SAFETY FIRST
CRANE
CERTIFIED
UNION PRIDE

Operating Engineers Certification Program

Crane Operator Candidate Manual

4210 Riverwalk Parkway, Suite 130
Riverside, California 92505-3368
Phone: 951-351-4001
www.oecp.org
This Crane Operator Candidate Manual contains important information on the requirements to obtain crane operator certification through the Operating Engineers Certification Program. Further information can be obtained at:

Operating Engineers Certification Program
4210 Riverwalk Parkway, Suite 130
Riverside, CA 92505-3368
Phone: (951) 351-4001
www.oecp.org

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Introduction

Dear Candidate:

It has traditionally been the goal of the International Union of Operating Engineers (IUOE), the contractors who have signed labor agreements (Signatory Contractors), and their respective associations, to maintain the highest levels of safety, skill, performance, and competence for their members. These entities have always been in the forefront of state-of-the-art training techniques--in the classroom, with hands on training, and on the jobsite.

Over the years, cranes have received increased attention from the public, industry, the media, and regulatory agencies. Unfortunately, this attention has usually been the result of a major crane accident. In the construction industry, cranes represent a very small percentage of the total heavy equipment found on the jobsite--yet they account for a significant portion of the construction accidents that result in one or more fatalities. The cost of these accidents can be staggering in human life, property damage, and subsequent legal liabilities. Although both industry and regulatory agencies have recognized the need for the certification of crane operators, it has historically been difficult to achieve because of the wide diversity of the available crane types in this industry.

Recently though, many states, along with the federal government, have enacted or in the process of enacting, regulations that require some form of crane operator certification. The IUOE and the Signatory Contractors are some of the strongest supporters of this legislation.

In response to these regulations, the Operating Engineers Certification Program was formed.

*It is the mission of the Operating Engineers Certification Program to provide members of the International Union of Operating Engineers a means to obtain a valid and reliable certification that accurately assesses their operational competence--thereby directly promoting a safer jobsite environment for the worker, the public, and the industry.*

This Crane Operator Candidate Manual has been developed to provide you with detailed information concerning the requirements to be crane operator certified. We hope it answers any questions you may have and assists you in your professional development. Any questions or comments concerning the certification program should be directed to the program’s main office at (951) 351-4001 or e-mail oecp@oecp.org.

Thank you for your interest.

Ronald Sikorski  
President  
OECP Board of Directors

Thomas Tatangelo  
Treasurer  
OECP Board of Directors
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PROGRAM OVERVIEW

The Operating Engineers Certification Program (OECP) is an independent, non-profit organization of the International Union of Operating Engineers (IUOE) formed to provide a means to obtain a valid and reliable nationally accredited certification that accurately assesses their competence in craning operations, thereby directly promoting a safer jobsite environment for the worker, the public, and the industry. The program is managed by a Labor / Management Board of Directors. The Board of Directors is primarily comprised of IUOE members and its signatory contractors representing major employers of crane operators.

All candidates to the certification program will be required to initially pass the corresponding written examination(s) and then a practical examination(s) in order to be certified. Written examinations assess knowledge particular to mobile cranes (which includes lattice, telescopic, and boom truck cranes), overhead cranes, and tower cranes in the construction industry.

The OECP offers certifications on the following crane types:

- Boom Truck Crane
- Lattice Boom Crane
- Overhead Crane
- Telescopic Boom Crane
- Tower Crane

Note: Detailed definitions, including program equivalency, of the above crane types are located in the Frequently Asked Questions on page 39.

Candidates who meet all OECP eligibility requirements, and pass the written examination(s), may then attempt the associated practical examination(s) for that crane type.

DEVELOPMENT OF THE EXAMINATIONS

The first step in the development of the examinations was to identify and select Subject Matter Experts (SME’s) in the types of cranes for which the program was designed to provide certification. These SME’s were then given training and instruction in the methodologies of conducting an appropriate Job Task Analysis (JTA).

Meetings and discussions were subsequently held with the SME’s to identify the specific knowledge required for safe and efficient crane operations. This knowledge, classified into various functional domains, was then validated by a survey of crane operators within IUOE. Test blueprints using the results of the JTA and validation study were then developed.

Examination item banks for the written examination questions were created using a panel of SME’s specifically trained in the details associated with the formation of multiple-choice test items. Developed questions were grouped into appropriate examinations with their inclusion based on content as defined by JTA and the test blueprints.

Practical examinations were developed using both the expertise of SME’s and the review of other accredited programs currently in use throughout the industry that assess operator physical skills and abilities.

Training for program administrators, certification staff, examiners, practical examination coordinators, and qualified proctors was developed using the expertise of highly experienced training instructors from the crane industry. Additional expertise from outside the industry was also used to devise standards and procedures to ensure a fair, non-biased, and standardized method of certification was incorporated into the program’s operations.

DISCLAIMER

This manual, the OECP Crane Operator Candidate Manual, is compiled and published by the OECP. Although every effort has been made to ensure the accuracy and completeness of this manual at the time of release, the OECP makes no guarantee that the manual is free of errors or omissions. This manual is intended solely as guidance for IUOE members in good standing to become a certified crane operator through the testing administered by the OECP, and is not intended to be a comprehensive reference on crane operations. The OECP makes no warranties or representations, expressed or implied, that the use of any information, apparatus, method, or process discussed in this manual, and/or assessed on its examinations, is appropriate to current regulation or practice.
It is the responsibility of the operator and the contractor on the job to ensure adherence to all applicable standards, regulations and safe operating practices. The OECP assumes no liability for damages resulting from the use of any information, apparatus, method, or process disclosed in this manual and/or assessed on its examinations. The use of any name of a specific brand of products in this manual, or on OECP examinations, is intended only as an example and is not an endorsement of that brand by the OECP nor should it be construed as such.

LIABILITY LIMITATIONS

The information compiled in this candidate manual is being provided by the OECP as a service to the IUOE membership. Although every effort has been made to ensure the accuracy and completeness of this information, the OECP cannot be held liable for any errors, omissions, or interpretations of standards, regulations and/or safe operating practices described herein or assessed on its examinations. Standards, regulations, and interpretations may change without individual notice to the IUOE membership. This candidate manual does not have the effect of law.

Neither this candidate manual, nor OECP assessment criteria, replaces applicable laws nor accepted safe operating practices. If any conflicts occur, the laws and current industry recognized safe operation practices shall control.

The OECP is neither responsible nor liable for the accuracy or promptness of delivery or redelivery of any documentation or candidate applications submitted by candidates to or from the OECP. Candidates should track any mailings/deliveries to the OECP and allow reasonable time for their arrival.

The OECP may revise, delete, or supplement any instruction, policy, practice, or procedure in this manual, or in its examinations, at any time at its sole discretion, upon approval of the OECP Board of Directors, without further notice.
**Certification Policies**

**ELIGIBILITY**

Requirements for certification include the following:

- Must be a member in good standing with the International Union of Operating Engineers with dues paid through the current month.
- Must have proof of, and maintain a valid U.S. Department of Transportation (DOT) Medical Card or Certificate or a state issued Department of Motor Vehicles (DMV) Medical Card or Certificate.
- Comply with the OECP’s substance abuse policy.
- Have 1,000 hours of documented crane-related experience and/or training in the last five (5) years. Note: For tower cranes, 500 hours of this 1,000 hour requirement must be in documented, tower crane-related experience and/or training.
- Pass written examinations (mobile crane candidates must pass the mobile crane written examination; overhead crane candidates must pass the overhead crane written examination; and tower crane candidates must pass the tower crane written examination).
- Pass practical examination(s).

*Note: Medical Cards / Certificates must be renewed every two (2) years. The OECP certification is only valid when accompanied by a current DOT or DMV Medical Card / Certificates. Proof is required during the initial and recertification application process.*

**CANDIDATES REQUESTING SPECIAL ACCOMMODATIONS**

Arrangements for persons with disabilities will be provided upon written request, in conformance with the Americans with Disabilities Act (ADA).

Candidates requesting such accommodations are required to submit professional documentation in support of their written request to the OECP Certification Director no later than two (2) weeks prior to the scheduled examination date.

**NON-DISCRIMINATION POLICY**

The OECP is committed to providing equal access and opportunity for crane operator certification to all members of the IUOE regardless of race, color, national origin, age, religion, or sex.

**INITIAL WRITTEN EXAMINATION CATEGORIES**

There are three (3) initial written examination categories, i.e., mobile crane, overhead crane, and tower crane.

The initial examinations consist of 75 multiple-choice questions that are scored to assess candidate knowledge. The time limit for these examinations is two (2) hours.

*Note: More details concerning written examinations can be found on pages 7 thru 21.*

**INITIAL WRITTEN EXAMINATION EXPIRATION**

Passing scores for initial written examinations are only valid for a period of one (1) year from the date the examination was taken. The related practical examination(s) must be completed within this one (1) year time-frame or the written examination results will expire. In the event expiration occurs, the candidate will be required to retake the applicable initial written examination(s) prior to being eligible to participate in the practical examination(s).
PRACTICAL EXAMINATION

Candidates who pass the written examination(s) are eligible to participate in the practical examination(s). There are five (5) practical examinations.

- Boom Truck Crane
  Written examination prerequisite: Mobile Crane
- Lattice Boom Crane
  Written examination prerequisite: Mobile Crane
- Overhead Crane
  Written examination prerequisite: Overhead Crane
- Telescopic Boom Crane
  Written examination prerequisite: Mobile Crane
- Tower Crane
  Written examination prerequisite: Tower Crane

Note: More details concerning practical examinations can be found on pages 22 thru 38.

CERTIFICATION DOCUMENTS

A candidate successfully completing the certification process (or recertification process) will be issued a signed letter of certification along with a hard plastic, photo identification card that specifies the crane types certified to operate. The expiration date of certification(s) will also be listed. Lost or stolen cards should be reported to the OECP for a replacement. Any certificants who subsequently qualify in additional crane types will be issued a new certification letter and card. Records of certification(s) will be maintained by the OECP as required by law.

CERTIFICATION EXPIRATION

Certification is valid for a period of five (5) years based on the date of the first certification was achieved. If a certificant subsequently becomes certified in additional crane types, the five (5) year certification period for the additional specialties will begin on the same date as the first certification.

In other words, all certifications will expire on the same date regardless of when they were obtained—the expiration date being that of the first acquired certification.

RECERTIFICATION

The recertification process is designed to measure the continued competence of certificants.

Requirements for recertification include the following:

- Be a member in good standing with the International Union of Operating Engineers with dues paid through the current month.
- Possess a valid U.S. Department of Transportation (DOT), or a state issued Department of Motor Vehicles (DMV) Medical Card / Certificate.
- Comply with the OECP’s substance abuse policy.
- Provide evidence of a current nationally accredited crane operator certification.
- Pass recertification written examinations.
- Pass practical examination(s), if applicable.

Note: Operators with at least 1,000 hours of documented safe operating experience on the specific type of crane for which recertification is sought, during the immediately preceding certification period, are initially exempt from having to take the practical examination(s) to obtain recertification. All experience in the recertification period must be with a signatory contractor / employer.

Recertification of candidates who possess equivalent accredited crane operator certifications other than OECP is possible if they meet the eligibility requirements for the desired crane type. More information can be found on page 39.

Operators should strive to complete a scheduled recertification examination no later than six (6) months prior to their certification expiration date. This will reduce the risk of last minute delays which could prevent the completion of the examination process prior to the expiration of any current certifications. Recertification applications can be obtained from the OECP website at www.oecp.org or by contacting the OECP main office.

Operators may recertify anytime within twelve (12) months of the expiration date without affecting the current expiration date.
For example:

If the current expiration date on the card is November 15, 2017 and the operator completes the required recertification examinations on December 10, 2016, a new certification card will be issued with an expiration date of November 15, 2022.

RECERTIFICATION EXAMINATIONS

The topics covered in the recertification examinations are similar to those assessed in the initial certifying examinations.

There are three (3) different crane categories of recertification written examinations:

- Mobile Crane
- Overhead Crane
- Tower Crane

Each of the three (3) categories of recertification written examinations will consist of 50 questions. The time limit for each of these recertification written examinations is one and one-half (1.5) hours.

Recertification candidates are only allowed two (2) consecutive failures of any particular recertification written examination (mobile, overhead, or tower) before their certification expires. Candidates who are unsuccessful after two (2) failures must then perform all requirements (both, written and practical) currently in use for initial certification(s).

Candidates for recertification must successfully complete required practical examination(s) prior to their certification expiration date to obtain recertification on particular crane type(s). Failure to do so will result in the loss of the particular certification(s). There is no grace period.

Practical examinations (if required) will be exactly the same as those conducted during the initial certification process.

SUBSTANCE ABUSE POLICY

It is the policy of the OECP that crane operators who apply for certification, or recertification, shall not use prescribed, over-the-counter, or illegal substances which may impair their ability to safely operate a crane.

This includes, but is not limited to, illegal drugs, controlled substances, designer drugs, or any other substance which has an effect on the human body of being a narcotic, depressant, stimulant, or hallucinogen. An exception is that an operator may use a drug if it is prescribed by a licensed physician who is familiar with the operator’s medical history and all assigned duties, and who has advised the operator that the prescribed drug will not adversely affect the operator’s ability to safely operate a crane, and the licensed physician provides the OECP with this information in a written form on that physicians letterhead.

In addition to this policy, all candidates must comply with the substance abuse testing rules as specified in ASME B30.5.

ASME B30.5 states: “Operator . . . shall meet the following . . . a negative result for a substance abuse test. The level of testing will be determined by the standard practice for the industry where the crane is employed and this test shall be confirmed by a recognized laboratory service."

A "recognized" laboratory should be one that is certified to meet industry mandated standards.

Candidates applying for either initial certification, or recertification, must submit proof of a negative substance abuse test from a recognized laboratory or medical review officer conducted within 90 days of application receipt by the OECP.

DISCIPLINARY POLICY

Candidates may be barred from further participation in the certification process for violation of any of the testing requirements as listed under Examination Site Security (see page 8) or if there is clear, undisputed, and documented proof that the candidate has intentionally attempted to undermine the program’s operations in other ways not listed herein.

For certificants, a violation of the following rules will result in certification status being revoked:

- Certification expiration date is exceeded without recertification.
- Expiration of a medical certificate during the certification period.
- Suspension, revocation, or expiration of IUOE membership.
- Falsifying information on any document submitted to the OECP.
- Falsifying a certification card or document.
- Evidence of a violation of the OECP Substance Abuse Policy.
Certification Policies

- Clear, undisputed, and documented proof of performance demonstrating a critical lack of knowledge, skills, safe operation, and/or abilities necessary to justify continued certification.

The Board of Directors will evaluate and decide all cases involving the potential barring of a candidate from participation in the certification process or the suspension or revocation of certification due to any cause other than the normal expiration of certification(s) and/or the expiration of required document(s). The Board of Directors recognizes the sensitive nature of such proceedings and the need to not only make a fair and impartial decision based on the facts, but to also ensure proper safeguarding of any personal information used in the process. Notification of the barring from participation in the program, or the suspension and/or revocation of any certification(s), will be made in writing. Appeals of these decisions are permissible. Appeals are described in the OECP’s Certificant Disciplinary Policies & Procedures which are available from the OECP Executive Director upon written request. Appeals must be submitted in writing and received no later than 30 days after the notification of such actions.

Further information and submitted appeals must be addressed to:

Operating Engineers Certification Program
4210 Riverwalk Parkway, Suite 130
Riverside, CA 92505-3368
Attn: OECP Board of Directors

RELEASE OF INFORMATION

The OECP will release information regarding certification status to any employer, government agency, person, or entity that submits a request. Released information will be limited to the individual’s name and current certification status. No information concerning the written or practical examination scores, results of substance abuse tests, information contained on the medical evaluation form, and/or any other personal data will be released without prior written authorization from the individual or the individual’s legal representative.

QUESTIONS

Any questions concerning the program including eligibility determination, the application process, assessment instrument results, and/or certification status should be directed to the OECP Certification Director. (See contact information below) Requests for rescoring of written examinations must follow the procedures described on page 9.

Operating Engineers Certification Program
4210 Riverwalk Parkway, Suite 130
Riverside, CA 92505-3368
Attn: OECP Certification Director

Phone: 951-351-4001
E-mail: oeep@oecp.org
Website: www.oecp.org

RETENTION OF INFORMATION

The OECP main office will retain candidate information as required by law. Information to be retained (either electronically and/or hardcopy) will include as a minimum:

- Candidate application(s).
- A copy of the letter of certification sent to a certificant.
- All written examination answer sheets and scores.
- All practical examination score sheets.
- A copy of the Department of Transportation (DOT) and/or Department of Motor Vehicles (DMV) Medical Card / Certificate submitted at the time of application.

- Copies of both sides of an equivalent nationally accredited crane operator certification(s).
- A copy of the required substance abuse test results submitted at the time of application.

Note: Candidates/certificants should report any changes in contact information, (e.g., address, telephone number, e-mail, etc.) to the OECP certification office as soon as possible. The OECP certification office can be reached at the address, telephone number, and email address listed below.
APPLICATION PROCESS FOR WRITTEN EXAMINATION

Candidates wishing to apply for the OECP crane operator certification written examinations can obtain applications from the OECP website at www.oecp.org. Applications are also available for pick-up at the OECP main office and all participating IUOE locations.

APPLICATION GUIDELINES

To avoid delays, it is very important that all information and documentation be included when submitting an application to the OECP for processing. Incomplete applications will be returned in their entirety along with detailed instructions as to the reason(s) for the rejection and recommended corrective actions for re-submission.

Recertification Only: Certificants requesting recertification must use the “Application for Recertification” form when applying.

Recertification of candidates, who possess equivalent accredited crane operator certifications other than OECP, may apply if they meet all OECP eligibility requirements for recertification (page 4 and 5).

It is recommended that the recertification process be commenced at least six (6) months prior to the expiration date on the certification card to ensure certifications do not expire due to unforeseen delays. Even though the actual process is relatively short, recertification candidates will still need to work around scheduled examination dates and availabilities. Recertification applications can be obtained from the OECP website at www.oecp.org or by contacting the OECP main office.

Recertification applicants must be able to document a minimum of 1,000 hours of safe crane operating experience (seat time) in the specific crane type(s) for which recertification is sought since the date of last certification or a practical examination will be required prior to the certification expiration date.

Candidates for recertification must successfully complete all required testing criteria prior to their certification expiration date to obtain recertification on any particular crane type. This includes successfully passing required practical examinations, “NO EXCEPTIONS.”

It is important that applicants pay particular care in ensuring all information is filled-in correctly to prevent errors during processing. The application and copies of all required documents should be mailed to the OECP main office, at the address listed on the application. The following documents must be received, reviewed, and accepted by the OECP Certification Office no less than five (5) working days prior to a candidate being scheduled or attending any examination. This would include:

- Completed and signed Application.
- A copy of a current Department of Transportation (DOT) and/or Department of Motor Vehicles (DMV) Medical Card / Certificate.
- Proof of an approved Substance Abuse Test taken within 90 days of application receipt by the OECP. Note: A DOT or DMV Medical Card / Certificate will not suffice for proof of a Substance Abuse Test.
- A copy of an official photo identification (Driver's License or other government issued photo identification).
- A copy of a valid IUOE Registration Card (or a current due's receipt) showing dues paid through the current month.
- For recertification provide a copy of both sides from a current accredited crane operator certification showing crane type(s) certified, and expiration date.

Applicants meeting all OECP eligibility criteria, and who submit completed applications, will be notified by USPS mail (and / or electronic mail) that they are accepted candidates for certification. Candidates will be instructed to contact the OECP certification office for scheduled written examination dates and locations. It is the responsibility of the candidate to contact the OECP office and receive formal verbal approval prior to attending any scheduled written examination.

**Note: ALL candidates must contact the OECP certification office to schedule or reschedule all paper pencil (PPT) or computer based written examination(s) (CBT) no less than five (5) working days prior to the examination date.**

APPLICATION FEES

There are no application fees for candidates that meet the program’s eligibility requirements.
EXAMINATION LOCATIONS

The OECP administers written examinations throughout the geographical areas covered by the IUOE. A candidate may attend a scheduled examination in any area. All Paper Pencil (PPT) examinations will be administered by an Examiner, with Qualified Proctors in a standardized format to ensure all candidates are provided equivalent testing environments, e.g., examination room accommodations, testing materials, instructions, etc. PPT examinations generally are scheduled at IUOE local union training sites.

All Computer Based Testing (CBT) will be administered by a Qualified Proctor in a standardized format to ensure all candidates are provided equivalent testing environments, e.g., examination room accommodations, testing materials, instructions, etc. CBT examinations generally are scheduled at authorized IUOE Local union training sites or contracted testing facilities.

EXAMINATION SITE INFORMATION

Candidates must be present at the examination site prior to the scheduled time. The dress code for the written examinations is casual.

Each candidate must bring government issued photo identification and a valid IUOE Registration Card (or a current due’s receipt) to the examination site showing dues paid through the current month.

For examinations at local union training sites, candidates will be required to sign the Written Examination Registration List upon entry to the testing area. Pencils, erasers, and scratch paper will be available at the examination site.

EXAMINATION SITE SECURITY

The candidates who attend an OECP written examination acknowledge that they understand and will comply with the following rules:

- No cell phones, pagers, packages, books, unauthorized scratch paper, personal calculators, personal digital assistant devices, recorders, cameras, and/or other material will be allowed in the examination area.

- The examinations are secure documents and are the property of the OECP. No part of the examinations may be photographed, copied, or reproduced in part or in whole by any means, including memorization.

- None of the examination booklets, load charts, scratch paper or other documents associated with the examinations can be taken from the immediate examination area.

- Candidates participating in any irregularity during an examination, such as giving or obtaining unauthorized aid or information, may be subject to immediate dismissal from the examination area with their examination(s) subsequently declared invalid.

- Violations of any of the preceding policies may bar a candidate from further participation in the certification process.

- Candidates will confirm by their signatures on the Written Examination Registration List that they have read, understand, and will comply with the above statements.

SCORING PROCESS

For paper and pencil testing (PPT), it is critically important that all candidates complete the answer sheets according to the Examiner’s, or for computer based testing (CBT), Qualified Proctor’s pre-test instructions.

On paper pencil testing, only those answers that are clearly marked on the provided answer sheet will be scored.

The examinations are “criterion referenced” which means that the passing (minimum) score is set beforehand. A candidate’s performance is not compared to the score of other candidates taking the examination. The passing scores are absolute, minimum standards, and are determined using psychometrically accepted standards as set forth in the Standards for Educational and Psychological Testing of the American Psychological Association.

Each candidate must achieve a score equal to, or higher than, the passing score to pass the examination. All examination results will have the form of a scaled score on a scale of 0 to 100 percent.
Written Examination Process

All paper pencil examinations (PPT) are machine scored with selected examinations second checked by hand to verify machine accuracy.

The OECP Certification Director will notify each candidate by mail of their results. Scores are typically mailed within ten (10) working days of the examination date. Additionally, for paper pencil testing, scores can be e-mailed with the signed permission of the candidate.

All computer based testing (CBT) written examinations are scored at the end of the examination with either a Pass or Fail. The OECP Certification Director will then notify each candidate by mail of their complete results by domain and total score. Complete results are typically mailed within ten (10) working days of the examination date. Additionally, scores can be e-mailed to the current e-mail address on file with the OECP.

All score results are absolutely confidential. No candidate's score information for any examination will be given over the telephone. There will be no exceptions.

RESCORING REQUESTS

A candidate who did not pass one or more of the examinations may request a rescoring of the examination(s). This request must be made in writing to the OECP Certification Director (see contact information on page 6) and received within 30 days of the examination date. All written requests must contain the candidate’s full name, mailing address, IUOE registration number, contact phone number, and signature.

The candidate will be immediately notified, by USPS mail, of the results of the re-scoring. In the event that a re-scoring results in a passing score, the candidate will be immediately reinstated in the certification process.

RETAIKING A WRITTEN EXAMINATION

Candidates who do not pass a written examination(s) must wait for a defined period of time before being allowed to retake the examination(s). This defined period of time is determined by applying a formula that takes into account how the candidate performed on all other attempts of that particular written examination. In most cases, a candidate that fails a written examination must wait at least ten (10) working days before being allowed to retake that particular examination again. This information will be included in the detailed post-examination report that will typically be mailed to all unsuccessful candidates within ten (10) working days following the examination(s).

Candidates needing to re-take an examination(s) must call the OECP office to schedule no less than five (5) working days prior to the scheduled examination date. "No exceptions"

Note: To maintain examination integrity, candidates are only allowed five (5) consecutive failures of any particular written examination (mobile, overhead, or tower) within a five (5) year period. After the fifth consecutive failure, the candidate will be barred from attempting that particular written examination for a period of two (2) years.

FEEDBACK

Feedback from the candidates is welcome. Feedback is a very important and critical process that helps the OECP to improve the examinations. Each candidate will be provided the opportunity to complete a feedback form at the examination site. Identifying oneself on the form is optional.
MOBILE CRANE WRITTEN EXAMINATION

The mobile crane written examination consists of 75 multiple-choice questions constructed and scored to assess mobile crane knowledge in the domains listed below.

DOMAIN A: STANDARDS KNOWLEDGE
(Approximately 15% of the written examination questions)

1. Know applicable standards and regulations regarding the following:
   a. Crane use in the vicinity of energized power lines.
   b. Requirements for removing running/standing wire rope and other rigging from service.
   c. Correct use of slings, bridles, shackles, spreader bars, hooks, safety latches, chains, wedge sockets, softeners, thimbles, and swivels.
   d. Limit switch use.
   e. Tag lines.
   f. Personnel platform operations including pre-lift procedures.
   g. Crane operations by trainees.
   h. Rules and regulations particular to specific crane types.

DOMAIN B: OPERATIONS KNOWLEDGE
(Approximately 58% of the written examination questions)

1. Know how to properly conduct pre-operational procedures. This includes the following:
   a. Daily inspection logs.
   b. Pre-operational checks and tests.
   c. Determining locations of existing or proposed excavations or underground utilities.
   d. Determining blocking, matting, and cribbing requirements.
   e. Documentation of required maintenance.
   f. Erection and setup.
   g. Crane leveling.
   h. Crane housekeeping.
   2. Know how to properly operate the crane. This includes the following:
      b. Common nomenclature, functions, and use of basic crane components.
      c. Positioning the crane around stationary obstacles.
      d. Hoisting, swinging, and performing multi-function operations.
      e. Picking and carrying a load.
      f. Use and understanding of hand signals.
      g. Use and maintenance of 2-way voice communication equipment.
      h. Proper response in emergency situations, e.g., power failure, personnel injury, power line contact, fire, etc.
      i. Standard lockout/tagout procedures.
      j. Warning other workers when moving a load into the area where they may be present.
      k. Performance of basic dimension and weight load calculations.
      l. Proper actions for overload conditions.
      m. Effects of excess swing, boom deflection, and boom drift on load parameters.
      n. Use and configuration of installed operator assist devices including:
         - Anti-Two Block Device
         - Boom Angle Device
         - Boom Length Indicator (telescoping boom cranes)
         - Drum Rotation Indicator
         - Load Moment Indicator (LMI)
         - Load Weight Device
      o. Restrictions and limitations when extending telescopic hydraulic booms.
      p. Configuration, setup, and operation of the crane for the following types of jobs:
         - Demolition; (breaking ball)
         - Hook work
         - Personnel platform

3. Know how to properly conduct post-operational procedures. This includes the following:
   a. Securing of crane under normal and adverse operating conditions.
   b. Erection and dismantling the crane for travel.
DOMAIN C: LOAD CHARTS KNOWLEDGE
(Approximately 27% of the written examination questions)

1. Understand and use Load Charts. This includes the following:
   a. Selection and understanding of the proper load chart to be used for the crane.
   b. Determining specific deductions when calculating a lift.
   c. Determining crane limits using the load chart.
   d. Differences between gross and net capacity.
   e. Calculating lifting capacities using any possible crane configuration.
   f. Calculating necessary boom length required to reach a particular radius and height using the range diagram.
   g. Work area diagram use.
   h. Use of manufacturer’s footnotes and special instructions.
   i. Determining the parts of line required for a lift.
   j. Relationships and limitations between the LMI, other operator assist devices, and the load chart.
OVERHEAD CRANE WRITTEN EXAMINATION

The overhead crane written examination consists of 75 multiple-choice questions constructed and scored to assess overhead crane knowledge in the domains listed below.

DOMAIN A: STANDARDS KNOWLEDGE
(Approximately 15% of the written examination questions)

1. Know applicable standards and regulations regarding the following:
   a. Wire rope.
   b. Correct use of slings, bridles, shackles, spreader bars, hooks, safety latches, chains, wedge sockets, softeners, thimbles, and swivels.
   c. Limit switches.
   d. Crane operation by trainees and certificants.
   e. Federal, State, and local safety regulations associated with overhead crane operations.

DOMAIN B: PRE-OPERATION KNOWLEDGE
(Approximately 32% of the written examination questions)

1. Know how to perform visual pre-operational inspections to include:
   a. Surveying the work area.
   b. Structural integrity checks.
   c. Mechanical integrity verification, e.g., oil and hydraulic systems, drums, etc.
   d. Identification of crane restrictions, limitations & other work hazards
   e. Wire rope.
   f. Rigging.
   g. Hooks, sheaves, and guards.

2. Know how to perform functional pre-operational checks to include:
   a. Crane controls.
   b. Limit switches.
   c. Communication systems.
   d. Other operator aids.

3. Know how to perform pre-operational maintenance to include:
   a. Basic maintenance procedures.
   b. Requirements for daily record keeping.
   c. Proper methods for reporting crane deficiencies.

4. Know procedures for pre-lift & jobsite meetings to include:
   a. Selection of necessary rigging and hardware.
   b. Determination of scheduled work.

DOMAIN C: OPERATIONS KNOWLEDGE
(Approximately 53% of the written examination questions)

1. Know how to properly operate the crane to include:
   b. Standard nomenclature for various crane components.
   c. Purpose and function of various crane components.
   d. Boarding the crane.
   e. Performance of basic dimension and weight load calculations.
   f. Importance of maintaining hook position over the load center of gravity.
   g. Performance of smooth controlled load movement.
   h. Use of crane auxiliary equipment.
   i. Effects of excess bridging and trolley speed on load parameters.
   j. Operation of safety interlocks, e.g. dead man switch.
   k. Use of warning horns.
   l. Precautions when hoisting loads over personnel.
   m. Tag line use.
   n. Use and understanding of hand signals as defined in ASME B30.2.
   o. Use and maintenance of two-way voice communication equipment.
   q. Precautions used when working in close proximity with other cranes.
   r. Tandem lifts.
   s. Use and configuration of installed operator assist devices, e.g., anti-two block device, lower limit switch, etc.

2. Know how to properly conduct post-operational procedures to include:
   a. Securing / parking the crane.
   b. Exiting the crane.
Written Examination Outline (Tower Crane)

TOWER CRANE WRITTEN EXAMINATION

The tower crane specialty examination consists of 75 multiple-choice questions that are constructed and scored to test tower crane knowledge in the domains listed below.

DOMAIN A: PRE-OPERATIONS
(Approximately 40% of the questions)

1. Visual Pre-Operational Inspection
   a. Know how to determine fitness of the supporting ground/surface.
   b. Know how to check for structural integrity.
   c. Know how to check electrical sources and power supplies.
   d. Know how to verify mechanical integrity.
   e. Know how to check wire rope.
   f. Know how to inspect rigging.
   g. Know how to inspect hooks, sheaves, and guards for proper working order.
   h. Know how to check for proper tie-in(s) to supporting structure.
   i. Be familiar with required crane documents, e.g., operator’s manual, certification.
   j. Understand requirements for proper placards.

2. Functional Pre-Operational Inspection
   a. Know how to perform a control function test.
   b. Know how to verify the proper functioning of limit switches.
   c. Know how to verify proper operation of communication systems.
   d. Know procedures for verifying proper function of all other operator aids.

3. Pre-Operational Maintenance
   a. Understand requirements for daily record keeping.
   b. Know how to conduct pre-operational lubrication.
   c. Understand methods for replacing wire hoist rope and trolley rope.

4. Pre-lift meeting
   a. Know how to determine necessary rigging & hardware for required loads.

DOMAIN B: OPERATIONS
(Approximately 50% of the questions)

1. Hoist & Position a Load

a. Know how to perform a smooth, controlled load movement.
b. Understand the importance of maintaining the position of the hook over the center of gravity of the load.
c. Understand the dynamics of boom deflection and mast torque.
d. Know how to use the LMI when picking a load.
e. Know how to properly use a load chart.
f. Understand standardized crane hand signals and/or verbal commands.

2. Safety
   a. Know Federal, State, and local safety regulations associated with tower crane operations.
   b. Understand manufacturer’s recommendations for safe operations.
   c. Know the regulations and procedures associated with hoisting personnel.
   d. Know the precautions used when working in close proximity with other cranes.
   e. Know the safety precautions associated with various weather conditions.
   f. Understand the proper inspection and use of fall protection.
   g. Know the proper response to emergency situations (power failure, personnel injury, power line contact, fire).
   h. Know standard lockout/tagout procedures.

3. Shutdown and secure the crane
   a. Know shutdown procedures.

DOMAIN C: TECHNICAL
(Approximately 10% of the questions)

1. Crane Erection/Dismantling
   a. Understand the procedures for crane erection, climbing, and dismantling.

2. Crane Structural Components
   a. Know standard nomenclature for various crane structural members.
   b. Understand the purpose and functions of various crane structural members.

3. Operating Systems
   a. Understand basic electrical system operation.
   b. Understand basic hydraulic system operation.
   c. Understand basic mechanical system operation.
MOBILE CRANE SAMPLE QUESTIONS

The following are representative questions that are typical of those found on the mobile crane written examinations.

1. According to regulations, when must boom pendants (standing ropes) be replaced?
   a. When there are more than three (3) broken wires at the end connection.
   b. When there is more than one broken wire in one lay in sections beyond the end connection.
   c. When there is more than one broken wire at the end connection.
   d. When there are more than six (6) broken wires as the end connection.

2. Conventional booms are made up of chords and lacings. When is replacement or repair required?
   a. When any portion of either is bent or damaged.
   b. When both show any sign of bending or damage.
   c. When either is bent more than 5 degrees on any section.
   d. When either is bent more than 15 degrees on any section.

3. When leveling a crane, where is the best place to check the level?
   a. The carrier.
   b. The car body.
   c. Upper works.
   d. The outrigger beam.

4. Regulations require that lever operated controls must be provided with a device that will:
   a. Keep the lever available at all times during operations.
   b. Hold the handle in the off position when released.
   c. Allow continued ease of movement.
   d. Physically lock the lever.

5. When capacity values fall between two boom angles on a load chart, which value should be used?
   a. Lower boom angle value.
   b. Higher boom angle value.
   c. Average of both angles.
   d. The closest listed boom angle.

6. When leveling the crane, the weight of the crane should be completely off of the ________.
   a. carrier
   b. outriggers
   c. tires
   d. car body

7. Running rope on a mobile crane should be inspected ________.
   a. prior to each shift
   b. at least once daily
   c. weekly
   d. semi-annually

8. When setting outriggers, regulations require that the outrigger jack must be securely pinned to ________.
   a. the outrigger beam
   b. the outrigger pad
   c. the carrier
   d. the upper works

9. When is it acceptable for personnel to ride the load?
   a. Personnel are tied off with a safety line.
   b. Only when wearing an approved harness.
   c. Personnel must NEVER ride the load.
   d. Only for personnel platform testing.

10. Regulations state that, each time a load approaching the rated load capacity of the crane is lifted, the brakes must be tested by ________.
    a. lifting the load a few inches off the ground and applying the brake
    b. applying the brake with the hoist lever in the up position
    c. applying the brake with the hoist lever in the down position
    d. applying the brake with the hoist lever in the up position
Sample Questions (Mobile Crane)

11. Whenever a load must be moved over personnel working on the ground, it is okay to do so as long as _______.
   a. the hook has an approved safety latch  
   b. the rigging has been inspected prior to the lift  
   c. there is a tagline attached to the load  
   d. you sound the horn when swinging the load

For questions 12 through 15 refer to the Manitowoc 222 Mobile Crane Load Chart (pages 42 - 49).

12. You are lifting a load that weighs 50 tons. What are the minimum parts of line you can use?
   a. 4  
   b. 5  
   c. 6  
   d. 8

13. You are lifting a load that weighs 14,000 pounds with the following configuration:
   - The crane has 100 feet of main boom installed.  
   - The only hook attached is the 10 ton hook ball with one (1) part of line.  
   - The rigging weighs 525 pounds.

   What is your maximum radius with the crawlers retracted?
   a. 55 Feet  
   b. 60 Feet  
   c. 65 Feet  
   d. 70 Feet

14. What is the capacity deduction for a 40 foot jib?
   a. 1,700 lbs.  
   b. 2,100 lbs.  
   c. 2,600 lbs.  
   d. 3,100 lbs.

15. What tipping capacity is this load chart based on?
   a. 70%  
   b. 75%  
   c. 85%  
   d. 90%
OVERHEAD CRANE SAMPLE QUESTIONS

The following are representative questions that are typical of those found on the overhead crane written examinations.

1. At what interval must trolley rope be inspected?
   a. Every four (4) hours.
   b. Each shift.
   c. Daily.
   d. Monthly.

2. At what degree body twist from its original position must a hoisting hook be replaced?
   a. 10 degrees
   b. 15 degrees
   c. 20 degrees
   d. 25 degrees

3. A one-inch shackle means __________.
   a. the pin diameter is one-inch.
   b. the throat height is one-inch.
   c. the reeving thickness is one-inch.
   d. the bow diameter is one-inch.

4. What is required when calculating a lift using a lifting beam?
   a. Subtract the beam’s weight from the gross weight of the load.
   b. Add the beam’s weight to the weight of the load.
   c. Use the beam’s fulcrum point for measuring load weight.
   d. Subtract the beam’s dynamic load from the gross weight.

5. What is the definition of gross load?
   a. All eternal loads applied to the crane.
   b. Dynamic load plus net load
   c. Net load minus static load.
   d. All external loads applied to the crane less rigging.

6. How many parts of line are required for the following configuration?
   Load weight = 20,000 lbs.
   Rigging weight = 1,000 lbs.
   Wire Rope SWL = 15,000 per part
   a. 1
   b. 2
   c. 3
   d. 4

7. What is the purpose of softeners?
   a. Cushion bumpers.
   b. Protect festooned power cords.
   c. Prevent sling damage.
   d. Reduce dynamic load.

8. Which of the following standards specifically pertains to overhead cranes?
   a. ASME B30.2
   b. ASME B30.3
   c. ASME B30.4
   d. ASME B30.5

9. What can result from excess trolley speed?
   a. Damage to the collectors.
   b. Excessive bridge friction.
   c. Increased load radius.
   d. Shift in crane’s center-of-gravity.

10. Which of the following is TRUE in regards to initially moving a load?
    a. Lowering increases static load.
    b. Trolleying decreases dynamic load.
    c. Hoisting decreases static load.
    d. Bridging increases dynamic load.

11. What is the term for a trolley that continues to travel after power is disengaged?
    a. A fast-running trolley.
    b. A free-running trolley.
    c. A non-braked trolley.
    d. A non-static trolley.
12. What can result from reverse winding of the hoist line?
   a. Reduced load capacity.
   b. Increased dynamic loading.
   c. Two-blocking.
   d. Bird-caging.

13. A system to prevent over-travel of the bridge could include __________.
   a. bumpers
   b. softeners
   c. anti-two block devices
   d. cushions

14. What is TRUE is regards to gantry cranes?
   a. They are industry classified as mobile.
   b. They are always permanently fixed to supporting walls.
   c. They are governed by ASME B30.4.
   d. They are typically supported by structural legs.

15. Overhead cranes should have installed stopping devices capable of safely dissipating what percent of trolley speed?
   a. 25%
   b. 50%
   c. 75%
   d. 100%
**Sample Questions (Tower Crane)**

**TOWER CRANE SAMPLE QUESTIONS**

The following are representative questions that are typical of those found on the tower crane written examinations.

1. When should a functional test without a load be performed?
   a. Prior to the start of operation.
   b. After the crane is warmed up.
   c. Only when required for maintenance.
   d. Never, it is not necessary.

2. An erection permit for a fixed tower crane covers all of the following except __________.
   a. erecting the crane
   b. climbing the crane
   c. operating the crane
   d. dismantling the crane

3. When must a lifting beam’s weight be added to the weight of the load?
   a. To calculate gross capacity.
   b. To calculate net capacity.
   c. To calculate load chart gross weight.
   d. When recommended by the manufacturer.

4. What can cause over-torqueing of tower crane mast sections?
   a. Hoisting a load too quickly.
   b. Starting and stopping the swing too rapidly
   c. Dynamic load effects while hoisting.
   d. Trolleys in and out too rapidly.

5. For which device, when inoperable, must a tower crane be taken out of service?
   a. Boom hoist limiter.
   b. Boom angle indicator (luffing tower).
   c. Load moment indicator.
   d. Hydraulic system pressure limiting device.

6. The term **Gross Load** refers to all except __________.
   a. rigging weight  
   b. safe working load  
   c. net load  
   d. hook weight

7. According to ASME B30.3, the operator can override all functions except the __________.
   a. radius limit  
   b. load limit  
   c. two block limit  
   d. torsional twist limiter

8. What is the purpose of the categories listed in the Fed-OSHA statutes for wire rope inspection?
   a. They delineate the time periods for inspection.
   b. They define the specific usages of wire rope.
   c. They detail the levels of inspection deficiencies.
   d. They define the types of wire rope to be inspected.

9. Which one of the following is NOT one of the basic jib types found on tower cranes?
   a. Saddle jib  
   b. Flying jib  
   c. Front pivot luffing jib  
   d. Rear pivot luffing jib

10. When re-torqueing tower crane bolts, which bolts require a 75 percent of capacity load be set at the jib tip?
    a. The base bolts at the foundation.
    b. The mast section bolts.
    c. The slewing ring bolts.
    d. The counter-weight bolts.

11. Adjusting the jib inclination of a hammerhead tower crane is accomplished by __________.
    a. adding shackles to the end of the jib pendants
    b. adjusting the jib pendant overload mechanism
    c. installing longer pendants
    d. adjusting jib pendant turnbuckles

12. At what interval should components be checked when identified during pre-erection inspections to require monitoring?
    a. Prior to each shift.
    b. At least daily.
    c. Weekly.
    d. Monthly.
13. What is the proper name of wire rope consisting of an inner layer of strands laid in one direction, covered by a layer of strands laid in the opposite direction?
   
   a. Double strand wire rope.  
   b. Rotation resistant wire rope.  
   c. Directional loading wire rope.  
   d. Multi-strand wire rope.

For questions 14 & 15 refer to the Peiner SK 405 Tower Crane Load Chart (pages 50-55).

14. Given:  
   
   Crane is configured with two (2) parts of line.  
   Jib is 180 feet, 5 inches.  
   Using second detent hoist speed.  

What is the MAXIMUM line speed at which the load can be hoisted?

   a. 108 ft/min.  
   b. 180 ft/min  
   c. 276 ft/min  
   d. 444 ft/min

15. Given:  
   
   Crane is configured with four (4) parts of line.  
   Load radius is 85.4 feet.  
   Jib is 120.9 feet.

What is the MAXIMUM load capacity?

   a. 30,200 lbs.  
   b. 31,700 lbs.  
   c. 37,500 lbs.  
   d. 41,000 lbs.
## Sample Question Answers

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<th>SAMPLE QUESTION ANSWERS (MOBILE CRANES)</th>
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Written Examination References

The following reference sources were used to verify the accuracy of the examination questions. These references can be purchased from the organizations listed below. Some may also be available through respective IUOE local union training sites. Candidates should contact their IUOE local union’s training representative to determine availability. The OECP does not supply study or resource materials nor conduct training for the certification examinations.

ASME B30.2-2011
Overhead and Gantry Cranes
(Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
American Society of Mechanical Engineers
P.O. Box 2300
Fairfield, NJ 07007-2300
Tel: (800) 843-2763
Fax: (973) 882-1717
Internet: http://www.asme.org

ASME B30.3-2009
Tower Cranes
American Society of Mechanical Engineers
P.O. Box 2300
Fairfield, NJ 07007-2300
Tel: (800) 843-2763
Fax: (973) 882-1717
Internet: http://www.asme.org

ASME B30.4-2010
Portal and Pedestal Cranes
American Society of Mechanical Engineers
P.O. Box 2300
Fairfield, NJ 07007-2300
Tel: (800) 843-2763
Fax: (973) 882-1717
Internet: http://www.asme.org

ASME B30.5-2011
Mobile and Locomotive Cranes
American Society of Mechanical Engineers
P.O. Box 2300
Fairfield, NJ 07007-2300
Tel: (800) 843-2763
Fax: (973) 882-1717
Internet: http://www.asme.org

ASME B30.23-2011
Personnel Lifting Systems
American Society of Mechanical Engineers
P.O. Box 2300
Fairfield, NJ 07007-2300
Tel: (800) 843-2763
Fax: (973) 882-1717
Internet: http://www.asme.org

IPT's Crane and Rigging Training Manual
IPT Publishing and Training, Ltd.
P.O. Box 9590
Edmonton, Alberta
Canada T6E 5X2
Tel: (888) 808-6763
Fax: (780) 962-4819
Internet: http://www.iptbooks.com

Mobile Cranes
Crane Institute of America, Inc.
3880 St. Johns Parkway
Sanford, FL 32771-6370
Tel: (800) 832-2726
Fax: (327) 771-6370
Internet: http://www.craneinstitute.com

Mobile Craning Today
Operating Engineers Training Institute of Ontario
2245 Speers Road
Oakville, Ontario
Canada L6L 6X8
Phone: (877) 793-4863
Email: marketing@oetio.com

Occupational Safety and Health Administration
U.S. Department of Labor
29 CFR 1910.147; The Control of Hazardous Energy
(lockout/tagout)
29 CFR1910.179; Overhead & Gantry Cranes
29 CFR 1910.180; Crawler, Locomotive & Truck Crane
29 CFR 1926.251; Rigging Equipment for Material Handling
29 CFR 1926.1400-1442; Cranes & Derricks in Construction
Internet: http://www.gpoaccess.gov/cfr

Rigging
Crane Institute of America, Inc.
3880 St. Johns Parkway
Sanford, FL 32771-6370
Tel: (800) 832-2726
Fax: (327) 771-6370
Internet: http://www.craneinstitute.com
EXAMINATION PROCESS FOR PRACTICAL EXAMINATIONS

All candidates who have passed the written examination(s) may schedule to participate in the next available practical examination for that particular crane type, i.e., mobile, overhead, or tower.

The candidate must contact the OECP main office and receive formal confirmation prior to attending any scheduled practical examination. Candidates must contact the OECP main office and schedule a practical examination(s) no less than five (5) working days prior to the examination date. “No exceptions”

Candidates for initial certification must successfully complete the practical examination(s) within twelve (12) months of the associated written examination(s) date. If this is not accomplished, the candidate will be required to retake the associated written examination(s). There is no grace period.

CANDIDATES REQUESTING SPECIAL ACCOMMODATIONS

Arrangements for persons with disabilities will be provided upon written request, in conformance with the Americans with Disabilities Act (ADA).

Candidates requesting such accommodations are required to submit professional documentation in support of their written request to the OECP Certification Director no later than two (2) weeks prior to the scheduled examination date.

EXAMINATION LOCATIONS

The OECP administers practical examinations throughout the geographical areas covered by the IUOE. The locations of the examinations and equipment may vary from one location / IUOE training site to the other. Eligible candidates may schedule an examination at any participating location or IUOE training site.

The examinations will be administered by an OECP Examiner or accredited IUOE training site Practical Examination Coordinator (PEC), in a standardized format to ensure all candidates are provided equivalent impartial testing environments, e.g., terrain, crane types, test layout, instructions, etc.

EXAMINATION SITE INFORMATION

Candidates must be present at the examination site before the scheduled examination starting time. Practical examinations are typically scheduled on a Saturday to accommodate work schedules.

Candidates must wear work boots and clothing in addition to appropriate personal protective equipment (PPE). Each candidate must bring government issued photo identification to the test site along with a valid IUOE Registration Card (or a current due’s receipt) showing their dues paid through the current month.

Candidates will be required to sign the Practical Examination Registration List upon entry to the testing area.

CRANE TYPES

Practical examinations are administered on the following crane types:

- Boom Truck Crane
- Lattice Boom Crane
- Overhead Crane
- Telescopic Boom Crane
- Tower Crane

Note: Detailed definitions of the above crane types are located in the Frequently Ask Questions on page 39.

EXAMINATION FEES

There are no examination fees for candidates that meet the program’s eligibility requirements.

OECPINST2013.4E
MOBILE CRANE TESTING

Candidates who pass the written mobile crane examination have the option to take the practical examination on one or more of the mobile crane types (Boom Truck Crane, Lattice Boom Crane and/or Telescopic Boom Crane).

Note: See page 39, Frequently Asked Questions, regarding specific crane types of mobile cranes for which the certifications apply.

The practical examinations consist of a series of tests that are used to determine the skill level of the candidates. The skills tested will require candidates to use all of the crane’s operating functions, such as:

- Booming
- Hoisting
- Swinging
- Multifunction operations with and without a load attached
- Securing

Although testing on each different mobile crane type will require the same tests be performed, each crane will have a unique setup specifically designed for that particular crane type. All efforts are made to ensure that the examinations are equitable across crane types.

MOBILE CRANE PRACTICAL SCORING

Procedures for the practical examinations have been designed to maximize standardization and reliability across tests. A candidate will start each examination with a total of 100 points and may then lose points during the examination either through operational errors and/or by exceeding established time limits. A minimum of 70 points is required to pass the examination.

All scoring will be directly supervised by an OECP Examiner or Practical Examination Coordinator. Qualified Proctors will assist in administering the practical examinations. The OECP Examiner / Practical Examination Coordinator will monitor the practical examinations, ensuring all scoring is in accordance with established procedures. The Examiner / Practical Examination Coordinator will review and sign all practical examination final score sheets and will be the sole and final judge for any decisions involving test site accommodations, administration, operations, scoring, and qualification of candidate performance.

OVERHEAD CRANE TESTING

The practical examination consists of a series of tests that are used to determine the skill level of the candidates. The skills tested will require candidates to demonstrate proficiency in several aspects of overhead crane operations including:

- Pre-operational checks
- Bridging
- Hoisting
- Trolleying
- Securing

All efforts are made to ensure that the examinations are equitable across crane types.

OVERHEAD CRANE PRACTICAL SCORING

Procedures for the practical examinations have been designed to maximize standardization and reliability across tests. A candidate will start each examination with a total of 100 points and may then lose points during the examination either through operational errors and/or by exceeding established time limits. A minimum of 70 points is required to pass the examination.

All scoring will be directly supervised by an OECP Examiner or Practical Examination Coordinator. Qualified Proctors will assist in administering the practical examinations. The OECP Examiner / Practical Examination Coordinator will monitor the practical examinations, ensuring all scoring is in accordance with established procedures. The Examiner / Practical Examination Coordinator will review and sign all practical examination final score sheets and will be the sole and final judge for any decisions involving test site accommodations, administration, operations, scoring, and qualification of candidate performance.

TOWER CRANE TESTING

Practical examinations for tower cranes will only be administered in cranes with operating cabs of at least 40 feet above ground level.

The practical examination consists of a series of tests that are used to determine the skill level of the candidates. The skills tested will require
candidates to demonstrate proficiency in several aspects of tower crane operations including:

- Pre-operational checks
- Hoisting
- Swinging
- Trolleying
- Securing

All efforts are made to ensure that the examinations are equitable across crane types.

TOWER CRANE PRACTICAL SCORING

Procedures for the practical examinations have been designed to maximize standardization and reliability across tests. A candidate will start each examination with a total of 100 points and may then lose points during the examination either through operational errors and/or by exceeding established time limits. A minimum of 70 points is required to pass the examination.

All scoring will be directly supervised by an OECP Examiner or Practical Examination Coordinator. Qualified Proctors will assist in administering the practical examinations. The Examiner / Practical Examination Coordinator will monitor the practical examinations, ensuring all scoring is in accordance with established procedures. The Examiner / Practical Examination Coordinator will review and sign all practical examination final score sheets and will be the sole and final judge for any decisions involving test site accommodations, administration, operations, scoring, and qualification of candidate performance.

SCORE REPORTING

Upon completion of a practical examination, immediate notification of the obtained score will be made privately to the candidate by the OECP Examiner, Practical Examination Coordinator or a designated Qualified Proctor. Any appeals by the candidate on the results of the scoring should be immediately addressed to the Examiner who will conduct an on-the-spot review of the situation and make a final determination at that time. Candidates who successfully pass the practical examination(s) will typically be mailed their certification card within ten (10) working days.

RETAIKING A PRACTICAL EXAMINATION

Candidates who do not pass a practical examination must wait at least ten (10) working days before being allowed to retake the failed examination. This information will be included in the detailed post-examination report that will typically be mailed to all unsuccessful candidates typically within ten (10) working days following the examination.

Candidates needing to re-take an examination(s) must call the OECP certification office to schedule an examination no less than five (5) working days prior to the examination date.

Note: To maintain examination integrity, candidates are only allowed five (5) consecutive failures of any particular practical examination (crane type) within a five (5) year period. After the fifth consecutive failure, the candidate will be barred from attempting that particular practical examination for a period of two (2) years.

FEEDBACK

Feedback from the candidates is welcome. Feedback is a very important and critical process that helps the OECP to improve the examinations. Each candidate will be provided the opportunity to complete an feedback form at the examination site. Identifying oneself on the form is optional.
The following is an outline of the mobile crane practical examination, as exactly provided to candidates at the time of testing (pages 25 to 28).

CANDIDATE PRACTICAL EXAMINATION INFORMATION AND INSTRUCTIONS

The following describes the specific performance tasks for the practical examination.

There will be a meeting prior to the beginning of the day’s examinations. The OECP Examiner, Practical Examination Coordinator, and/or a Qualified Proctor, will describe the day’s activities and answer any questions about the process. Please utilize this opportunity to ensure you fully understand the examination.

You will be required to stay in a designated area during the examinations as directed by the OECP Examiner or Practical Examination Coordinator.

This document describes the five (5) tests that will be evaluated by the examination. This document also contains a statement for you to sign (at the time of the examination, see page 28) indicating you fully understand the examination procedures, rules, tasks, and processes. You must sign and return this statement to the OECP Examiner / Practical Examination Coordinator prior to starting your first examination.

INCLEMENT WEATHER

As with any outdoor activity, the examinations are subject to being suspended or cancelled due to inclement weather. Rain or sustained or gusting winds of over 20 MPH are unacceptable for the examinations. The OECP Examiner / Practical Examination Coordinator will be the sole judge of any decision on whether or not the examinations are suspended or cancelled. The Examiner’s / Practical Examination Coordinator’s decision is final. If an examination is cancelled, affected examinees must contact the OECP certification office to reschedule for a future test date. There is NO automatic rescheduling of examinations.

EXAMINATION TESTS

NOTE: The practical examination begins once the candidate assumes the control of the crane by entering the operators cab or operating position.

The following is a detailed description of each of the five (5) tests in the order that they will be performed:

Equipment Familiarization
At the start of the examination on each mobile crane type, you will be given a maximum of 15 minutes to familiarize yourself with the controls of the crane.

There will be a practice area where the empty hook must remain during this time. You cannot "shadow" any of the barrels, corridors, or barricades during this time. You must stay inside this designated practice area at all times during the allowed 15 minutes of practice time or you will fail the entire examination.

Test #1: Hand Signals
Time: This Test Is Not Timed

Upon direction of a Proctor, hand signals will be administered, maneuver the crane as directed. The Proctor will give at least four (4) standard ASME B30.5 crane hand signals. The signals may be given in any random sequence. There is no timing for this test. You must respond to the signals with a prompt, correct action. At the completion of the test, and by the direction of the Proctor move the ball to the Start Circle.

Points will be deducted for the following:
- Not responding to a hand signal promptly.  
  Deduct two (2) points
- Responding with the wrong action.  
  Deducts three (3) points

Test #2: Place Ball in Barrels
Time Limit: 2 minutes (each barrel)

1. The hook ball will be positioned approximately two (2) feet above the Start Circle with a 36" chain attached to the hook.

2. At the Proctor’s signal, lift the ball and chain high enough to clear any obstacles and move the hook ball from the Start Circle to Barrel #1.

3. Place the ball into the barrel. The Proctor will determine when the bottom of the ball is below the top rim of the barrel and give a stop signal.

4. Upon a Proctor’s signal, return the ball to the Start Circle. The hook ball will be positioned approximately two (2) feet above the Start Circle.
Practical Examination Outline (Mobile Crane)

5. At the Proctor’s signal, lift the ball and chain high enough to clear any obstacles and move the hook ball from the Start Circle to Barrel #2.

6. Place the ball into the barrel. The Proctor will determine when the bottom of the ball is below the rim of the barrel and give a Stop signal.

7. Upon a Proctor’s signal, move the ball to the Start Circle.

Points will be deducted for the following:

- Moving the barrel outside red circle. 
  Deduct two (2) points
- Knocking the barrel over. 
  Deduct four (4) points
- Hook ball touching the ground. 
  Deduct three (3) points
- Exceeding the time limit. 
  Deduct five (5) points

Test #3: Start/Stop Circle
Time Limit: 1 ½ minutes

1. The hook ball will be positioned approximately two (2) feet above the Start Circle with a 36" chain attached to the hook.

2. At the Proctor’s signal, lift the ball and chain high enough to clear any obstacles and move the ball from the Start Circle to the Stop Circle.

3. Once the ball reaches the Stop Circle, the movement of the ball must be controlled as the ball is positioned above the Stop Circle with the chain touching the ground. The chain must not touch the ground outside of the Stop Circle. The hook ball must not touch the ground inside or outside of the Stop Circle.

4. The Proctor will give a stop signal when the chain is on the ground and the ball is determined to be under control.

Points will be deducted for the following:

- Chain touching the ground and moving outside of the Stop Circle. 
  Deduct two (2) points
- Hook ball touching the ground either inside or outside the Stop Circle. 
  Deduct five (5) points
- Hook ball or chain touching any barricade on the course.
- Exceeding the time limit. 
  Deduct five (5) points

Test #4: S - Corridor (Forward Direction)
Time Limit: 4 minutes each direction

This task is divided into two (2) parts. Part 1 is moving the test weight in one direction, towards the crane, through the S-Corridor, and Part 2 is moving the test weight in the reverse direction, away from the crane, through the S-Corridor. The test weight will be centered in the S-Corridor Start Circle, touching the ground before the Proctors signal to begin.

1. At the Proctor’s signal, timing will start. Lift the test weight and guide it through the S-Corridor using the appropriate crane functions.

2. The Proctor will give a stop signal--and timing will stop--when the test weight is placed on the ground completely within the inner diameter of the S-Corridor Stop Circle.

Note: If you have not received a stop signal from the Proctor, this indicates that the test weight is not completely within the inner diameter of the S-Corridor Stop Circle and you must continue to move it until it is correctly placed. Timing will continue until the stop signal is given.

S - Corridor (Reverse Direction)
Time Limit: 4 minutes

The test weight will be centered in the S-Corridor Start Circle, touching the ground before the Proctors signal to begin.

1. At the Proctor’s signal, timing will start. Lift the test weight and guide it through the S-Corridor using the appropriate crane functions.

2. The Proctor will give a stop signal--and time will stop--when the test weight is on the ground and completely within the confines of the inner diameter of the S-Corridor Start Circle.

Note: If you have not received a stop signal from the Proctor, this indicates that the test weight is not completely within the inner diameter of the S-Corridor Start Circle and you must continue to move it until it is correctly placed. Timing will continue until the stop signal is given.
Points will be deducted for the following:

- Ball is knocked off of a barricade.  
  *Deduct one (1) point*
- Barricade is knocked over.  
  *Deduct one (1) point*
- The entire test weight breaks out of the perimeter of the S-Corridor.  
  *Deduct five (5) points*
- Chain leaves the ground.  
  *Deduct two (2) points*
- Test weight touches the ground other than when attempting to place it in the S-Corridor Start/Stop Circles.  
  *Deduct three (3) points*
- Exceeding the time limit.  
  *Deduct five (5) points*

*Note: Once a ball is knocked off of a barricade and/or the barricade is knocked over, points will continue to be deducted if the test weight again moves over the same perimeter spot, and in the opinion of the Proctor(s) would have again caused a ball to be knocked off and/or a barricade once again knocked over.*

**REASONS FOR IMMEDIATE FAILURE**

- Any maneuver (including during equipment familiarization) considered unsafe or that endangers any personnel in the test area.
- Uncontrolled or reckless operation.
- Any refusal to follow any command or instruction from the OECP Examiner, Practical Examination Coordinator, or Proctor(s).
- Using more than 150% of the time allotted for any test.
- Adjusting the boom from its pre-set length on telescopic boom cranes at any time during the examination.
- Not being able to complete any test.

**POST EXAMINATION PROCEDURE**

1. The OECP Examiner or Practical Examination Coordinator and Proctor(s) will review and sign your score sheets. The OECP Examiner, Practical Examination Coordinator or Proctor will privately notify you whether you passed or failed. You must complete all five (5) tests and have a total score of 70 points or above to pass the practical examination. If you are successful, the certification card will be mailed to you typically within ten (10) working days.

2. If you fail the examination(s), you will be required to wait ten (10) working days before scheduling a retest on those crane types for which you failed.

3. The OECP Examiner’s / Practical Examination Coordinator’s decision on all practical examination related matters is final.
EXAMINATION PROCEDURE ACKNOWLEDGEMENT

I have read and fully understand the mobile crane practical examination instructions as described on pages 25 to 27 of the Crane Operator Candidate Manual (OECPINST2013.4).

Name (Print) _____________________________________________________________

Signature: ______________________________________________________________

Date: ____________________________

THIS PAGE WILL BE SIGNED AND SUBMITTED AT THE PRACTICAL EXAMINATION.

Note: This page will be provided at the examination.
Practical Examination Outline (Overhead Crane)

The following is an outline of the overhead crane practical examination, as exactly provided to candidates at the time of testing (pages 29 to 33).

CANDIDATE INFORMATION AND INSTRUCTIONS

The following describes the specific performance tasks for the practical examination.

There will be a meeting prior to the beginning of the day’s examinations. The OECP Examiner, Practical Examination Coordinator, and/or a designated Qualified Proctor, will describe the day’s activities and answer any questions about the process. Please utilize this opportunity to ensure you fully understand the examination.

This document describes the six (6) tests that will be evaluated by the examination. This document also contains a statement for you to sign (see page 33) indicating you fully understand the examination procedures, rules, tasks, and processes.

You will be required to stay in a designated safe area until you are called to begin the examination.

If applicable, there will be one (1) Proctor in or near the crane cab and/or at least one (1) Proctor on the ground. The Proctor on the ground will be identified by a bright, reflective safety vest.

Be aware the examination course may contain designated “Out of Bounds” lines that the Examiner will fully identify for you prior to starting the examination. Failure of the entire examination will result if any part of the test weight crosses these “Out of Bounds” lines.

INCLEMENT WEATHER

If being administered outdoors, the examinations are subject to being suspended or cancelled due to inclement weather. Rain or sustained or gusting winds of over 20 MPH are unacceptable for the examinations. The OECP Examiner / Practical Examination Coordinator will be the sole judge of any decision on whether or not the examinations are suspended or cancelled. The Examiner’s / Practical Examination Coordinator’s decision is final. If an examination is cancelled, affected examinees must contact the OECP certification office to reschedule for a future test date. There is NO automatic rescheduling of examinations.

EXAMINATION TESTS

NOTE: The practical examination begins once the candidate assumes the control of the crane by entering the operator’s cab, or assumes the pendant position.

The following is a detailed description of each of the six (6) tests in the order that they will be performed:

Test #1: Pre-Operational Function Limit Check
Time: 2 minutes

Starting with a Proctor’s verbal instruction to commence, perform at least one (1) pre-operational function limit check.

Failure of the entire examination will result from:

- Responding with the wrong action.
- Not completing the Pre-Operational Limit Check within the required time limit.

Test #2: Hand Signals
Time: This Test Is Not Timed

Upon a Proctor’s hand signals, maneuver the crane as directed. The Proctor will administer at least four (4) standard ASME B30.2 crane hand signals. The signals may be given in any sequence. There is no timing for this test. You must respond to the signals with a prompt, correct action.

Points will be deducted for the following:

- Not responding to a hand signal promptly. Deduct two (2) points
- Responding with the wrong action. Deduct three (3) points

Note: At this point in the examination, you will be given an opportunity to better familiarize yourself on the controls of the crane with the test weight attached. At a signal from a Proctor, you will maneuver the crane to hook the test weight. After attachment, you will move the test weight to a designated area where you can practice for a maximum of 15 minutes. The test weight must remain in this area during practice. You cannot "shadow" any of the test course during this time.
**Test #3: Start/Stop Circle**

*Time Limit: 2 minutes*

1. At a signal from a Proctor, place the test weight in the Start Circle.

   At a signal from a Proctor commence the test and move the test weight to the Stop Circle ensuring no part of the weight crosses any “Out of Bounds” lines. Note: The time for completing the test starts from the point a Proctor instructs you to commence moving the weight to the Stop Circle.

2. Place the test weight in the Stop Circle. The test weight must be completely within the inner diameter of the Stop Circle.

3. A Proctor will give a stop signal--and time will stop--when the test weight is on the ground completely within the inner diameter of the Stop Circle.

   *Note: If you have not received a stop signal from a Proctor, it indicates that the test weight is not completely within the inner diameter of the Stop Circle and you must continue to move it until it is correctly placed. Timing will continue until the stop signal is given.*

Points will be deducted for the following:

- Ball is knocked off of a barricade.  
  *Deduct one (1) point*
- Barricade is knocked over.  
  *Deduct one (1) point*
- Exceeding the time limit.  
  *Failure of the entire examination*
- Any part of test weight outside “Out of Bounds” lines  
  *Failure of the entire examination*

   *Note: Once a ball is knocked off of a barricade and/or the barricade is knocked over, points will continue to be deducted if the test weight again moves over the same perimeter spot, and in the opinion of the Proctor(s), would have again caused a ball to be knocked off and/or a barricade once again knocked over.*

**Test #4: S - Corridor (Forward Direction)**

*Time Limit: 3 ½ minutes*

This task is divided into two (2) parts. Part 1 is moving the test weight in one direction through the S-Corridor, and Part 2 is moving the test weight in the reverse direction through the S-Corridor. The test weight will be centered in the S-Corridor Start Circle and raised to a pre-determined height before beginning. Once this height is set, you are not allowed to adjust the height of the load until the entire test weight exits the S-Corridor.

1. At a Proctor’s signal, raise the test weight to a pre-determined height of approximately one-half (1/2) the height of the course delineators.

2. At a Proctor’s signal, timing will start. You will maneuver the test weight through the S-Corridor using the appropriate crane functions.

3. A Proctor will give a stop signal--and time will stop--when the test weight is on the ground completely within the inner diameter of the S-Corridor Stop Circle.

   *Note: If you have not received a stop signal from a Proctor, it indicates that the test weight is not completely within the inner diameter of the S-Corridor Stop Circle and you must continue to move it until it is placed correctly. Timing will continue until the stop signal is given.*

**S - Corridor (Reverse Direction)**

*Time Limit: 3 ½ minutes*

The test weight will be centered in the S-Corridor Stop Circle before beginning.

1. At a Proctor’s signal, raise the test weight to a pre-determined height of approximately one-half (1/2) the height of the course delineators.

2. At a Proctor’s signal, timing will start. You will maneuver the test weight through the S-Corridor using the appropriate crane functions.

3. A Proctor will give a stop signal--and time will stop--when the test weight is on the ground completely within the inner diameter of the S-Corridor Start Circle.

   *Note: If you have not received a stop signal from the Proctor, this indicates that the test weight is not completely within the inner diameter of the S-Corridor Start Circle and you must continue to move it until it is correctly placed. Timing will continue until the stop signal is given.*

Points will be deducted for the following:

- Ball is knocked off of a barricade.
Practical Examination Outline (Overhead Crane)

**Deduct one (1) point**
- Barricade is knocked over.
**Deduct one (1) point**
- The entire test weight breaks out of the perimeter of the S-Corridor.
**Deduct five (5) points**
- Adjusting the load height before the entire test weight has exited the S-Corridor.
**Failure of the entire examination**
- Exceeding the time limit.
**Failure of the entire examination**
- Any part of test weight outside “Out of Bounds” lines.
**Failure of the entire examination**

Note: Once a ball is knocked off of a barricade and/or the barricade is knocked over, points will continue to be deducted if the test weight again moves over the same perimeter spot, and in the opinion of the Proctor(s), would have again caused a ball to be knocked off and/or a barricade once again knocked over.

**Test #5: S-Corridor Start Circle/Start Circle**
*Time Limit: 1 ½ minutes*

1. The test will start from the S-Corridor Start Circle.

2. At a signal from a Proctor commence the test and move the test weight to the Start Circle ensuring no part of the weight crosses any “Out of Bounds” lines. Note: The time for completing the test starts from the point the Proctor instructs you to commence moving the weight to the Start Circle.

3. Place the test weight in the Start Circle. The test weight must be completely within the inner diameter of the Start Circle.

4. A Proctor will give a stop signal when the test weight is within the inner diameter of the Start Circle.

*Note: If you have not received a stop signal from a Proctor, it indicates that the test weight is not completely within the inner diameter of the Start Circle and you must continue to move it until it is placed correctly. Timing will continue until the stop signal is given.*

Points will be deducted for the following:

- Ball is knocked off of a barricade.  
  *Deduct one (1) point*

- Barricade is knocked over.  
  *Deduct one (1) point*

**Test #6: Shutdown**
*Time Limit: 2 minutes*

Starting with a Proctor’s verbal instruction to commence, the candidate will perform a normal crane shutdown. The trolley and hoist hook will be returned to the original location from where the test began.

Failure of the entire examination will result from:

- Responding with the wrong action.
- Not completing the test within the required time limit.

**REASONS FOR IMMEDIATE FAILURE**

- Any maneuver (including during pre-test familiarization) considered unsafe or that endangers any personnel in the test area.
- Uncontrolled or reckless operation.
- Any refusal to follow instructions from the OECP Examiner, Practical Examination Coordinator or Proctor(s).
- Using more than 100% of the time allotted for any test.
- Adjusting the height of the test weight while inside the confines of the S-Corridor.
- Positioning any part of the test weight outside designated “Out of Bounds” lines.
- Not being able to complete any test.
- Physically touching the test weight.
POST EXAMINATION PROCEDURE

1. The OECP Examiner or Practical Examination Coordinator and Proctor(s) will review and sign your score sheets. The OECP Examiner, Practical Examination Coordinator or Proctor will privately notify you whether you passed or failed. You must complete all five (5) tests and have a total score of 70 points or above to pass the practical examination. If you are successful, the certification card will be mailed to you typically within ten (10) working days.

2. If you fail the examination, you will be required to wait ten (10) working days before attempting a retest. You may schedule a retest for a practical within that ten (10) working day period.

3. The OECP Examiner's / Practical Examination Coordinator’s decisions on all practical examination related matters are final.
EXAMINATION PROCEDURE ACKNOWLEDGEMENT

I have read and fully understand the overhead crane practical examination instructions as described on pages 29 to 32 of the Crane Operator Candidate Manual (OECPINST2013.4).

Name (Print): ________________________________

Signature: ________________________________

Date: ______________________

THIS PAGE WILL BE SIGNED AND SUBMITTED AT THE PRACTICAL EXAMINATION.

Note: This page will be provided at the examination.
The following is an outline of the tower crane practical examination, as exactly provided to candidates at the time of testing (pages 34 to 38).

CANDIDATE INFORMATION AND INSTRUCTIONS

The following describes the specific performance tasks for the tower crane practical examination.

There will be a meeting prior to the beginning of the day’s examinations. The OECP Examiner, Practical Examination Coordinator, and/or a designated Qualified Proctor, will describe the day’s activities and answer any questions about the process. Please utilize this opportunity to ensure you fully understand the examination.

This document describes the six (6) tests that will be evaluated by the examination. This document also contains a statement for you to sign (see page 38) indicating you fully understand the examination procedures, rules, tasks, and processes. Your signature also indicates that you acknowledge meeting all physical requirements for tower crane operators as defined in ASME B.30.3-2009, Section 3-3.1.2. (Note: The OECP Examiner / Practical Examination Coordinator has a copy of this standard for review, if so desired.) You must sign and return this statement to the OECP Examiner prior to starting your examination.

You will be required to stay in a designated area until you are called to begin the examination.

If applicable, there will be one (1) Qualified Proctor in the crane cab and/or at least one (1) Qualified Proctor on the ground. The Proctor on the ground will be identified by a bright, reflective safety vest.

Be aware the examination course may contain designated “Out of Bounds” lines that the Examiner will fully identify for you prior to starting the examination. Failure of the entire examination will result if any part of the test weight crosses these “Out of Bounds” lines.

INCLEMENT WEATHER

As with any outdoor activity, the examinations are subject to being suspended or cancelled due to inclement weather. Rain or sustained or gusting winds of over 20 MPH are unacceptable for the examinations. The OECP Examiner / Practical Examination Coordinator will be the sole judge of any decision on whether or not the examinations are suspended or cancelled. The OECP Examiner’s / Practical Examination Coordinator’s decision is final. If an examination is cancelled, affected examinees must contact the OECP certification office to reschedule for a future test date. There is NO automatic rescheduling of examinations.

EXAMINATION TESTS

NOTE: The practical examination begins once the candidate assumes the control of the crane by entering the operators cab/position.

The following is a detailed description of each of the six (6) tests in the order that they will be performed:

Test #1: Pre-Operational Check
Time: 2 minutes

Starting with a Proctor’s verbal instruction to commence, perform a pre-operational check.

Failure of the entire examination will result from:

- Responding with the wrong action.
- Not completing the pre-operational check within the required time limit.

Test #2: Hand Signals
Time: This Test Is Not Timed

Upon the ground Proctor’s hand signals, maneuver the crane as directed. The ground Proctor will administer at least four (4) standard ASME B30.3 crane hand signals. The signals may be given in any sequence. There is no timing for this test. You must respond to the signals with a prompt, correct action.

Points will be deducted for the following:

- Not responding to a hand signal promptly. Deduct two (2) points
- Responding with the wrong action. Deduct three (3) points

Note: At this point in the examination, you will be given an opportunity to better familiarize yourself on the controls of the crane with the test weight attached. At a signal from the ground Proctor, you will maneuver the crane to hook the test weight. After attachment, you will move the test weight to a
Practical Examination Outline (Tower Crane)

designated area where you can practice for a maximum of 15 minutes. The test weight must remain in this area during practice. You cannot "shadow" any of the test course during this time.

Test #3: Start/Stop Circle (Forward Direction)
Time Limit: 3½ minutes

1. At a signal from the ground Proctor, place the test weight in the Start Circle.

2. At a signal from the ground Proctor raise the test weight to a pre-designated hook height of 50 feet.

3. At a signal from a Proctor commence the test and move the test weight to the Stop Circle ensuring no part of the weight crosses any “Out of Bounds” lines. Note: The time for completing the test starts from the point an Proctor instructs you to commence moving the weight to the Stop Circle.

4. Place the test weight in the Stop Circle. The test weight must be completely within the inner diameter of the Stop Circle.

5. The ground Proctor will give a stop signal--and time will stop--when the test weight is on the ground completely within the inner diameter of the Stop Circle.

Note: If you have not received a stop signal from the ground Proctor, it indicates that the test weight is not completely within the inner diameter of the Stop Circle and you must continue to move it until it is correctly placed. Timing will continue until the stop signal is given.

Points will be deducted for the following:

- Ball is knocked off of a barricade.
  Deduct one (1) point
- Barricade is knocked over.
  Deduct one (1) point
- Exceeding the time limit.
  Failure of the entire examination
- Any part of test weight outside “Out of Bounds” lines
  Failure of the entire examination

Note: Once a ball is knocked off of a barricade and/or the barricade is knocked over, points will continue to be deducted if the test weight again moves over the same perimeter spot, and in the opinion of the Proctor(s), would have again caused a ball to be knocked off and/or a barricade once again knocked over.

Test #4: S - Corridor (Forward Direction)
Time Limit: 3½ minutes

This task is divided into two (2) parts. Part 1 is moving the test weight in one direction through the S-Corridor, and Part 2 is moving the test weight in the reverse direction through the S-Corridor. The test weight will be centered in the S-Corridor Start Circle and raised to a pre-determined height before beginning. Once this height is set, you are not allowed to adjust the height of the load until the entire test weight exits the S-Corridor.

1. At the ground Proctor’s signal, raise the test weight to a pre-determined height of one-half (1/2) the height of the course delineators.

2. At a Proctor’s signal, timing will start. You will maneuver the test weight through the S-Corridor using the appropriate crane functions.

3. The ground Proctor will give a stop signal--and time will stop--when the test weight is on the ground completely within the inner diameter of the S-Corridor Stop Circle.

Note: If you have not received a stop signal from the ground Proctor, it indicates that the test weight is not completely within the inner diameter of the S-Corridor Stop Circle and you must continue to move it until it is placed correctly. Timing will continue until the stop signal is given.

S - Corridor (Reverse Direction)
Time Limit: 3½ minutes

The test weight will be centered in the S-Corridor Stop Circle before beginning.

1. At the ground Proctor’s signal, raise the test weight to a pre-determined height of approximately one-half (1/2) the height of the course delineators.

2. At a Proctor’s signal, timing will start. You will maneuver the test weight through the S-Corridor using the appropriate crane functions.

3. The ground Proctor will give a stop signal--and time will stop--when the test weight is on the ground completely within the inner diameter of the S-Corridor Start Circle.
Note: If you have not received a stop signal from the Proctor, this indicates that the test weight is not completely within the inner diameter of the S-Corridor Start Circle and you must continue to move it until it is correctly placed. Timing will continue until the stop signal is given.

Points will be deducted for the following:

- Ball is knocked off of a barricade. 
  Deduct one (1) point
- Barricade is knocked over.
  Deduct one (1) point
- The entire test weight breaks out of the perimeter of the S-Corridor.
  Deduct five (5) points
- Adjusting the load height before the entire test weight has exited the S-Corridor.
  Failure of the entire examination
- Exceeding the time limit.
  Failure of the entire examination

Note: Once a ball is knocked off of a barricade and/or the barricade is knocked over, points will continue to be deducted if the test weight again moves over the same perimeter spot, and in the opinion of the Proctor(s), would have again caused a ball to be knocked off and/or a barricade once again knocked over.

Test #5: S-Corridor Start Circle/Start Circle
Time Limit: 2 ¾ minutes

1. The test will start from the S-Corridor Start Circle.

2. At a signal from a Proctor commence the test and move the test weight to the Start Circle ensuring no part of the weight crosses any “Out of Bounds” lines. Note: The time for completing the test starts from the point the Proctor instructs you to commence moving the weight to the Start Circle.

3. Place the test weight in the Start Circle. The test weight must be completely within the inner diameter of the Start Circle.

4. The ground Proctor will give a stop signal when the test weight is within the inner diameter of the Start Circle.

Note: If you have not received a stop signal from the ground Proctor, it indicates that the test weight is not completely within the inner diameter of the Start Circle and you must continue to move it until it is placed correctly. Timing will continue until the stop signal is given.

Points will be deducted for the following:

- Ball is knocked off of a barricade.
  Deduct one (1) point
- Barricade is knocked over.
  Deduct one (1) point
- Exceeding the time limit.
  Failure of the entire examination
- Any part of test weight outside “Out of Bounds” lines
  Failure of the entire examination

Note: Once a ball is knocked off of a barricade and/or the barricade is knocked over, points will continue to be deducted if the test weight again moves over the same perimeter spot, and in the opinion of the Proctor(s), would have again caused a ball to be knocked off and/or a barricade once again knocked over.

Test #6: Shutdown
Time Limit: 2 minutes

Starting with a Proctor’s verbal instruction to commence, perform a normal crane shutdown.

Failure of the entire examination will result from:

- Responding with the wrong action.
- Not completing the test within the required time limit.

REASONS FOR IMMEDIATE FAILURE

- Any maneuver (including during pre-test familiarization) considered unsafe or that endangers any personnel in the test area.
- Uncontrolled or reckless operation.
- Any refusal to follow instructions from the Examiner or Proctor(s).
- Using more than 100% of the time allotted for any test.
- Adjusting the height of the test weight while inside the confines of the S-Corridor.
- Positioning any part of the test weight outside designated “Out of Bounds” lines.
- Not being able to complete any test.
POST EXAMINATION PROCEDURE

1. The OECP Examiner or Practical Examination Coordinator and Proctor(s) will review and sign your score sheets. The OECP Examiner, Practical Examination Coordinator or Proctor will privately notify you whether you passed or failed. You must complete all six (6) tests and have a total score of 70 points or above to pass the practical examination. If you are successful, the certification card will be mailed to you typically within ten (10) working days.

2. If you fail the examination(s), you will be required to wait ten (10) working days before scheduling a retest.

3. The OECP Examiner’s / Practical Examination Coordinator’s decisions on all practical examination related matters are final.
EXAMINATION PROCEDURE ACKNOWLEDGEMENT

I have read and fully understand the tower crane practical examination instructions as described on pages 34 to 37 of the Crane Operator Candidate Manual (OECPINST2013.4). My signature also acknowledges that I currently meet all physical requirements for tower crane operators as defined in ASME B30.3-2009, Section 3-3.1.2.

Name (Print): ________________________________

Signature: ________________________________

Date: _______________________

THIS PAGE WILL BE SIGNED AND SUBMITTED AT THE PRACTICAL EXAMINATION.

Note: This page will be provided at the examination.
FREQUENTLY ASKED QUESTIONS

Q. What is Crane Operator Certification?

A. Crane Operator Certification is the process used to evaluate a crane operator's knowledge and skills with crane operations, procedures, safety, and government regulations. The OECP certification process is nationally accredited, and Fed OSHA recognized, which consists of a written and practical (hands-on) examinations. The OECP complies with §29 CFR 1926.1427(b).

Q. To what specific crane types do the certifications apply to?

A: OECP issues certifications to IUOE members for the following crane types:

   Boom Truck Crane: A commercial truck mounted crane, consisting of a rotating structure (center post or turntable); a boom operating with positive swing action; and one or more operating stations mounted on a frame attached to a commercial truck chassis. The boom truck crane usually will retain a payload hauling capability. Example cranes are depicted in ASME B30.5-2011; Section(s) 5-0.2.1; Figures 5-0.2.1-1, 5-0.2.1-2, and 5-0.2.1-10.

   Lattice Boom Crane: Any crane with a lattice main boom of variable lengths, attachments, configuration, and capacities using hydraulic or friction hoists mounted on a truck carrier (other than described in boom truck) or having crawler treads/tracks for travel that is capable of hoisting, lowering, luffing, and swinging at various radii. Example cranes are depicted in ASME B03.5-2011; Section(s) 5-0.2.1; Figure 5-0.2.1-3.

   Overhead Crane: A crane used in construction that has a top-running, single girder or multiple-girder bridge, with one or more top-running trolley hoists used for vertical lifting and lowering of freely suspended, unguided loads, either cab or pendant operated as referenced in §29 CFR 1926.1438. Example cranes are depicted in ASME B30.2-2011; Section(s) 2-0.2; Figures 2-0.2-1 thru 2-0.2-5.

   Telescopic Boom Crane: Covers all hydraulic cranes, either large (over 75 tons), medium (22 – 75 tons), small (under 22 tons, other than a boom truck crane) fixed or swing cab, mounted on a truck, crawler, all terrain, or rough terrain carrier equipped with a telescopic variable length boom, and attachments; that is capable of hoisting, lowering, luffing, and swinging at various radii. Example cranes are depicted in ASME B30.5-2011; Section(s) 5-0.2.1; Figures 5-0.2.1-4, 5-0.2.1-7, 5-0.2.1-9, and 5-0.2.1-10.

   Tower Crane: A crane equipped with a vertical mast that supports a superstructure (rotating section)--typically with a jib, counter jib and operator’s station mounted to it--powered by an electric or internal combustion engine that can vary operating radii by means of a traversing trolley, luffing boom, or a combination of the two. The crane may be mounted on a fixed base as freestanding, guy supported, braced or assembled inside a structure. The crane may also be mounted on a traveling base by means of bogies and trucks to allow travel within a jobsite. Example cranes are depicted in ASME B30.3-2009; Section(s) 3-0.2.2; Figures 3-0.2.1.2-1 thru 3-0.2.1.2-4. This certification is also applicable for those tower cranes commonly referred to as portable, self-erecting.

Q. Who administers this certification program?

A. A joint labor / management program has been formed for the members of the IUOE to create, implement, and manage a nationally accredited crane operator certification. The program is called the Operating Engineers Certification Program (OECP).

Q. Who administers the written and practical examinations?

A. An OECP Examiner, Practical Examination Coordinator, and/or Qualified Proctor is responsible for administering the written or practical examinations which is free from conflict of interest, influence, corruption, or favoritism.
Frequently Asked Questions

Q. Why do I need a certification?

A. Each IUOE Local Union is different in that the requirement for certification that may arise from one or more sources. For example, many states (e.g., California, New Jersey, New Mexico, Nevada, and Pennsylvania, etc.) now require crane operators to be certified from an accredited organization. In other cases, the requirement is stated in the labor agreements the Local Union has signed with their signatory contractors, while in many areas, insurance providers are now requiring their policy holders to certify their operators. Additionally, in 2010, new federal regulations were enacted requiring mandatory crane operator certification in all states commencing in November, 2017.

Q. What if my contractor/employer does not recognize my OECP certification?

A. Inform your employer that your certification is a nationally accredited, Fed/OSHA accepted crane operator certification, and that the OECP is compliance with 29 CFR 1926.1427(b), the federal regulations that cover crane operator certification. You should immediately contact the OECP if this situation should happen.

Q. Can any IUOE member obtain this certification?

A. Yes. The certification process is ONLY open to members of the IUOE, in good standing, who meet the eligibility requirements as explained in the Crane Operator Candidate Manual. It will require knowledge and skills of crane operations to successfully complete the process.

Q. I have a city license, e.g., a Chicago City Crane License. Do I still need to get the OECP certification?

A. A city license has absolutely nothing to do with this or any other nationally accredited crane operator certification. A city or state can require any licensing regulation within their jurisdiction.

Q. How can I prepare for the written examination?

A. Your experience in operating cranes will be your best preparation; however, one of the main goals of this certification is to promote training through IUOE Local Union training sites. Read the Crane Operator Candidate Manual. It contains sample questions and a list of references used in the examinations’ development that can help your preparation. Additional resources, information, and instruction are available at your IUOE Local Union’s training site.

Q. Is there a “Grandfathering” process if I have been operating cranes for a certain amount of time?

A. No. There is no “Grandfathering” process for the initial certification. However, recertification is available to those who meet the eligibility requirements in the Crane Operator Candidate Manual, and who possess a current nationally accredited certification equivalent for the crane type that they are certified for, and in the recertification period.

Q. How long is this certification card valid?

A. The certification card is valid for five (5) years.

Q. How do I recertify when the card is due to expire?

A. Information for recertification can be found in appropriate sections of the Crane Operator Candidate Manual. Contact the OECP certification office for an Application for Recertification, or you may to obtain more information at www.oecp.org.
Frequently Asked Questions

Q. What does recertification entail?

A. Recertification requires passing a 50 question written examination(s) for the crane type(s) (mobile, overhead, or tower cranes) in which you wish to recertify. Operators with at least 1,000 hours of documented experience of (seat time) safe operating the specific type of crane for which recertification is sought--during the immediately preceding certification period--are initially exempt from having to take the practical examination(s) to obtain recertification.

Q. How long does recertification take?

A. If the practical examination(s) has been waived, recertification should not take more than a few hours of your time (outside of filling out forms, obtaining required documents, etc.). If practical examinations are required, plan on spending at least one full day at the practical examination site.

Note: It is recommended you commence the recertification process at least six (6) months prior to the expiration date on your certification card to ensure your certifications do not expire due to unforeseen delays. Even though the actual process is relatively short, one still has to work around scheduled examination dates and availabilities.

Q. Where will the written examinations and practical examinations be administered?

A. The OECP administers examinations in all geographical areas covered by the IUOE. The location(s) of the examinations vary and are based on each Local Unions schedules. A candidate, who meets the eligibility requirements, and registers as indicated in the Crane Operator Candidate Manual, may attend a scheduled examination at any scheduled examination venue.

Q. I am currently on the out of work list. How will I be able to find a crane to complete the practical test?

A. IUOE Local Union’s training sites, or signatory contractors will provide the cranes and facilities for the practical examinations.

Q. What will I need when I attend the written examination?

A. At the examination, you will be provided with everything you need to take the test(s), e.g., test booklets, load charts, pencils, and scratch paper.

Q. What type of crane study / resource information do I need to know to pass the written examinations?

A. The written examinations cover all aspects of craning operations including current state and federal regulations, jobsite conditions, setup, safety, maintenance, rigging, and crane load chart calculations. See the Written Examinations Outline, Sample Questions, and Written Examination References sections of the Crane Operator Candidate Manual for a more complete list. If you require resource (study) material or information regarding training/refresher classes, please contact your IUOE Local Union’s training site. The OECP does not supply study materials nor conduct training for the certification examinations.

Q. What are the required written examinations?

A. You must pass the mobile crane written examination to obtain nationally accredited certification in boom truck cranes, lattice boom cranes, and/or telescopic boom cranes. Overhead crane candidates must pass the overhead crane written examination. Tower crane candidates must pass the tower crane written examination. You must then complete the practical examination (hands-on) for each crane type (boom truck crane, lattice boom crane, telescopic boom crane, overhead crane, tower crane) in which you wish to become certified.
Frequently Asked Questions

Q. What does the practical examination entail?

A. All candidates will be required to perform a series of maneuvers that will test their ability to perform the basic functions of operating a crane. These will include placing a specified test weight onto specified targets, controlling swing and drift, performing multifunction lifts by guiding a load through a pre-set obstacle course, and following hand signals. See the Practical Examinations Outline section of the Crane Operator Candidate Manual for a more complete list.

Q. Can I use a calculator for the examinations?

A. No. Electronic calculators and other types of personal digital assistant devices that have input/memory ability are not allowed during OECP examinations.

Q. After completing the examinations, can I see and discuss the actual questions that I answered incorrectly?

A. No. The written examinations are knowledge / skill assessment instruments used to evaluate an operator's existing knowledge. They must be administered securely using standardized procedures. Any discussion of the actual questions could compromise and invalidate the examinations.

Q. Will the written examinations be scored at the time that I take them?

A. For paper and pencil testing you will typically receive your written examination scores by USPS mail within ten (10) working days after completing the examinations. Examination score results are never given over the phone.

Computer Based testing (CBT) will indicate whether you “Passed” or “Failed” upon completion of that examination. Additionally, you will be sent a letter explaining your test results within ten (10) working days.

Note: Scores can also be electronically e-mailed with the signed permission of the candidate.

Q. If I do not feel that my score was correct, can I request a rescore?

A. Yes. You must first submit a written request to the OECP Certification Director within 30 days of your examination date. See page 9, Rescoring Requests, in the OECP Crane Operator Candidate Manual for more information.

Q. What information regarding my participation in the program will the OECP release to employers and others?

A. The OECP will release information regarding certification status to any employer, government agency, person, or entity that submits a written request or registers electronically with the “Ask OECP” on the OECP website. Released information will be limited to the individual’s name, IUOE registration number, and current certification status. No information concerning the written or practical examination scores, results of substance abuse tests, information contained on the medical evaluation form and/or any other personal data will be released without prior written authorization from the individual or the individual’s legal representative.
Manitowoc 222
Mobile Crane Load Chart

This load chart is NOT to be used for actual operation. It is NOT complete and only contains the pages necessary to perform the OECP Crane Operator Candidate Manual sample questions.
Liftcrane Boom Capacities

LIFTING CAPACITIES: Capacities for various boom lengths and operating radii are for freely suspended loads and do not exceed 75% of a static tipping load. Capacities based on structural competence are denoted by an asterisk (*).

Retracted crawler capacities are not shown for boom positions which, without load, provide less than required ANSI B30.5 backward stability.

Upper boom point capacity for liftcrane service with single part whip line is 20,000 Lbs. In all cases, upper boom point capacities cannot exceed those listed for main boom capacity.

Weight of jib, all load blocks, hooks, weight ball, slings, hoist lines, etc., beneath boom and jib point sheaves, is considered part of main boom load. Boom is not to be lowered beyond radii where combined weights are greater than rated capacity. Where no capacity is shown, operation is not intended or approved.

OPERATING CONDITIONS: Machine to operate in a level position on a firm uniformly supporting surface with gantry up. Refer to boom rigging No. 193744 or No. 910557 and Wire Rope Specification chart No. 9071-A. Crane operator judgment must be used to allow for dynamic load effects of swinging, hoisting or lowering, travel, wind conditions, as well as adverse operating conditions and physical machine depreciation. Refer to operators manual for operating guidelines.

MACHINE TRAVEL: Machine to travel on a firm, level and uniformly supporting surface and boom within boom angle range shown in capacity chart. Refer to Maximum Allowable Travel Specification chart No. 9143-A.

OPERATING RADIUS: Operating radius is horizontal distance from axis of rotation to center of vertical hoist line or load block. Boom angle is angle between horizontal and centerline of boom bolt and inset, and is an indication of operating radius. In all cases, operating radius shall govern capacity.

BOOM POINT ELEVATION: Boom point elevation is vertical distance from ground level to centerline of boom point shaft.

MACHINE EQUIPMENT: Machine equipped with 22 ft. 4 in. extendible crawlers, 36 in. treads, 15 Ft. 6 in. retractable gantry, 10 part boom hoist receiving, two 1-1/4 in. boom pendants, 1st crane counterweight = 28,500 Lbs., 2nd crane counterweight = 10,000 Lbs., 3rd crane counterweight = 24,800 Lbs. and four 3,500 Lb. crawler frame counterweights.

<p>| Deduct From Capacities When Jib Is Attached |</p>
<table>
<thead>
<tr>
<th>Jib Length</th>
<th>Jib No. 10</th>
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<tbody>
<tr>
<td>30 Ft.</td>
<td>1,700 Lbs.</td>
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<tr>
<td>40 Ft.</td>
<td>2,100 Lbs.</td>
</tr>
<tr>
<td>50 Ft.</td>
<td>2,600 Lbs.</td>
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<tr>
<td>60 Ft.</td>
<td>3,100 Lbs.</td>
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<tr>
<th>MaximumBoom and Jib Lengths Lifted Unassisted</th>
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<tbody>
<tr>
<td>Over End of Crawler</td>
</tr>
<tr>
<td>Boom Length</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>200 Ft.</td>
</tr>
<tr>
<td>190 Ft.</td>
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<table>
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<tr>
<th>Over Side of Extended Crawlers</th>
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<tbody>
<tr>
<td>Boom Length</td>
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<tr>
<td>-------------</td>
</tr>
<tr>
<td>200 Ft.</td>
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<tr>
<td>190 Ft.</td>
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</tbody>
</table>

<table>
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<tr>
<th>Over Side of Retracted Crawlers</th>
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<td>Boom Length</td>
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<tr>
<td>-------------</td>
</tr>
<tr>
<td>190 Ft.</td>
</tr>
<tr>
<td>180 Ft.</td>
</tr>
<tr>
<td>170 Ft.</td>
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<tr>
<td>160 Ft.</td>
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</tbody>
</table>

Load block, hook and weight ball on ground at start.

Consult jib chart for jib capacities. Upper boom point cannot be used when jib is attached.
# Liftcrane Boom Capacities

**222 SERIES B**

Boom No. 222 With Open Throat Top  
63,300 Lb. Crane Counterweight  
14,000 Lb. Crawler Frame Counterweight  
360 Degree Rating

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<tbody>
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<td>40 Ft. BOOM</td>
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</tr>
<tr>
<td>10</td>
<td>80.7</td>
<td>44.9</td>
<td>200,000 *</td>
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<td>11</td>
<td>79.2</td>
<td>44.7</td>
<td>200,000 *</td>
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<td>77.8</td>
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<td>185,300 *</td>
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<td>13</td>
<td>76.3</td>
<td>44.2</td>
<td>171,100 *</td>
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<td>14</td>
<td>74.8</td>
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<td>73.3</td>
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<td>16</td>
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<td>43.3</td>
<td>139,000 *</td>
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**Meets ANSI B30.5 Requirements**
## Liftcrane Boom Capacities

### 222 SERIES B

Boom No. 222 With Open Throat Top
63,300 Lb. Crane Counterweight
14,000 Lb. Crawler Frame Counterweight
360 Degree Rating

### 222EX SERIES B

Meets ANSI B30.5 Requirements

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### Liftcrane Boom Capacities

**222 SERIES B**

Boom No. 222 With Open Throat Top
63,300 Lb. Crane Counterweight
14,000 Lb. Crawler Frame Counterweight
360 Degree Rating

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<td>96.4</td>
<td>15,600 *</td>
</tr>
<tr>
<td>70</td>
<td>52.8</td>
<td>92.8</td>
<td>14,200 *</td>
</tr>
<tr>
<td>75</td>
<td>49.4</td>
<td>88.8</td>
<td>12,900 *</td>
</tr>
<tr>
<td>80</td>
<td>45.9</td>
<td>84.2</td>
<td>11,800 *</td>
</tr>
<tr>
<td>85</td>
<td>42.1</td>
<td>79.0</td>
<td>10,800 *</td>
</tr>
<tr>
<td>90</td>
<td>38.1</td>
<td>73.0</td>
<td>9,900 *</td>
</tr>
<tr>
<td>95</td>
<td>33.6</td>
<td>66.0</td>
<td>9,200 *</td>
</tr>
<tr>
<td>100</td>
<td>28.5</td>
<td>57.6</td>
<td>8,500 *</td>
</tr>
<tr>
<td>105</td>
<td>22.4</td>
<td>47.1</td>
<td>7,900 *</td>
</tr>
<tr>
<td>110</td>
<td>14.0</td>
<td>31.7</td>
<td>7,300 *</td>
</tr>
</tbody>
</table>

#### 120 Ft. BOOM

<table>
<thead>
<tr>
<th>Oper. Rad. Feet</th>
<th>Boom Point Elev. Feet</th>
<th>Boom Capacity Crawlers Retracted Pounds</th>
<th>Boom Capacity Crawlers Extended Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>47.2</td>
<td>93.2</td>
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<tr>
<td>90</td>
<td>43.8</td>
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<tr>
<td>95</td>
<td>40.2</td>
<td>82.7</td>
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<tr>
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</tr>
<tr>
<td>105</td>
<td>32.1</td>
<td>68.9</td>
<td>7,600 *</td>
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<tr>
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<tr>
<td>115</td>
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<tr>
<td>120</td>
<td>13.4</td>
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#### 130 Ft. BOOM

<table>
<thead>
<tr>
<th>Oper. Rad. Feet</th>
<th>Boom Point Elev. Feet</th>
<th>Boom Capacity Crawlers Retracted Pounds</th>
<th>Boom Capacity Crawlers Extended Pounds</th>
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</thead>
<tbody>
<tr>
<td>22</td>
<td>81.8</td>
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<td>24</td>
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</tr>
<tr>
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<td>78.2</td>
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<tr>
<td>32</td>
<td>77.3</td>
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<td>34</td>
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<td>115</td>
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<tr>
<td>125</td>
<td>20.6</td>
<td>50.8</td>
<td>6,800 *</td>
</tr>
<tr>
<td>130</td>
<td>12.8</td>
<td>34.0</td>
<td>5,400 *</td>
</tr>
</tbody>
</table>

#### Note:

- All capacities are given in pounds and are based on the crane's rated capacity.
- Capacities are reduced at increased radii.
- Capacities are provided for both retracted and extended booms.
- Capacities meet ANSI B30.5 requirements.
## CRANE WEIGHTS
### MODEL 222

**Note:** Weights may fluctuate 13% due to manufacturing tolerances.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pounds</strong></td>
<td><strong>Kilograms</strong></td>
</tr>
</tbody>
</table>

### LIFTCRANE:
- Basic crane comprising: complete upper and lower works, inner and outer counterweights, gantry and backt trench assembly, fully rigged 40' (12.2 m) W-100 boom complete with upper boom point, 100 US Ton (90.7 tonnes) 4-sheave hook block and 10 US Ton (9.07 tonnes) hook and weight ball. Teleoscopic boom stops and load lines.

| 153,040 | 69,437 |

### UPPERRWORKS WITH CARBODY:
- Rotating bed with bearing turntable, carbody, two main drums with load lines, boom hoist, one swing drive, operator's cab and machine enclosures, Cummins 6 CTA 8.3T power plant, hydraulic reservoir (full), fuel tank (1/2 full), gantry, backtrench, boom butt, equalizer, boom hoist line and teleoscopic boom stops.

| 56,110 | 25,458 |

### LOWERWORKS:
- Carbody with hydraulic swivel assembly, piping and installation, 22'4" (6.8 m) crawler assembly with 36' (9.9 m) treads (each).

| 19,079 | 8,656 |

### COUNTERWEIGHT:
- 1ST (INNER) 28,500 12,927
- 2ND (OUTER) 24,800 11,249

### GANTRY:
- 15' 6" (4.7 m) gantry with sheave carrier.
- Telescopic backtrench leg (each).

| 1,842 | 835 |

### BOOM W-100:
- W-100 basic boom comprising: 19' (5.79 m) butt section with sheave assembly.
- 10' (3.0 m) top section with lower point and wire rope guide.
- 10' (3.0 m) insert.
- 20' (6.1 m) insert.
- 40' (12.2 m) insert.
- 21' (6.4 m) Basic pendant* (each).
- 10' (3.0 m) pendant* (each).
- 20' (6.1 m) pendant* (each).
- 40' (12.2 m) pendant* (each).

| Upper boom point complete with single sheave and anti two-block assembly.
| Three (3) sheave wire rope guide (on top).
| Equalizer.

### JIB W-16:
- W-16 basic jib comprising: 15' (4.6 m) butt section.
- 15' (4.6 m) top section with jib point sheave.
- 32' 2-1/2" (9.8 m) pendant* (each).
- Jib stop pendant and link (each).
- Strut with sheave and links.
- 48" 4" (1.2 m) backstay pendant* (each).
- 10' (3.0 m) insert.
- 9' 9" (2.97 m) pendant* (each).
- 3' 9" (1.1 m) backstay pendant*, 20" offset (each).
- Backstay link, 10" offset (each).

| 415 | 188 |

### WIRE ROPE:
- Boom hoist.
- Load lines.

| 310 | 141 |

| 1,030 | 467 |

### MISCELLANEOUS:
- Hinged fairlead assembly.
- 100 US ton load block with swivel hook (steel sheaves).
- 10 US ton (9.98) hook and weight ball.

| 1,325 | 601 |

© 2000 Manitowoc Cranes, Inc.

03-01-2000  Folio 1779-1
Wire Rope Specifications
Liftcrane
Boom No. 222 With Open Throat Top

<table>
<thead>
<tr>
<th>Wire Rope Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Boom or Boom and Jib Length</strong></td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>60</td>
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<td>230</td>
</tr>
<tr>
<td>240</td>
</tr>
<tr>
<td>250</td>
</tr>
</tbody>
</table>

Note: Hoist line and whip line lengths given in table will allow hook to touch ground. When block travel below ground is required, add additional rope equal to parts of line times added travel distance. Hoisting distance or line pull may be limited when block travel below ground is required.

<table>
<thead>
<tr>
<th>Hoist Reeling for Main Load Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Parts of Line</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Maximum Load - Lbs.</strong></td>
</tr>
<tr>
<td><strong>Maximum Load - kg</strong></td>
</tr>
<tr>
<td><strong>Maximum Load - Lbs.</strong></td>
</tr>
<tr>
<td><strong>Maximum Load - kg</strong></td>
</tr>
</tbody>
</table>
Peiner SK 405
Tower Crane Load Chart

This load chart is NOT to be used for actual operation. It is NOT complete and only contains the pages necessary to perform the OECP Crane Operator Candidate Manual sample questions.
PEINER SK 405

Lifting capacity 22 000/44 000 lbs
Max. Tragfähigkeit 10.0 / 20.0 t
SK 405 Combinations of tower section, hook heights, forces acting per corner, base ballast
Turmkombinationen, Hakenhöhen, Eckkräfte, Zentralballast

Version: A

Version F - U 821

Version E - U F 821

Ground support
Bodenauflagen
### SK 405  Tower / Turm TS 212

#### Tower / Turm TS 212.1

<table>
<thead>
<tr>
<th>TS 212</th>
<th>Version A</th>
<th>Version F</th>
<th>Version E</th>
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<tbody>
<tr>
<td>Tower</td>
<td>Tower</td>
<td>BZ</td>
<td>BZ</td>
</tr>
<tr>
<td>Turn</td>
<td>Turn</td>
<td>i.B.</td>
<td>i.B.</td>
</tr>
<tr>
<td>TS 212.1</td>
<td>TSV 212</td>
<td>t.s. BF</td>
<td>t.s. BF</td>
</tr>
<tr>
<td>HH</td>
<td>HH</td>
<td>kips / kN</td>
<td>kips / kN</td>
</tr>
<tr>
<td>ft</td>
<td>m</td>
<td>lbs / t</td>
<td>kips / t</td>
</tr>
<tr>
<td>11 x TS 212.1</td>
<td>211-3&quot;</td>
<td>222-9&quot;*</td>
<td>229 000</td>
</tr>
<tr>
<td>10 TS 212.1</td>
<td>197-4&quot;</td>
<td>207-9&quot;</td>
<td>209 900</td>
</tr>
<tr>
<td>9 x TS 212.1</td>
<td>177-8&quot;</td>
<td>184-8&quot;</td>
<td>180 800</td>
</tr>
<tr>
<td>8 x TS 212.1</td>
<td>157-4&quot;</td>
<td>163-9&quot;</td>
<td>153 700</td>
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<td>7 x TS 212.1</td>
<td>133-11&quot;</td>
<td>149-9&quot;</td>
<td>122 600</td>
</tr>
<tr>
<td>6 x TS 212.1</td>
<td>116-7&quot;</td>
<td>125-4&quot;</td>
<td>122 600</td>
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<tr>
<td>5 x TS 212.1</td>
<td>94-3&quot;</td>
<td>117-9&quot;</td>
<td>92 500</td>
</tr>
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<td>75-11&quot;</td>
<td>86-9&quot;</td>
<td>75 400</td>
</tr>
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<td>56-4&quot;</td>
<td>66-11&quot;*</td>
<td>52 400</td>
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<tr>
<td>2 x TS 212.1</td>
<td>37-2&quot;</td>
<td>47-7&quot;</td>
<td>52 400</td>
</tr>
</tbody>
</table>

### Foundation / Fundament

- **27'-11" x 27'-11" x 5'-7"**
- **8.5 x 8.5 x 1.7 m**

### Stationary base / Unterwagen

- **BF**
- **U B21**
- **4 x 13 220 lbs**
- **4 x 6.01**

### Rail going base / Unterwagen, Kursenfahrbar

- **Bogie / Fahrschemel**
- **Curve / Kurve**
- **U F 821**
- **Block 14 550 lbs**
- **Block 6.6 t**
- **F 500**

---

*Using the tower section TSK 212 the hook height is increased by 2 m. / Bei Verwendung des TSK 212 erhöhte sich die Hakenhöhe um 2 m.*

*Lower climbing section after erection. / Kletterausführung nach Montage ablassen.*

| TS 212.1 | 19'-4 1/2" / 5.9 m |
| TSV 212 | 25'-11" / 7.9 m |
| TSK 212 | 6'-7" / 2.0 m |
### SK 405  Radius and capacity / Ausladung und Tragfähigkeit

<table>
<thead>
<tr>
<th>Job</th>
<th>Auslager</th>
<th>Max. capacity</th>
<th>max.</th>
<th>Radius (ft) and capacity (lbs)</th>
<th>Ausladung (m) and Tragfähigkeit (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R m</td>
<td></td>
<td></td>
<td></td>
<td>v</td>
<td></td>
</tr>
<tr>
<td>44 000 lbs</td>
<td>20.01</td>
<td>v = 0</td>
<td>-265 fpm (80 m / min.)</td>
<td>1 x 19.2 HP</td>
<td>1 x 7.5 kW</td>
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<tr>
<td>20.01</td>
<td></td>
<td>v = 0</td>
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<tr>
<td>K WB 150/4</td>
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<td>v = 0</td>
<td>1.0 fpm (min⁻¹)</td>
<td>2 x 12.4 HP</td>
<td>3 x 12.4 kW</td>
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<tr>
<td>127.4</td>
<td>37.6</td>
<td>v = 0</td>
<td>1.0 fpm (min⁻¹)</td>
<td>3 x 12.4 kW</td>
<td>3 x 9 kW</td>
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| HK max. = 820° (250 m) | 5-Layers / 5 Lagen |

<table>
<thead>
<tr>
<th>Type</th>
<th>SR WB 66-1000/4</th>
<th>444 fpm</th>
<th>5,500 lbs</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>276 fpm</td>
<td>9,300 lbs</td>
<td>4,200 kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>180 fpm</td>
<td>15,700 lbs</td>
<td>7,100 kg</td>
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<td></td>
<td>108 fpm</td>
<td>22,000 lbs</td>
<td>10,000 kg</td>
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</table>

| HK max. = 985° (300 m) | 6-Layers / 6 Lagen |

<table>
<thead>
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<th>7,700 lbs</th>
<th>3,500 kg</th>
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<tbody>
<tr>
<td></td>
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<td>276 fpm</td>
<td>13,200 lbs</td>
<td>6,000 kg</td>
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<tr>
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<td>180 fpm</td>
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<td>10,000 kg</td>
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<tr>
<td></td>
<td></td>
<td>108 fpm</td>
<td>44,000 lbs</td>
<td>20,000 kg</td>
</tr>
</tbody>
</table>

| Counterweight / Gegengewicht |

<table>
<thead>
<tr>
<th>Job</th>
<th>Auslager</th>
<th>Counterweight 66 WB</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
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<tbody>
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<td>6 x 6800</td>
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<td>6 x 6800</td>
<td>2 x 3 200</td>
</tr>
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<td>[lbs]</td>
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<td>5 x 3 10</td>
<td>6 x 3 10</td>
<td>6 x 3 10</td>
<td>6 x 3 10</td>
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<td>37 200</td>
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</table>

<table>
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<th>6 x 6800</th>
<th>6 x 6800</th>
<th>6 x 6800</th>
<th>6 x 6800</th>
<th>2 x 3 200</th>
</tr>
</thead>
<tbody>
<tr>
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<td>37 200</td>
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<td>44 000</td>
<td>44 000</td>
<td>44 000</td>
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<tr>
<td></td>
<td>[lbs]</td>
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OECPINST2013.4E
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<th>Designation Description</th>
<th>Dimensions (m x m)</th>
<th>Weight (Gewicht)</th>
<th>Volume (Volumen)</th>
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<td>Section II</td>
<td>38.72</td>
<td>4.04</td>
<td>5.97</td>
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<td>Section III</td>
<td>38.72</td>
<td>4.04</td>
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<td>Section IV</td>
<td>38.72</td>
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<td>Section V</td>
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<td>4.04</td>
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<tr>
<td>Jib type / Selbstl.</td>
<td>3.00</td>
<td>1.20</td>
<td>2.46</td>
</tr>
</tbody>
</table>

| Tower top comp.        |                   |                 |                 |
| Turnspitze Lkl.        |                   |                 |                 |
| Table with swivelling support and motors | | | |
| Drehbohne mit Drehkranzauflage u. Motoren | | | |
| 9.68                  | 7.11              | 5.55            | 21.72           |
| 2.95                  | 2.35              | 2.30            | 9.85            |

| Cabinet / Kabine       |                   |                 |                 |
|                       | 5.41              | 3.61            | 2.15            |
|                       | 1.65              | 1.10            | 2.18            |

| Counter jib with hoist winch + electrical panel Gegenkrane mit Hubwende + Schaltkranz | | | |
| 38.06                 | 9.02              | 5.57            | 7.17            |
| 11.68                 | 2.15              | 1.70            | 23130           |

| Hoist winch           |                   |                 |                 |
| Hubwende              | 7.54              | 5.45            | 3.28            |
| 2.29                  | 1.66              | 1.00            | 2.45            |

| Counter jib ballast   |                   |                 |                 |
| Gegengewichtsballast  | 5.08              | 0.63            | 14.76           |
| 1.30                  | 0.19              | 4.50            | 3.10            |

| Tower section         |                   |                 |                 |
| Tornschuss            | 15.95             | 1.78            | 8.01            |
| 5.95                  | 2.37              | 2.45            | 4.14            |

| Movable undercarriage, folded Unterkörper, gefaltet, gefl"asselt | | | |
| 41.01                 | 9.74              | 7.05            | 35450           |
| 12.5                  | 2.97              | 2.15            | 1590            |

| Stationary undercarriage, folded Unterk"arren, stacionär, gefaltet | | | |
| 34.55                 | 9.06              | 2.79            | 17130           |
| 10.53                 | 2.76              | 0.85            | 7.77            |

| Central ballast block |                   |                 |                 |
| Zentrale Ballast      | 4.59              | 0.65            | 0.40            |
| 14.17                 | 6.43              | 1.31            | 14.35           |

| Foundation pad        |                   |                 |                 |
| Fundamentblock        | 9.84              | 2.99            | 0.75            |
| 3.00                  | 1.20              | 2.46            | 6.00            |

| Accessories           |                   |                 |                 |
| Diverse Montagehilfe | 13.14             |                 | 5.96            |

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