



Crawler Crane Operator Safety

Course Outline

Prerequisites: This course shall have no formal pre-requisite. The individual should have no history of a disabling medical condition, which may be sufficient reason for disqualification.

Course Length: 5-6 hours – Course length shall vary depending on the number of delegates. Total course time includes breaks.

Class Size: The maximum number of delegates that may be trained and tested per instructor shall be thirty-five (35) in the classroom session and twenty (20) in the practical session. A second instructor shall be added for the practical session once the participation exceeds twenty (20) and exercises will be divided into groups.

Course Objective

-) Provide delegates assigned to crawler crane duties the necessary skills to safely perform their jobs.
-) Provide delegates with recommended practices and guidelines to perform safely while working with crawler cranes.
-) Delegates should be able to demonstrate the necessary skills during practical examination and demonstrate knowledge during written examination.

Course Design

-) Power Point© / Lecture / Audio Video / Visual Aids
-) Demonstrations
-) Practical Exercises

Successful Course Completion

-) Requires a minimum score of 75% or better.
-) Delegates will have no more than thirty (30) minutes to complete the exam.
-) Grades shall be calculated by dividing the number of questions answered correctly by the total number of exam questions.
-) Successful completion of practical session is mandatory.

Course Content Summary

-) Classroom
-) Practicals

Breaks: 10 minutes (approximately every hour)



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Lunch: 1 Hour (if applicable)

Course Outline

Crane Requirements

-) Definitions
 - Crawler Crane
 - Competent Person
 - Qualified Person
 - Qualified Crane Operator
 - Qualified Inspector
 - Qualified Rigger
-) Video – “Basic Rigging Concepts”

Crane Components

-) Body of Crane
-) Boom Types
 - Lattice
 - Box
-) Boom Components
 - Boom/Jib
 - Head Sheave Assembly
 - Structural Integrity
 - Boom Bolts
 - Pin Connectors
 - Pendants
 - Back Stops
 - Common Safety Limit Devices
 - Boom-hoist limit
 - Load hoist limits
 - Boom stops
 - All locking devices
 - Anti-two block devices
 - Hoist Equipment
 - Main/Auxiliary Hoist
 - Blocks/Hooks
 -) Hoist Lifting Capacity
 - Wedge sockets
-) Video – Drums, Blocks, Sheaves, and Wire Rope

Crane Inspection

-) Inspection Categories



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- Frequent
- Periodic
-) Inspection categories
 - Each Shift
 - Monthly
 - Annual
 - Recordkeeping

Crane Maintenance

-) Maintenance Procedures
-) Wire Rope Construction/Handling
-) Loading Wire Rope on Crane Drum
-) Wire Rope Inspection/Replacement Guidelines
-) Sheave Inspection

Crane Operations

-) Lift Capacity
-) Boom Angles
-) Load Radius
-) Load Charts
-) Swing Control
-) Swing Brake and Locking Device
-) General
-) Power Plant Control
-) Control Forces and Movements
-) Engine Clutch
-) Resistors
-) Switches
-) Lift Capacity Chart and Examples
-) Boom Deflection

Crane Safety

-) Load Limiting Factors
-) Power Line Safety
 - Power Line Safety (up to 350 kV)—Assembly and Disassembly
 - Power Line Safety (up to 350 kV)—Equipment Operations
 - Table A—Minimum Clearance Distances
 - Power Line Safety (all voltages)—Equipment Operations Closer Than the Table A Zone
-) Crane/Rigging Lift Plan
-) Personal Protective Equipment
-) Accidents



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-) Access
-) Ground Support
-) Leveling
-) Clearance/Barricades

-) Areas of Operation
-) Position of the Load
-) Cranes in Motion
-) Two-Blocking
-) Wind
-) Load Weight
-) Stability
-) Signal Person

Hand Signals

Practical Session

Practical training shall utilize a crawler crane, various slings, loads & rigging techniques.

Practical shall verify the following:

-) Select and wear appropriate PPE during practical training
-) Select the appropriate hardware/rigging gear to complete required lifts
-) Conduct proper pre-use inspection of crane and rigging gear
-) Effectively control the crawler crane operations and use operating indicators
-) Accelerate, decelerate, and swing crawler crane in a smooth safe manner
-) Verify the load is not swinging prior to landing the load
-) Respond to standardized hand signals from signal person
-) Keep the hook clear of riggers while the slings are disconnected
-) Verify slings are properly connected/free before continuing operation
-) Ensure overall safety of the rigging team during crane operations
-) Place the hook in a bucket (verify depth position)
-) Store hardware/rigging gear properly following its use

Training Center Provided Material

-) PPE

Delegate Requirements

-) Must possess good physical health as the practical training is physical demanding.
-) Must provide a Crawler Crane
-) Rigging Gear (if onsite)



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Reference Material / Documents

OSHA 29 CFR 1926 Subpart CC: Cranes and Derricks in Construction

OSHA 29 CFR 1910.180: Crawler Locomotive and Truck Cranes

ASME B30.5: Mobile and Locomotive Cranes