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# Overhead Crane Safety

WITC 2019 Safety Day



Dan Swenson  
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# Synopsis of Requirements:

## Overhead Cranes, Jib Cranes & Monorail Cranes

### **Please note:**

*The purpose of this document is to summarize the inspection requirements set forth by OSHA and ASME as it relates to overhead crane and hoist inspection. This document does not cover all possible situations and applications related to overhead crane and hoist inspection. It is intended to be a general guideline and it is the responsibility of the end user to understand the applicable OSHA & ASME standards.*



### **Introduction**

This topic is complex in nature due to the number of different OSHA and ASME standards that are involved and how they are or could be applied. The national consensus standards like ASME are a helpful compliment to the OSHA standards.

### **Standards Overview**

The federal OSHA standards should be considered the minimum requirement for inspections and are the basis for most enforcement. Most state plans have adopted Federal OSHA regulations and standards verbatim. A few states have State Plans that differ significantly from Federal OSHA. These states have standards that are more stringent than Federal OSHA standards or address hazards not covered by Federal OSHA.

OSHA often references "national consensus standards" in their letters of interpretation. The national consensus standards are used to "fill the holes" in OSHA's own standards. **Important:** *companies can be cited based on national consensus standards under the general duty clause.*

### **Definitions**

#### **National Consensus Standard**

1910.2(g)- "National consensus standard" means any standard or modification thereof which (1) has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined by the Secretary of Labor or by the Assistant Secretary of Labor that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption, (2) was formulated in a manner which afforded an opportunity for diverse views to be considered, and (3) has been designated as such a standard by the Secretary or the Assistant Secretary, after consultation with other appropriate Federal agencies; and

#### **General Duty Clause**

(a) Each employer - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees; (2) shall comply with occupational safety and health standards promulgated under this Act. 29 USC 654

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

### **Over Head Cranes, Jib Cranes, Monorail Cranes**

1910.179(a)(1)

A "crane" is a machine for lifting and lowering a load and moving it horizontally, with the hoisting mechanism an integral part of the machine. Cranes whether fixed or mobile are driven manually or by power

### **Designated Person**

1910.179(a)(35)

"Designated" means selected or assigned by the employer or the employer's representative as being qualified to perform specific duties

## **Applicable OSHA Standards**

1. [1910.179](#) – General Industry – Overhead and Gantry Cranes
  - a. Application. This section applies to overhead and gantry cranes, including semi-gantry, cantilever gantry, wall cranes, storage bridge cranes, and others having the same fundamental characteristics. These cranes are grouped because they all have trolleys and similar travel characteristics.

## **Applicable ASME Standards**

The standards below are copy written material and cannot be reproduced but are available for purchase. To learn more and/or purchase standards please go to: [www.asme.org](http://www.asme.org)

1. ASME B30.2 – Overhead and Gantry Cranes
2. ASME B30.11 – Monorails and Underhung Cranes
3. ASME B30.17 – Overhead and Gantry Cranes – Single Girder Top Running

## **Pre-Shift Inspections**

Both OSHA and ASME agree that overhead cranes must be inspected prior to each shift or use.

**1910.179 OSHA requires that the following be inspected daily:**

- All functional operating mechanisms for maladjustment interfering with proper operation
- Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
- Hooks, wire ropes, and hoist chain.

While 1910.179 only applies to overhead bridge/gantry cranes OSHA made it clear in a 1991 letter of interpretation that they will apply the ASME/ANSI B30 national consensus standards where no OSHA standard exists. Below is an excerpt from that letter:

*"While OSHA as yet has no standard of its own covering monorail systems and underhung cranes, under Section 5(a)(1) (the general duty clause) of the Occupational Safety and Health Act all employers have a legal responsibility to provide safe and healthful workplaces for their employees. OSHA's policy is that the general duty clause requires employers to comply with safety standards recognized in the industry, such as ANSI B30.11"*

For full letter please go to: [Link to Complete Letter](#)

## Monthly Inspections

Both OSHA and ASME require that hoist wire ropes, chains and hooks be inspected monthly and a record be kept of that inspection. **1910.179 OSHA States:**

*"Running ropes. A thorough inspection of all ropes shall be made at least once a month and a certification record which includes the date of inspection, the signature of the person who performed the inspection and an identifier for the ropes which were inspected shall be kept on file where readily available to appointed personnel."*

*"Hoist chains, including end connections..... monthly inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection and an identifier of the chain which was inspected"*

## Periodic Inspections

Again OSHA and ASME agree that a crane must be inspected annually at a minimum and depending on the severity of service may need the same inspection as often as monthly.

**1910.179 OSHA States:**

*"Periodic inspection. Complete inspections of the crane shall be performed at intervals as generally defined in paragraph (j)(1)(ii)(b) of this section, depending upon its activity, severity of service, and environment, or as specifically indicated below. These inspections shall include the requirements of paragraph (j)(2) of this section and in addition, the following items. Any deficiencies such as listed shall be carefully examined and determination made as to whether they constitute a safety hazard"*

# Example Overhead Crane Daily Check List

Front	Back
<div><p>SmartSign.com (800) 952-1457</p><p>Part # TG-2180</p><h2>HOIST AND CRANE INSPECTION</h2><p>Are you qualified to use this hoist or crane? Have you completed the Hoist and Crane training class?</p><ol style="list-style-type: none"><li>1. Check annual inspection tag. If tag is missing, expired or illegible, DO NOT use.</li><li>2. Check pendant controls for any damage [move up/down/laterally (if applicable)].</li><li>3. Check wire rope or chain for damage (worn, cut, kinked, crushed, spooling or birdcaged).</li><li>4. Check hook (bent, spread, cracked, safety latch operation).</li><li>5. Check upper limit switch (run to upper limit and verify block stops)</li><li>6. Check brakes if applicable.</li><li>7. Check trolley travel.</li><li>8. Review weight limits. Verify load weight is less than rated capacity of hoist/crane and slings.</li><li>9. Inspect rigging equipment. Fill out inspection sheet.</li></ol><p>If any malfunctions are observed STOP USE. Place a custodial lock on the electrical disconnect. Contact your supervisor.</p></div>	<div><h2>HOIST AND CRANE INSPECTION</h2><p>Are you qualified to use this hoist or crane? Have you completed the Hoist and Crane training class?</p><ol style="list-style-type: none"><li>1. Check annual inspection tag. If tag is missing, expired or illegible, DO NOT use.</li><li>2. Check pendant controls for any damage [move up/down/laterally (if applicable)].</li><li>3. Check wire rope or chain for damage (worn, cut, kinked, crushed, spooling or birdcaged).</li><li>4. Check hook (bent, spread, cracked, safety latch operation).</li><li>5. Check upper limit switch (run to upper limit and verify block stops)</li><li>6. Check brakes if applicable.</li><li>7. Check trolley travel.</li><li>8. Review weight limits. Verify load weight is less than rated capacity of hoist/crane and slings.</li><li>9. Inspect rigging equipment. Fill out inspection sheet.</li></ol><p>If any malfunctions are observed STOP USE. Place a custodial lock on the electrical disconnect. Contact your supervisor.</p></div>

## Links to Resources

### ITI Overhead Crane Operator Training Program - \$95

<https://www.iti.com/online/overhead-crane>



### ITI Overhead Crane Training Program - \$995

<https://store.iti.com/collections/training-materials/products/overhead-crane-operator-training-program?variant=4395680268315>



### ASME B30.2

<https://www.asme.org/codes-standards/find-codes-standards/b30-2-overhead-gantry-cranes>

