CCO Certification

Assembly/Disassembly Director
CANDIDATE HANDBOOK

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Program Description

Welcome to the CCO Assembly/Disassembly Director certification program. This nationally recognized certification program is the culmination of hard work by experts from the various industries and groups that work with Mobile and Tower cranes.

The CCO Assembly/Disassembly Director Exam Management Committee oversees the content of the certification exams. It is comprised of experts from all aspects of the crane industry, who collectively represent many thousands of hours of crane-related experience. These volunteers freely give their time and expertise to improve the safety of all those working in and around load-handling equipment.

WHO IS AN ASSEMBLY/DISASSEMBLY DIRECTOR?
Within the confines of the responsibilities outlined in ASME B30 and according to OSHA 1926 Subpart CC, an Assembly/Disassembly (A/D) Director plays a pivotal role in overseeing the safe assembly and disassembly of crane systems. At a macro level, their responsibilities include managing a skilled team, coordinating assembly/disassembly projects, and ensuring adherence to safety protocols and industry regulations. Adept at project planning, the A/D Director schedules and allocates resources effectively to ensure timely project completion. They direct crews through intricate crane assembly and disassembly processes and apply troubleshooting and problem-solving skills essential for overcoming challenges. The A/D Director knows the functions and limitations of the cranes being assembled and disassembled and all “assist” equipment used. The A/D Director also has sufficient knowledge of rigging procedures to direct the assembly and disassembly of mobile and/or tower cranes. With a strong emphasis on safety, the A/D Director upholds the highest standards for effective, efficient, and safe crane assembly and disassembly.

To earn certification, the candidate must pass a nationally standardized examination built to a job task analysis that defines the required knowledge, skills, and abilities for an A/D Director.

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Certification Policies

ELIGIBILITY
To be eligible for certification, candidates must:

- Be at least 18 years of age
- Comply with CCO's Substance Abuse Policy
- Comply with CCO's Code of Ethics
- Pass the appropriate written examination

EXAMINATION FEES
For all exam and related fees, visit www.nccco.org/fees .

CCO CERTIFICATION TIME FRAMES
For the CCO Assembly/Disassembly Director certification, candidates must pass the Assembly/Disassembly Director – Mobile and/or Tower Crane Written Examination to be certified in the respective designation for 5 years.

RECERTIFICATION REQUIREMENTS
CCO Assembly/Disassembly Director certification is valid for 5 years. Recertification candidates must complete all of their recertification requirements during the 12 months before their certification's expiration date. Regardless of the date of the exams within that one year, the new five-year certification period begins from the date of expiration of the candidate's initial certification.

Recertificants must:

- Pass the Assembly/Disassembly Director Mobile or Tower crane written examination(s)
- Comply with CCO's Substance Abuse Policy
- Comply with CCO's Code of Ethics

There is no grace period after a certification's expiration date. Candidates whose certification has lapsed must take the written examinations to be certified again.

***NOTE**: Candidates who recertify more than 12 months prior to their expiration date will have their new certification period begin immediately, not from the end of their current certification period.*

Written exams for recertification are available at any written test administration. Candidates wishing to recertify may take exams via Online Proctored Testing (OPT), Test Center Testing (TCT), Event Online Testing (EOT), or contact the Test Site Coordinator who set up their initial certification.

Candidates may add a new certification at the same time as they take their recertification examinations by taking the required examination(s) for the new certification.

CERTIFICATION CARDS
Certified Assembly/Disassembly Directors receive a laminated photo ID card at no cost when they certify, add a designation, or recertify. Replacement cards may be obtained from CCO for $30 and ordered online.

Certification cards remain the property of CCO, are not transferable, and must be returned to CCO upon demand.

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Certification Overview

WRITTEN EXAMINATIONS

The Assembly/Disassembly Director Program consists of two written specialty examinations related to the assembly and disassembly of Mobile and Tower crane systems. The purpose of the certification is to assess whether the candidate is *qualified* to act as an Assembly/Disassembly Director. Whether a certificant is considered *competent* for the role is the employer's responsibility. Both the Mobile and Tower crane specialty exams consist of 45 multiple-choice questions. Candidates are allowed 60 minutes to complete each exam. A calculator is permitted for each exam.

CCO has three options for taking written exams:

Online Proctored Testing (OPT), Test Center Testing (TCT), and Event Online Testing (EOT). Testing fees remain the same regardless of the option you choose.

All methods of test delivery offer:

- Easy and fast online application
- No late application fees
- Quick and simple online scheduling
- No rescheduling fees
- Switch between testing options easily and at no cost
- Immediate score reporting *

**A preliminary score will be available immediately. Results are subject to review and approval in accordance with standard testing protocols.*

The same exam delivery platform is used to administer all written exams, so the look and feel is nearly identical, no matter which option is selected. Exams that require supplements (e.g., load charts) or calculators have these available on-screen. In place of scratch paper, candidates may use a physical whiteboard/dry-erase board up to 8.5 in. x 11 in. or an on-screen whiteboard that is built into the exam.

See how the testing platform works at www.nccco.org/ESOdemo.

Comparing Exam Delivery Options

Online Proctored Testing (OPT)

OPT allows individual candidates to take exams anytime, anywhere via computer, while being monitored virtually by a proctor. Benefits specific to OPT include:

- Available 24/7 – Test without missing work
- Test from anywhere – Home, office, hotel, anywhere with sufficient internet and a private room with a closed door
- Fast scheduling – Candidates may be able to schedule testing appointments in as little as 15 minutes (pending availability)
- Exams on your computer - Use your own computer that meets minimum technical requirements and has a microphone and webcam.
- Flexible rescheduling – You may reschedule up to 30 minutes before your exam appointment time
- No additional fees – no "sitting fee" or other hidden charges

Test Center Testing (TCT)

TCT allows individual candidates to go to a professional computer lab environment established specifically for administering secure exams. Benefits specific to TCT include:

- Testing near you – Nearly 600 testing centers available nationwide
- Plan ahead – Candidates will schedule (or reschedule) exam appointments at least 2 days before testing
- Show up and test – No need to ensure your space, computer, or internet meet specifications
- Whiteboards provided – The test center provides an 8.5 in. x 11 in. whiteboard to each candidate
- In-person Proctor – Professional, experienced TCT staff on-site to get your exam started
- No additional fees – No "sitting fee" or other hidden charges

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Event Online Testing (EOT)
EOT allows groups of candidates to take tests, usually at an employer's or training provider's facility. The EOT test site has complete flexibility with setting up exams on a schedule that meets the site and their stakeholders' needs. Benefits specific to EOT include:

- Familiar setting – Testing is typically done at your employer or training provider's facility
- On-site testing personnel – Individuals credentialed by CCO will be onsite to guide you through the test day process
- Scheduling flexibility – Work with testing personnel to schedule and reschedule, even if you miss your exam time
- Show up and test – No need to ensure your space, computer, and internet connection meet specifications

Length of Test Day
CCO policy permits candidates to take written exams totaling up to 5.5 hours of test time for written exams at a single test administration. Candidates needing to take written exams totaling over 5.5 hours will need to schedule multiple test administrations

FIND TEST LOCATIONS

Written Exams

- CCO written examinations are offered via online proctored testing (OPT) using your equipment from nearly any place with an internet connection, and on-demand at official sites nationwide.
- Find test center testing (TCT) locations by logging into your myCCO portal.
- Explore event online testing (EOT) options by searching your myCCO portal.

NOTE: Test sites are permitted to charge additional fees beyond the CCO exam fees for the use of their facilities and/or services.

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Written Examinations Content Outline

Mobile Crane: 45 Questions / 60 Minutes (Calculator Permitted)

Tower Crane: 45 Questions / 60 Minutes (Calculator Permitted)

The Assembly/Disassembly Director Mobile and Tower Crane Written Examinations test the following knowledge areas relating to the assembly and disassembly of Mobile and Tower Cranes.

Domain 1: Safety & Compliance Management
- Approximately 15% of each test

Domain 2: Pre-Assembly Review & Planning
- Approximately 20% of each test

Domain 3: Verification & Documentation
- Approximately 20% of each test

Domain 4: Assembly/Disassembly Execution
- Approximately 45% of each test

DOMAIN 1: SAFETY & COMPLIANCE MANAGEMENT

1. Verify compliance with safety regulations and standards:
   a) Knowledge of OSHA 1926 subpart CC,
   b) Knowledge of OSHA 1926.251
   c) Knowledge of applicable ASME B30 standards
2. Obtain documentation necessary for A/D activities:
   a) Know how to read, interpret, and comprehend assembly instructions
   b) Know what components make up an acceptable A/D plan
   c) Know what documentation is necessary for personnel.
3. Identify PPE requirements:
   a) Know what PPE is necessary for personnel.
4. Determine which boundaries/restricted areas are required for assembly/disassembly:
   a) Know specific requirements for A/D near powerlines
   b) Knowledge of required distance from excavations
   c) Knowledge of pinch points and barricades
   d) Knowledge of site-specific fall protection requirements
   e) Knowledge of fall zones

DOMAIN 2: PRE-ASSEMBLY REVIEW & PLANNING

1. Locate applicable A/D procedures:
   a) Knowledge of where to find the manufacturer's operations manual
   b) Knowledge of requirements for the employer's procedures
   c) Knowledge of where to find applicable manufacturer's load charts
2. Analyze the manufacturer/employer's procedures:
   a) Knowledge of correct sequencing for A/D activities
   b) Knowledge of components
   c) Knowledge of terminology
   d) Knowledge of manufacturer-specific tolerances.
   e) Knowledge of specific rigging and tools needed.
   f) Knowledge of component weights and center of gravity
3. Convey applicable procedures to the crew:
   a) Knowledge of how to conduct a pre-assembly/disassembly meeting
   b) Knowledge of topics required in pre-assembly/disassembly meeting
   c) Knowledge of how to identify roles and responsibilities
   d) Know how to convey technical information pertinent to the task in language that is understandable
4. Ensure the crew's understanding of their assigned tasks:
   a) Hazards associated with their tasks
   b) Hazardous locations/positions they need to avoid:
      i) Identify hazards associated with their tasks involved in A/D activities
      ii) Identify hazardous locations/ positions they need to avoid that must be avoided during A/D activities

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Verify the capacity limits are not exceeded in the A/D process:

c) Knowledge of the lift plan
d) Knowledge of capacities for related equipment
e) Knowledge of capacities for rigging
f) Knowledge of changes in dynamics
g) Knowledge of cantilever limitations
h) Knowledge of backwards stability

5. Conduct crew planning meeting:
   a) Ability to communicate effectively
   b) Knowledge of crew members
   c) Ability to delegate roles and responsibilities
6. Coordinate activities with site supervision:
   a) Ability to communicate with management and other trades
   b) Knowledge of site-specific emergency procedures
   c) Knowledge of chain of command/ management team
7. Confirm that the roles and responsibilities of personnel involved have been assigned:
   a) Knowledge of roles and responsibilities for the crew
   b) Ability to gauge crew understanding of roles and responsibilities
8. Establish safe weather limitations:
   a) Knowledge of manufacturer limitations and restrictions
   b) Knowledge of site-specific weather limitations
9. Determine that the blocking material is of the correct size, amount, and condition:
   a) Knowledge of size, amount, condition, and method of stacking the blocking required for the task
   b) Knowledge of when blocking is required to protect the structural integrity of the equipment
   c) Knowledge of when blocking is required to prevent dangerous movement or collapse
10. Recognize hazards associated with particular tasks:
    a) Knowledge of how to protect assembly/disassembly crew members when out of the operator's view
    b) Knowledge of hazards of working under the boom, jib, or other components
    c) Knowledge of component stability upon pin removal
    d) Knowledge of the potential for unintended movement from inadequately supported components
    e) Knowledge of how to avoid snagging suspension ropes or pendants

DOMAIN 3: VERIFICATION & DOCUMENTATION

1. Confirm inspection of components has been performed before assembly:
   a) Knowledge of all components used in the assembly
   b) Knowledge of shipping order/bill of lading
   c) Knowledge of pre-erection inspection requirements (only for tower crane exam)
   d) Knowledge of pre-assembly inspection best practices (only for mobile crane exam)
2. Implement safety protocols for A/D activities:
   a) Knowledge of site-specific safety requirements
   b) Knowledge of employer safety requirements
   c) Knowledge of manufacturer safety requirements
3. Verify that tools, rigging, and support equipment have passed inspection:
   a) Knowledge of support equipment inspection requirements
   b) Knowledge of rigging inspection requirements
   c) Knowledge of tools needed for the tasks

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4. Verify site supervision has provided safe site conditions:
    a) Ground conditions (incl. Underground utility locations)
    b) Lighting
    c) Access/Egress
    d) Powerlines
        i) Knowledge of site-specific requirements
        ii) Knowledge of jobsite hours
        iii) Knowledge of routes of travel on the jobsite
        iv) Knowledge of powerline locations and voltage
5. Confirm that the work will be performed by qualified personnel:
    a) Knowledge of training requirements
    b) Knowledge of qualified rigger(s) and signal person
    c) Knowledge of certified and evaluated operator(s)
6. Confirm that the support equipment is configured as per the A/D plan:
    a) Knowledge of the lift plan
    b) Knowledge of support equipment configurations and capacities
7. Knowledge of post-assembly inspection requirements
8. Knowledge of document retention requirements

DOMAIN 4: ASSEMBLY/DISASSEMBLY EXECUTION

1. Ensure the manufacturer/employer's procedures are followed for the A/D processes:
    a) Knowledge of how to locate applicable procedures
    b) Knowledge of the manufacturer/employer's procedures
    c) Ability to select the appropriate procedures
    d) Ability to recognize deviation from the A/D plan
2. Adapt to changing demands:
    a) Ability to apply corrective actions when deviations are encountered
    b) Knowledge of communication protocols
    c) Ability to identify operational challenges
    d) Ability to address operational challenges
    e) Ability to address equipment malfunctions.
    f) Knowledge of who to contact for malfunction repair
    g) Knowledge of temporary alternative measures
3. Oversee A/D processes:
    a) Ability to verify that the A/D plan is followed
    b) Attention to detail
    c) Knowledge of OSHA and ASME standards during A/D activities
    d) Document changes to the A/D plan.
    e) Ability to recognize when documented changes are necessary:
        i) Knowledge of who to contact to get approval for changes
        ii) Ability to effectively communicate changes
4. Monitor project timelines and progress:
    a) Knowledge of the sequence of operations
    b) Knowledge of what factors impact staging and landing areas
    c) Knowledge of time management
    d) Ability to coordinate with other site activities
5. Monitor crew members' location for safety:
    a) Knowledge of restricted areas
    b) Ability to communicate restricted areas to the crew
    c) Ability to verify that restricted areas have not been accessed
    d) Ability to adapt to changing work environments
    e) Knowledge of fall zones
    f) Knowledge of swing radius protections
    g) Knowledge of travel path
    h) Knowledge of load travel path
6. Monitor site conditions for changes (Ground Conditions, Lighting, Access/Egress):
    a) Ability to monitor for adverse weather conditions throughout the A/D process.
    b) Knowledge of blocking and cribbing requirements
    c) Ability to recognize unsuitable ground conditions
    d) Ability to recognize site challenges
    e) Ability to communicate corrective actions

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7. Provide adequate support and stability to prevent uncontrolled movement:
    a) Knowledge of blocking and cribbing requirements
8. Address hazardous situations as they arise:
    a) Ability to recognize unsafe conditions and practices
    b) Ability to stop work until unsafe conditions are addressed
    c) Ability to communicate with site supervision
9. Enforce safety protocols for A/D activities:
    a) Knowledge of regulatory policies
    b) Knowledge of site-specific safety policies
    c) Knowledge of manufacturer safety policies
    d) Ability to recognize and address safety issues

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Reference List

The latest versions of the following reference materials are used by CCO's Assembly/Disassembly Director Exam Management Committee to verify the accuracy of CCO test questions. Candidates are also strongly advised to become familiar with load charts in preparing for CCO certification examinations.

ASME B30.3 – Tower Cranes (2025)

- https://www.asme.org/codes-standards/find-codes-standards/b30-3-tower-cranes

ASME B30.5 – Mobile & Locomotive Cranes (2021)

- https://www.asme.org/codes-standards/find-codes-standards/b30-5-mobile-locomotive-cranes

ASME B30.9 – Slings (2025)

- https://www.asme.org/codes-standards/find-codes-standards/b30-9-slings

OSHA 1926 Subpart CC – Cranes and Derricks in Construction

- https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926SubpartCC

OSHA 1910.184 – Slings

- https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.184

Specialized Carriers and Rigging Association (SC&RA)

- https://www.scranet.org/
  - Guide to Outrigger Pad Materials, Selection and Usage (2024)
  - Guide to Tower Crane Procedures
  - Mobile Crane Assembly/Disassembly Guide (2013)
  - Tower Crane Assembly/Disassembly Guide (2013)

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CCO Policies

All program participants must adhere to CCO policies and procedures. Key policies can be found at https://www.nccco.org/nccco/about-nccco/policies

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