Westwood
MECHANICAL INC.

#16-CRANING-SAFE JOB PROCEDURE (September, 2007)

1. PURPOSE:

To ensure the safety of all personnel involved or in the vicinity and the safe handling of the property during craning by others.

This procedure does not apply to the direct operation of the crane, that is the crane operators/owner responsibility.

2. GENERAL

The versatility of craning equipment makes it extremely useful on construction projects. Improper use of cranes can cause equipment to fall or loads to drop from the lifting system, resulting in personnel injury, death, significant property loss or damage to the environment. In the construction industry 25% of fatalities are due to craning accidents.

This procedure outlines the requirements of the standard applicable to the use of cranes at construction projects.

For each operation, a job hazard analysis must be produced to identify the specifics hazards and corrective action.

3. SCOPE AND DEFINITIONS:

In craning you have to confirm the certification of your crane and operator, balance the load, rig the load and have it lifted and landed safely.

Rigging:
Is the operation of fastening the load to the crane.

Load:

Is the equipment/material that is to be craned (raised or lowered).

WLL: Working load limit (rated capacity of the sling, hook, etc.)

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Taglines:

Is the device usually a rope, which is attached to the load to prevent swaying and is controlled by a worker.

Slings (choker):

Maybe a rope, synthetic nylon or web, wire rope, chain which secure the load to the crane, which is attached to the shackles. Web slings have their capacity imprinted on.

Center of Gravity:

Is the location on the load where the sling, when placed correctly balances the load perfectly and this is also the location where the cranes hook should be.

Rigger:

The person who fastens the load to the craning apparatus and understands rigging principles as applied to the job for which they are to be qualified.

Shackles:

Is the device usually a metal U with a pin or screw for coupling the sling to the eyebolts.

Signal Person:

Is the person in charge who shall have the necessary knowledge and experience of the specific type of equipment/materials and the hazards of critical lifts to direct the safe completion of the operation.

Crane:

A machine that is used for lifting and lowering a load vertically and moving it horizontally and that has a hoisting mechanism as an integral part.

SWL: Safe working Load

Crane Operator:

As defined by Manitoba Labour to be certified to operate a crane

Crane Log Book:

A document record which shows the maintenance and inspection history and any structural modifications of the hoisting equipment including any defects, operating difficulties, the need for maintenance and all inspection maintenance, modification and repair work performed with respect to the equipment.

Tandem Lifts (multi-crane lifts):

Any crane lift involving two or more cranes lifting the same load simultaneously.

4. PROCEDURES

1. Confirm Crane Operators Qualifications:

Must have a copy of the crane operator's certificate of qualifications to operate a crane in Manitoba.

2. Job Hazard Analysis:

Do a Job Hazard Analysis Worksheet with all involved parties identifying the sequence of steps, potential accidents or hazards and the preventive measures as outline in Westwood Mechanicals Safety & Health Program section No. 7.

After the analysis has been completed advise all parties of the procedures etc.

3. **Secure The Area:**

Survey the lift site for hazardous/unsafe conditions.
Make sure that the area around the crane is clean and free of obstructions. The swinging movement of the load or any part of the crane can create a hazard: no person shall remain within the range. Barricade the area with red caution tape, barricades or warning signs.

Ensure that all personnel in the vicinity are aware of the procedure.

Confirm with the crane operator the location of any electrical lines or other hazards.

If the crane is to move about the worksite, ensure that path is clear especially of any persons and properly barricaded. Walk ahead of the load during travel and warn people to keep clear.

4. **Check Equipment:**

Confirm with the crane operator that the crane logbook is up to date and that the crane has been maintained as required.

5. **Evaluate Load:**

Determine the weight of the load prior to the lift and advises the crane operator, use a materials table if unsure.

6. **Balance Load/Center Of Odd Shapes:**

Estimate the center of gravity or points of balance where the item is to be hoisted and balance the load before moving it.

If only one point of contact position the cranes lifting device immediately above the estimated centre of gravity.

7. Attach Load:

If equipment has lifting lugs, attach your slings to them.

The tagline shall be rigged to the load, to control swinging and be of sufficient length so that the operator is not directly below the load.
Pad sharp edges to protect slings. Machinery foundations or angle-iron edges may not feel sharp to the touch but could cut into rigging when under several tons of load. Wood, tire rubber, or other pliable materials may be suitable for padding.

Centre the crane hoist over the load before hoisting to prevent swinging of then load, do not use the cranes cables as a sling.

8. Landing/Lifting:

Confirm that the load is well secured and properly balanced before it is lifted more than a few inches off its support.

When communicating with the crane operator, use clear agreed-upon signals. Except for the stop signal, the crane operator should follow instructions from only one person- a designated signaler, who should wear high visibility apparel, in view of the operator to direct all lifts. Where a remote controller is used, the operator should become familiar with all its functions before lifting the load.

Slide the sling fully onto the hoisting hook and ensure the safety catch is closed. Do not load the hook tip or hammer a sling into place.
Secure unused sling legs. Do not drag slings or leave loose materials on a load being hoisted.

Keep hands and fingers from being trapped when slack is taken out of a sling. Step away before the lift is made.

Never permit anyone to ride the load or lifting hook.

CAUTION:
Ensure that the load is free to move. If a load is stuck and crane begins or continues to lift, it may reach its full capacity quickly. There may be little or no warning of this condition and rigging components may fail.

STOP THE JOB WHEN ANY POTENTIALLY UNSAFE CONDITION IS RECOGNIZED.

If the load must remain suspended for any length of time, the operator shall hold the drum from rotating in the lowering direction.
Taglines should be used as required to guide, snub, or otherwise control the load.

Make sure that there are no persons between the load and a stationary object, which might crush them.
When the crane reaches its position, have the load lowered slowly, and confirm that the load is secure and stable.
Do not leave the load (or the crane) unattended while the load is suspended.

MULTI CRANE LIFT:

- Coordinate the cranes: if two cranes are hoisting in tandem, make sure the load stays level and the two load blocks move as one.
- Use identical cranes if possible.

9. Secure Load:

Confirm that the area can handle the full weight of the load, place the load gently on its supports and attach all supports.

Remove the hoist block gradually; do not unhook the slings from the hoist block until the load is safely on its supports or hangers.

10. Remove Crane Hoist:

Lifting hooks and fastenings shall not be removed until the load is at rest in a stable position or secured by other fastenings.

Confirm that the load is secured before removing hoist

11. Person In Charge:

The person in charge shall have the necessary knowledge and experience of the specific type of equipment and the hazards of the lift to direct the safe completion of the operation.

He shall have the proper selection of tools/equipment, recognition and control of hazardous or unsafe conditions and have the authority to start and stop work activities.

5. EQUIPMENT/MATERIALS:

Before use, ensure the crane(s) is suitable for the lift; confirm it has appropriate travel, lift and capacity.

All personnel shall wear the appropriate personal protective equipment.

All materials/equipment shall be inspected to ensure that it meets the job requirements.

Use plain or shoulderless eyebolts for vertical loading only refer to information on lifting with eyebolts.

Safety latches on hooks shall not be deactivated or made inoperable.

Makeshift repair or lifting equipment is prohibited.

Any materials that appear to be cut, frayed, kinked or rusted shall not be used.

6. SPECIAL CONSIDERATIONS:

Indoor Craning:

When hoisting indoors with a crane confirm the following:

- Support surface capable of supporting the crane and outriggers
- Ventilation acceptable, if not provide additional.
- No obstacles (electrical, piping etc.) for the boom

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7. SUMMARY:

- Operators qualifications
- Job Hazard Analysis
- Secure the area
- Check equipment
- Evaluate the load
- Balance Load
- Attach load/Rigging.
- Land/lifting.
- Secure the load
- Remove Rigging. /crane hoist.

8. ADDITIONAL INFORMATION:

The following Infograms are included herein:

- B01-Crane and hoist signals
- B02-Common hand signals
- B09-Slinging onto overhead crane hooks
- B10-Overhead crane operation