

ATLT-2280: OVERHEAD CRANE INSPECT SAFETY

Cuyahoga Community College

Viewing: ATLT-2280 : Overhead Crane Inspect Safety

Board of Trustees:

2015-12-03

Academic Term:

Spring 2019

Subject Code

ATLT - AIT-Lifting Technologies

Course Number:

2280

Title:

Overhead Crane Inspect Safety

Catalog Description:

Safety course covering inspection of overhead cranes. Included are the use of aerial lifts, personal protective equipment (PPE), and fall protection. Also covered is electrical safety concerns related to specific inspections.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: admission to Lifting Technologies apprenticeship program.

Outcomes

Course Outcome(s):

Discuss the purpose of industrial safety certification using motorized aerial man lifts including related safety standards and equipment types and uses.

Objective(s):

1. Discuss the purpose of required certification for the operation of motorized aerial man lifts.
2. Identify and define the terms related to lifting personnel.
3. Discuss the safety standards for motorized man lifts as prescribed in the Occupational Safety and Health Administration (OSHA) and American Society of Mechanical Engineers (ASME) regulations.
4. Differentiate between the various standards used for lifting personnel or equipment.
5. List the different types of aerial equipment used for lifting workers, material, and equipment to the jobsite.

Course Outcome(s):

Select the proper PPE required for inspection or maintenance of overhead cranes with regards to environmental conditions and worker safety standards.

Objective(s):

1. Assess the working conditions for required PPE based on job to be performed and environment by performing a jobsite pre-inspection.
 2. Select and don the proper necessary PPE, including harness and lanyard, required for lifting operations.
 3. Explain the application of the standards with respect to worker safety, lift maneuverability, operator awareness.
 4. Select and employ the proper safety gear as required for job specific environmental conditions.
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Course Outcome(s):

Discuss the purpose and scope of the standard, which is designed to help minimize the risk of employee injuries from electrical hazards, and establish a safer workplace for employees who work on electrical equipment.

Objective(s):

1. Describe the electrical hazards in the workplace, including electric shock, arc flash, and arc blast.
 2. Explain the general requirements for maintaining electrical safety in the workplace, including PPE, approach boundaries, the arc flash boundary, and working while exposed to electrical hazards.
 3. Explain communications required between host and contract employers and training requirements for qualified and unqualified persons.
 4. Describe the elements of an electrical safety program, including program principles, controls and procedures, risk assessment, auditing, and job briefing.
 5. Describe the proper use of test instruments and equipment, portable electric equipment, and GFCIs.
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Methods of Evaluation:

1. Participation
2. Assignments
3. Quizzes & Exams
4. Practical application projects

Course Content Outline:

1. Motorized Aerial Man Lifts: Safety and Equipment
 - a. Purpose of certification
 - i. Federal requirements
 - ii. State requirements
 - iii. Personal safety
 - iv. Equipment safety
 - b. Terminology
 - i. Motorized lifts
 - ii. Load
 - iii. Capacity
 - iv. Environment
 - v. Stability
 - vi. Capacity rating
 - c. Safety standards
 - i. OSHA1926.453 Aerial lift
 - ii. ASME 92-2-2001 Aerial lift
 - d. Equipment types
 - i. Aerial lifts
 - ii. Scissors
 - iii. Mobile articulating
 - iv. Manual driven
 - e. Equipment uses
 - i. Material moving
 - ii. Personnel lifting
2. Personal Protection Equipment Safety
 - a. Worker safety
 - i. Task analysis
 - ii. Job environment analysis
 - b. Personal protective equipment (PPE)
 - i. Hard hat /site specific
 - ii. Gloves /job specific
 - iii. Boots/steel toe
 - iv. Safety glasses
 - v. Hearing protection
 - vi. Fall protection
 - vii. Seat belt
 - viii. Harness
 - ix. Lanyards

- c. Standards
- d. Safety gear
- 3. Standard: purpose and scope
 - a. Electrical hazards
 - i. Shock
 - ii. Arc flash
 - iii. Fire
 - b. General Requirements
 - i. Safe zone
 - ii. PPE
 - iii. Training
 - iv. Site Audits
 - c. Communications
 - i. Mazzella Safety Documentation
 - ii. Training Schedule
 - iii. Training materials
 - iv. Training records
 - d. Safety program elements
 - i. Risk Assessment
 - ii. Auditing
 - iii. Controls
 - iv. Training
 - v. Controls
 - e. Test instruments
 - i. GFCI's
 - ii. Amp meter
 - iii. Lighting meter

Resources

Rae, Andy. *Choosing using hand tools*. Lark Books, 2002.

Zachariason, Rob. *Electrical Safety*. Delmar Cengage Learning, 2011.

Klinke, Jerry. *The Rigging Handbook*. 4th ed. 2012.

Thomas A. Hoerner, Mervin Bettis, Melvin D. Bettis. *Safety Instruction*. 1998.

Resources Other

1. <https://www.mazzellacompanies.com>
2. Mazzella Companies Employee Handbook, updated January 2015

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