Thank you for joining our live webinar today. We will begin shortly. Please standby.

Thank you.

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This presentation is based upon information derived from OSHA publications. Questions and requests for interpretations of this information or these publications should be directed to OSHA. AISC does not endorse any interpretation of these publications other than those interpretations formally issued by OSHA.
Objectives

- **Phase 1**
  - Understand the OSHA required Inspections of Overhead Cranes

- **Phase 2**
  - Understand the OSHA required qualifications of overhead crane operators

- **Phase 3**
  - Understand the OSHA requirements for mobile crane annual inspections

- **Phase 4**
  - Understand the new OSHA subpart cc power line safety requirements.

Top 5 Serious OSHA Violations for Electric Overhead Cranes

1. 1910.179(J)(3) Periodic Inspections
2. 1910.179(j)(2) Frequent Inspections
3. 1910.179(j)(2)(iii) Hooks, records of inspection
4. 1910.179(g)(1)(v) Pendant boxes controls marked
5. 1910.179(j)(2)(iv) Hoist Chains Visual Inspections

Types of Inspections: Frequent and Periodic

- Inspections defined in three general classes:
  1. Initial
  2. Frequent
  3. Periodic
Periodic Inspections 1910.179(j)(3)

- Completed 1 -12 month intervals
  - Deformed, cracked, or corroded members
  - Loose bolts or rivets
  - Cracked or worn sheaves and drums.
  - Worn, cracked or distorted parts such as pins, bearings, shafts, gears, rollers, locking and clamping devices

Periodic Inspections 1910.179(j)(3)

- Excessive wear on brake system parts, linings, pawls, and ratchets.
- Load, wind, and other indicators over their full range, for any significant inaccuracies.

Periodic Inspections 1910.179(j)(3)

- Gasoline, diesel, electric, or other power plants for improper performance or noncompliance with applicable safety requirements
- Excessive wear of chain drive sprockets and excessive chain stretch
- Electrical apparatus, for signs of pitting or any deterioration of controller contactors, limit switches and pushbutton stations.

Frequent Inspections 1910.179.(j)(2)

- Completed Daily to Monthly
  - Check all operational systems for proper operation
  - Check Air or Hydraulic systems for leaks
  - Inspect Hooks
  - Inspect Hoist Chains
  - Check rope reeving
  - Perform limit switch checks
Documented Monthly Inspections

- Wire Rope 1910.179(m)(1)
- Chains 1910.179(k)(2)(iv)
- Hooks 1910.179(j)(2)(ii)

Operators must be designated personnel 1910.179(b)(8)

“Designated personnel - Only designated personnel shall be permitted to operate a crane covered by this section.”

Crane owners need to also check local state requirements for additional operator licensing requirements

Training E.O.T. Operators

- Daily/monthly equipment inspection including testing of limit switches
- Daily/monthly maintenance operations
- Crane controls/dynamics
- Weight estimation
- Safe rigging inspection/application
- Crane signals

Mobile Construction Crane Safety

- Crane signals
- Safe rigging inspection/application
- Weight estimation
- Crane controls/dynamics
- Daily/monthly maintenance operations
- Daily/monthly equipment inspection including testing of limit switches
- Operators must be designated personnel 1910.179(b)(8)
Annual Inspections 1926.1412(f)(2)

Every 12 months, the equipment must be inspected by a qualified person

Ground Conditions 1926.1401 definitions

Controlling Entity:
- Prime contractor
- General contractor
- Construction manager

Cranes and Derricks in Construction (1926.1400 - 1442)

Subpart CC

1412(f)(1) EQUIPMENT INSPECTION EVERY 12 MONTHS 30
1417(c)(1) OPERATION PROCEDURES OF EQUIPMENT 20
1425(c)(3) HOOKS - SELF-CLOSING LATCHES 17
1428(a) SIGN PERSON QUALIFICATIONS 16
1412(c)(1) SHIFTS INSPECTION BY A COMPETENT PERSON 15

Number of Serious Violations – FY 2013
Ground Conditions 1926.1402(c)

The controlling entity must provide:
• Firm, drained & graded ground
• Sufficient ground to support the crane (in conjunction with blocking, mats etc.)

Controlling Entity must inform equipment user & operator of known underground hazards (voids, utilities, etc.)

Ground Conditions 1926.1402(c)(2)

If the operator finds the ground conditions to be unsuitable, the operators employer must have a discussion with the controlling entity to fix the ground conditions, with the use of supporting materials if needed.

OSHA Power Line Safety

< 350kv or > 350kv

Transmission

Subtransmission

Distribution

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American Institute of Steel Construction
“Power Lines Present In The Work Area”

OSHA Power Line Safety
Power line Safety up to 350kv

Work Zone must be identified and demarcated

OSHA Power Line Safety
Power line Safety up to 350kv

Demarcate 360 degrees

OSHA Power Line Safety
Power line Safety up to 350kv

Demarcate prohibited work area
OSHA Power Line Safety

Power line Safety up to 350kv

Demarcate within work zone

Three options;
1. De-energize and ground
OR
2. 20 Foot clearance
OR
3. Table A clearance

Could you get within 20 feet of power line?

Option #1
De-energize & Ground

Option #2
20 foot clearance

Option #3
Ask Utility for Voltage and Use Table A (with minimum clearance distance)

Encroachment Prevention Measures (Equipment Operations)
- Planning meeting
- If tag lines used ***Non-conductive
- Elevated warning lines, barricade or line of signs
  PLUS (Choose one):
  - Proximity alarm, spotter, warning device, range limiter, or insulating link

Table A - Minimum Clearance Distance

<table>
<thead>
<tr>
<th>Voltage (Nominal, kV, AC)</th>
<th>Minimum Clearance Distance (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50</td>
<td>10</td>
</tr>
<tr>
<td>Over 50 up to 200</td>
<td>15</td>
</tr>
<tr>
<td>Over 200 up to 350</td>
<td>20</td>
</tr>
<tr>
<td>Over 350 up to 500</td>
<td>25</td>
</tr>
<tr>
<td>Over 500 up to 750</td>
<td>35</td>
</tr>
<tr>
<td>Over 750 up to 1,000</td>
<td>45</td>
</tr>
<tr>
<td>Over 1,000</td>
<td>as established by facility owner or RPE qualified in electrical transmission &amp; distribution</td>
</tr>
</tbody>
</table>
**Intentionally Working Closer Than Table A Zone**

**Must Show:**
- Staying Outside Zone is Infeasible
- Infeasible to De-energize and Ground

**All of the following are required:**
1. Power Line Owner - Sets Minimum Approach Distance
2. Planning Meeting - Minimum Procedures
   - Dedicated Spotter
   - Elevated Warning Line or Barricade
   - Insulating Link/Device
   - Nonconductive Rigging
   - Range Limiter (if equipped)
   - Nonconductive Tag Line (if used)
   - Barricades - 10 feet from Equipment
   - Limit Access to Essential Employees
   - Prohibit Non-Operator Workers From Touching Above Insulating Link
   - Properly Ground Crane
   - Deactivate Automatic Re-energizer
   - Insulating Line Cover-up Installed

**Power Line Safety over 350kv**

Same requirements apply except;
Voltages = or < 1000 kv's substitute 50' everywhere
20' is used

**Over 1000 kvs**

Utility owners must establish minimum clearance

**Questions**
Safety Resources

- AISC Safety Website – www.aisc.org/safety
- Sample Safety Program Elements
- Safety Awards Program
- Sample Safety Forms
- Top 10 OSHA Citations
- OSHA Interpretations
- Safety Product Reviews
- Safety Details or ‘Tool Box Talks’
- Daily Safety Focus
- And more

Next week…

October 8 – Crane/Rigging Safety Part 2

Thank You

Please take our survey at the conclusion of the webinar.
We appreciate your feedback!

American Institute of Steel Construction
One East Wacker Drive, Suite 700
Chicago, IL 60601