



Oregon

Kate Brown, Governor

Department of Consumer and Business Services

Oregon Occupational Safety & Health Division (Oregon OSHA)

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[Text of changes](#)

[Nov. 8, 2018 Federal Register](#)

[Letter regarding delayed enforcement](#)

May 9, 2019

Oregon OSHA's Adopted Rules Regarding Cranes and Derricks in Construction: Operator Qualification

Note: Enforcement of these rules will be delayed until January 1, 2020. For more information, please see the attached letter regarding delayed enforcement.

Oregon OSHA proposed this rule in response to a federal OSHA rule adoption on November 9, 2018. This rule amended the operator certification requirements for cranes and derricks used in construction work. The federal rule process began in an exploratory capacity in 1998 and rulemaking began in earnest in 2004. The final rule was adopted in 2010 after extensive rulemaking committee meetings and comment periods. The rule was due to take full effect in 2014, but extensions through November 2018 with additional comment periods added up to an adoption timeframe of roughly 20 years. During these years Oregon OSHA adopted crane operator certification rules for Oregon, with the intent to provide more stringent training requirements than those federally mandated during the extended rulemaking process. The latest of these rules were adopted in April 2002 with the intent that Oregon OSHA's rulemaking on crane and derrick operator qualifications would reopen with the final adoption of the federal rules that were then being worked on. The nature of Oregon OSHA's state plan certification requires that Oregon-specific rules be at least as effective as federal rules. OAR 437-003-0081 was judged more effective than the federal rules in effect at the time of adoption. Now that the federal rules have been adopted, this is no longer the case, especially the requirement for "Nationally Accredited" training program completion for operators. Oregon OSHA saw no feasible modifications to the federal rule that would be more effective.

Oregon OSHA held a public hearing for this rule on March 21st 2019. There were no comments on the record at this hearing. Public comments were received via email during the comment period leading up to the hearing. All the comments received during the comment period were considered in this rulemaking.

Please visit our web site osha.oregon.gov Click 'Rules and laws' in the Common resources column and view our proposed rules, or select other rule activity from this page.

This is Oregon OSHA Administrative Order 1-2019, Adopted and effective May 9, 2019.

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Note: In compliance with the Americans with Disabilities Act (ADA), this publication is available in alternative formats by calling 503-378-3272.

Secretary of State
Certificate and Order for Filing
PERMANENT ADMINISTRATIVE RULES

I certify that the attached copies* are true, full and correct copies of the PERMANENT Rule(s) adopted on May 9, 2019 by the
Date prior to or same as filing date

Department of Consumer & Business Services/Oregon Occupational Safety & Health Division 437
Agency and Division Administrative Rules Chapter Number

Heather Case 350 Winter Street NE, Salem OR 97301-3882 503-947-7449
Rules Coordinator Address Telephone

to become effective May 9, 2019 as Oregon OSHA Administrative Order 1-2019.
Date upon filing or later

Rulemaking Notice was published in the March 2019 *Oregon Bulletin*.**
Month and Year

RULE CAPTION

Cranes and Derricks in Construction: Operator Qualification.
Not more than 15 words that reasonably identifies the subject matter of the agency's intended action.

RULEMAKING ACTION

AMEND: 437-003-0001

REPEAL: 437-003-0081

ORS 654.025(2), 656.726(4)
Stat. Auth.

ORS 654.001 through 654.295
Stats. Implemented

RULEMAKING SUMMARY

Oregon OSHA proposed this rule in response to a federal OSHA rule adoption on November 9, 2018. This rule amended the operator certification requirements for cranes and derricks used in construction work. The federal rule process began in an exploratory capacity in 1998 and rulemaking began in earnest in 2004. The final rule was adopted in 2010 after extensive rulemaking committee meetings and comment periods. The rule was due to take full effect in 2014, but extensions through November 2018 with additional comment periods added up to an adoption timeframe of roughly 20 years. During these years Oregon OSHA adopted crane operator certification rules for Oregon, with the intent to provide more stringent training requirements than those federally mandated during the extended rulemaking process. The latest of these rules were adopted in April 2002 with the intent that Oregon OSHA's rulemaking on crane and derrick operator qualifications would reopen with the final adoption of the federal rules that were then being worked on. The nature of Oregon OSHA's state plan certification requires that Oregon-specific rules be at least as effective as federal rules. OAR 437-003-0081 was judged more effective than the federal rules in effect at the time of adoption. Now that the federal rules have been adopted, this is no longer the case, especially the requirement for "Nationally Accredited" training program completion for operators. Oregon OSHA saw no feasible modifications to the federal rule that would be more effective.

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INDIVIDUAL RULE SUMMARY (By rule number)

Provide a brief summary of the rule (if new adoption), or a brief summary of changes made to the rule (if amending)

437-003-0001- Changed adopt by reference rule for paragraph (28)(bb) to current Federal Register date, corrected date and miscellaneous typos in multiple paragraphs.

437-003-0081- Repealed.

Please visit the rules and laws section of our website at osha.oregon.gov/rules and select *adopted rules* in the rule making column to view our adopted rules.



Authorized Signer

Michael D. Wood

Printed name

5/9/2019

Date

*With this original, file one photocopy of certificate, one paper copy of rules listed in Rulemaking Actions, and electronic copy of rules.

**The *Oregon Bulletin* is published on the 1st of each month and updates rules found in the OAR Compilation. For publication in Bulletin, rule and notice filings must be submitted by 5:00 pm on the 15th day of the preceding month unless this deadline falls on a weekend or legal holiday, when filings are accepted until 5:00 pm on the preceding workday.

ARC 930-2005



PERMANENT ADMINISTRATIVE ORDER

OSHA 1-2019
CHAPTER 437
DEPARTMENT OF CONSUMER AND BUSINESS SERVICES
OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION

FILED
05/09/2019 9:39 AM
ARCHIVES DIVISION
SECRETARY OF STATE
& LEGISLATIVE COUNSEL

FILING CAPTION: Cranes and Derricks in Construction: Operator Qualification.

EFFECTIVE DATE: 05/09/2019

AGENCY APPROVED DATE: 05/09/2019

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Filed By:
Heather Case
Rules Coordinator

RULES:

437-003-0001, 437-003-0081

AMEND: 437-003-0001

RULE TITLE: Adoption by Reference

NOTICE FILED DATE: 02/25/2019

RULE SUMMARY: Changed adopt by reference rule for paragraph (28)(bb) to current Federal Register date, corrected date typos in multiple paragraphs.

RULE TEXT:

In addition to, and not in lieu of, any other safety and health codes contained in OAR Chapter 437, the Department adopts by reference the following federal regulations printed as part of the Code of Federal Regulations, in the Federal Register:

(1) Subdivision A — GENERAL

- (a) 29 CFR 1926.1 Purpose and Scope, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.2 Variances from safety and health standards, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.3 Inspections — right of entry, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.4 Rules of practice for administrative adjudications for enforcement of safety and health standards, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.6 Incorporation by reference, published 3/25/16, FR vol. 81, no. 58, p. 16085.

(2) Subdivision B — GENERAL INTERPRETATIONS

- (a) 29 CFR 1926.10 Scope of subpart, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.11 Coverage under section 103 of the act distinguished, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.12 Reorganization plan No. 14 of 1950, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.13 Interpretation of statutory terms, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.14 Federal contracts for 'mixed' types of performance, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.15 Relationship to the service contract act; Walsh-Healey Public Contracts Act, published 4/6/79, FR vol. 44, p. 20940.

- (g) 29 CFR 1926.16 Rules of construction, published 4/6/79, FR vol. 44, p. 20940.
- (3) Subdivision C — GENERAL SAFETY AND HEALTH PROVISIONS
 - (a) 29 CFR 1926.20 General safety and health provisions, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.
 - (b) 29 CFR 1926.21 Safety training and education, published 4/6/79, FR vol. 44, p. 20940; amended with Oregon OSHA AO 6-2012, repealed (b)(6), f. 9/28/12, ef. 4/1/13.
 - (c) 29 CFR 1926.22 Recording and reporting of injuries (Reserved)
 - (d) 29 CFR 1926.23 First aid and medical attention, published 4/6/79, FR vol. 44, p. 20940.
 - (e) 29 CFR 1926.24 Fire protection and prevention, published 4/6/79, FR vol. 44, p. 20940.
 - (f) 29 CFR 1926.25 Housekeeping, published 4/6/79, FR vol. 44, p. 20940.
 - (g) 29 CFR 1926.26 Illumination, published 4/6/79, FR vol. 44, p. 20940.
 - (h) 29 CFR 1926.27 Sanitation, published 4/6/79, FR vol. 44, p. 20940.
 - (i) 29 CFR 1926.28 Personal protective equipment. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.
 - (j) 29 CFR 1926.29 Acceptable certifications, published 4/6/79, FR vol. 44, p. 20940.
 - (k) 29 CFR 1926.30 Shipbuilding and ship repairing, published 3/7/96, FR vol. 61, no. 46, p. 9249.
 - (l) 29 CFR 1926.31 (Reserved).
 - (m) 29 CFR 1926.32 Definitions, published 6/30/93, FR vol. 58, no. 124, p. 35078.
 - (n) 29 CFR 1926.33 Access to employee exposure and medical records, published 6/20/96, FR vol. 61, no. 46, p. 31427.
 - (o) 29 CFR 1926.34 Means of egress, published 6/30/93, Federal Register, vol. 58, no. 124, p. 35083.
- (4) Subdivision D — OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROLS
 - (a) 29 CFR 1926.50 Medical services and first aid, published 6/18/98, FR vol. 63, no. 117, p. 33469.
 - (b) 29 CFR 1926.51 Sanitation, published 6/30/93, FR vol. 58, no. 124, p. 35084.
 - (c) 29 CFR 1926.52 Occupational noise exposure, published 4/6/79, FR vol. 44, p. 20940.
 - (d) 29 CFR 1926.53 Ionizing radiation, published 4/6/79, FR vol. 44, p. 20940.
 - (e) 29 CFR 1926.54 Nonionizing radiation, published 4/6/79, FR vol. 44, p. 20940.
 - (f) 29 CFR 1926.55 Gases, vapors, fumes, dusts, and mists, published 1/10/97, FR vol. 62, no. 7, p. 1619.
 - (g) 29 CFR 1926.56 Illumination, published 4/6/79, FR vol. 44, p. 20940.
 - (h) 29 CFR 1926.57 Ventilation, published 1/8/98, FR vol. 63, no. 5, p. 1295.
 - (i) 29 CFR 1926.58 Reserved, §1926.58, Asbestos, tremolite, anthophyllite and actinolite is redesignated as §1926.1101, Asbestos, and §1926.58 is reserved (8/10/94, FR vol. 59, no. 153, pp. 41131-62).
 - (j) 29 CFR 1926.59 Hazard Communication, published 6/20/96, FR vol. 61, p. 31427.
 - (k) 29 CFR 1926.60 Methylenedianiline (MDA), published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.
 - (l) 29 CFR 1926.61 Retention of DOT markings, placards and labels, published 6/20/96, FR vol. 61, p. 31427.
 - (m) 29 CFR 1926.62 Lead, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.

NOTE: Cadmium has been redesignated as §1926.1127.

 - (n) 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response

NOTE: Division 2/H, 1910.120, Hazardous Waste Operations and Emergency Response, applies to Construction.

- (5) Subdivision E — PERSONAL PROTECTIVE AND LIFE SAVING EQUIPMENT
 - (a) 29 CFR 1926.95 Criteria for personal protective equipment. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.
 - (b) 29 CFR 1926.97 Electrical protective equipment, published 4/11/14, FR vol. 79, no. 70, p. 20316.
 - (c) 29 CFR 1926.100 Head protection. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.
 - (d) 29 CFR 1926.101 Hearing protection. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.
 - (e) 29 CFR 1926.102 Eye and face protection. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.

- (f) 29 CFR 1926.103 Respiratory protection, published 1/8/98, FR vol. 63, no. 5, p. 1297.
- NOTE: 29 CFR 1926.104 Removed, 8/9/94, FR vol. 59, no. 152, p. 40729.
- (g) 29 CFR 1926.105 Reserved, 8/9/94, FR vol. 59, no. 152, p. 40729.
- (h) 29 CFR 1926.106 Working over or near water, published 4/6/79, FR vol. 44, p. 20940.
- (i) 29 CFR 1926.107 Definitions applicable to this subpart, published 8/9/94, FR vol. 59, no. 152, p. 40729.
- (6) Subdivision F — FIRE PROTECTION AND PREVENTION
- (a) 29 CFR 1926.150 Fire protection, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.151 Fire prevention, published 7/11/86, FR vol. 51, p. 25318.
- (c) 29 CFR 1926.152 Flammable and combustible liquids, published 6/30/93, FR vol. 58, no. 124, p. 35162.
- (d) 29 CFR 1926.153 Liquefied petroleum gas (LP-Gas), published 6/30/93, FR vol. 58, no. 124, p. 35170.
- (e) 29 CFR 1926.154 Temporary heating devices, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.155 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940.
- (7) Subdivision G — SIGNS, SIGNALS, AND BARRICADES
- (a) 29 CFR 1926.200 Accident prevention signs and tags, published 6/13/13, FR vol. 78, no. 114, p. 35559; 11/6/13, FR vol. 78, no. 215, p. 66641.
- (b) 29 CFR 1926.201 Signaling, REPEALED with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
- (c) 29 CFR 1926.202 Barricades, REPEALED with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
- (d) 29 CFR 1926.203 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940; amended with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
- (8) Subdivision H — MATERIALS HANDLING, STORAGE, USE AND DISPOSAL
- (a) 29 CFR 1926.250 General requirements for storage, published 6/30/93, FR vol. 58, no. 124, p. 35173.
- (b) 29 CFR 1926.251 Rigging equipment for material handling, published 6/30/93, FR vol. 58, no. 124, p. 35173.
- (c) 29 CFR 1926.252 Disposal of waste materials, published 4/6/79, FR vol. 44, p. 20940.
- (9) Subdivision I — TOOLS — HAND AND POWER
- (a) 29 CFR 1926.300 General requirements, published 3/7/96, FR vol. 61, no. 46, p. 9250.
- (b) 29 CFR 1926.301 Hand tools, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.302 Power operated hand tools, published 6/30/93, FR vol. 58, no. 124, p. 35175.
- (d) 29 CFR 1926.303 Abrasive wheels and tools, published 6/30/93, FR vol. 58, no. 124, p. 35175.
- (e) 29 CFR 1926.304 Woodworking tools, published 3/7/96, FR vol. 61, no. 46, p. 9251.
- (f) 29 CFR 1926.305 Jacks - lever and ratchet, screw, and hydraulic, published Federal Register vol. 58, no. 124, p. 35176.
- (10) Subdivision J — WELDING AND CUTTING
- (a) 29 CFR 1926.350 Gas welding and cutting. Repealed. Oregon OSHA Admin. Order 6-2014, f. 10/28/14, ef. 5/1/15. In Oregon, OAR 437-002-2253 applies.
- (b) 29 CFR 1926.351 Arc welding and cutting, published 7/11/86, FR vol. 51, p. 25318.
- (c) 29 CFR 1926.352 Fire prevention, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.353 Ventilation and protection in welding, cutting, and heating, published 6/30/93, FR vol. 58, no. 124, p. 35179.
- (e) 29 CFR 1926.354 Welding, cutting, and heating in way of preservative coatings, published 4/6/79, FR vol. 44, p. 20940.
- (11) Subdivision K — ELECTRICAL
- (a) 29 CFR 1926.400 Introduction, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (b) 29 CFR 1926.401 (Reserved)
- (c) 29 CFR 1926.402 Applicability, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (d) 29 CFR 1926.403 General requirements, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (e) 29 CFR 1926.404 Wiring design and protection, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335; amended with AO 5-2002, repeal (b)(1), f. 6/28/02, ef. 10/1/03.

- (f) 29 CFR 1926.405 Wiring methods, components, and equipment for general use, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (g) 29 CFR 1926.406 Specific purpose equipment and installations, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (h) 29 CFR 1926.407 Hazardous (classified) locations, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (i) 29 CFR 1926.408 Special systems, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (j) 29 CFR 1926.409 (Reserved)
- (k) 29 CFR 1926.415 (Reserved)
- (l) 29 CFR 1926.416 General requirements, published 8/12/96, FR vol. 61, no. 156, p. 41738.
- (m) 29 CFR 1926.417 Lockout and tagging of circuits, published 8/12/96, FR vol. 61, no. 156, p. 41739.
- (n) 29 CFR 1926.418 (Reserved)
- (o) 29 CFR 1926.430 (Reserved)
- (p) 29 CFR 1926.431 Maintenance of equipment, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (q) 29 CFR 1926.432 Environmental deterioration of equipment, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (r) 29 CFR 1926.433 - 29 CFR 1926.440 (Reserved)
- (s) 29 CFR 1926.441 Battery locations and battery charging, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (t) 29 CFR 1926.442 - 29 CFR 1926.448 (Reserved)
- (u) 29 CFR 1926.449 Definitions applicable to this subpart, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (12) Subdivision L — SCAFFOLDING
 - (a) 29 CFR 1926.450 Scope, application and definitions applicable to this subpart, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
 - (b) 29 CFR 1926.451 General requirements, published 11/25/96, FR vol. 61, no. 228, p. 59831.
 - (c) 29 CFR 1926.452 Additional requirements applicable to specific types of scaffolds, published 8/30/96, FR vol. 61, no. 170, p. 46113.
 - (d) 29 CFR 1926.453 Aerial lifts, published 11/25/96, FR vol. 61, no. 228, p. 59832.
 - (e) 29 CFR 1926.454 Training, published 8/30/96, FR vol. 61, no. 170, p. 46117.
 - (f) Appendix A to Subpart L Scaffold Specifications, published 8/30/96, FR vol. 61, no. 170, p. 46117.
 - (g) Appendix B to Subpart L Criteria for determining the feasibility of providing safe access and fall protection for scaffold erectors and dismantlers (Reserved), published 8/30/96, FR vol. 61, no. 170, p. 46122.
 - (h) Appendix C to Subpart L List of National Consensus Standards, published 8/30/96, FR vol. 61, no. 170, p. 46122.
 - (i) Appendix D to Subpart L List of training topics for scaffold erectors and dismantlers, published 8/30/96, FR vol. 61, no. 170, p. 46122.
 - (j) Appendix E to Subpart L Drawing and illustrations, published 11/25/96, FR vol. 61, no. 228, p. 59832.
- (13) Subdivision M — FALL PROTECTION
 - (a) 29 CFR 1926.500 Scope, application, and definitions applicable to this subpart, published 4/11/14, FR vol. 79, no. 70, p. 20316; amended with AO 1-2016, f. 3/1/16, ef. 1/1/17.
 - (b) 29 CFR 1926.501 Duty to have fall protection. REPEALED with AO 1-2016, f. 3/1/16, ef. 1/1/17. In Oregon, 437-003-1501 applies.
 - (c) 29 CFR 1926.502 Fall protection systems criteria and practices, published 8/9/94, FR vol. 59, no. 152, p. 40733-40738; amended with AO 6-2002, f. and ef. 7/19/02.
 - (d) 29 CFR 1926.503 Training requirements. REPEALED with AO 6-2002, f. and ef. 7/19/02, in Oregon, 437-003-0503 applies.
 - (e) Appendix A to Subpart M Determining Roof Widths, published 8/9/94, FR vol. 59, no. 152, p. 40738-40742.
 - (f) Appendix B to Subpart M Guardrail Systems, published 8/9/94, FR vol. 59, no. 152, p. 40743.
 - (g) Appendix C to Subpart M Personal Fall Arrest Systems, published 8/9/94, FR vol. 59, no. 152, p. 40743-40746.
 - (h) Appendix D to Subpart M Positioning Device Systems, published 8/9/94, FR vol. 59, no. 152, p. 40746.

(14) Subdivision N — HELICOPTERS, HOISTS, ELEVATORS, AND CONVEYORS

- (a) 29 CFR 1926.550 (Reserved).
- (b) 29 CFR 1926.551 Helicopters, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.552 Material hoists, personnel hoists, and elevators, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.553 Base-mounted drum hoist, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (e) 29 CFR 1926.554 Overhead hoists, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.555 Conveyors, published 4/6/79, FR vol. 44, p. 20940.

(15) Subdivision O — MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS

- (a) 29 CFR 1926.600 Equipment, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (b) 29 CFR 1926.601 Motor vehicles, REPEALED by OR-OSHA Admin. Order 6-2007, f. 9/26/07, ef. 9/26/07.
- (c) 29 CFR 1926.602 Material handling equipment, published 12/1/98, FR vol. 63, no. 230, p. 66274; amended by AO 7-2003, f. 12/5/03, ef. 12/5/03.
- (d) 29 CFR 1926.603 Pile driving equipment, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.604 Site clearing, published 7/22/77, FR vol. 42, p. 37674.
- (f) 29 CFR 1926.605 Marine operations and equipment, published 4/6/79, FR vol. 44, p. 20940.
- (g) 29 CFR 1926.606 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940.

(16) Subdivision P — EXCAVATIONS

- (a) 29 CFR 1926.650 Scope, application, and definitions applicable to this subdivision, published 10/31/89, FR vol. 54, no. 209, pp. 45959-45961.
- (b) 29 CFR 1926.651 General requirements, published 8/9/94, FR vol. 59, no. 152, p. 40730.
- (c) 29 CFR 1926.652 Requirements for protective systems, published 10/31/89, FR vol. 54, no. 209, pp. 45961-45962.
- (d) Appendices A-F to Subdivision P, Excavations, published 10/31/89, FR vol. 54, no. 209, pp. 45962-45991.

(17) Subdivision Q — CONCRETE AND MASONRY CONSTRUCTION

- (a) 29 CFR 1926.700 Scope, application and definitions applicable to this subpart, published 10/18/90, FR vol. 55, no. 202, p. 42326.
- (b) 29 CFR 1926.701 General requirements, published 8/9/94, FR vol. 59, no. 152, p. 40730.
- (c) 29 CFR 1926.702 Requirements for equipment and tools, published 6/16/88, FR vol. 53, p. 22612.
- (d) 29 CFR 1926.703 Requirements for cast-in-place concrete, published 6/16/88, FR vol. 53, p. 22612.
- (e) 29 CFR 1926.704 Requirements for precast concrete, published 10/5/89, FR vol. 54, no. 192, p. 41088.
- (f) 29 CFR 1926.705 Requirements for lift-slab construction operations, published 10/18/90, FR vol. 55, no. 202, p. 42326.
- (g) Appendix A to 1926.705 Lift-slab operations, published 10/18/90, FR vol. 55, no. 202, p. 42326.
- (h) 29 CFR 1926.706 Requirements for masonry construction, published 6/16/88, FR vol. 53, p. 22612; amended with OR-OSHA Admin. Order 1-2003, f. 1/30/03, ef. 4/30/03.

(18) Subdivision R — STEEL ERECTION

- (a) 29 CFR 1926.750 Scope, published 7/17/01, FR vol. 66, no. 137, p. 37137.
- (b) 29 CFR 1926.751 Definitions, published 7/17/01, FR vol. 66, no. 137, p. 37137; amended with AO 6-2002, f. and ef. 7/19/02; amended with AO 8-2003, f. 12/30/03, ef. 1/1/04.
- (c) 29 CFR 1926.752 Site layout, site-specific erection plan and construction sequence, published 7/17/01, FR vol. 66, no. 137, p. 37137.
- (d) 29 CFR 1926.753 Hoisting and rigging, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (e) 29 CFR 1926.754 Structural steel assembly, published 4/3/06, FR vol. 71, no. 63, p. 16669.
- (f) 29 CFR 1926.755 Column anchorage, published 7/17/01, FR vol. 66, no. 137, p. 37137.
- (g) 29 CFR 1926.756 Beams and columns, published 7/17/01, FR vol. 66, no. 137, p. 37137.
- (h) 29 CFR 1926.757 Open web steel joists, published 7/17/01, FR vol. 66, no. 137, p. 37137; amended with AO 8-2003, f. 12/30/03, ef. 1/1/04.
- (i) 29 CFR 1926.758 Systems-engineered metal buildings, published 7/17/01, FR vol. 66, no. 137, p. 37137.

- (j) 29 CFR 1926.759 Falling object protection, published 7/17/01, FR vol. 66, no. 137, p. 37137.
 - (k) 29 CFR 1926.760 Fall protection, published 7/17/01, FR vol. 66, no. 137, p. 37137; amended with AO 8-2003, f. 12/30/03, ef. 1/1/04.
 - (l) 29 CFR 1926.761 Training, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.
 - (m) Appendix A to Subpart R Guidelines for establishing the components of a site-specific erection plan: Nonmandatory Guidelines for Complying with §1926.752(e), published 7/17/01, FR vol. 66, no. 137, p. 37137.
 - (n) Appendix B to Subpart R Reserved.
 - (o) Appendix C to Subpart R Illustrations of bridging terminus points: Nonmandatory Guidelines for Complying with §1926.757(a)(10) and §1926.757(c)(5), published 7/17/01, FR vol. 66, no. 137, p. 37137.
 - (p) Appendix D to Subpart R Illustration of the use of control lines to demarcate controlled decking zones (CDZs): Nonmandatory Guidelines for Complying with §1926.760(c)(3), REPEALED with AO 6-2002, f. and ef. 7/19/02; amended with AO 8-2003, f. 12/30/03, ef. 1/1/04.
 - (q) Appendix E to Subpart R Training: Nonmandatory Guidelines for Complying with §1926.761, published 7/17/01, FR vol. 66, no. 137, p. 37137.
 - (r) Appendix F to Subpart R Perimeter columns: Nonmandatory Guidelines for Complying with §1926.756(e) to Protect the Unprotected Side or Edge of a Walking/Working Surface, published 7/17/01, FR vol. 66, no. 137, p. 37137.
 - (s) Appendix G to Subpart R Fall protection systems criteria and practices from §1926.502: Nonmandatory Guidelines for Complying with §1926.760(d), REPEALED with AO 6-2002, f. and ef. 7/19/02; amended with AO 8-2003, f. 12/30/03, ef. 1/1/04.
 - (t) Appendix H to Subpart R Double connections: Illustration of a clipped end connection and a staggered connection: Non-Mandatory Guidelines for Complying with §1926.756(c)(1), published 7/17/01, FR vol. 66, no. 137, p. 37137.
- (19) Subdivision S — UNDERGROUND CONSTRUCTION, CAISSONS, COFFERDAMS, AND COMPRESSED AIR
- (a) 29 CFR 1926.800 Underground construction, published 4/23/13, FR vol. 78, no. 78, p. 23837.
 - (b) 29 CFR 1926.801 Caissons, published 4/6/79, FR vol. 44, p. 20940.
 - (c) 29 CFR 1926.802 Cofferdams, published 4/6/79, FR vol. 44, p. 20940.
 - (d) 29 CFR 1926.803 Compressed air, published 7/11/86, FR vol. 51, p. 25318.
 - (e) 29 CFR 1926.804 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940.
 - (f) Appendix A to Subpart S Decompression Tables, published 4/6/79, FR vol. 44, p. 20940.
- (20) Subdivision T – DEMOLITION
- (a) 29 CFR 1926.850 Preparatory operations, published 4/6/79, FR vol. 44, p. 20940.
 - (b) 29 CFR 1926.851 Stairs, passageways, and ladders, published 4/6/79, FR vol. 44, p. 20940.
 - (c) 29 CFR 1926.852 Chutes, published 4/6/79, FR vol. 44, p. 20940.
 - (d) 29 CFR 1926.853 Removal of materials through floor openings, published 4/6/79, FR vol. 44, p. 20940.
 - (e) 29 CFR 1926.854 Removal of walls, masonry sections, and chimneys, published 4/6/79, FR vol. 44, p. 20940.
 - (f) 29 CFR 1926.855 Manual removal of floors, published 4/6/79, FR vol. 44, p. 20940.
 - (g) 29 CFR 1926.856 Removal of walls, floors, and materials with equipment, published 4/23/13, FR vol. 78, no. 78, p. 23837.
 - (h) 29 CFR 1926.857 Storage, published 4/6/79, FR vol. 44, p. 20940.
 - (i) 29 CFR 1926.858 Removal of steel construction, published 4/23/13, FR vol. 78, no. 78, p. 23837.
 - (j) 29 CFR 1926.859 Mechanical demolition, published 4/6/79, FR vol. 44, p. 20940.
 - (k) 29 CFR 1926.860 Selective demolition by explosives, published 4/6/79, FR vol. 44, p. 20940.
- (21) Subdivision U — BLASTING AND USE OF EXPLOSIVES
- (a) 29 CFR 1926.900 General provisions, published 4/6/79, FR vol. 44, p. 20940.
 - (b) 29 CFR 1926.901 Blaster qualifications, published 4/6/79, FR vol. 44, p. 20940.
 - (c) 29 CFR 1926.902 Surface transportation of explosives, published 6/30/93, FR vol. 58, no. 124, p. 35311.
 - (d) 29 CFR 1926.903 Underground transportation of explosives, published 4/6/79, FR vol. 44, p. 20940.

- (e) 29 CFR 1926.904 Storage of explosives and blasting agents, published 6/30/93, FR vol. 58, no. 124, p. 35311.
- (f) 29 CFR 1926.905 Loading of explosives or blasting agents, published 6/30/93, FR vol. 58, no. 124, p. 35184.
- (g) 29 CFR 1926.906 Initiation of explosive charges — electric blasting, published 6/18/98, FR vol. 63, no. 117, p. 33469.
- (h) 29 CFR 1926.907 Use of safety fuse, published 4/6/79, FR vol. 44, p. 20940.
- (i) 29 CFR 1926.908 Use of detonating cord, published 4/6/79, FR vol. 44, p. 20940.
- (j) 29 CFR 1926.909 Firing the blast, published 4/6/79, FR vol. 44, p. 20940.
- (k) 29 CFR 1926.910 Inspection after blasting, published 4/6/79, FR vol. 44, p. 20940.
- (l) 29 CFR 1926.911 Misfires, published 4/6/79, FR vol. 44, p. 20940.
- (m) 29 CFR 1926.912 Underwater blasting, published 4/6/79, FR vol. 44, p. 20940.
- (n) 29 CFR 1926.913 Blasting in excavation work under compressed air, published 4/6/79, FR vol. 44, p. 20940.
- (o) 29 CFR 1926.914 Definitions applicable to this subpart, published 6/30/93, FR vol. 58, no. 124, p. 35184, 35311.
- (22) Subdivision V — POWER TRANSMISSION AND DISTRIBUTION. 29 CFR 1926.950 through 1926.960 are repealed with Oregon OSHA Admin. Order 3-2015, f. 10/9/15, ef. 1/1/16. In Oregon, Division 2/RR applies.
- (23) Subdivision W — ROLLOVER PROTECTIVE STRUCTURES: OVERHEAD PROTECTION
 - (a) 29 CFR 1926.1000 Rollover protective structures (ROPS) for material handling equipment, published 4/6/79, FR vol. 44, p. 20940.
 - (b) 29 CFR 1926.1001 Minimum performance criteria for rollover protective structure for designated scrapers, loaders, dozers, graders, and crawler tractors, published 4/6/79, FR vol. 44, p. 20940.
 - (c) 29 CFR 1926.1002 Protective frame (ROPS) test procedures and performance requirements for wheel-type agricultural and industrial tractors used in construction, published 7/20/06, FR vol. 71, no. 139, p. 41127.
 - (d) 29 CFR 1926.1003 Overhead protection for operators of agricultural and industrial tractors, published 2/28/06, FR vol. 71, no. 39, p. 9909.
- (24) Subdivision X — STAIRWAYS AND LADDERS
 - (a) 29 CFR 1926.1050 Scope, application and definitions applicable to this Subdivision, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
 - (b) 29 CFR 1926.1051 General requirements, published 11/14/90, FR vol. 55, no. 220, p. 47688.
 - (c) 29 CFR 1926.1052 Stairways, published 8/23/91, FR vol. 56, no. 164, pp. 41793-41794.
 - (d) 29 CFR 1926.1053 Ladders, published 4/11/14, FR vol. 79, no. 70, p. 20316.
 - (e) 29 CFR 1926.1054 (Reserved).
 - (f) 29 CFR 1926.1055 (Reserved).
 - (g) 29 CFR 1926.1056 (Reserved).
 - (h) 29 CFR 1926.1057 (Reserved).
 - (i) 29 CFR 1926.1058 (Reserved).
 - (j) 29 CFR 1926.1059 (Reserved).
 - (k) 29 CFR 1926.1060 Training requirements, published 11/14/90, FR vol. 55, no. 220, p. 47691.
- (25) Subdivision Z — TOXIC AND HAZARDOUS SUBSTANCES
 - (a) 29 CFR 1926.1101 Asbestos, published 2/8/13, FR vol. 78, no. 27, p. 9311.
 - (b) 29 CFR 1926.1126 Chromium (VI), published 3/17/10, FR vol. 75, no. 51, pp. 12681-12686.
 - (c) 29 CFR 1926.1127 Cadmium, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.
 - (d) 29 CFR 1926.1152 Methylene Chloride, published 12/18/97, FR vol. 62, no. 243, p. 66275.
- (26) Subdivision AA — (Reserved).
- (27) Subdivision BB — (Reserved).
- (28) Subdivision CC — Cranes and Derricks in Construction
 - (a) 29 CFR 1926.1400 Scope, published 4/11/14, FR vol. 79, no. 70, p. 20316; amended with Oregon OSHA AO 3-2015, f. 10/9/15, ef. 1/1/16.
 - (b) 29 CFR 1926.1401 Definitions, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
 - (c) 29 CFR 1926.1402 Ground conditions, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

- (d) 29 CFR 1926.1403 Assembly/Disassembly – selection of manufacturer or employer procedures, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (e) 29 CFR 1926.1404 Assembly/Disassembly – general requirements (applies to all assembly and disassembly operations), published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (f) 29 CFR 1926.1405 Disassembly – additional requirements for dismantling of booms and jibs (applies to both the use of manufacturer procedures and employer procedures), published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (g) 29 CFR 1926.1406 Assembly/Disassembly – employer procedures – general requirements, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (h) 29 CFR 1926.1407 Power line safety (up to 350 kV) – assembly and disassembly, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (i) 29 CFR 1926.1408 Power line safety (up to 350 kV) – equipment operations, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (j) 29 CFR 1926.1409 Power line safety (over 35 kV), published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (k) 29 CFR 1926.1410 Power line safety (all voltages) – equipment operations closer than the Table A zone, published 4/11/14, FR vol. 79, no. 70, pp. 20316.
- (l) 29 CFR 1926.1411 Power line safety – while traveling, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (m) 29 CFR 1926.1412 Inspections, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (n) 29 CFR 1926.1413 Wire rope – inspection, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (o) 29 CFR 1926.1414 Wire rope – selection and installation criteria, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (p) 29 CFR 1926.1415 Safety devices, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (q) 29 CFR 1926.1416 Operational aids, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (r) 29 CFR 1926.1417 Operation, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (s) 29 CFR 1926.1418 Authority to stop operation, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (t) 29 CFR 1926.1419 Signals – general requirements, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (u) 29 CFR 1926.1420 Signals – radio, telephone or other electronic transmission of signals, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (v) 29 CFR 1926.1421 Signals – voice signals – additional requirements, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (w) 29 CFR 1926.1422 Signals – hand signal chart, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (x) 29 CFR 1926.1423 Fall protection, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (y) 29 CFR 1926.1424 Work area control, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (z) 29 CFR 1926.1425 Keeping clear of the load, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (aa) 29 CFR 1926.1426 Free fall and controlled load lowering, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (bb) 29 CFR 1926.1427 Operator qualification and certification, published 11/9/18, FR vol. 83, no. 218, p. 56198.
- (cc) 29 CFR 1926.1428 Signal person qualifications, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (dd) 29 CFR 1926.1429 Qualifications of maintenance & repair employees, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (ee) 29 CFR 1926.1430 Training, published 11/9/18, FR vol. 83, no. 218, p. 56198.
- (ff) 29 CFR 1926.1431 Hoisting personnel, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (gg) 29 CFR 1926.1432 Multiple-crane/derrick lifts – supplemental requirements, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (hh) 29 CFR 1926.1433 Design, construction and testing, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (ii) 29 CFR 1926.1434 Equipment modifications, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (jj) 29 CFR 1926.1435 Tower cranes, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (kk) 29 CFR 1926.1436 Derricks, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (ll) 29 CFR 1926.1437 Floating cranes/derricks and land cranes/derricks on barges, published 8/9/10, FR vol. 75, no.

152, pp. 47906-48177.

(mm) 29 CFR 1926.1438 Overhead & gantry cranes, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(nn) 29 CFR 1926.1439 Dedicated pile drivers, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(oo) 29 CFR 1926.1440 Sideboom cranes, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(pp) 29 CFR 1926.1441 Equipment with a rated hoisting/lifting capacity of 2,000 pounds or less, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(qq) 29 CFR 1926.1442 Severability, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(rr) Appendix A to Subdivision CC of 1926 – Standard Hand Signals, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(ss) Appendix B to Subdivision CC of 1926 – Assembly/Disassembly – Sample Procedures for Minimizing the Risk of Unintended Dangerous Boom Movement, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(tt) Appendix C to Subdivision CC of 1926 – Operator Certification – Written Examination – Technical Knowledge Criteria, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

These standards are available at the Oregon Occupational Safety and Health Division, Oregon Department of Consumer and Business Services, and the United States Government Printing Office.

STATUTORY/OTHER AUTHORITY: ORS 654.025(2), 656.726(4)

STATUTES/OTHER IMPLEMENTED: ORS 654.001 - 654.295

REPEAL: 437-003-0081

RULE TITLE: Crane Operator Training Requirements

NOTICE FILED DATE: 02/25/2019

RULE SUMMARY: Rule repealed with AO 1-2019

RULE TEXT:

- (1) The employer shall establish written procedures for the safe operation of all cranes used in construction.
- (2) The employer shall see that employees who operate cranes are properly trained, have sufficient practical experience, and follow operating procedures for the safe operation of the crane.
- (3) The level of training and experience received by the employee as meeting OAR 437-003-0081(2) shall be recorded in writing.
- (4) The employer shall maintain all written records of the crane operator's safety training and experience as set forth in OAR 437-003-0081, and shall make such records available for review by the Oregon Occupational Safety and Health Division (OR-OSHA) upon request.
- (5) In addition to the basic training and experience required by OAR 437-003-0081(2), all employees engaged in construction work who operate cranes of 5 ton capacity or greater shall have additional training and experience as set forth in Appendices OR-A through OR-E of this Subdivision, and shall possess a valid crane operator's safety training card issued by a training provider or employer.
 - (a) OAR 437-003-0081(5) does not apply to hoists, wreckers, line trucks, cranes used by railroads on railroad right-of-ways, or to cranes while used for handling logs.

NOTE: The term "line truck" means a truck used to transport workers, tools, and material, and is sometimes equipped with a boom and auxiliary equipment for setting poles, digging holes, and elevating material or personnel.

- (b) An employee with prior training and experience having a minimum of 1500 hours of prior crane experience on a specific type or type(s) of crane shall be deemed to have met the requirements of OAR 437-003-0081(5) if that person has written records of such training and experience.
- (c) Upon receipt and verification of such written records of experience, the employer may issue a crane operator's card to the employee.
- (d) After January 1, 1992, all operators of cranes of 5 ton or greater capacity that are used in construction shall comply with OAR 437-003-0081(5) by successfully completing a training course which meets the provisions of OAR 437-003-0081(2) and Appendices OR-A through OR-E of this Subdivision.
- (e) A crane operator's safety training card, as required by OAR 437-003-0081(5), need not be in any particular form, but at a minimum shall specify the type or types and size of cranes the operator is trained to operate, a picture of the operator, the original issue date, expiration date, name, signature of the operator, and the name and signature of the training provider or employer.
- (f) All cards issued after January 1, 1992, shall be laminated in clear plastic to prevent tampering. All cards issued prior to January 1, 1992, shall be laminated in plastic and shall have the operator's picture on the card by April 1, 1992.
- (g) The crane operator's safety training card required by OAR 437-003-0081(5) shall be renewed and signed every three years by a training institution or employer upon:
 - (A) Verification that the employee has read the current OR-OSHA rules on cranes contained in Division 3, Construction, Subdivision N, Cranes, Derricks, Hoists, Elevators and Conveyors; and
 - (B) Completion of crane operator safety training refresher training consisting of 4 hours at a minimum.
- (6) Persons who are in training either through a recognized apprenticeship program, or any other properly supervised program may operate a crane under visual supervision of a crane operator who possesses a current operator's safety training card for that type of crane.
- (7) Any person from another state wishing to operate a crane of 5 ton capacity or greater for the purpose of construction work may be issued an operator's safety training card by the employer or training provider upon:
 - (a) Verification of a minimum of 1500 hours experience on a specific type or types of cranes being operated and is being

trained in Oregon for the purpose of operating this type of crane. This temporary operator's safety training card shall be valid for 30 days from the date of issue; or

(b) Presenting a valid crane operator's safety training card issued in a state which has crane operator's safety training standards equal to or greater than those listed in Appendices OR-A through OR-E of this Subdivision.

APPENDIX OR-A

Classroom Training: Minimum Training Required for Operating Cranes of 5 Ton Capacity or Greater, Basic and Specialty Basic Core Training Curriculum

Unit of Study Instruction

SAFETY — Overview of causes of crane accidents and training in managing the work environment safely.

OR-OSHA CRANE RULES — Familiarity with OR-OSHA'S Division 3, Construction, Subdivision N, Cranes, Derricks, Hoists, Elevators, and Conveyors.

CRANES AND COMPONENTS — Types of cranes, names of crane components, selection of cranes for job.

DEFINITIONS OF TERMS — Center of gravity, radius, gross and net load, static load and dynamic load(s), effective weights, ultimate strength and rated strength, safety factors, stowed and stored, tipping axis, jib angle to ground.

TECHNICAL DATA — Leverage: when using the crane in general, the hook, block and the boom hoist. Changes in leverage, rate of tipping, forward stability, backward stability, crane failures, gantries, live and high masts, counterweights, effect of boom angle, effects of jib angle, jib as a boom extension, effect of load on booms, production lifts, rope safety factors.

QUADRANTS OF OPERATION DEFINITIONS — Over the rear, over the side, 360 degree rotation.

WEIGHT OF THE LIFT — Sources of weight data, calculating weights, principles examples, lifting in water, tests lifts, check lifts.

CONDITIONS & CAPACITIES — Summary of conditions affecting crane capacities: off-level, wind, eccentric reeving, swingout, sideloading, impact loading, outrigger position, ground conditions, counterweights, gantries and high masts, equipment condition, swing bearing wear, tire condition and inflation, boom pad wear, outrigger and pad condition, bent chords and lacings.

MULTIPLE CRANE LIFTS — Types of equalizer beams, pivot points in lines, pivot points not in-line, load as an equalizer beam, necessary calculations.

CALCULATIONS — Crane capacities: results of over loading, division of load charts, gross and net capacity, gross and net load, radius between values, boom length between values, boom angle between values, parts of line; calculating capacities: on the boom, on the pinned section, on the extension, on the jib.

PREPARING FOR A LIFT — Boom assembly and disassembly, reasons to repair/scrap boom sections, Wire rope installation, reeving, wedge sockets, telescoping booms, setting-up, measuring radius, radius over boom angle, outrigger set-up, block outriggers, leveling methods.

CONDITIONS DURING LIFTS — Swingout, slack rope on drums, pick and carry, lifting on tires, protection of personnel around high voltage and results of making contact, working in the vicinity, effects of electrical current, hitting booms, boom over back, causes of two-blocking, shift of center of gravity, cold weather operation, tipping over backwards.

LEAVING CRANES UNATTENDED — Short periods, extended periods.

RESPONSIBILITIES — Management and operator responsibilities.

MISCELLANEOUS — Signals, composition of wire rope, rope strengths, tables of rates and capacities, determine sling loadings, using blocks and tackle.

CRANE CHECKLIST — Operator's daily checklist.

ERECTION, DISMANTLING, TRANSPORT — Erection checklist, bolting procedures, bolting.

INSPECTION & TESTING — Frequency of inspections, testing maintenance, and storage of crane components.

NOTE: Complete program includes at least one crane specific class in addition to basic core.

APPENDIX OR-B

Training (Crane Specific): Minimum Training Required for Operating Cranes of 5 Ton Capacity or Greater, Hydraulic Cranes

Unit of Study Instruction

INTRODUCTION — Hydraulic cranes: 5 ton to 50 ton.

ACCIDENTS/SAFETY — Overview of crane accidents and safety awareness.

CRANE NOMENCLATURE — Type of cranes, industrial hydraulic crane (carry deck), commercial mounted boom truck, hydraulic rough terrain crane (exploded view), characteristics, name of components, transporting, erecting & dismantling, hydraulic crane operator checklist (daily inspection).

MACHINE CONDITION — Configuration, repairs/modifications, swing assembly, cab/controls, fluid levels, boom/load hoist, boom/jib extensions, wire rope/load blocks, safety devices, annual inspection.

SAFE OPERATING PRACTICES — Quadrants of operation: over the front, over the rear, over the side, over the outriggers; mobile and rubber-tired cranes; weight of the lift; load charts; calculating capacities.

CONDITIONS & CAPACITIES — Land based, barge mounted.

APPENDIX OR-C

Training: Minimum Training Required for Operating Cranes of 5 Ton Capacity or Greater, Tower and Whirley Cranes

Unit of Study Instruction

ACCIDENTS/SAFETY — Overview of crane accidents and safety awareness.

CRANE NOMENCLATURE — Type of cranes, characteristics, name of components.

Tower & Whirley Operator Checklist

MACHINE CONDITION — Configuration, repairs/modifications, swing assembly, cab/controls, fluid levels, boom/load hoist, boom/jib extensions, wire rope/load blocks, safety devices.

Tower Crane Climbing

SAFE OPERATING PRACTICES — Quadrants of operation, weight of the lift, load charts, calculating capacities.

APPENDIX OR-D

Training: Minimum Training Required for Operating Cranes of 5 Ton Capacity or Greater, Conventional Cranes

Unit of Study Instruction

ACCIDENTS/SAFETY — Overview of crane accidents and safety awareness.

CRANE NOMENCLATURE — Type of cranes, truck cranes, crawler, characteristics, name of components, transporting, erecting and dismantling, conventional crane operator checklist (daily inspection).

MACHINE CONDITION — Configuration, repairs/modifications, swing assembly, cab/controls, fluid levels, boom/load hoist, boom/jib extensions, wire rope/load blocks, safety devices, annual inspection

SAFE OPERATING PRACTICES — Quadrants of operation for mobile and rubber-tired cranes: over the rear, over the side, over the outriggers, over the front. Quadrants of operation for crawler cranes: over the side, ends, 360 degree rotation; weight of the lift; load charts; calculating capacities.

CONDITIONS & CAPACITIES — Land base, barge mounted.

APPENDIX OR-E

Practical Experience: Minimum Training Required for Operating Cranes of 5 Ton Capacity or Greater

This Area is Meant to Have an Operator Demonstrate a Minimum Acceptable Level of Competency in the Listed Areas Appropriate to the Specific Type of Crane Being Operated

(1) Method and sequence of checks to be conducted on cranes prior to operation.

(2) Procedures for assembling and dismantling cranes and their transportation.

(3) Crane Set-Up:

(a) Site preparation

(b) Counterweights

(c) Outriggers

(d) Rigging methods and materials

(4) Crane Operation:

(a) Safe operating procedures

(b) Principles of leverage and power transmission

- (c) Purpose and use of load charts and boom angles
- (d) Picking loads
- (e) Adjacent hazards
- (5) Frequency, sequence and methods of inspections.
- (6) Maintenance.
- (7) Effect of overloading, instability, and structural or functional failure.
- (8) Procedures for Tower Crane climbing (as applicable).
- (9) Familiarity with OR-OSHA Crane rules and Manufacturer's Operating Manuals.

APPENDIX OR-F

Curriculum for Crane Safety Refresher Training

Unit of Study Instruction

OR-OSHA REQUIREMENTS — Division 3, Subdivision N.

RESPONSIBILITIES — Site supervisor's responsibilities. Crane owner's responsibilities. Operator's responsibilities.

CENTER OF GRAVITY — Crane center of gravity. Load center of gravity. Combined center of gravity. Effect of boom position on combined center of gravity.

RADIUS — Changes in load, boom angle and rotation point.

LOAD — Load on lattice boom cranes. Load on hydraulic cranes. Load on hydraulic crane boom extensions. Load on the jib of lattice and hydraulic boom cranes. Gross capacity vs. net capacity. Static and dynamic loads.

TIPPING AXIS — Rough terrain cranes: Tipping axis. Crawler mounted cranes: Tipping axis.

CALCULATIONS — Overloads and tipping. Division of load charts. Main boom capacity — lattice booms. Values of boom angle, boom length and load radius between chart listings. Parts of line. Crane capacities. Range diagrams.

ACCIDENT PREVENTION — Common causes of tower whirley accidents. Rigging the load. Handling the load. Electrical hazards. Review/analysis of known incidents/accidents.

STATUTORY/OTHER AUTHORITY: ORS 654.025(2), 656.726(4)

STATUTES/OTHER IMPLEMENTED: ORS 654.001 - 654.295