

Chain Hoist Safety

Introduction: Overhead chain hoists are fairly common pieces of equipment in our industry. But like any type of lifting device they must be properly sized, maintained, inspected and operated by trained personnel.

Goal: To review the requirements to help ensure safe hoist operations.

Hoist Selection: Hoist capacity is of primary importance. Make sure your hoist capacity exceeds any load weight it will be expected to lift. When a hoist is coupled to a trolley that travels on a beam make sure the trolley and beam are rated at or greater than the rated capacity of the hoist. These devices should have an engineer verify that they will tolerate the stress applied to them. Make sure the hoist's load chain is long enough to reach the load.

Operator Training: It is recommended that hoist training be a combination of classroom and at the site of the hoist where demonstrations can be conducted.

Operator training is critical to safety and should be **specific to the type of hoist the operator will be using**. You should include in your training the safe work practices established by your hoist manufacturer.

The training must include information about **lift capacity**. Too often, hoists are loaded beyond their capacity. Never exceed the rated capacity stamped on the hoist for any reason. Other training must include **inspections, maintenance, wear limits, balanced lift points and safe rigging practices**. Frequently, accidents result from loads not being balanced. **Slings** or other attachments should be seated in the saddle of the hook and **hook latches** should be present and functioning properly. The **hoist load chain** should never be used as a sling. **Loads should be lifted slowly** at first to make certain everything is seated and operating properly. They should be **lifted vertically**, avoiding the temptation to side pull a load, which places additional stress on the hoist and risks uncontrolled load swings. When the hoist is coupled to a trolley, care should be taken to prevent crashing the trolley into the end stops on the beam.

Communication is another important aspect of hoist safety particularly in a noisy environment. Some lifting operations require a hoist operator and a signal person (normally the rigging or hook up person) to use **hand signals or standard signals** modified to meet the needs of a particular setting. If you require hand signals to be used, the signals in use should be included in the training and documented and posted by the hoist owner. The operator should only respond to hand signals and communications from the designated signal person. The only exception would be to respond to a stop signal given by another person. If **voice communication** is used between the operator and the signal person, it is extremely important the two can hear each other to ensure the communication is understood and the hoist activity is safely executed.

Included with this safety topic is a handout entitled [**Recommended Practices Hand Chain Manually Operated Chain Hoists**](#) that should be used as part of the safety meeting or training session. The handout was made available from the Hoist Manufacturers Institute (HMI).

Hoist Inspection: OSHA requires that all hoisting equipment be regularly inspected according to standards set by the individual manufacturer and ANSI. Hoists that do not pass inspection need to be tagged "Out of Service" and removed from the hoisting area. It is a good idea to keep records of all inspections; only the periodic inspections require documentation. Many companies color-code their hoists to provide a visual record of inspection. Each year a new color is assigned to give a visual indication that the hoist has been through the appropriate inspection.

Daily inspection: The operator at the start of each shift should perform daily inspections, or at the time the hoist is used for the first time during the shift. If the hoist is not used during the shift, a daily inspection is not required. The daily inspection regimen should include, but not be limited to, an examination of the chain for wear, twists, excessive dirt, broken links, and proper lubrication. Hooks should be inspected for deformation, cracks, damage, and properly operating latches. **A New Jersey bus repair company was recently cited for two alleged willful violations, with a penalty of \$55,000 for failure to regularly inspect hooks and hoist chains.** Willful violations are those committed with an intentional disregard or plain indifference to the requirements of the OSHA Act.

Frequent inspections: A person who is trained, experienced and qualified to do them should do frequent inspections. If the hoist is seeing normal service, the frequent inspection should be done at least once a month. For heavy service, the frequent inspection should be weekly to monthly. During frequent inspections, check the hoist more thoroughly than the operator's daily inspection. ASME/ANSI B30.16 and the manufacturer's recommendations should determine frequent inspection criteria. This source document can be obtained from ASME/ANSI at 800-843-2763 or visit their websites at www.asme.org or www.ansi.org.

Periodic inspections: Periodic inspections should be performed by a qualified inspector and at intervals recommended by the manufacturer and according to the severity of the service. The periodic inspection is more thorough than the frequent inspection. Refer to ASME/ANSI B30.16 and the manufacturer's recommendations for the proper inspection criteria. Disassembly is not required for any of these inspections unless the inspection indicates a breakdown is needed. If a breakdown is needed, it is suggested that a qualified hoist repair company make the hoist repairs. Hoists that are broken down and require some disassembly involving load-bearing components require load testing before the hoists are placed back in service.