

Draft proposed crane operator qualification regulatory text for March 31, 2015 ACCSH meeting

[all cranes and derricks are referred to as “equipment” in the regulatory text below]

1. Amend § 1926.1427 as follows:

- a. Revise paragraphs (a) through (f) to read as follows:
- b. Remove and reserve paragraph (g).
- c. Revise paragraphs (h), (j) and (k) to read as follows:

§ 1926.1427 Operator qualification

- (a) (1) Employers must ensure that each operator is trained, certified / licensed, and evaluated in accordance with this section before operating any equipment covered under subpart CC, except for the equipment in paragraph (a)(3).
- (2) An employee who has not been certified and evaluated for assigned equipment in accordance with this section may only operate the equipment as an operator-in-training under supervision in accordance with the requirements of paragraph (f) of this section.
- (3) Exceptions: Operator certification/licensing and training under this section is not required for operators of derricks (see § 1926.1436), sideboom cranes (see § 1926.1440), or equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less (see § 1926.1441). NOTE: Employers must train these operators in accordance with § 1926.1430(b).
- (4) Qualification by the U.S. military.
 - (i) For purposes of this section, an operator who is an employee of the U.S. military meets the requirements of this section if he/she has a current operator qualification issued by the U.S. military for operation of the equipment. An employee of the U.S. military is a Federal employee of the Department of Defense or Armed Forces and does not include employees of private contractors.
 - (ii) A qualification under this paragraph is:

(A) Not portable. Such a qualification meets the requirements of paragraph (a) of this section only where the operator is employed by (and operating the equipment for) the employer that issued the qualification.

(B) Valid for the period of time stipulated by the issuing entity.

(5) The employer must provide certification at no cost to employees.

(b) Evaluation.

(1) The employer must ensure that each operator is evaluated with respect to each equipment that the operator will use by an individual who has the knowledge, training, and experience necessary to assess equipment operators.

(2) Through the evaluation, the employer must ensure that the operator candidate:

(i) has the skills necessary to operate the equipment safely, including those specific to the equipment's operational aids and software, the size and configuration of the equipment (including its lifting capacity, boom length, luffing jib, and counterweight set-up);

(ii) has the knowledge and judgment to make sound determinations regarding equipment operations;

(iii) can apply the equipment's load charts and the manufacturer's procedures;

(iv) can perform the type of hoisting activities required for assigned work (e.g., blind lifts, personnel hoisting, multi-crane lifts, etc.); and

(v) has demonstrated competency in the following areas, as applicable:

(A) Signaling;

(B) Set-up

(C) Assembly/Disassembly;

(D) Driving;

(E) Inspection;

(F) Maintenance;

(G) Operational aids; and

(H) Shutdown.

(3) The evaluation must include observation of the candidate operating the equipment.

- (4) Annual re-evaluation. The employer must review each operator's performance annually to ensure that the operator remains capable of operating the equipment safely.
- (5) Re-evaluation. In addition to the annual re-evaluation, the employer must re-evaluate an operator whenever:
 - (i) The operator operates the equipment in an unsafe manner; or
 - (ii) The operator has not operated that equipment within the last six months.
- (6) Documentation. The employer must document the completion of the evaluation as specified in Appendix D, as well as the completion of the annual re-evaluation and any re-evaluations. This document must specify the equipment on which the operator has been evaluated. The employer must provide a copy of the document to the operator and also make it immediately available at the worksite.

(c) Certification by an accredited crane operator testing organization.

- (1) For a testing organization to be considered accredited to certify operators under this subpart, it must:
 - (i) Be accredited by a nationally recognized accrediting agency based on that agency's determination that industry recognized criteria for written testing materials, practical examinations, test administration, grading, facilities/equipment and personnel have been met.
 - (ii) Administer written and practical tests that:
 - (A) Assess the operator applicant regarding, at a minimum, the knowledge and skills listed in Part A of Appendix C for this subpart.
 - (B) Provide certification(s) based on the type of equipment.
 - (iii) Have procedures for operators to re-apply and be re-tested in the event an operator applicant fails a test or is decertified.
 - (iv) Have testing procedures for recertification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in Appendix C.
 - (v) Have its accreditation reviewed by the nationally recognized accrediting agency at least every three years.

(2) An operator will be deemed certified to operate a particular piece of equipment if the operator is certified under paragraph (c) of this section for that type of equipment. If no accredited testing agency offers certification examinations for a particular type of equipment, an operator will be deemed certified to operate that equipment if the operator has been certified for the type that is most similar to that equipment and for which a certification examination is available. The operator's certificate must state the type of equipment for which the operator is certified.

(3) Under this section, a testing entity is permitted to provide training as well as testing services as long as the criteria of the applicable accrediting agency (in the option selected) for an organization providing both services are met.

(4) A certification issued under this paragraph is valid for 5 years.

(d) Licensing by a government entity.

(1) For crane operations that occur within a state or locality that issues operator licenses for equipment covered by this subpart in accordance with the criteria in this paragraph (d), employers must ensure that their operators are licensed by that entity.

(2) Licensing criteria.

(i) The requirements for obtaining the license include an assessment, by written and practical tests, of the operator applicant regarding, at a minimum, the knowledge and skills listed in Part A of Appendix C for this subpart.

(ii) The testing meets industry recognized criteria for written testing materials, practical examinations, test administration, grading, facilities/equipment and personnel.

(iii) The government authority that oversees the licensing department/office, has determined that the requirements in paragraphs (d)(2)(i) and (ii) of this section have been met.

(iv) The licensing department/office has testing procedures for re-licensing designed to ensure that the operator continues to meet the technical knowledge and skills requirements in Appendix C for this subpart.

(v) The license must specify the type of equipment for which the individual is licensed.

(3) A license issued by a State or local government that meets the requirements of this section:

(i) meets the operator licensing requirements of this section only within the jurisdiction of the government entity.

(ii) is valid for the period of time stipulated by the licensing department/office, but no longer than 5 years.

(e) Audited employer program. An employer's program that meets the following requirements satisfies the certification requirement in paragraph (a) of this section:

(1) The written and practical tests must be either:

* * *

(ii) Approved by an auditor in accordance with the following requirements:

(A) The auditor is certified to evaluate such tests by an accredited crane operator testing organization (see paragraph (c) of this section).

* * *

(C) The approval must be based on the auditor's determination that the written and practical tests meet nationally recognized test development criteria and are valid and reliable in assessing the operator applicants regarding, at a minimum, the knowledge and skills listed in Part A of Appendix C.

* * *

* * *

(4) The employer program must have testing procedures for re-qualification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in Part A of Appendix C. The re-qualification procedures must be audited in accordance with paragraphs (e)(1) and (2) of this section.

* * * * *

(f) Operator training. The employer must provide each operator with sufficient training, through a combination of formal and practical instruction, to ensure that the operator possesses the understanding, knowledge, and skills necessary to operate the equipment safely for each activity that the operator will perform.

- (1) The employer must provide instruction on the subjects in Appendix C to the operator-in-training.
- (2) The operator-in-training must be continuously monitored by a trainer while operating equipment.
- (3) The employer may only assign tasks within the operator-in-training's ability.
- (4) The employer must train the operator-in-training in the requirements of this section.
- (5) Each trainer must:
 - (i) be an employee or agent of the operator-in-training's employer;
 - (ii) have the knowledge, training, and experience necessary to direct the operator-in-training on the equipment in use; and
 - (iii) perform no tasks that diminish the ability to monitor the operator-in-training.
- (6) The trainer and the operator-in-training must be in each other's direct line of sight. They must communicate verbally or by hand signals. For tower cranes, the trainer and the operator-in-training must be in direct communication with each other.
- (7) The employer must document the training and ensure that a copy is immediately available at the worksite.

(g) **Reserved.**

(h) **Language and Literacy Requirements.**

* * *

(2) Tests under this section may be administered in any language the operator candidate understands, and the operator's certificate must note the language in which the test was given.

The employer must prohibit an operator from operating equipment that is not furnished with materials required by this subpart that are written in the language in which the operator was tested during certification.

(i) **Reserved.**

(j) Controlling entity. In addition to fulfilling its other duties under the OSH Act, a controlling entity who authorizes equipment to be used, but does not directly employ the operator, must ensure prior to operation that the operator:

(1) has documentation specified in Appendix D showing that he or she has been evaluated and certified in accordance with this standard for the equipment to be operated;

or

(2) is an operator-in-training who will be continuously monitored by a trainer; or

(3) the controlling entity evaluates the operator per paragraph (b) of this section.

(k) The certification requirements in this section are applicable November 10, 2017.

2. Amend § 1926.1430 by revising paragraphs (c)(1) and (c)(2) to read as follows:

§ 1926.1430 Training.

* * * * *

(c) Operators.

(1) The employer must train each operator and operator-in-training on the safe operation of the equipment the operator will be using in accordance with §1926.1427(a) and (f).

(2) Operators excepted from the requirements of §1926.1427. The employer must train each operator covered under the exception of §1926.1427(a)(3) on the safe operation of the equipment the operator will be using.

3. Amend § 1926.1436 by revising paragraph (q) to read as follows:

§ 1926.1436 Derricks.

* * * * *

(q) Qualification and Training. The employer must train each operator of a derrick on the safe operation of equipment the individual will operate. Section 1926.1427 of this subpart (Operator qualification) does not apply, except for the evaluation requirements of § 1926.1427(b).

4. Amend § 1926.1440 by revising paragraph (a) to read as follows:

§ 1926.1440 Derricks.

* * * * *

(a) The provisions of this standard apply, except § 1926.1420 (Ground conditions), § 1926.1415 (Safety devices), § 1926.1416 (Operational aids), and § 1926.1427 (Operator qualification and certification) paragraphs (a) and (c)-(k). Section 1926.1427(b) (Evaluation) applies.

5. Amend § 1926.1441 by revising paragraph (a) to read as follows:

§ 1926.1441 Equipment

* * * * *

(a) The employer using this equipment must comply with the following provisions of this subpart: § 1926.1400 (Scope); § 1926.1401 (Definitions); § 1926.1402 (Ground conditions); § 1926.1403 (Assembly/disassembly—selection of manufacturer or employer procedures); § 1926.1406 (Assembly/disassembly—employer procedures); §§ 1926.1407 through 1926.1411 (Power line safety); § 1926.1412(c) (Post-assembly); §§ 1926.1413 through 1926.1414 (Wire rope); § 1926.1418 (Authority to stop operation); §§ 1926.1419 through 1926.1422 (Signals); § 1926.1423 (Fall protection); § 1926.1425 (Keeping clear of the load) (except for § 1926.1425(c)(3) (qualified rigger)); § 1926.1426 (Free fall and controlled load lowering); § 1926.1427(b) (Evaluation); § 1926.1432 (Multiple crane/derrick lifts—supplemental requirements); § 1926.1434 (Equipment modifications); § 1926.1435 (Tower cranes); § 1926.1436 (Derricks); § 1926.1437 (Floating cranes/derricks and land cranes/derricks on barges); § 1926.1438 (Overhead & gantry cranes).

Appendix C to Subpart CC OF PART 1926—Certification Criteria

Part A Qualifications and certifications must be based, at a minimum, on the following:

(1) A determination through a written test that:

(i) The individual knows the information necessary for safe operation of the specific type of equipment the individual will operate, including all of the following:

(A) The controls and operational/performance characteristics.

(B) Use of, and the ability to calculate (manually or with a calculator), load/capacity information on a variety of configurations of the equipment.

(C) Procedures for preventing and responding to power line contact.

(D) Technical knowledge similar to the subject matter criteria listed in Part B of this Appendix applicable to the specific type of equipment the individual will operate. Use of the Part B criteria meets the requirements of this provision.

(E) Technical knowledge applicable to:

(1) The suitability of the supporting ground and surface to handle expected loads.

(2) Site hazards.

(3) Site access.

(F) This subpart, including applicable incorporated materials.

(ii) The individual is able to read and locate relevant information in the equipment manual and other materials containing information referred to in Part A(1)(i) of this Appendix.

(2) A determination through a practical test that the individual has the skills necessary for safe operation of the equipment, including the following:

- (i) Ability to recognize, from visual and auditory observation, the items listed in § 1926.1412(d) (shift inspection).
- (ii) Operational and maneuvering skills.
- (iii) Application of load chart information.
- (iv) Application of safe shut-down and securing procedures.

PART B Operator Certification: Written Examination: Technical Knowledge Criteria

Part B of this Appendix contains information for employers, accredited testing organizations, auditors and government entities developing criteria for a written examination to test an individual's technical knowledge relating to the operation of cranes.

(a) General technical information.

- (1) The functions and limitations of the crane and attachments.
- (2) Wire rope:
 - (i) Background information necessary to understand the inspection and removal from service criteria in § 1926.1413 and § 1926.1414.
 - (ii) Capacity and when multi-part rope is needed.
 - (iii) Relationship between line pull and safe working load.
 - (iv) How to determine the manufacturer's recommended rope for the crane.
- (3) Rigging devices and their use, such as:
 - (i) Slings.
 - (ii) Spreaders.
 - (iii) Lifting beams.
 - (iv) Wire rope fittings, such as clips, shackles and wedge sockets.
 - (v) Saddles (softeners).
 - (vi) Clamps (beams).
- (4) The technical limitations of protective measures against electrical hazards:
 - (i) Grounding.
 - (ii) Proximity warning devices.
 - (iii) Insulated links.
 - (iv) Boom cages.
 - (v) Proximity to electric power lines, radii, and microwave structures.
- (5) The effects of load share and load transfer in multi-crane lifts.
- (6) Basic crane terms.
- (7) The basics of machine power flow systems.
 - (i) Mechanical.
 - (ii) Electrical.
 - (iii) Pneumatic.
 - (iv) Hydraulic.
 - (v) Combination.
- (8) The significance of the instruments and gauge readings.
- (9) The effects of thermal expansion and contraction in hydraulic cylinders.
- (10) Background information necessary to understand the requirements of pre-operation and inspection.

- (11) How to use the safety devices and operational aids required under § 1926.1415 and § 1926.1416.
 - (12) The difference between duty-cycle and lifting operations.
 - (13) How to calculate net capacity for every possible configuration of the equipment using the manufacturer's load chart.
 - (14) How to use manufacturer-approved attachments and their effect on the equipment.
 - (15) How to obtain dimensions, weight, and center of gravity of the load.
 - (16) The effects of dynamic loading from:
 - (i) Wind.
 - (ii) Stopping and starting.
 - (iii) Impact loading.
 - (iv) Moving with the load.
 - (17) The effect of side loading.
 - (18) The principles of backward stability.
- (b) Site information.
- (1) How to identify the suitability of the supporting ground/surface to support the expected loads of the operation. Elements include:
 - (i) Weaknesses below the surface (such as voids, tanks, loose fill).
 - (ii) Weaknesses on the surface (such as retaining walls, slopes, excavations, depressions).
 - (2) Proper use of mats, blocking/cribbing, outriggers, stabilizers, or crawlers.
 - (3) Identification of site hazards such as power lines, piping, and traffic.
 - (4) How to review operation plans with supervisors and other workers (such as the signal person), including how to determine working height, boom length, load radius, and travel clearance.
 - (5) How to determine if there is adequate room for extension of crawlers or outriggers/stabilizers and counterweights.
- (c) Operations.
- (1) How to pick, carry, swing and place the load smoothly and safely on rubber tires and on outriggers/stabilizers or crawlers (where applicable).
 - (2) How to communicate at the site with supervisors, the crew and the signal person.
 - (3) Proper procedures and methods of reeving wire ropes and methods of reeving multiple-part lines and selecting the proper load block and/or ball.
 - (4) How to react to changes in conditions that affect the safe operation of the equipment.
 - (5) How to shut down and secure the equipment properly when leaving it unattended.
 - (6) Know how to apply the manufacturer's specifications for operating in various weather conditions, and understand how environmental conditions affect the safe operation of the equipment.
 - (7) How to properly level the equipment.
 - (8) How to verify the weight of the load and rigging prior to initiating the lift.
 - (9) How to determine where the load is to be picked up and placed and how to verify the radii.
 - (10) Know basic rigging procedures.
 - (11) How to carry out the shift inspection required in this subpart.
 - (12) Know that the following operations require specific procedures and skill levels:
 - (i) Multi-crane lifts.

- (ii) Hoisting personnel.
 - (iii) Clamshell/dragline operations.
 - (iv) Pile driving and extracting.
 - (v) Concrete operations, including poured in- place and tilt-up.
 - (vi) Demolition operations.
 - (vii) Operations on water.
 - (viii) Magnet operations.
 - (ix) Multi-drum operations.
- (13) Know the proper procedures for operating safely under the following conditions:
- (i) Traveling with suspended loads.
 - (ii) Approaching a two-block condition.
 - (iii) Operating near power lines.
 - (iv) Hoisting personnel.
 - (v) Using other than full outrigger/crawler or stabilizer extensions.
 - (vi) Lifting loads from beneath the surface of the water.
 - (vii) Using various approved counterweight configurations.
 - (viii) Handling loads out of the operator's vision ("operating in the blind").
 - (ix) Using electronic communication systems for signal communication.
- (14) Know the proper procedures for load control and the use of hand-held tag lines.
- (15) Know the emergency response procedure for:
- (i) Fires.
 - (ii) Power line contact.
 - (iii) Loss of stability.
 - (iv) Control malfunction.
 - (v) Two-blocking.
 - (vi) Overload.
 - (vii) Carrier or travel malfunction.
- (16) Know how to properly use outriggers and stabilizers in accordance with manufacturer specifications.
- (d) Use of load charts.
- (1) Know the terminology necessary to use load charts.
 - (2) Know how to ensure that the load chart is the appropriate chart for the equipment in its particular configuration and application.
 - (3) Know how to use load charts. This includes knowing:
 - (i) The operational limitations of load charts and footnotes.
 - (ii) How to relate the chart to the configuration of the crane, crawlers, or outriggers/ stabilizers extended or retracted, jib erected or offset, and various counterweight configurations.
 - (iii) The difference between structural capacity and capacity limited by stability.
 - (iv) What is included in capacity ratings.
 - (v) The range diagram and its relationship to the load chart.
 - (vi) The work area chart and its relationship to the load chart.
 - (vii) Where to find and how to use the "parts-of-line" information.
 - (4) Know how to use the load chart together with the load indicators and/or load moment devices.

Appendix D to Subpart CC of Part 1926 – Documentation of operator evaluation

(1) **Operator’s name** _____

(2) **Company name**, address, contact information:

(3) **Training-** The candidate has successfully completed training in all of the topics in Appendix C. Dates during which training was conducted: _____

Trainer’s name: _____ Signature: _____ Date: _____

(4) Evaluation on specific equipment

With respect to the equipment that the candidate will operate, **please initial** to indicate that you have evaluated the candidate on the following knowledge areas and have determined that he/she is competent in those areas:

	Equipment A	Equipment B	Equipment C
Signaling			
Set-up			
Assembly/ Disassembly			
Driving			
Inspection			
Maintenance			
Operational aids			
Shutdown			

With respect to equipment that the candidate will operate, I have evaluated the candidate and have determined that he/she:

- (i) has the skills necessary to operate the equipment safely, including those specific to the equipment’s operational aids and software, the size and configuration of the equipment (including its lifting capacity, boom length, luffing jib, and counterweight set-up);
- (ii) has the knowledge and judgment to make sound determinations regarding equipment operations; and
- (iii) can apply the equipment’s load charts and the manufacturer’s procedures.

Equip A: include make, model, and limitations (such as configurations, attachments, boom length, capacity, etc.) _____

Evaluator’s name (print): _____ Phone: (____) _____

Evaluator’s company (if any) or other contact info: _____

Evaluator’s signature: _____ Date: _____

** If there are multiple evaluators, use a different equipment letter (e.g., Equip A and Equip B) for each evaluator, but in the equipment description note that the equipment is the same (i.e., “Same as Equip A”)*

Equip B: include make, model, and limitations (such as configurations, attachments, boom length, capacity, etc.) _____

Evaluator's name (print): _____ Phone: (____) _____

Evaluator's company (if any) or other contact info: _____

Evaluator's signature: _____ Date: _____

Equip C: include make, model, and limitations (such as configurations, attachments, boom length, capacity, etc.) _____

Evaluator's name (print): _____ Phone: (____) _____

Evaluator's company (if any) or other contact info: _____

Evaluator's signature: _____ Date: _____

(5) Hoisting skills

Specific hoisting activities for which the operator has demonstrated competency (e.g., personnel hoisting, multi-crane lifts, demolition operations, etc.):

(1) _____ Evaluator: _____ Date: _____

Contact info (if not included above): _____

(2) _____ Evaluator: _____ Date: _____

Contact info (if not included above): _____

(6) Re-evaluation

I have re-evaluated the operator on Equip __ , as described above, and have determined that he/she is competent in the areas specified in item 4 (Evaluation) of this form.

Evaluator's name (print) and signature: _____ Date: _____

Contact info (if not included above): _____
