

Crane Testing Study Guide

The State of Connecticut Department of Public Safety is pleased to welcome you to the Crane Industry. We are proud to be one of less than a dozen agencies in the country to regulate cranes and crane operators. You, as a crane operator in today's high technology industry, bear a tremendous responsibility to perform your job safely. It is our prime objective through our regulatory program to assist in operating cranes both efficiently and safely.

The following items establish the common foundation of material which all crane operators must know in order to be licensed by the State of Connecticut. This list is meant to serve as a study guide and a general overview of crane operations. However, as a crane operator, you must not only be well trained in operations, but it is essential that you also know the particular machine you are operating. It is therefore imperative that you study the literature provided by the manufacturer prior to operating a particular crane.

FOR THE WRITTEN TEST THE CRANE OPERATOR MUST BE ABLE TO:

- Determine weight of loads by use of simple mathematics and unit weights.
- Know basic rigging:
- Hardware - wedge sockets, shackles, clips, thimbles, eyebolts, etc.
- Wire rope - parts of, inspection
- Different types of slings - effects of sling angle
- Effects of center of gravity when rigging a load
- Types of hitches to hold and control loads
- Safety rules - do's and don'ts
- Crane definitions: rated strength, ultimate strength, etc.
- Crane hand signals:
- Crane inspection: pre operation, daily, etc.
- Describe how to preplan a crane lift.
- Crane Load Charts: know how to use and interpret to determine capacity, understand structural strength vs. stability, determine hook height at various radiuses, pick and carry capacities if any.
- Quadrants of operation and their adverse effects: "working over side", "over rear" or 360°
- Know how to change boom sections (lattice boom cranes)
- Operating procedure near power lines and safe working distance
- Know general safety rules - effects of side load, two blocking, shock and dynamic loading, swing out, consideration of weather conditions, items which could cause reductions in rated capacity, net capacity versus gross capacity, proper rope reeving, and other items which could cause crane failure.

FOR THE PRACTICAL TEST THE CRANE OPERATOR MUST BE ABLE TO:

- Perform crane inspection(s).
- Know what required maintenance must be performed.
- Set up crane, use of tape measure to determine radius.
- Be able to answer questions pertaining to the crane or its attachments.
- Perform all functions with a load: hoist load, lower, boom up or down, swing, extend and retract boom (if applicable) and stop as directed.
- Know how to perform a corrective action when necessary to control load.
- Operate from hand signals or two way radios.
- Explain procedure for preplan of a lift.
- Answer questions pertaining to safe crane operation.

SUGGESTED TECHNICAL READING/STUDY MATERIAL:

Mobile Craning Today
38 Commercial Road, Toronto, Ontario, Canada MUG 124
Telephone - 416-425-8710

Mobile Crane Manual - Construction Safety Assoc. of Ontario 21 Voyager Court South,
Etobicoke, Ontario, Canada M9W 5M7
Telephone: 1-800-781-2726

Bob's Rigging & Crane Handbook
948 River Ridge Road, Boone, North Carolina 28607
Telephone - 704-264-2718 - FAX - 704-264-0787

ASME/ANSI B30 STANDARDS
American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey
07007-2900
Telephone - 1-800-843-2760 - FAX - 973-882-1717

OSHA Regulations (CFR) 1926.550 Construction
1910.180 General Industry
Local OSHA Area Offices

APPLICATION PROCEDURE---FACTS & FEES

Request application from office -- \$5.00 fee to process
Upon receiving application the office will notify you of a date and time you are scheduled to appear for your written test (\$20.00 fee). Upon successful completion of your written test arrangements will be made for your practical exam (time & location) (\$25.00 fee).
The crane applicant must supply the crane for the practical test. The crane must be registered with the State of Connecticut and of the type (lattice boom, hydraulic, etc.) corresponding to the type of license you wish to obtain.

Upon successful completion of your practical test and a \$50.00 license fee, your license will be issued. The license is valid for 2 years upon which a renewal form will be sent to you.

REMEMBER, YOU CANNOT OPERATE A CRANE WITH AN EXPIRED LICENSE, THERE IS NO GRACE PERIOD.

Notes: Two (2) 1 1/2" x 1 1/2" photos must be submitted with your application
In order to be eligible the applicant must be 18 years of age and have 2 years of verifiable experience or had been a licensed apprentice for 2 years.

Total Fee for application, tests and license - \$100.00.
All fees are to be paid by check or money order made payable to:

Treasurer, State of Connecticut

Any accident involving a crane you operate must be immediately reported 24 hours a day by calling 1-800-842-0200 to the on call supervisor for the State Fire Marshal's Office.