisting Manager will assign an A/D Director for all erection, dismantle, and climbing operations.
- b. A mandatory 75-foot perimeter around the base of the crane will be properly identified with red danger tape during erection/ dismantle/jacking activities.
- c. If a 75-foot parameter cannot be obtained, then risk mitigation will be discussed during the pre-erection meeting.
- d. Anemometers: the Lead Technician shall use a hand-held device for all erection/dismantle/ climbing and mobilization/demobilization operations.
- e. A two-person validation process for the proper position of the jacking ladder, prior to engaging the ram, is required.
- f. The superintendent insures the 75 ft perimeter is not crossed by any unauthorized personnel and should provide road guards when operating in the vicinity of pedestrian and vehicular traffic.

6. Base enclosure

An enclosure around the base of the tower crane is required and should be constructed utilizing one of the following options:

Option 1 – Wood Enclosure:

- a. Structure height is eight feet. (Approval needed if height cannot be obtained.)
- b. Width of enclosure should be calculated so that at least 24 inches is allowed between the tower and the walls of the structure on all four sides. Walls are to be at least $\frac{3}{4}$ of an inch thick.
- c. Structure must be sound so as not to be blown or tipped over by windy conditions or climbing by unauthorized personnel.
- d. Entry door is to be securely locked at the end of shifts.
- e. Three rows of barbed wire should be installed on top of the walls around the structure at a 45-degree outward angle with 8-10 inches between wire strands. (Approval needed if wire cannot be installed.)
- f. A 10lb Fire extinguisher must be placed inside structure unobstructed.
- g. The electrical disconnect box must be located inside the structure.
- h. “Danger Keep Out” signs are to be hung on all four outside walls.

Option 2 – Steel Enclosure: (rental from Blue Hat Crane)

- a. Structure height is eight feet. (Approval needed if height cannot be obtained.)
- b. Panels are available in 8' x 8' and 4' x 8' sections.
- c. Width of enclosure should be calculated so that at least 24 inches is allowed between the tower and the walls of the structure on all four sides.
- d. Structure must be sound so as not to be blown or tipped over by windy conditions or climbing

by unauthorized personnel.

- e. Entry door is to be securely locked at the end of shifts.
- f. Three rows of barbed wire should be installed on top of the walls around the structure utilizing the fabricated angle brackets facing outward. (Approval needed if wire cannot be installed.)
- g. A 10lb Fire extinguisher must be placed inside structure unobstructed.
- h. The electrical disconnect box must be located inside the structure.
- i. “Danger Keep Out” signs are to be hung on all four outside walls.

(See appendix C1 for an example of these enclosures.)

When tower cranes are erected within the confines of the structure, an eight-foot wall is to be built around the tower on each level, preventing unauthorized personnel from accessing the tower. The wall is to be constructed under the same criteria as the base protection and is to have a clearance of 24 inches from the tower.

7. FAA permits

- a. The National Hoisting Manager is responsible for filing the FAA temporary structure permit for all hoisting equipment.
- b. The Project Management Team is responsible for filing all FAA permits for permanent structures the cranes will support.
- c. The FAA permit for cranes cannot be filed until the permanent building structure FAA permit has been approved.
- d. The Project Management Team must ensure that third-party hoisting vendors file all

associated temporary FAA permits for their specified hoisting equipment.

- e. For job sites using cranes, the web site for FAA permits is: <https://oeaaa.faa/external/portal.jsp>
- f. FAA permits require a minimum of 60 days.
- g. Please see appendix I for specific information that must be provided to the National Hoisting Manager for FAA permit requests.

8. Base Design

- a. All Tower Crane bases must be designed by a qualified engineer.
- b. Generally, JE Dunn consistently uses RTE Technologies in Kansas City, to design all bases. RTE does not require a peer review.
- c. If the jobsite uses a load engineer to design the base, RTE must conduct a peer review.
- d. If RTE designs the base, instructions for base design information is provided to the National Hoisting Manager who forwards the information to RTE. RTE then deals direct with the project management team through design completion. **(See Appendix R)**
- e. If a local engineer designs the base the project management team provides the necessary information to the engineer who designs the base. The project management team then forwards the base design to RTE for review. Once complete, RTE's comments are returned to the project management team for action and to submit the design to the engineer of record.
- f. Regardless, once the base design is complete the project management team must submit

the base design to the engineer of record for approval.

Operator responsibilities

1. Operational safety

Under no circumstance shall an operator access the unit by climbing outside the mast or utilizing an unapproved access platform. Failure to comply could result in disciplinary action up to and including termination of employment.

2. Daily maintenance

Follow the manufacturer's requirements including but not limited to:

- a. Check and top off all fluids,
- b. Lubricate required components,
- c. Maintain an orderly Operator cab.

3. Pre operating inspection (Operator's responsibility)

Follow the manufacturer's requirements as set forth in the manufacturer's manuals, including but not limited to:

- a. A visual inspection of the entire unit including boom, mast, jib, wire, rope, and load block,
- b. Verify safety equipment is positioned and functioning correctly, including horn, anti-two block, and load indicators,
- c. Verify surrounding conditions and ground supports, including mats or cribbing, and
- d. Install and maintain swing radius protection.

Load limits

1. Load limits must be tested daily prior to equipment operation.

2. Refer to the manufacturer's manual for proper procedures.
3. If the load limits are out of adjustment, notify the Superintendent who will in turn contact the Hoisting Support Technician.
4. The Hoisting Support Technician will dispatch a Hoisting Technician to adjust the limits.
5. If the limits allow lifting a load beyond the specified maximum capacity, the crane will be taken out of service until inspected by a Hoisting Technician.
6. If the load limits on third-party rented hoisting equipment fails, the Superintendent must notify the appropriate third-party vendor for adjustment.
7. Under no circumstance shall anyone, other than a qualified Hoisting Technician or Mechanic, adjust the load limits or any other safety device.
8. Any loads in excess of 75% of the load capacity requires a critical Lift Plan Meeting.

VIII. Mobile Cranes Inspections

1. Daily inspections

- a. The operator shall perform a daily inspection utilizing the Mobile Crane Daily Inspection deport form (Appendix O) applicable to the type of mobile crane, prior to operation.
- b. Review the pre-lift checklist prior to commencing daily operation. (Appendix L) The checklist is posted in cab of all JE Dunn owned mobile cranes.

- c. Superintendents will provide the pre-lift checklist to any third party operators.
- 2. Specific inspections and policy for crawler cranes, rough-terrain cranes and all-terrain cranes**
 - a. Mandatory four (4) week/300-hour inspection is comprised of but not limited to:
 - i. Boom,
 - ii. Jib,
 - iii. Slewing,
 - iv. Hoisting Mechanism, and
 - v. Electrical Systems.
 - b. Micrometer inspections of the swing/ROTEC bearing will be conducted any time an operator suspects an issue with the slewing module.
 - c. Mandatory annual inspection can only be conducted by a third-party vendor. Documentation of the inspection must be present inside the cab at all times.
 - d. Magnetic Particle Inspections are required anytime a structural question arises or during periodic inspections.

3. Annual inspections

- a. Crawler cranes, rough-terrain cranes and all-terrain cranes require annual inspections.
- b. The Mobile Crane Manager coordinates the annual inspection through an independent service provider.
- c. A visual Inspection of the ROTEC Bearing must be completed on all crawler cranes.

4. Pre-dismantle inspection

- a. All units will be inspected immediately prior to dismantling operations.
- b. A visual inspection of the ROTEC Bearing must be completed on all crawler cranes.

5. Pre-relocation inspections

- a. Rough/all-terrain cranes shall be inspected prior to every job site relocation.
- b. Pictures are to be taken and maintained when required.

6. Inspection scheduling

- a. The Mobile Crane Manager will coordinate with the Superintendent for all scheduled inspections.
- b. All inspections will be planned during normal working hours.
- c. Weekend inspections need to be coordinated at least seven (7) days prior to the inspection to ensure Hoisting Technician and operator availability.
- d. Weekend inspections will be charged out at the time and a half and double time standards respectively.
- e. Inspections will be charged as time and material or as per negotiated agreement with the jobsite.
- f. The superintendent must contact the Mobile Crane Manager in the event it is necessary to reschedule an inspection. Prior commitments have priority.
- g. Inclement weather cancellations will be rescheduled at the first available opportunity.
- h. If a third-party inspection is required, the

Mobile Crane Manager will coordinate the vendor for the inspection.

Procedures

1. On the job site

- a. If the Superintendent or the Operator determine that a crane boom needs to be laid down, the Operator shall contact the Mobile Crane Manager prior to laying down the boom.
- b. For any crane movement, the contractor in control of the crane is responsible for ensuring that the soil stability and load bearing capacity are sufficient.
- c. Should the operator have any concerns with soil stability all crane operations are suspended.
- d. The operator shall report the soil stability issue to the superintendent immediately.
- e. The equipment shall not be operated until steps have been taken to ensure sub-grade stability.
- f. The Superintendent will coordinate with the Mobile Crane Manager to determine if crane pads and or cribbing is required.
- g. The Mobile Crane Manager will ensure the proper material is delivered to the job site.
- h. Before moving a crane where ramps, excavations and built up areas are a concern, an on-site meeting and inspection shall be conducted to review the move. The meeting shall include but is not limited to:
 - i. Mobile Crane Manager
 - ii. Superintendent
 - iii. Operator

- iv. Site Safety Manager
- v. National Logistics Safety Manager
- i. For crane relocations that do not involve situations mentioned above in letter (h); the operator will be responsible for both the crane relocation on site and conducting the JSA for the relocation.
- j. The operator will determine the personnel necessary for the crane relocation and conduct a pre-move meeting with applicable personnel to discuss all aspects of the relocation. The job site shall provide necessary support of the relocation under the direction of the operator.

2. Third Party Critical Lift Procedures

- a. In cases where the Customer / Trade Partner do not provide sufficient lift information or change the plan at the last minute resulting in a critical lift, the following guidelines apply:
 - i. Operators who are designated and trained are authorized to proceed with the critical lift, if the lift is between 75% and 89% and there are no other apparent safety issues or other critical lift criteria present. Note: If the lift is at 90% or more or other critical lift criteria is present, then the Operator will not make the lift until proper critical lift procedures are followed and the lift plan is approved by the appropriate Blue Hat Crane Manager.
 - ii. Only Operators who are authorized to conduct critical lifts under these prescribed guidelines will do so. The authorized Operator will inform the contractor that he is within the critical lift criteria and then he will fill out the critical lift plan. Next the Operator contacts

the appropriate Blue Hat Crane Manager to discuss the lift. After reviewing the lift plan and it is found to be correct the Operator may continue with the lift. If the authorized operator is in a remote area and cannot contact a Blue Hat Crane Manager, he may proceed with the lift, provided it falls within the 75% to 89% criteria and no other apparent safety issues or critical lift criteria are present.

1. In this case, the operator must conduct a critical lift meeting prior to the lift to include but not limited to:
 - a. Lift Director
 - b. Rigger
 - c. Superintendent
 - d. Customer
- iii. Any Operator who has not been authorized to conduct critical lifts under the above guidelines, will not make any critical lift without following proper critical lift procedures. In this case, the Operator will inform the trade partner that he is within the critical lift margin and cannot proceed until a critical lift plan has been conducted. The Operator will call the appropriate Blue Hat Crane Manager and inform them of the situation. Then the Blue Hat Crane Manager will confer with the Trade Partner and Operator and create a critical lift plan and proceed accordingly.

3. Off the job site

- a. The Superintendent notifies the Mobile Crane Manager or 3rd party crane provider of intended crane relocation.

- b. The Mobile Crane Manager is responsible for coordinating and scheduling the transportation, erection and dismantling of all mobile crane assets with respect to the move.

4. Crane movement public right-of-way

- a. Cranes are not to be operated or travelled on public right-of-way outside the construction limits without superintendent approval.
- b. With Superintendent approval and applicable governing authority, units may travel on public right-of-way provided the required permits are secured and there are sufficient flagmen present.
- c. Pavement stability must be verified prior to any public right-of-way move.
- d. Contact the National Logistics Safety Manager for additional guidance.

5. Crawler crane boom stowage

- a. At the end of the workday or when crawler cranes are placed in storage for extended periods of time, the boom shall be stowed by the Crane Operator under the supervision of the Site Superintendent.
- b. The below listed steps must be followed:
 - i. The boom will be placed and stowed at 55-60 degrees.
 - ii. There will be no load or rigging gear attached to the crane unless it meets OSHA 29CFR 1926.1417. To meet the OSHA requirement, the weight of the gear must be negligible relative to the lifting capacity of the equipment as positioned. This would include working gear such as slings, spreader bars, ladders, generators and the like. The working gear is not to

be suspended over entrances, exits, or areas where personnel gather.

- iii. Load blocks shall be stowed no less than 20 feet and no greater than 30 feet from the boom tip.
- iv. Cranes will not be stored on or in immediate proximity to a drainage system or on a sub-grade that could potentially cause the crane to be exposed to high water, to slide, or to rock during adverse wind conditions.
- v. The Operator will ensure that aviation lights are functional.
- vi. If any of these conditions cannot be met, the Site Superintendent shall contact the Mobile Crane Manager and/or National Hoisting Manager for further guidance.

Operator responsibilities

1. Operational safety

Follow the manufacturer's requirements as set forth in the manufacturer's manuals, including but not limited to the following.

- a. Check and top off all fluids.
- b. Lubricate required components.
- c. Maintain an orderly Operator cab.
- d. Remove excess mud and debris from the undercarriage and drive components.
- e. Allow equipment to reach specified operating temperature before operating.

2. Pre-operating inspection

Follow the manufacturer's requirements as set forth in the manufacturer's manuals, including but not limited to the following.

- a. Conduct a visual inspection of the entire unit including boom, mast, jib, wire rope, and load block.
- b. Verify safety equipment is positioned and functioning correctly, including horn, anti-two block, and load indicators.
- c. Verify surrounding conditions and ground supports, including mats or cribbing.
- d. Mats are to be constructed of hard wood (not pine). Composite outrigger mats are acceptable so long as they are of type and capacity to support weight of crane and load. When using single boards for cribbing, boards must be free of gaps and must be level. When multiple levels of cribbing are used, boards shall be perpendicular and outrigger pads centered on mat or cribbing.
- e. Install and maintain swing radius protection.

3. Load-monitoring system

- a. The Operator must ensure that the load-monitoring system is operating properly.
- b. If the load-monitoring system is not operating properly, the Mobile Crane Mechanic shall be contacted to repair the system. The Operator will refer to the specific load charts for continued operation until the load-monitoring system is repaired.
- c. The Operator is responsible for testing the anti-two block device daily to ensure proper operation.

IX. Personnel Hoists

Inspections

1. Daily inspection

The Operator shall perform a daily inspection utilizing the Personnel Hoist Daily Inspection Report form (Appendix Q) prior to the operation of the hoist. The Operator shall also visually inspect the entire mast from top to bottom at least once daily.

2. Safety device inspection

- a. Blue Hat Crane personnel or a 3rd party service provider (designated by Blue Hat Crane) shall perform regular inspections of the safety device including a drop test on all active personnel hoists.
- b. Drop tests will be performed at least once every three (3) months or more frequently when required by state or local authorities.
- c. Drop tests will only be conducted by a Hoisting Technician. An empty drop test will be performed prior to any loaded drop test.
- d. No person shall be transported in the personnel hoist prior to drop test completion/certification/activation.
- e. Lubrication of the overspeed safety device will be performed by a Hoisting Technician only.

3. 4 week/300-hour inspection is comprised of but not limited to:

- a. Mast
- b. Travel limit switches
- c. Stop switch
- d. Overspeed safety device
- e. Electrical system
- f. Lubrication

4. Inspection scheduling

- a. The Hoisting Support Technician will coordinate with the Superintendent for all scheduled inspections.

- b. All inspections should be planned during normal working hours. However, if a weekend inspection is required due to job needs, the inspection is to be coordinated at least seven days prior to the inspection date to ensure Hoisting Technician availability.
- c. Weekend inspections will be charged out at the time and a half and double time standards respectively.
- d. Inspections will be charged at time and material or as per the pre-negotiated agreement with the jobsite.
- e. In general, Superintendents should plan one and one-half hours to inspect personnel hoists.
- f. The Superintendent must contact the Hoisting Support Technician in the event it is necessary to reschedule an inspection. Prior commitments have priority.
- g. Inclement weather cancellations will be rescheduled at the first available opportunity.
- h. If a third-party inspection is required, the National Hoisting Manager will coordinate the vendor for the inspection.

Procedures

1. Travel limits and gate interlocks

- a. Travel limits and gate interlocks are required on all company job sites.
- b. Each floor designated a stopping point in the hoist system shall have door interlocks installed prior to the initial activation of the equipment.
- c. Blue Hat Crane requires daily testing of the limit and interlock system. Personnel Hoist Operators are responsible for testing the travel limits and gate interlocks daily.

- d. The manufacturer's manual includes a detailed procedure for checking the limits. If the limits or interlocks are out of adjustment (on company or third-party rental hoists), the Operator shall notify the Superintendent and cease operation of the hoist.
- e. The Superintendent will in turn contact the Hoisting Support Technician for resolution for company-owned hoists. The Hoist Support Technician will place the unit back into operation once the repair is complete.
- f. For third-party rented hoists, the Superintendent shall contact the provider to make the necessary adjustments. The Superintendent will contact the Hoisting Support Technician once the adjustments are complete. The Hoisting Support Technician will be responsible for placing the unit back into operation.

2. Communication system

- a. Communication devices (call boxes) shall be installed on every floor that is designated a stopping point.
- b. The Operator shall verify that the communication system is functioning properly prior to placing the unit in service at the start of each shift.

3. Floor Landing Gates

- a. The Operator shall verify that the floor landing gates are functioning properly prior to placing the unit in service at the start of each shift.
- b. Landing gates are to be installed no greater than 8 inches from the hoist gate.
- c. Hoistway doors shall not be less than 6 foot 6 inches in height. They shall not have an

opening into the hoist way of greater than three quarter of an inch.

- d. Hoistway enclosures on the building side of the hoistway shall be enclosed full height or a minimum of eight feet.
- e. A vision panel may be installed in the door provided there is no opening larger than three quarter of an inch.
- f. Walls a minimum of eight feet in height must be installed a minimum of thirty inches from both sides of the landing door.

4. Landing platform

- a. Overhead protection shall be installed prior to the initial activation of the hoist.
- b. The overhead protection shall cover the deck area in front and both sides of the hoistway (if decked).
- c. The Operator shall inspect the landing platform including overhead protection, pit fencing or cage and handrails daily prior to placing the unit into service at the start of each shift.
- d. The area above the floor landing gate to the ceiling is to be closed off at every level.
- e. Bridge plates are to be installed in all cars prior to initial operation by Blue Hat Crane Technicians.

5. Hoisting utilization

- a. The hoist shall not be utilized as a work platform except during erection, inspections and dismantling. Any deviation must be gained in writing from the National Hoisting Manager.
- b. No attachments to the tower mast of any kind are authorized (i.e. – grout pump lines, etc.).

6. Erection/Dismantling/Climbing of Hoists

- a. Only Blue Hat Crane or a Blue Hat Crane designated third-party service provider is authorized to perform these operations.
- b. Nothing shall be erected or placed within three feet of the hoistway. Scaffolding, structures or work platforms where workers pass that are located between three feet and eight feet from the hoistway shall have an enclosure. The enclosure will consist of a solid wall installed on the exposed end of the system to prevent materials from being placed into the hoistway.
- c. Tie backs shall be designed by a structural engineer and should be based on manufacturer's design loads for that configuration.

7. Base Design

- a. All Personnel Hoist bases must be designed by a qualified engineer.
- b. Generally, JE Dunn consistently uses RTE Technologies in Kansas City, to design all bases. RTE does not require a peer review.
- c. If the jobsite uses a load engineer to design the base, RTE must conduct a peer review.
- d. If RTE designs the base, instructions for base design information is provided to the National Hoisting Manager who forwards the information to RTE. RTE then deals direct with the project management team through design completion. (See Appendix S)
- e. If a local engineer designs the base the project management team provides the necessary information to the engineer who designs the base. The project management team then forwards the base design to RTE for review. Once complete, RTE's comments are returned

to the project management team for action and to submit the design to the engineer of record.

- f. Regardless, once the base design is complete the project management team must submit the base design to the engineer of record for approval.

Operator responsibilities

1. Operational safety

- a. The operator has primary responsibility to ensure safe operation of the personnel hoist.
- b. The Operator is responsible for stopping operation of hoist due to any unsafe situation such as load capacity, obstructions, weather or maintenance issues.
- c. The Operator shall immediately notify the Superintendent regarding any issue with daily maintenance or inspections which may jeopardize the safe operation of the personnel hoist. In those cases, the equipment will be taken out of service. Corrective action must be taken prior to placing the unit back into service.
- d. Roof hatches shall be closed when operating the hoist.
- e. No loads shall be allowed to protrude outside the confines of the hoist car.
- f. No one shall occupy the hoist car while personnel are on the roof of the car. The Hoist Operator will remain outside of the car during maintenance or applicable operational procedures.
- g. Operators shall not remove or disable limit switches, interlocks, or any other safety device.
- h. Operators shall not remove or disable the intended operation of any bridge plates.

2. Maintenance

- a. Do not allow passenger operation if hoist is past due for inspection.
- b. Base enclosure must remain locked. Only qualified service personnel shall access the base enclosure.
- c. Operator is responsible for lubricating the hoist rack.

I. Glossary of terms

For the purpose of this manual, the following definitions with respect to Blue Hat Crane shall apply.

“Company” shall be JE Dunn Construction Company dba Blue Hat Crane, and all Regions, Divisions, offices and job sites of the company.

“Chief Logistics Officer (CLO)” is responsible for the JE Dunn Logistics and Blue Hat Crane.

“National Hoisting Manager” shall be that person who is in charge of Tower Crane and Personnel Hoists within Blue Hat Crane.

“Superintendent” shall be that person who is in charge of the job site.

“Project Management/Field Supervision Team” shall be the entity that manages the overall project.

“Blue Hat Crane Safety Manager” shall be the person who is in charge of all safety-related activities regarding Blue Hat Crane.

“Hoisting Field Manager” shall be that person who manages tower crane and hoist technician training, equipment readiness and major repairs.

“Mobile Crane Manager” shall be that person who is in charge of all day to day mobile crane activities.

“Mobile Crane” is a hoisting unit capable of traveling under its own power. Specifically defined as: crawler crane, rough-terrain crane, all-terrain crane and hydro-truck crane.

“Tower Crane and Personnel Hoist Manager” shall be that person who is in charge of proper hoisting configuration, validation of the base designs and interaction with hoisting manufacturers.

“Assembly/Disassembly (A/D) Director” shall be that person who is in charge of all hoisting related erection, dismantle, jacking activities and all metallurgical structural repairs.

“Competent person” means 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 based upon OSHA and ASME standards for qualification or certification in their role.

“Dedicated spotter” shall be that person whose sole responsibility is to watch the separation between the power line and the equipment, load line and load (including rigging and lift accessories), and to ensure through communication with the Operator that the applicable minimum approach distance is not breached.

“Qualified rigger” A qualified rigger is defined as one who has a recognized degree, certificate or by knowledge, training and experience has successfully demonstrated the ability to solve/resolve problems relating to rigging.

“Qualified signal person” A qualified signal person is defined as one who has been trained by a qualified evaluator, an organization such as NCCCO, or an employer’s qualified evaluator and has demonstrated the ability to communicate all national standard hand signals established for hoisting operations.

“Hoisting Support Technician” shall be that person who is in charge of managing unscheduled maintenance, routine maintenance scheduling and the company inspection process in regard to tower cranes and personnel hoists.

“Lift Director” shall be that person designated to directly oversee the work being performed by a crane and the associated rigging crew.

“JSA” (Job Safety Analysis) Is a required tool to identify hazardous conditions and to mitigate and/ or eliminate those conditions in order to make our jobsites a safer place to work. JSA’s are conducted daily and are used to brief all personnel involved with the specific activity. Please see Appendix U pages 103 and 104 for the JSA template.

Appendix A1-1

STANDARD HAND SIGNALS

Subpart CC of Part 1926 – Standard hand signals

		
HOIST	LOWER	USE MAIN HOIST
With forearm vertical, forefinger pointing up, move hand in small horizontal circles.	With arm extended downward, forefinger pointing down, move hand in small horizontal circles.	Tap fist on head, then use regular signals.
		
USE WHIPLINE (Auxiliary Hoist)	RAISE BOOM	LOWER BOOM
Tap elbow with one hand, then use regular signs.	Extend arm, fingers closed, thumb pointing upward.	Extend arm, fingers closed, thumb pointing downward.
		
MOVE SLOWLY	RAISE THE BOOM & LOWER THE LOAD	LOWER THE BOOM & RAISE THE LOAD
Use one hand to give any motion signal and place other hand motionless above hand giving the motion signal. (Hoist slowly shown as example.)	With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.	With arm extended, thumb point down, flex fingers in and out as long as load movement is desired.

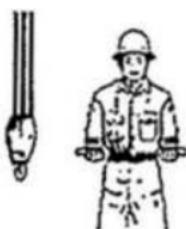
Appendix A1-2

STANDARD HAND SIGNALS

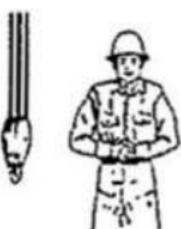
Subpart CC of Part 1926 – Standard hand signals

SWING	STOP	EMERGENCY STOP
Extend Arm, point with finger in direction of swing of boom.	Extend arm, palm down; move arm back and forth horizontally.	Extend both arms, palms down, and move arms back and forth horizontally.
TRAVEL	DOG EVERYTHING	TRAVEL (Both Tracks)
Extend arm forward, hand open and slightly raised; make pushing motion in direction of travel.	Clasps hands in front of body.	Use both fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward (for land cranes only).
TRAVEL (One Side Track)	EXTEND BOOM (Telescoping Booms)	RETRACT BOOM (Telescoping Booms)
Lock the track on side indicated by raised fist. Travel opposite track indicated by circular motion of other fist, rotated vertically in front of body (for land cranes only).	Hold both fists in front of body, thumbs point outward.	Hold both fists in front of body, thumbs pointing toward each other.

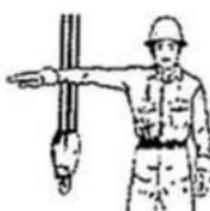
Appendix B
TOWER CRANE HAND SIGNALS



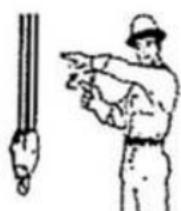
**TROLLEY
OUT**



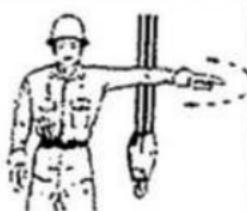
**DOG
EVERYTHING**



SWING



**MOVE
SLOWLY**



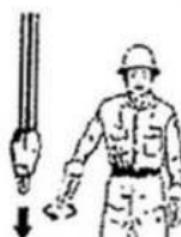
STOP



**TROLLEY
IN**



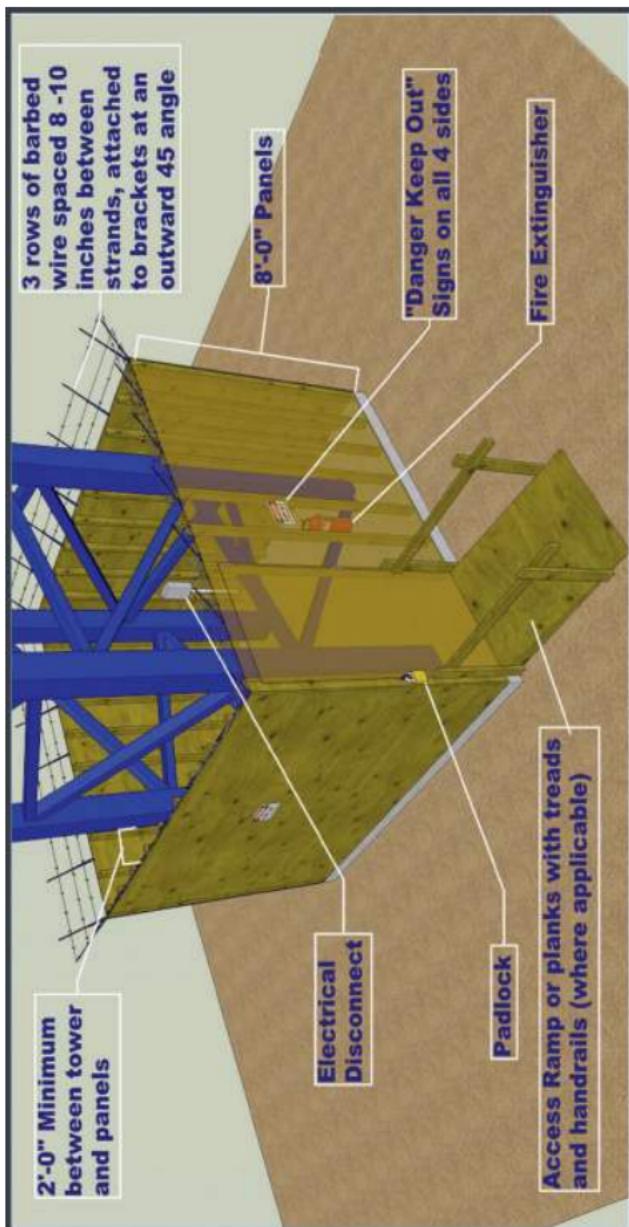
HOIST



LOWER

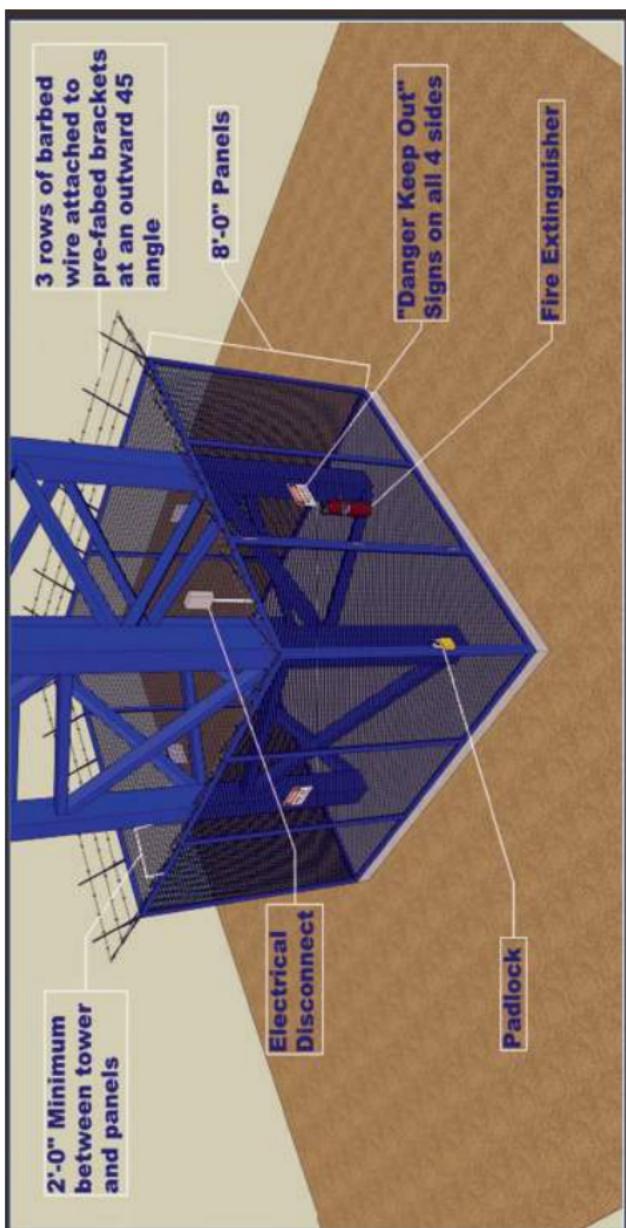
Appendix C1-1 TOWER CRANE BASE ENCLOSURE

Wood Enclosure



Appendix C1-2
TOWER CRANE BASE ENCLOSURE

Steel Enclosure

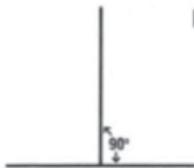


Appendix D

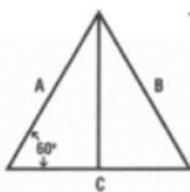
SLING ANGLE GUIDE

EFFECT OF SLING ANGLE

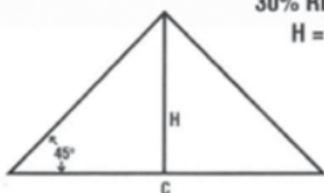
NO REDUCTION
LEGS HANG VERTICALLY



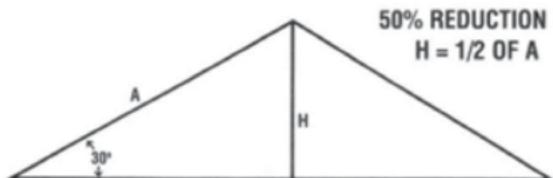
13% REDUCTION
A, B AND C ARE ALL EQUAL



30% REDUCTION
 $H = 1/2 \text{ OF } C$



50% REDUCTION
 $H = 1/2 \text{ OF } A$



Appendix E
SHACKLE CAPACITY CHART

SHACKLES (ALL TYPES)		
Weldless construction		
forged alloy steel		
Stock diameter (inches)	Inside width at pin (inches)	Max safe working load – single vertical pull (pounds)
3/16	3/8	665
1/4	15/32	1,000
5/16	17/32	1,500
3/8	21/32	2,000
7/16	23/32	3,000
1/2	13/16	4,000
5/8	1-1/16	6,500
3/4	1-1/4	9,500
7/8	1-7/16	13,000
1	1-11/16	17,000
1-1/8	1-13/16	19,000
1-1/4	2-1/32	24,000
1-3/8	2-1/4	27,000
1-1/2	2-3/8	34,000
1-3/4	2-7/8	50,000
2	3-3/4	70,000
2-1/2	4-1/8	100,000
3	5	150,000
3-1/2	5-3/4	200,000
4	6-1/2	260,00

Table b:
Maximum
Allowable
Wear at
Any Point
of Link

Chain Size (inches)	Maximum Allowable Wear (inch)
1/4	3/64
3/8	5/64
1/2	7/64
5/8	9/64
3/4	5/32
7/8	11/64
1	3/16
1-1/8	7/32
1-1/4	1/4
1-3/8	9/32
1-1/2	5/16
1-3/4	11/32

Appendix F
WEIGHTS OF MATERIALS TABLE

WEIGHTS OF MATERIALS	
Materials	Approximate weight per cubic foot (pounds)
Aluminum	166
Ashes	43
Asphalt	81
Brass	524
Brick (common)	120 (about three tons / thousand)
Bronze	534
Cement	94 (one sack)
Concrete	150 (4050 lbs. / cubic yard)
Copper	537
Crushed Rock	95 (2565 lbs. / cubic yard)
Dry Earth, Loose	6 (2052 lbs. / cubic yard)
Granite	179
Lead	708
Lumber – Fir, Spruce	32 (2666 lbs. / thousand feet)
Mortar	100
Portland Cement	94 (376 lbs. / cubic yard)
River Sand	120 (3240 lbs. / cubic yard)
Steel	490
Water	62.5
Zinc	437

Appendix G1 *METRIC CONVERSION FACTORS*

1 inch = 25.4 millimeters
1 inch = 2.54 centimeters
1 foot = 30.48 centimeters
1 foot = 0.3048 meters
1 yard = 0.9144 meters
1 mile = 1.6093 kilometers
1 millimeter = 0.03937 inches
1 centimeter = 0.3937 inches
1 centimeter = 0.0328 feet
1 meter = 3.2808 feet
1 meter = 1.0936 yards
1 kilometer = 0.6214 miles
1 square inch = 645.16 square millimeters
1 square inch = 6.4516 square centimeters
1 square foot = 929.03 square centimeters
1 square foot = 0.0929 square meters
1 square yard = 0.8361 square meters
1 square mile = 2.5899 square kilometers
1 square millimeter = 0.00155 square inches
1 square centimeter = 0.155 square inches
1 square centimeter = 0.001076 square feet
1 square meter = 10.7638 square feet
1 square meter = 1.1959 square yards
1 square kilometer = 0.3861 square miles
1 cubic yard = 0.7645 cubic meters
1 pint (U.S.) = 0.4731 liters
1 quart = 0.9463 liters
1 gallon (U.S.) = 3.785 liters
1 cubic meter = 35.3144 cubic feet
1 cubic meter = 1.3079 cubic yards
1 liter = 2.1134 pints (U.S.)
1 liter = 1.0567 quarts (U.S.)
1 liter = 0.26417 gallons (U.S.)
1 ounce = 28.35 grams
1 pound = 0.4536 kilograms
1 ton (2000 lbs.) = 907.18 kilograms
1 ton (2000 lbs.) = 0.90718 metric tons
1 gram = 0.03527 ounces
1 kilogram = 2.2046 pounds
1 kilogram = 0.0011023 tons

Appendix G2
METRIC CONVERSION TABLE

CONVERSION TABLE		
Multiply	By	To Obtain
Acres	43,560	Square feet
Bags of Cement	94	Pounds of cement
Cubic Feet	7.48052	U.S. gallons
Cubic Feet	1.728	Cubic inches
Cubic Feet	.03704	Cubic inches
Cubic Inches	.00005787	Cubic feet
Cubic Inches	.004329	U.S. gallons
Cubic Yards	27	Cubic feet
Cubic Yards	46.656	Cubic inches
Cubic Yards	2.202	U.S. gallons
Feet	.3048	Meters
Meters	3.281	Feet
Meters	39.37	Inches
Meters	1.094	Yards
Miles	5,280	Feet
Pounds of Water	.01602	Cubic feet
Pounds of Water	27.68	Cubic inches
Pounds of Water	.1198	U.S. gallons
Square Feet	144	Square inches
Square Miles	640	Acres
Square Yards	9	Square feet
Square Yards	.0002066	Acres
Tons	2,000	Pounds

Appendix H **TOWER CRANE REQUEST INFORMATION**

As you prepare your request, the below listed questions need to be answered to the best of your ability at the time of the request. You have the option of using the form on the portal or calling in your request.

7. Job name
8. Job location
9. Primary contact
10. Project manager
11. Superintendent
12. First day of use
13. Last day of use
14. Final height under hook
15. Initial height under hook
16. Desired radius
17. Max pick
18. Max pick at JIB tip
19. Type of base (conventional or city base)
20. Other cranes on the job site available to assist during
 - a. Erection: If yes, crane make and model
 - b. Dismantle: If yes, crane make and model
21. Number of jacks, if required
22. Operator status, if required
23. Estimated hours of usage per week
24. Other considerations

If available, attach a site plan with the desired crane location.

Appendix I
FAA permit request information

1. Duration of crane in the air in months and days
2. Proposed erection date
3. Proposed dismantle date
4. Latitude (hours-minutes-seconds)
5. Longitude (hours-minutes-seconds)
6. Structure height (AGL) (to the nearest foot)
7. Marking and/or lighting, lifts, flags etc.
8. Color of crane if it is a rental
9. Nearest city and state
10. Traverseway (meaning, will it impede upon the current flow of traffic somehow?)
11. Location description
12. Proposal description
13. Structure name (i.e. North Tower Crane, South, etc.)
14. Structure type
15. If a healthcare facility, does it have a helipad?
16. If yes, how close and where in regards to the crane?
17. Any prior ASN numbers previously assigned (only pertains if the new permit is an extension from a previous determination).

Appendix J

Mobile crane request information

As you prepare your request, the below listed questions need to be answered to the best of your ability at the time of the request. You have the option of using the form on the portal or calling in your request.

1. Job name
2. Job location
3. Primary contact
4. Project manager
5. Superintendent
6. First day of use
7. Last day of use
8. Boom and JIB configuration
9. Desired radius
10. Max pick
11. Max pick radius
12. Rigging needs
13. Operator status (union or non-union)
14. Estimated hours of use per week
15. Other considerations

If available, attach a site plan with the desired crane location.

Appendix K

Personnel hoist request information

As you prepare your request, the below listed questions need to be answered to the best of your ability at the time of the request. You have the option of using the form on the portal or calling in your request.

1. Single or dual hoist
2. Job name
3. Job location
4. Primary contact
5. Project manager
6. Superintendent
7. First day of use
8. Last day of use
9. Initial height requirement
10. Final height
11. Number of landings (not including base)
12. Roof stop
13. Number of landing gates required
14. Number of hoist communication speakers required
15. Where will the hoist be installed in relation to the building/structure?
16. Number of jumps?
17. Tie-back anchor points available on structure every 30 feet or less?
18. How will tie-back anchors attach to the building/structure?

19. Is 480v, 3Ph, 100 amp power available for each requested car?
20. Cranes available on job site during:
 - a. Erection?
 - b. Dismantle?
 - c. Jumps?
21. Can a maximum clearance of 2 ½ inches be maintained between cars and landing sills at all landings?
22. Are 6,000 pounds of elevator test weights available at the time of installation and at intervals not to exceed three (3) months?
23. Operator status (union or non-union)
24. Estimated hours of use per week
25. Other considerations

If available, attach a site plan with the desired crane location.

Appendix L PRE-LIFT CHECKLIST



Daily Pre-Lift Checklist



BLUE HAT CRANE®

Operator: _____

Date: _____

1. KNOW THE LOAD

- a. Weight of the item being lifted
- b. Know the Center of Gravity
- c. Load composition/considerations
 - (1) Liquid:
 - (a) Additional weight
 - (b) Potential movement/instability of the load
 - (2) Components of load:
 - (a) Number of pieces
 - (b) Pieces properly attached
 - (3) Structural integrity of the load
 - (a) Lifting points properly positioned and adequate
 - (b) Is a spreader bar required

2. CRANE CONFIGURATION AND SET-UP

- a. Solid ground or adequate matting
- b. Crane level within 1%
- c. Proper counterweight configuration and secure placement
- d. Proper outrigger placement with pads or dunnage
- e. Protected swing radius
- f. Secure landing area, proper rigging and movement of load
- g. Load Moment Indicator (LMI)
 - (1) All operator aids are working properly

3. BOOM CONFIGURATION

- a. Length of Boom: _____ Ft
 - (1) Does it match the job requirements and/or Lift Plan
 - (a) All attachments properly secured
 - i. Jibs
 - ii. Luffers
- (2) Boom Angle _____ Degrees
 - (a) Does it match the job requirements and/or Lift Plan
 - (b) Clears all obstacles
 - (c) No interface with other cranes

4. RADIUS OF LOAD FROM CENTER OF CRANE

- a. Is the load within the capacity of the crane chart

5. PROPER RIGGING

- a. Has rigging been properly inspected
- b. Does rigging show any UV Degradation
- c. Properly sized for load
- d. Weight of rigging is added to weight of load or deducted from capacity:
 - (1) Block _____ lbs
 - (2) Rigging _____ lbs
 - (3) Line _____ lbs

6. ENVIRONMENTAL CONCERNs

- a. Wind
 - (1) No more than 35 mph or manufacturer's recommendation
 - (2) Consider added surface area of load when considering speed
- b. Visibility
 - (1) Operator must be able to see load to landing site or be under direction of a signal person (hand, voice, or audible)
- c. Added weight consideration from:
 - (1) Snow
 - (2) Ice
 - (3) Water

7. WORK ZONE

- a. Identify the Work Zone
- b. Are the limits easily identifiable
- c. Power Lines
- d. Buildings
- e. Previous excavations/trenches
- f. Underground hazards
 - (1) Vaults
 - (2) Pipes/Utilities

8. COMMUNICATION WITH RIGGERS

- a. Sign-hand signals
- b. Voice contact with riggers/signal person
- c. Blind lifts:
 - (1) Hand-off responsibility from rigger
 - (2) Load Ownership from lift to set down

9. QUALIFIED LIFTING PERSONNEL

- a. Lift Director
- b. Riggers: _____
- c. Signal Person
- d. Oilier
- e. Responsible Superintendent

Appendix M

CRITICAL LIFT PLAN AND INSTRUCTIONS



CRITICAL LIFT PLAN

Project Name:	Project No.
Location:	Date:
Company:	
Load:	
Submitted By:	

1. Crane Manufacturer:	2. Model No.:	3. Crane Type:	4. Crane Serial No.:
5. Crane Inspection Date:	6. Crane Rated Capacity: (tons)	7. Boom Type:	8. Boom Length:
9. Lifting From: Boom: <input type="checkbox"/> Jib: <input type="checkbox"/>	10. Jib Configuration: Stowed: <input type="checkbox"/> Erected: <input type="checkbox"/>	11. Jib Length:	12. Jib Offset:

Critical Lift Criteria (check all that apply)

Load exceeds 75% of the crane capacity, mobile cranes and tower cranes

When crane is used in tandem pick with any other equipment or crane

When lifts are made within 20 feet of power lines

When lift involves specialized, unique, or complex rigging equipment

When hoisting personnel in suspended work platforms

Hoisting specialized equipment with a long lead time to replace

A. CRANE			B. LOAD				
1. Crane Setup:	1. Source of load weight:						
On Outriggers <input type="checkbox"/>	What %	<input type="checkbox"/>	2. Weight verified by:				
On Tires <input type="checkbox"/>			3. Weight of load	LBS.			
On Tracks <input type="checkbox"/>			4. Weight of load block	LBS.			
2. Chart Based	360	<input type="checkbox"/>	5. Weight of overhead ball	LBS.			
3. Counter weights used:		<input type="checkbox"/>	6. Weight of hoist rope	LBS.			
4. Lift Radius:			7. Weight of rigging	LBS.			
a. At pick-up		Ft.	8. Effective weight of jib	LBS.			
b. At setting		Ft.	9. TOTAL EFFECTIVE LOAD	0	LBS.		
c. Worst case		Ft.	C. CRANE LOAD / CAPACITY				
5. Boom Angle:	1. Remaining Capacity (lbs.)					2. Load vs. Capacity	
a. At pick-up	deg.	<input type="checkbox"/>	a. At pick-up	0	#DIV/0!	%	
b. At setting	deg.	<input type="checkbox"/>	b. At setting	0	#DIV/0!	%	
c. Worst case	deg.	<input type="checkbox"/>	c. Worst case	0	#DIV/0!	%	
6. Rated Capacity:						D. RIGGING	
a. At pick-up	LBS.	Description and Capacity of Rigging, or Attach Sheet to Plan:					
b. At setting	LBS.						
c. Worst case	LBS.						
7. Hoist Rope:							
Rope Dia.	mm/in						
Line Pull	LBS.						
Parts Req'd.	#DIV/0!						PARTS

E. JOB SITE - CRANE PLACEMENT

1. Setup Area:	Clear Yes <input type="checkbox"/>	No <input type="checkbox"/>	4. Proximity to slopes:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Stable (firm) Yes <input type="checkbox"/>	No <input type="checkbox"/>	Distance:	Ft.	
2. Mats Required:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	5. Underground Issues:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3. Electrical Hazards:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Loc. Marked:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
a. Approach Distance:		Ft.			
b. Control Method:					

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

Date of Lift:	Time of Lift:			
Weather:	Sunny <input type="checkbox"/>	Overcast <input type="checkbox"/>	Rain <input type="checkbox"/>	Lightning <input type="checkbox"/>
Wind Speed:	Measured <input type="checkbox"/>	Estimated <input type="checkbox"/>	Maximum Allowable:	(check) MPH
1 <input type="checkbox"/>	Critical Lift Plan Reviewed			
2 <input type="checkbox"/>	3D Lift Plan Reviewed			
3 <input type="checkbox"/>	Pre-shift Inspection Complete			
4 <input type="checkbox"/>	Annual Inspection on Crane			
5 <input type="checkbox"/>	Counter weights on Crane			
6 <input type="checkbox"/>	Outriggers Deployed			
7 <input type="checkbox"/>	Ground Conditions Stable			
8 <input type="checkbox"/>	Matting Properly Installed per Plan			
9 <input type="checkbox"/>	Crane Level to Required Tolerance			
10 <input type="checkbox"/>	Underground Hazards Avoided			
11 <input type="checkbox"/>	Proximity to Downward Slopes			
12 <input type="checkbox"/>	Electrical Hazards Identified			
13 <input type="checkbox"/>	Tail Swing Clear			
14 <input type="checkbox"/>	Boom Clearance Checked			
15 <input type="checkbox"/>	Head Room Checked			
16 <input type="checkbox"/>	Swing Barrier Installed			
17 <input type="checkbox"/>	Hoisting Area Access Controlled			
18 <input type="checkbox"/>	Emergency "Drop Zone" Identified			
19 <input type="checkbox"/>	Tag Lines Used			
20 <input type="checkbox"/>	Signal Method Used			
21 <input type="checkbox"/>	Signal Person Identified			
22 <input type="checkbox"/>	Safety Spotter Identified			
23 <input type="checkbox"/>	Rigging Inspected			
24 <input type="checkbox"/>	Rigging Installation Checked			

Special Notes:

1. **3D Lift Plan, or 2D Plan and Elevation Sketches must be included and attached as part of this Plan.**
2. Multiple (tandem) Crane Lifts require a separate plan for each crane.
3. Any change in the crane configuration, placement, rigging, or lifting scheme requires a new Critical Lift Plan developed and submitted.
4. Repetitive lifts require one Critical Lift Plan based upon the most extreme condition.

Special Instructions:

Pre-Lift Meeting Attendees:	Print	Signature
Lift Director		
Craft Foreman		
Certified Rigger		
Crane Operator		
Site Safety Manager		
Site Superintendent		
Additional		

CRITICAL LIFT PLAN INSTRUCTIONS

Title Section:

Project Name: Name of overall project, i.e. AMLI, KU School of Business, Seaton Hall.

Project Number: JED or BHC project number.

Location: Examples are Kansas City, MO or Nashville, TN.

Date: Day Critical Lift Plan is filled out.

Company: Contractor or Subcontractor in charge of the proposed lift, may or may not be J. E. Dunn Construction Co.

Load: Description of piece to be hoisted, i.e. Precast Double-tee, Rooftop AHU, Steel Truss.

Submitted By: Person filling out Critical Lift Plan and company if different from above company.

1. Crane Manufacturer: Company that manufactured the crane used, i.e. Grove, Linkbelt, Tadano.
2. Model No: Model of crane, i.e. AFT-130, GMK-5275, RT-880E, LC-400
3. Crane Type: Crawler, All-Terrain, Rough-Terrain, Tower Crane.
4. Crane Serial No: From name plate on crane.
5. Crane Inspection Date: Date of Annual Inspection, this is required to be on the machine at all times.
6. Crane Rated Capacity: Base capacity of crane, i.e. 150 tons, 275 tons, 80 tons.

7. Boom Type: Lattice, Hydraulic, Tower jib.
8. Boom Length: Boom length/configuration used during the lift in question.
9. Lifting From: Select where the lift is being made.
10. Jib Configuration: Mobile cranes, select one if jib is on the crane, no selection if no jib is on the machine. Tower cranes, disregard.
11. Jib Length: Length of jib, if on the crane. Disregard if no jib is on crane.
12. Jib Offset: Offset angle of installed jib, if on the crane. Disregard if no jib is on crane.

Critical Lift Criteria

Check any items that apply to this lift.

A. CRANE

1. Crane Setup: Check the box that applies. If crane is on outriggers, fill in the percentage of outrigger extension.
2. Check the load chart / operating area that applies, 360 degrees or limited swing over rear of hydraulic crane or over the front of blocked crawlers.
3. Counter weights used: Insert the total weight of counter weights installed on the crane during the lift.
4. Lift Radius:
 - a. Insert the radius from which the lift is started.
 - b. Insert the radius at the point of placing the lift.
 - c. Insert the worst case, this may be at some point between hoisting and placing.

5. Boom Angle:

- a. Insert the boom angle at which the lift is started.
- b. Insert the boom angle at placement.
- c. Insert the boom angle which represents the worst case during the lift.

6. Rated Capacity:

- a. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the starting point of the lift.
- b. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the placing point of the lift.
- c. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the worst point of the lift, this may be somewhere in between starting and placing.

7. Hoist Rope:

- a. Rope Dia: Fill in the size / diameter of the crane's hoist rope used.
- b. Line Pull: From crane information, fill in the available line pull, one part, for the hoist rope.
- c. Parts Req'd: Number of parts of hoist rope required in reeving to hoist the load. Total weight including all rigging load, divided by the available line pull.

B. LOAD

1. Source of load weight: This would commonly be from the manufacturer of the piece to be hoisted, can also be from bill of ladings or calculations of unit weight and volume.

2. Weight verified by: More than one check should be used to confirm the load weight. The last resort can be the operator aids of the crane (ask the operator immediately after hoisting, before continuing the lift).
3. Weight of Load: Insert the weight of the item to be hoisted from sources above.
4. Weight of load block: From the crane operator, fill in the weight of the load block on the crane, even if the lift is not made with this block.
5. Weight of overhaul ball: From the crane operator, fill in the weight of the overhaul ball on the crane, even if the lift is not made with the ball.
6. Weight of hoist rope: Estimate the length of hoist rope, all lines, below the boom point. Multiply by the unit weight of the rope, and insert here. The operator or the crane owner should know this unit weight.
7. Weight of rigging: Insert the total weight of all rigging, including spreader bars, rolling blocks, shackles, wire rope and synthetic slings.
8. Effective weight of jib: Any jib on the crane, installed or stowed has an effective weight which must be considered as part of the load. The load chart information sheets on the crane will give the jib deductions to insert in this.
9. TOTAL EFFECTIVE LOAD: This is the sum of B3 through B8, including all items that affect the load recognized by the crane.

C. CRANE LOAD / CAPACITY

1. Remaining Capacity: Rated Capacity (A6) of

the crane at location minus the Total Effective Load (B9).

2. Load vs. Capacity: The Total Effective Load (B9) divided by the Rated Capacity (A6) at location.

D. RIGGING

Include a description/sketch or attachment of rigging including sizes, capacities, length, and loading of all rigging hardware utilized for the lift. This may include spreader bars, rolling blocks, shackles, slings (wire and synthetic) as well as any “below the hook” lifting devices. This may be from the Lift Director or Certified Rigger, but must be included as part of the Critical Lift Plan.

E. JOBSITE – CRANE PLACEMENT

1. Setup Area:
 - a. Clear: Check to see the area is clear of obstacles, materials, or debris which prohibits crane from setting up where needed. The crane must be able to set up within manufacturer’s tolerance for level.
 - b. Stable: Check to see if the 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” are met.
2. Mats Required: When job conditions and ground bearing loads (from outriggers of tracks) dictate, additional supporting materials, i.e. blocking, cribbing, mats, marsh mats, or other supporting materials may become necessary. Check, if this condition exists, that these are properly used.

3. Electrical Hazards: Survey the area to determine if electrical hazards exist. Check Yes or No
 - a. Approach Distance: If the answer to 3. Is yes, determine the minimum approach distance prescribed in OSHA 29 CFR 1926.1408 Table A, or the J. E. Dunn Hoisting Policy Manual section III.
 - b. Control Method: Examples are Dedicated Spotter, Demarcation Boundaries (painted on ground, line of stanchions, or flagging), Proximity Warning Devices, or Swing Limiting Device on the crane.
4. Proximity to slopes: Specifically downward so as to compromise ground support conditions. If this condition exists, geo-tech engineering support may be required to insure sliding or shearing failure will not take place.
5. Underground Issues: Crane setup area must be checked to identify underground (hidden) vaults, voids, piping or utility structures which would likely not support the crane. Should any exist in the area, they must be clearly marked for the crane to avoid.

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

This section is to be filled out at the pre-lift meeting. Date, time, weather conditions, and wind speed are to be noted for the time of hoisting operations.

1. Critical Lift Plan Reviewed – Has this plan been reviewed with the key personnel at this pre-lift meeting?

2. 3D Lift Plan Reviewed – Have the sketches, 3D or 2D been reviewed during the pre-lift meeting?
3. Pre-shift Inspection Complete – Has the crane operator performed the required pre-shift inspection of the crane.
4. Annual Inspection on Crane – By common practice, a copy of this is kept on the crane. Make sure this inspection is current. If this is not available, contact the crane owner and obtain a copy before proceeding with any hoisting.
5. Counter weights on crane – Verify that the counter weights installed on the crane match or exceed the counter weights used to develop the lift plan.
6. Outriggers Deployed – Check to see that all outriggers are extended to match the lift plan and the weight of the machine is supported on outriggers, not on tires.
7. Ground Conditions Stable – Verify ground conditions providing support for the crane are adequate. Look for cracking around outriggers or tracks, settlement of mats/ blocking, and proper drainage.
8. Matting properly Installed per Plan – Verify mat installation matches or exceeds the requirements of the Lift Plan.
9. Crane Level to Required Tolerance – Verify that the crane is set up level to manufacturer tolerances.
10. Underground Hazards Avoided – Verify underground hazards identified, and marked in section D. have been avoided.
11. Proximity to Downward Slopes – Verify

distance to downward slopes identified in section D. is met or exceeded.

12. Electrical hazards Identified - Verify electrical hazards identified, and marked in section D. have been avoided, and control method has been implemented.
13. Tail Swing Clear – Check for obstructions to tail swing on crane, eliminate any found.
14. Boom Clearance Checked – If boom obstructions exist, a good way to check is with an empty hook, prior to commencing the lift, using an additional spotter to check the boom.
15. Head Room Checked – Verify rigging used does not exceed the vertical distance between the load and the A2B weight attached to the boom tip.
16. Swing Barrier Installed – Verify the swing barrier protecting access into the counter weight swing area is installed.
17. Hoisting Area Access Controlled – Check that access is prevented into areas under the entire path of the load.
18. Emergency “Drop Zone” Identified – Identify places the load can be landed, if the lift must be stopped for any reason.
19. Tag Lines Used – Check tag lines (proper length) are connected to the load.
20. Signal Method Used – Decide which signal method will be used for the lift.
21. Signal Person Identified – Designate the person to signal the crane operator.
22. Safety Spotter Identified – Identify the person or persons dedicated to spotting, regarding

electrical hazards, clearances, or any questionable area.

23. Rigging Inspected – Visually inspect all rigging components, prior to use.
24. Rigging Installation Checked – Visually check that all rigging components are properly installed as tension is applied by the crane.

Special Instructions: Any special conditions or instructions for the crew should be noted here.

Pre-Lift Meeting Attendees: All personnel attending the pre-lift meeting should be listed. Key personnel (Lift Director – in charge of lift, Rigger, Crane Operator, Site Safety Manager, and Project Superintendent) must sign

Appendix N

DAILY LIFT LOG

JE Dunn Daily Lift Log



Date: _____
 Project: AMU City Plaza
 Crane Model: _____
 Description of Scope: Erection of precast deck

Lift #	Piece #	Weight + Rigging	Max Radius	Crane Capacity per Chart	% Capacity	Crane Location (If Different from Job)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Checklist (If "No" provide comments)

- Crane has been visually inspected and appears to be in good working order
- All limit switches and safety devices are functioning properly
- Crane cab has been visually inspected and appears to be unmodified and in good condition

YES
 YES
 YES

NO
 NO
 NO

Comments _____

Crane Operator: _____

Erector Foreman: _____

IED Superintendent: _____

Appendix O1

CRAWLER CRANE DAILY INSPECTION REPORT



Weekly Report For The Daily Inspection Of Crawler Cranes

Project: _____ Job Number: _____

JE Dunn Equipment Number: _____ Superintendent Signature: _____

Date of Inspection: From: _____ To: _____

Daily Observations	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Apparent Deficiencies: (Guards / Guardrails / Ladders Operator Manual / Warning Decals)							
Control Mechanisms Functioning Properly: (Boom Up - Down / Hoist Up - Down / House Lock / Steering / Swing)							
Air, Hydraulics and other pressurized lines							
Fluid Levels and Lubricants (Fuel / Engine Oil / Hydraulic Oil / Gear Lubricant / Coolant)							
Block / Hooks / Latches / End Connections / Wedge Sockets / Sheaves (Deformation, Cracks, Excessive Wear or Damage)							
Equipment Structure: (Main Boom / Jib / Counter Weights / Pendant Lines / Structural Bolts / Pins / Welds)							
Wire Rope Reeling per the Manufacturer's Recommendations							
Wire Rope Inspection: (Main / Auxiliary / Wire Rope Retainers)							
Equipment Levelness / Ground Conditions							
Electrical Components: (Switches / Gauges / Warning Lights / Aviation Warning Lights / Power Cables)							
Operator Cab: (Annual Inspection / Windows / Housekeeping / Fire Extinguisher / Load Charts)							
Safety Devices: (Anti Two-Block / Level Indicator / Boom Stop / Jib Stop / Outrigger Jacks / Back Up Alarm / Horn / Lights / Locks / Buzzers / Flagging)							
Operational Aids: (Limiting Devices / Boom Length Indicator / Boom Angle Indicator / LMI / Wind Indicator)							
Lower Works: (Car Body / Control Drive / Tracks / Shoes / Brake Mechanisms – Clutches / Travel / Outriggers)							
Upper Works: (Hoses / Tubing / Hoist Clutches – Brakes / Gantry / Bridles)							
20 feet or Greater Distance maintained from Power Lines							
Operator's Initials Daily							

Mark all boxes accordingly with a (P) Pass, (R) Repair, (F) Fail, or (N/A) Not Applicable

Deficiency Comments: _____

Operator Printed Name: _____ Signature: _____

Hour Meter Reading at end of Week: _____ Send completed Inspection form weekly to: mark.henkel@jedunn.com

Appendix O1-2

TELESCOPIC BOOM CRANE

DAILY INSPECTION REPORT



Weekly Report For The Daily Inspection Of Telescopic Boom Cranes

Project: _____ Job Number: _____

JE Dunn Equipment Number: _____ Superintendent Signature: _____

Date of Inspection: From: _____ To: _____

Daily Observations	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Apparent Deficiencies: (Guards / Guardrails / Ladders / Operator Manual / Warning Decals)							
Control Mechanisms Functioning Properly: (Boom Up - Down / Boom Out/In / Hoist Up - Down / House Lock / Steering / Swing)							
Air, Hydraulics and other pressurized lines							
Fluid Levels and Lubricants							
(Fuel / Engine Oil / Hydraulic Oil / Gear Lubricant / Coolant)							
Block / Hooks / Latches / End Connections / Wedge Sockets / Sheaves / Electrical Cable Reels (Deformation, Cracks, Excessive Wear or Damage)							
Equipment Structure: (Main Boom / Boom Lift Cylinder / Jib / Counter Weights / Pendent Lines / Structural Bolts / Pins / Welds)							
Wire Rope Receiving per the Manufacturer's Recommendations							
Wire Rope Inspection: (Main / Auxiliary / Wire Rope Retainers/Guides)							
Equipment Levelness / Ground Conditions / Outrigger Pads							
Electrical Components: (Switches / Gauges / Warning Lights / Aviation Warning Lights / Power Cables)							
Operator Cab: (Annual Inspection / Windows / Housekeeping / Fire Extinguisher / Load Charts)							
Safety Devices: (Anti Two-Block / Level Indicator / Boom Stop / Jib Stop / Outrigger Jacks / Back Up Alarm / Horn / Lights / Locks / Buzzers / Flagging)							
Operational Aids: (Limiting Devices / Boom Length Indicator / Boom Angle Indicator / LMI / Wind Indicator)							
Lower Works: (Tires / Carrier / Control Drive / Outriggers / Shoes / Brake Mechanisms / Travel)							
Upper Works: (Hoses / Tubing / Hoist Clutches / Brakes)							
20 feet or Greater Distance maintained from Power Lines							
Operator's Initials Daily							

Mark all boxes accordingly with a (P) Pass, (R) Repair, (F) Fail, or (N/A) Not Applicable

Deficiency Comments: _____

Operator Printed Name: _____ Signature: _____

Hour Meter Reading at end of Week: _____ Send completed Inspection form weekly to: mark.henkel@jedunn.com

Appendix P

TOWER CRANE DAILY INSPECTION REPORT



Weekly Report For The Shift Inspection Of Tower Cranes

Project: _____ Job Number: _____

JE Dunn Equipment Number: _____ Superintendent Signature: _____

Date of Inspection: From: _____ To: _____

Daily Observations	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Apparent Deficiencies: (Guards / Guardrails / Ladders Operator Manual / Load Charts / Warning Decals)							
Control Mechanisms Return to Neutral Position							
Control Drive and Brake Mechanisms (Excessive wear/ Contamination)							
Fluid Levels and Lubricants: (Gear Boxes / Hydraulic Fluid & System / Slewing Ring / Wire Rope Lubricant)							
Equipment Structure: (Mast / Jib / Counter Jib & Weights Pendent Lines / Structural Bolts / Pins / Welds)							
Base Structure: (Foundation / Conventional Base / City Base / Enclosure)							
Tie Backs / Braces / Floor Supports / Floor Shoes and Welds							
Block / Trolley / Hooks / Latches / End Connections (Deformation, Cracks, Excessive Wear or Damage)							
Wire Rope Inspection: (Hoist / Trolley or Luffing)							
Wire Rope Reeling per Manufacturer's recommendations							
Electrical Components: (Switches / Warning Lights / Aviation Warning Lights / Disconnect / Power Cables / Etc.)							
Operator Cab: (Windows / Housekeeping / Fire Extinguisher)							
Safety Devices: (Horn / Emergency Stop Switch / Flagging / Trolley Stop / Automatic Brake Stop / Boom Stop if applicable)							
Operational Aids: (Limiting Devices / Wind Speed Indicator / Anti-Two-Block Device / Deceleration Devices / Boom Hoist Drum Lock and Boom or Hook Angle Indicator as applicable)							
20 feet or Greater Distance maintained from Power Lines							
Operator's Initials Daily							

Mark all boxes accordingly with a (P) Pass, (R) Repair, (F) Fail, or (N/A) Not Applicable

Deficiency Comments: _____

Operator Printed Name: _____ Signature: _____

Hour Meter Reading at end of Week: _____ Send completed inspection form weekly to: mark.henkel@jedunn.com

Appendix Q

PERSONNEL HOISTS DAILY

INSPECTION REPORT



Weekly Report For The Daily Inspection Of Personnel Hoists

Project: _____ Job Number: _____

JE Dunn Equipment Number: _____ Superintendent Signature: _____

Date of Inspection: From: _____ To: _____ MFG Serial Number: _____

Daily Observations	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Traveling Cable: Check as described in the Operation Manual							
Wall Ties: Ties should be in proper position and fully seated on the supporting structure							
Gates: Gates should operate smoothly without jamming or sticking with proper actuation of the latches and Interlock switches. Check Mechanical Interlocks as described in the Operator Manual							
Buffers: Buffers for the car should be in place and vertically aligned							
Hoistway: Visually inspect hoistway to see that it is clear of obstructions							
Base Enclosure: Ensure Enclosure is locked and free of trash and debris							
Tower Bolts and Connections: Visually inspect the Tower Bolts and connections							
Emergency Stops / Upper – Lower Limit Switches & Ramps: Check as described in the Operator Manual							
Operator Initials Daily							

Weekly Checks to be Performed on the First Day of each Week	General Comments: _____ _____
Lubrication: Perform Lubrication as described in the Operator Manual	
Roof Top Hatch: Check as described in the Operator Manual	
Car Lamps: Verify that the lamp inside the car is illuminated	
Stop Switch: Verify car will not move when "Stop Switch" is engaged	
Brake Check: Check as described in the operator Manual	
Gate Electrical Interlocks: Check as described in the operator Manual	

List all Maintenance activities, component replacements and associated test results: _____

Operator Printed Name: _____ Signature: _____

Send completed Inspection form weekly to: mark.henkel@jedunn.com

Appendix R
***TOWER CRANE BASE DESIGN
INFORMATION***

**Information needed for RTE to start
tower crane base design:**

1. Geotech Report - at a minimum, copies of the boring logs nearest the proposed crane location with a copy of the report summary
2. Crane configuration including embed section, underhook height, and radius of boom.
3. Sketch or partial plan showing desired base location with offsets from gridlines or other benchmarks.
4. Type of foundation system being used on the building. (RTE's intentions are to incorporate "building" foundation systems, if possible, to minimize costs.)
5. Desired elevation of top of pad.
6. If tiebacks are required, we will need to know the anticipated level to install tiebacks.

Appendix S
HOIST BASE DESIGN INFORMATION

**Information needed for RTE to start
hoist base design:**

1. Sketch or partial plan showing desired base location with offsets from gridlines or other benchmarks.
2. Desired elevation of top of pad.
3. What levels do you want to access? Do you need to access the roof?
4. Project Structural drawings
5. Make and model of hoist. Single or Dual.
If single Right or Left orientation.

Appendix T
**JE DUNN / BHC CONTACT
 INFORMATION**

1	Chief Logistics Officer Flo Rothbrust	816-581-3615 816-506-6209
2	VP Operations Officer Patrick Leis	816-581-3618 816-885-2760
3	JE Dunn Sales Steve Huffman	816-581-3608 816-365-5525
4	National Logistics Safety Manager Mark Henkel	816-581-3617 816-728-7687
5	National Hoisting Manager Henry Volante	816-581-3610 913-963-8229
6	Tower Crane & Personnel Hoist Mgr Ron Summers	816-581-3602 816-365-5527
7	East Regional Manager Perry McWaters	770-867-5356 678-859-7744
8	South Central Regional Manager David Lynch	713-343-3271 832-291-7280
9	West Regional Manager Mike Stuehm	713-343-3271 303-917-8179
10	Midwest Regional Manager David Moss	816-581-3609 816-365-8468
11	Hoisting Field Manager Brian Harrison	816-581-3612 816-365-5526
12	Hoisting Support Technician James Hague	816-581-3635 816-985-1939
13	Iron Worker Foreman Ross McClellen	816-581-3614 816-365-6556
14	National Mobile Crane Manager Mike Lothamer	816-581-3655 816-416-9109
15	Mobile Crane Manager Jeff Nelson	816-581-3604 816-365-5529
16	Mobile Crane Manager Steve Smith	816-581-3656 913-238-7032
17	Mobile Crane Manager Fred Seymour	816-581-3605 913-238-0127
18	Trucking Manager John Asmus	816-365-0683



JOB SAFETY ANALYSIS

JSA TEMPLATE

(page 2)

STEPS:	LOCATION(S):	POTENTIAL HAZARDS	HAZARD CONTROLS:	TOOLS/EQUIPMENT REQUIRED:
		How: Who:	How: Who:	How: Who:
		How: Who:	How: Who:	How: Who:
		How: Who:	How: Who:	How: Who:

PRINTED signature verifies I have reviewed and agree to work to the plan.

I understand I have the authority and responsibility to stop any unsafe condition.

Supervisor Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____
Worker Signature:	Date: _____	Worker Signature:	Date: _____

Appendix VI

CRANE SUSPENDED WORK PLATFORM INSPECTION REPORT



Inspection for Crane Suspended Work Platforms

Project: _____

Date: _____ JE Dunn Equipment Number: _____

Observations	1 st Shift	2 nd Shift	3 rd Shift
Is Platform approved for hoisting of Personnel?			
Is weight capacity of Platform listed on the Platform?			
Is the weight of the Platform without the test weight listed on the Platform?			
Is the weight of the test weight listed on the Platform?			
Is the Manufacturer information and warning decals listed on the Platform?			
Is Platform equipped with a guardrail system IAW subpart M of 1926.1431?			
Is Platform enclosed from the toe-board to mid rail IAW 1926.1431 (e) (6)?			
Is Platform equipped with a grab rail inside the entire perimeter except the access gate?			
Does the access gate swing inward?			
Is access gate equipped with a latching device that will prevent accidental opening?			
Is Platform equipped with overhead protection IAW 1926.1431 (e) (10)?			
Rigging			
Bridle (eyes in wire rope slings must be fabricated with thimbles)			
Shackles			
Hooks			
Master Link			
Is rigging hardware capable of supporting 5 times the intended load?			
Platform Structure			
Is Platform equipped with designated tie off points?			
Welds			
Floor			
Cracked or damaged railing			
Over all structure free of cracks or other critical damage			

Mark all boxes accordingly with a (Y) Yes (N) No or (N/A) Not Applicable. Items marked no must be corrected or shown to be infeasible or not necessary in accordance with OSHA 1926.1431 standards

Additional Comments: _____

1st Shift Inspector's Printed Name: _____ Signature: _____

2nd Shift Inspector's Printed Name: _____ Signature: _____

3rd Shift Inspector's Printed Name: _____ Signature: _____

Appendix V2

CRANE SUSPENDED WORK

PLATFORM PRE-LIFT CHECK LIST



Crane Suspended Work Platform Pre-Lift Check List

Date: _____ Time: _____

Competent Person: _____ Crane: _____

Weather Conditions: _____ Wind Speed: _____

Observations	Yes	No
Have all other means of access been reviewed and found not to be feasible?		
Is the Crane Anti-Two Block equipped and is it operational?		
Is the Load Block equipped with a positive locking latch?		
Is the Platform rigged correctly?		
Has the Platform and Rigging been inspected?		
Is the Platform equipped with a tag line?		
Was a Test Pick conducted utilizing the Test Weights?		
Has the platform been hoisted a few inches above the ground to ensure that the basket is secure and level?		
Will the weight of the tools, materials and personnel exceed 50% of the crane's capacity at its furthest working radius?		
Is each man in the platform tied off properly?		
Will the signal man be in the Platform?		
Have the test weights been removed before lifting personnel?		
Has a Critical lift plan been completed and an emergency landing zone been established?		
Has a Pre-Lift meeting been conducted with the Competent Person, Crane Operator, signal person and all other personnel to be hoisted?		

- ❖ Cranes shall not travel when platform is occupied
- ❖ If welding is to be performed, the platform must be insulated from structure being welded
- ❖ Personnel shall have all parts of body inside platform during hoisting of platform
- ❖ Personnel exiting platform shall be properly tied off and platform shall be landed or secured prior to personnel exiting the platform

Note: Hoisting of Personnel in Platform is prohibited if wind speed is above 20mph

Signatures of all personnel involved in lift procedures:

**240 S 65th Street
Kansas City, KS 66111
913-321-0127
www.bluehatcrane.com**



**JE DUNN[®]
CONSTRUCTION**


BLUE HAT CRANE[®]