

# Washington State Construction Crane Certifier Program CANDIDATE HANDBOOK

## ACCREDITATION PROCESS

In the State of Washington, candidates may seek accreditation as a Crane Certifier in one or more of the following crane categories:

- Mobile Cranes
- Tower Cranes
- Articulating Cranes
- Overhead Cranes

There are three steps to follow to become accredited to certify cranes in the construction industry:

- **STEP 1**—Make sure that you meet the experience requirements and other accreditation criteria.
- **STEP 2**—Submit an application to the Department of Labor and Industries.
- **STEP 3**—Take and pass the required certification examinations.

These steps are described in detail below.

### Step 1—Make Sure That You Meet All of the Accreditation Criteria

- All applicants must possess knowledge of WAC Chapter 296-155, *Safety Standards for Construction Work*, as well as American Society of Mechanical Engineers (ASME) standards relating to the design, testing, inspection, and operation of cranes specifically applicable to the type(s) of cranes for which certifier accreditation will be issued.
- All applicants must demonstrate at least five years' crane-related experience, of which two years must be actual crane inspection activities. The other three years may include experience in duties such as a crane operator, crane mechanic, crane shop foreman, crane operations supervision, or rigging specialist. Related education may be substituted for related experience at a ratio of two years of education for one year of experience up to three years. Related education may include courses in engineering, physics, applied mathematics, applied science courses in nondestructive testing, construction technology, technical courses in heavy equipment mechanic, welding technology, and similar applicable topics.

### Step 2—Submit an Application to the Department of Labor and Industries

Candidates must submit an application for accreditation to the Department. Complete this application online at: <http://www.lni.wa.gov/Forms/pdf/416063af.pdf>. All information and attachments must be provided accurately under penalty of perjury. The application must include, but is not limited to, the following:

- A statement of the crane types per the ASME B30 series that the applicant desires to certify pursuant to accreditation
- A statement of qualifications and experience including their capacities, satisfying at a minimum the criteria set forth in WAC 296-155-53102 as well as any and all other qualifications the applicant wishes the Department to consider
- Any other relevant information the applicant desires to be considered by the Department

### Step 3—Take and Pass the Required Certification Examinations

#### *Washington General Crane Certifier Examination*

All candidates must take the Washington General Crane Certifier Examination. This examination consists of 50 multiple-choice questions. Candidates are allowed 60 minutes to complete the examination. An outline of the examination's content can be found on page 3.

Candidates must also take one or more of the Additional Inspection Criteria and Proof Load Testing Exams described below.

#### *Mobile Crane Additional Inspection Criteria and Proof Load Testing Exam*

This examination consists of 40 multiple-choice questions, 30 of which will be scored for this examination and 10 will be non-scored questions. Candidates are allowed 90 minutes to complete the examination. An outline of the examination's content can be found on page 4.

#### *Tower Crane Additional Inspection Criteria and Proof Load Testing Exam*

This examination consists of 40 multiple-choice questions, 30 of which will be scored for this examination and 10

will be non-scored questions. Candidates are allowed 60 minutes to complete the examination. An outline of the examination's content can be found on pages 4–5.

***Articulating Crane Additional Inspection Criteria and Proof Load Testing Exam***

This examination consists of 40 multiple-choice questions, 30 of which will be scored for this examination and 10 will be non-scored questions. Candidates are allowed 60 minutes to complete the examination. The content outline of the examination is found on page 5.

***Overhead Crane Additional Inspection Criteria and Proof Load Testing Exam***

This examination consists of 40 multiple-choice questions, 30 of which will be scored for this examination and 10 will be non-scored questions. Candidates are allowed 60 minutes to complete the examination. The content outline of the examination is found on page 5.

***Crane Operator Examinations***

Candidates must also pass crane operator certification written examination(s) that have been developed and are administered by a nationally recognized and accredited testing agency.

Candidates who have previously passed written crane operator examination(s) in the category(s) that they seek to become a crane certifier in are not required to retake the crane operator examination(s).

**APPLYING TO TAKE THE EXAMINATIONS**

Candidates do not have to wait for approval from Washington State Department of Labor and Industries to take the written exams. Candidates may find it more convenient to take the required exams prior to or concurrently with the submittal of their application and resume to the Washington State Department of Labor and Industries.

The Crane Certifier accreditation process may be expedited if the candidate can demonstrate that they have passed the appropriate exam(s).

Candidates wishing to take the Washington State Construction Crane Certifier examination(s) may request an application form or obtain further information from the Washington State Department of Labor and Industries, the National Commission for the Certification of Crane Operators (NCCCO), or International Assessment Institute (IAI).

Candidate exam applications along with the respective fees must be submitted to International Assessment Institute. Applications are due at least two weeks prior to the

scheduled examination date. An exam application form is included on pages 7–8.

Information about the specific locations of the test sites will be available no less than four weeks prior to the examination. Candidates eligible to sit for the examination will receive an admission letter approximately one week before the scheduled test administration date.

**FEES**

The fees for the Washington State Written Examinations are as follows:

- Washington General Crane Certifier Examination ..... \$250
- Mobile Crane Additional Inspection Criteria and Proof Load Testing Exam ..... \$250
- Tower Crane Additional Inspection Criteria and Proof Load Testing Exam ..... \$250
- Articulating Crane Additional Inspection Criteria and Proof Load Testing Exam ..... \$250
- Overhead Crane Additional Inspection Criteria and Proof Load Testing Exam ..... \$250

The fees for the NCCCO Written Examinations are as follows:

- NCCCO Mobile Crane Core Exam..... \$165
- NCCCO Tower Crane Exam ..... \$165
- NCCCO Articulating Crane Exam..... \$165
- NCCCO Overhead Crane Exam ..... \$165

For more information about the content of NCCCO exams, see the appropriate NCCCO Candidate Handbooks.

**SCORE REPORTING**

The Written Examinations are electronically score by International Assessment Institute. All candidates will receive a score report of their performance. Examination results are mailed to candidates approximately 12 business days after the examination administration.

In reporting the examination results to candidates, statistical procedures are used to convert raw scores (i.e., the number of test questions answered correctly) to scaled scores, which are equivalent for all administrations of the examination(s). Candidate results will be reported as a scaled score, on a scale ranging from 0 to 100 points, with a score of **70** representing the minimum passing score. This scaled score is not a number-answered-correctly score.

Candidate's scores cannot be given over the telephone.

## RETEST AND RECERTIFICATION FEES

If you are retaking any written examination or are recertifying, the cost is the same as the original cost based on the category(s) listed under Fees.

## CERTIFICATION CARDS

Candidates who complete the requirements for accreditation or renewal will receive a card designating them as a “WA State Crane Certifier” and listing the specific category(s) in which they have successfully met all requirements.

## ADDING CRANE CATEGORIES

WA State Crane Certifiers may add a new category to their accreditation at any time by applying to the department for approval for the additional category(s) and passing the respective examination(s).

## DURATION AND RENEWAL (WAC 296-155-53108)

Accreditation for Washington State Crane Certifiers is valid for three years. Renewal may be obtained by meeting the following criteria:

- Crane certifiers must complete 40 hours of crane-related training every three years in courses recognized by the department, providing they have been actively inspecting cranes during their prior accreditation period.
- Crane certifiers are considered *active* if they have certified/inspected at least 21 cranes during their accreditation period.

Crane certifiers who have not certified/inspected at least 21 cranes during their accreditation period must take the written exams to become accredited again.

At minimum, all applicants for renewal must successfully complete the written examinations every six years.

## REFERENCE SOURCES

The primary reference sources for the examinations are as follows:

| Reference Source            | Applicable Exams   |
|-----------------------------|--|
| WAC Chapter 296-155, Part L | • All Exams  |
| ASME B30.5                  | • WA State General Crane Certifier<br>• Mobile Crane Specific Inspection Criteria and Proof Load Test Exam |
| ASME B30.3                  | • Tower Crane Specific Inspection Criteria and Proof Load Test Exam  |

## WRITTEN EXAM CONTENT OUTLINES

### Washington General Crane Certifier Examination Content Outline

#### Domain 1: Washington State Crane Regulations—36%

1. Know scope of WAC 296-155-529 through 296-155-53214, *Construction Crane Certification*.
2. Know basic crane terminology and definitions including those in WAC 296-155-52902.
3. Know requirements for a Washington State-accredited Crane Certifier.
4. Understand the duties and record-keeping responsibilities required by this rule.
5. Understand requirements regarding temporary and annual certificates of operation.
6. Know conditions under which identification stickers need to be attached.
7. Understand grounds on which crane certifier accreditation can be revoked.
8. Know requirements for crane decertification and reinstatement.

#### Domain 2: Crane Inspection, Documentation, and Maintenance Requirements—50%

1. Know how to review crane maintenance records of critical components to ensure maintenance of these components has been performed in accordance with the manufacturer’s recommendations.
2. Know how to review crane periodic and frequent inspection documentation.
3. Know how to proceed if manufacturer’s equipment criteria is unavailable.
4. Know how to identify the crane or wire rope manufacturer’s specifications for size, type, and inspection requirements.
5. Know the requirements for the removal criteria of wire rope in the absence of the manufacturer’s specifications:
  - a. Know how to perform a complete and thorough inspection covering the surface of their working range plus three additional wraps of the wire rope on the drum.
  - b. Know what to do if a wire rope deficiency is identified.
  - c. Know wire rope removal criteria based upon reductions from nominal diameter.
  - d. Know replacement rope criteria.

6. Know what steps need to be taken prior to performing a proof load test:
  - a. Know the requirements for performing a proof load test.
  - b. Understand when a registered professional engineer familiar with the type of equipment involved must develop written specifications for load testing.
7. Know how to conduct a visual inspection of crane components.

### **Domain 3: Safety Standards & Regulations—14%**

1. Know relevant WAC crane safety standards found in WAC Chapter 296-155, Part L.
2. Know relevant requirements in WAC Chapter 296-155, *Safety Standards for Construction Work*.
3. Know applicable ASME/ANSI requirements.

### **Mobile Crane Additional Inspection Criteria and Proof Load Testing Exam Content Outline**

#### **Domain 1: Visual Inspection—30%** (*according to WAC 296-155-53202*)

1. Know which crane components must be visually inspected.
2. Know the requirements to conduct a proper visual inspection.
3. Know how to handle situations in which additional information is required to confirm visual acceptance.

#### **Domain 2: Operational Testing (15%)**

1. Know which operational tests must be made without a load applied to the hook.
2. Know what you are to check for when conducting operational tests.

#### **Domain 3: Annual and Quadrennial Proof Load Testing (25%)**

1. Know which components are subject to annual and quadrennial proof load testing.
2. Know how to conduct an annual proof load test.
3. Know how to conduct a free-rated load test (on rubber).

### **Domain 4: Load Charts (30%)**

1. Know how to determine net load capacity or gross capacity for the configuration of the crane.
2. Know how to differentiate between structural and stability capacities.
3. Know how to determine the appropriate radius for testing.

### **Tower Crane Additional Inspection Criteria and Proof Load Testing Exam Content Outline**

#### **Domain 1: Inspection Requirements Prior to Erecting a Tower Crane—25%**

1. Know the conditions or situations that require tower cranes and/or tower crane assembly parts to be inspected.
2. Understand requirements that must be met prior to erecting a tower crane.
3. Know which documents and records must be inspected prior to erecting a tower crane.

#### **Domain 2: Visual Inspection—25%** (*according to WAC 296-155-53206*)

1. Know which crane components must be visually inspected.
2. Know the requirements to conduct a proper visual inspection.
3. Know how to handle situations in which additional information is required to confirm visual acceptance.

#### **Domain 3: Requirements Prior to Performing a Proof Load Test (Operational Testing)—20%**

1. Know which tests must be conducted.
2. Know what functional motion tests must include and how they must be conducted.
3. Know the sequence in which functional motion tests must be conducted.

#### **Domain 4: Proof Load Testing of Tower Cranes—20%**

1. Know how to conduct and document an annual proof load test.
2. Know how to verify that hoist load limit switches are operating properly.
3. Know how to test the structural support or foundation system of fixed free-standing tower cranes.
4. Know how to test the structural support or foundation system of rail-traveling tower cranes.

#### **Domain 5: Self-Erecting Cranes—10%**

1. Know additional inspection requirements that apply to self-erecting cranes:
  - a. Reeving
  - b. Ladder
  - c. Outriggers
2. Know how to test the structural support or foundation system of self-erecting cranes.

#### **Articulating Crane Additional Inspection Criteria and Proof Load Testing Exam Content Outline**

##### **Domain 1: Visual Inspection—40%** (*according to WAC 296-155-53204*)

1. Know which crane components must be visually inspected.
2. Know the requirements to conduct a proper visual inspection.

##### **Domain 2: Operational Testing—40%**

1. Know which operational tests must be made according to ASME B30.22.
2. Know what you are checking for when conducting operational tests.

##### **Domain 3: Annual Proof Load Testing—20%**

1. Know which components are subject to annual proof load testing.
2. Know how to conduct an annual proof load test.

#### **Overhead Crane Additional Inspection Criteria and Proof Load Testing Exam Content Outline**

##### **Domain 1: Visual Inspection—50%** (*according to WAC 296-155-53210*)

1. Know which crane components must be visually inspected.
2. Know the requirements to conduct a proper visual inspection.

##### **Domain 2: Operational Testing—23%**

1. Know which operational tests must be made according to ASME B30.2, B30.11, and B30.17.
2. Know which components must be checked when conducting operational tests.

##### **Domain 3: Annual Proof Load Testing—27%**

1. Know which components are subject to annual proof load testing.
2. Know how to conduct an annual proof load test.

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## Washington State Construction Crane Certifier Written Examination CANDIDATE APPLICATION

*Please type or print neatly.*

|   |      |     |        |                   |               |
|---|------|-----|--------|-------------------|---------------|
| NAME  |      |     | First  | Middle            | Last          |
| NCCCO CERTIFICATION NUMBER (if previously certified)  |      |     |        | SOCIAL SECURITY # |               |
| MAILING ADDRESS   |      |     |        |                   | DATE OF BIRTH |
| CITY  |      |     |        | STATE             | ZIP           |
| HOME PHONE  | CELL | FAX | E-MAIL |                   |               |
| COMPANY/ORGANIZATION  |      |     |        | PHONE             |               |
| COMPANY MAILING ADDRESS   |      |     |        |                   |               |
| CITY  |      |     |        | STATE             | ZIP           |
| HAVE YOU PREVIOUSLY TAKEN ANY NCCCO EXAMS*? <input type="checkbox"/> NO <input type="checkbox"/> YES    DATE LAST TESTED: |      |     |        |                   |               |

*\*Fees for retest candidates are the same as for first-time candidates, as indicated below. Check "Yes" if you are a retest candidate.*

### WRITTEN EXAMINATION FOR WHICH YOU ARE APPLYING

*FILL IN the circle next to the crane type(s) for which you are applying. Total the amount due at bottom.*

#### EXAM DESCRIPTIONS AND FEES

|   |              |   |
|---|--------------|---|
| <input type="radio"/> Washington State General Crane Certifier Exam .....   | 911101 ..... | \$250   |
| <input type="radio"/> Mobile Crane Additional Inspection Criteria & Proof Load Test Exam.....   | 911102 ..... | \$250   |
| <input type="radio"/> Tower Crane Additional Inspection Criteria & Proof Load Test Exam .....   | 911103 ..... | \$250   |
| <input type="radio"/> Overhead Crane Additional Inspection Criteria & Proof Load Test Exam.....   | 911104 ..... | \$250   |
| <input type="radio"/> Articulating Crane Additional Inspection Criteria & Proof Load Test Exam .....  | 911105 ..... | \$250   |
| <hr/>   |              |   |
| <input type="radio"/> NCCCO Mobile Crane Core Exam .....  | 652603 ..... | \$165   |
| <input type="radio"/> NCCCO Tower Crane Exam .....  | 654601 ..... | \$165   |
| <input type="radio"/> NCCCO Overhead Crane Exam .....   | 653601 ..... | \$165   |
| <input type="radio"/> NCCCO Articulating Crane Exam .....   |              | \$165   |
| <i>If you have previously passed the NCCCO certification exam(s) in the category(s) for which you are seeking accreditation, you do not need to retake the exam(s).</i> |              |   |
| <b>TOTAL AMOUNT DUE .....</b>   |              | \$ <input style="width: 100px;" type="text"/> |

