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296-155 Part L Draft (Construction Crane)

- Today's agenda:

- Review previous draft language discussed during previous stakeholder meetings
- Hear draft language that has been added since the last stakeholder meetings
- Q&A

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Agenda

- High level summary of previous draft language from past stakeholder meetings
- Discuss updates to draft language added since the last stakeholder meetings
- Q&A

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High level summary of previous draft language

- Changes based on OSHA
  - Forklift when used as crane
  - Operator certification
  - Operator evaluation
  - Flash-butt welding trucks exemption

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High level of previous changes

- Forklift being used as a crane
- Power line rule changes
- Tower crane assembly/disassembly or jumping/climbing notification
- 2,000 pound and under crane
- Crane certifier certification
- Crane certification worksheet/annual
- Lift director qualification
- Rigger added to duties of assigned personnel

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Overview of Forklifts being used as a crane

- Current OSHA language:

- 1926.1400(c) Exclusions. This subpart does not cover:
- (8) Powered industrial trucks (forklifts), except when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load.

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Forklifts being used as a crane

- Current Part L language:

- WAC 296-155-52900(3)(b)
- Powered industrial trucks (forklifts) when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load are exempted from WAC 296-155-532 crane certification. Operators must also follow the requirements in chapter 296-863 WAC, Forklifts and other powered industrial trucks.

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Forklifts being used as a crane

- Draft language:

- WAC 296-155-52900(3)(a)
- Powered industrial trucks (forklifts) when used to lift, lower, and/or horizontally move a suspended load, like a crane. See WAC 296-155-53300(1)(f) for operator certification information. Operators must also follow the requirements in chapter 296-863 WAC, Forklifts and other powered industrial trucks.

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Forklifts being used as a crane

The change would have employers know that anytime a forklift is being used as a crane to perform construction work, that all of Part L applies, aside from the machine needing to be certified. We get a lot of questions about when the rule applies. This clears up the confusion about if the load is attached by a shackle, or if there is rigging attached to the forks, the backstop, or the knuckle.

This change will allow for the focus to be on the correct machine and set up to be selected in order to perform the job safely, versus selecting a machine and setup that would avoid the Part L rules from being followed.

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OSHA initiated

- Multipurpose pieces of equipment being used as a crane to perform construction work will require operator certification.
- Will accept most similar.

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OSHA initiated

- Operator evaluation. Through an evaluation, the employer must ensure that each operator is qualified by a demonstration of:

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OSHA initiated

- Flash-butt welding trucks exempted

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Previous addition

- Power line changes including documented meetings and written plan

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Previous addition

- WAC 296-155-53401(5) The site supervisor's duties include the following:
- (n) Notify the department by email at towercranenotify@lni.wa.gov at least one week prior to having a tower crane assembled, disassembled, or climbed/jumped at your site. All of the following information shall be included in the email:
- (i) Planned start and end date of the assembly, disassembly, climbing/jumping;
- (ii) Job site address;
- (iii) Type of work being performed, i.e. assembly, disassembly, or climbing/jumping the tower crane;
- (iv) The names and contact numbers of all employers involved and their role in performing the work.

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Previous addition

- 2,000 pound and under capacity changes
- 2,000 pound and under on multi-level buildings

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Previous addition

- Crane certifier certification

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Previous addition

- Crane certification annual/worksheet

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Previous addition

- Lift director qualification
- (1) The lift director must meet the qualification requirements prior to using a crane/equipment to perform hoisting activities. A lift director is required to be present and directly oversees all work that is being performed by a crane and the associated rigging crew. This requirement must be met by using either Option (1) or Option (2).
- Written test valid for 5 years, must also be a qualified rigger and qualified signal person.

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Previous addition

- Rigger added into the duties of assigned personnel

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Overview - New Updates to Draft Language

- Assembly, disassembly, climbing/jumping changes for mostly at tower cranes
  - Certified rigger and certified Lift Director, plan meeting requirement, assembly/disassembly or climbing/jumping work zone
- Assembly/disassembly director follow current OSHA and WA definition
- Assembly/disassembly director qualifications
- Tower crane assembly/disassembly or climbing/jumping work training
- Controlling and clearing public access of sidewalks, roads etc. prior to moving a load into that area
- Tower crane erection, jumping, and dismantling plan
- Requirement for considering wind and weather conditions

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Overview - New Updates to Draft Language

- Duties of assigned personnel – lift director and A/D director limits during assembly/disassembly or climbing/jumping
- Written critical lift plans, along with including all tower crane assembly, disassembly, or climbing/jumping work into the critical lift section
- Information on personnel to be displayed at the jobsite
- Multiple-lift rigging procedure
- Various definitions
  - Including crane user, crane lease, tower crane safety zone

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Assembly, disassembly, climbing/jumping

WAC 296-155-53402(2) ~ Page 87

Certified workers. Applicable to all tower crane assembly, disassembly or climbing/jumping work, the rigger and lift director shall each be certified prior to the work beginning as follows:

(a) Rigger. Have a valid rigger certificate, issued by a testing organization which has an accredited program, accredited by a nationally recognized accrediting agency.

(b) Lift Director. Have a valid lift director certificate, issued by a testing organization which has an accredited program, accredited by a nationally recognized accrediting agency.

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Assembly, disassembly, climbing/jumping

WAC 296-155-53402(5) ~ Page 87

Tower crane assembly, disassembly, or climbing/jumping plan and meeting. Prior to the assembly, disassembly, or climbing/jumping of a tower crane, a meeting with all workers that will be involved in the work shall be in attendance to review and discuss the plan. This plan shall be in written or digital format, and be on site for the entire duration the crane is on site.

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Assembly, disassembly, climbing/jumping

WAC 296-155-53402(5) con't ~ Page 88

The plan shall include the following:

(a) Date of meeting;

(b) Name all roles and responsibilities;

(c) A sequence of operation detailing the erection, jumping, or dismantling, along with the complete rigging and their capacity to be used in such operations;

(d) A weight list of all assemblies and components proposed to be lifted;

(e) List of any assist crane and their gross rated capacity;

(f) The location and voltage information of all energized line(s) in the vicinity. (WAC 296-155-53408 shall also be followed);

(g) The location and timeline of the assembly, disassembly, or climbing/jumping work zone;

(h) Relevant weather warnings, and how to address them.

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Assembly, disassembly, climbing/jumping

Assembly/disassembly or climbing/jumping work zone

Site supervisor - Ensuring that the assembly, disassembly, or climbing/jumping work zone is adequate, and that access into the zone is controlled; ~ Page 82

Assembly, disassembly, or climbing/jumping work zone. The total area that the crane/equipment and/or components or attachments could reach if the crane/equipment were to collapse. Height of the crane, length of boom, attachments, and loads, shall all be considered in order to calculate the area. Control access as necessary to restrict unauthorized access to the zone. ~ Page 9

When dismantling a tower crane, only the component that is being lowered at the time shall have its pins, bolts or connectors released after the component has been fully supported by the assist crane. ~ Page 90

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Assembly/disassembly director

- Assembly/disassembly director to follow current OSHA and WA definition.
- A/D director (assembly/disassembly director). An individual who meets the requirements in this part for an A/D director, irrespective of the person's formal job title or whether the person is non-management or management personnel. ~ Page 9

- (a) Assembly, disassembly, or climbing/jumping, must be directed by a person who meets the criteria for a qualified person, in regards to the assembly/disassembly or climbing/jumping of the crane.
- (b) The A/D director has the authority to and shall take prompt corrective measures to eliminate hazards.
- (c) The A/D director must provide on-site supervision of all assembly, disassembly, or climbing/jumping work. ~ Page 87

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- WAC 296-155-53303 Assembly/disassembly director qualifications. ~ Page 60
- (1) The assembly, disassembly or jumping/climbing must be directed by a person who meets the criteria for a qualified person, in regards to the assembly/disassembly or climbing/jumping of the crane.
- (2) The A/D director is a competent person and has the authority to and shall take prompt corrective measures to eliminate hazards.
- (3) The A/D director shall provide on-site supervision of all assembly, disassembly, or climbing/jumping work.
- (4) They must have complete knowledge of all WAC 296-155 Part L requirements regarding relevant crane assembly/disassembly and/or climbing/jumping procedures.
- (5) They must have complete knowledge of manufacturer's instructions, warnings, precautions and prohibitions regarding the erection, climbing, and dismantling of the specific crane being erected, climbed, or dismantled.
- (6) During the assembly, disassembly or climbing/jumping work of a tower crane, an A/D director shall NOT perform combined duties, such as an A/D director and lift director, A/D director and crane operator, or A/D director and rigger. The A/D director may assist in rigging or signaling.

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Tower crane assembly/disassembly or climbing/jumping work training

- Page 122
- Tower crane assembly/disassembly or climbing/jumping work. The employer must ensure that every employee performing assembly/disassembly or climbing/jumping work has received training relevant to applicable assembly/disassembly or climbing/jumping work, has been completed prior to the employee performing the work. This training shall occur at least annually. The employer shall attest that this training has occurred. Documentation of this training shall be on site.

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Duties of Assigned Personnel

~ Page 80

WAC 296-155-53401(1)(b)

For the assembly/disassembly or climbing/jumping of a tower crane, the lift director and the A/D director may not perform more than one of the duties listed in WAC 296-155-53401.

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Wind and weather

- No crane/equipment shall start an operation when the wind speed exceeds 30 miles per hour, or when the wind is predicted to reach 30 miles per hour before the operation can be completed. An anemometer installed on a crane on the site, or the U.S. weather bureau data from the nearest reporting station may be used for the determination of wind speed. ~ Page 77
- If unpredicted wind speeds that exceed 30 miles per hour occurs while using the crane/equipment, the operator must safely stop operations. You must take the crane/equipment out of service, and you must not resume operations until the wind is predicted to stay below 30 miles per hour until the operation can be completed.
- ~ Page 77
- Lift Director - Considering the recommendations of the manufacturer for securing the crane, when a local weather storm warning exists. ~ Page 86

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Critical lift

- Critical lift.
- • A lift that exceeds 75% of the crane or equipment rated load chart capacity; or
- • A lift that requires the use of more than one crane or equipment; or
- • All tower crane assembly, disassembly, or climbing/jumping work.

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Critical lift plan

- Page 12 ~ Critical lift plan. A critical lift plan is required when a critical lift occurs, or when the proposed load handling activity has been evaluated and it has been determined that the load handling activity exceeds standard lift plan criteria and requires additional planning, procedures, or methods to mitigate the risks. The critical lift plan shall be in written or digital format, and on site while the critical lift occurs. See WAC 296-155-53400(79) for critical lift plan requirements.

- Page 77 through 79 ~ (80) A critical lift plan is required when a critical lift occurs, or when the proposed load handling activity has been evaluated and it has been determined that the load handling activity exceeds standard lift plan criteria and requires additional planning, procedures, or methods to mitigate the risks. The critical lift plan shall be in written or digital format, and on site while the critical lift occurs. The plan shall include at least the following:

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Critical lift plan

- (a) The load:
  - (i) Identify the load's weight, center of gravity, and dimensions, and the sources of that information.
  - (ii) Identify components that could shift during the load handling activity and develop a method for securing, if required.
  - (iii) Identify the load attachment or contact points and ensure that they are suitable for the load to be handled, while maintaining load integrity.
  - (iv) Identify the requirements to be met for the load's orientation and securement prior to the release of the crane/equipment and rigging.

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Critical lift plan

- (b) The crane/equipment:
  - (i) Identify the crane/equipment and the anticipated configuration(s).
  - (ii) Ensure that the crane/equipment is capable of handling the total anticipated load, including the rigging, accessories, and attachments in the intended configuration(s), giving consideration to the factors listed in (v).
  - (iii) Ensure that the crane/equipment is in compliance with all requirements in 296-155 Part L.
  - (iv) Establish the process to set up, erect, install, and dismantle the crane/equipment using the information provided by:
    - (A) The manufacturer;
    - (B) The assembly/disassembly director.
    - (C) Site-specific recommendations.
    - (D) Applicable requirements found in Part L.
  - (v) Identify all required inspections and tests on the crane/equipment that need to be performed using the information provided by the manufacturer, a qualified person, site specific recommendations, or applicable regulatory requirements. For repetitive lifts, additional crane/equipment inspection and maintenance should be considered.

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Critical lift plan

- (c) Rigging:
  - (i) Establish the rigging method that will support and secure the load and is suitable for the load handling activity.
  - (ii) Ensure that the rigging method and the equipment have the capacity to support the load, in the configuration or geometry required, giving consideration to the factors addressed in subsection (a) and the following:
    - (A) Dynamic effects (beyond that considered in the design of the equipment).
    - (B) Adverse environmental conditions (temperature, wind, water/ice).
    - (C) Position of the center of gravity relative to rigging support points.
    - (D) D/d ratio.
  - (iii) Identify the weight of the rigging, accessories, and attachments, and the sources of that information.
  - (iv) Establish the process to ensure that the rigging equipment meets the manufacturer's specifications, 296-155 Part L, industry-recognized standards (e.g., ASME B30.9, B30.20, B30.26), and site-specific requirements for the methods and equipment selected. (v) Identify all necessary inspections and tests for the rigging equipment.
  - (vi) For repetitive Lifts, establish any additional rigging inspection and maintenance requirements that may be necessary.

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Critical lift plan

- (vii) Establish the process to install and disassemble the rigging equipment using the information provided by:
  - (A) The manufacturer.
  - (B) Lift Director.
  - (C) Site-specific recommendations.
  - (D) Applicable 296-155 Part L requirements.
- (viii) Ensure that the rigging will be protected from damage during the load handling activity from conditions such as the following:
  - (A) Temperature (e.g., shielding from heat, cold);
  - (B) Degradation (e.g., chemically active environment);
  - (C) Cutting, abrasion, and friction damage (e.g., turning, shifting, contact with edges).

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Critical lift plan

- (d) Crane/Equipment and load travel path:
  - (i) Identify travel path(s) of the load and crane/equipment.
  - (ii) Ensure that the load and crane/equipment have adequate clearance to prevent contact with site-specific hazards or obstructions during the load handling activity (e.g., crane/equipment to crane/equipment, load to crane/equipment, tail swing, boom/attachment clearance, headroom).
  - (iii) Consider and address the following factors:
    - (A) The site parameters/conditions required to perform the work with site specific hazards (e.g., work area required for setup, laydown, load and equipment path);
    - (B) Support services/utilities (e.g., air, electrical, water);
    - (C) Unobstructed travel path, and egress for the equipment and load;
    - (D) Environmental (e.g., temperature, wind, water/ice);
    - (E) Site control (e.g., vehicle and pedestrian access and the access controls to be used, other site activities that may affect the planned work and measures used to address them);
    - (F) Load eccentricities during operation.
  - (iv) Identify the need for load control (e.g., tag line(s), push/pull poles);
  - (v) Identify positioning and movement of personnel required to support the load handling activity;
  - (vi) Identify effects of slope and/or grade on the crane/equipment.

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Display names of key personnel

- Page 83 ~
- Display the name(s) of the site supervisor, A/D director, lift director(s), rigger(s), signal person(s), and the crane/equipment operator(s) for the job site. The display shall be conspicuously posted on the premises for the entire duration that any crane/equipment is on site. (This requirement shall not apply to a crane/equipment making a delivery).

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Multiple-lift rigging procedure

- Page 202 through 203 ~
- Multiple-lift rigging procedure.
- (a) A multiple-lift is only permitted if all of the following criteria are met:
  - (i) Only employees essential to the operation are allowed to be in the fall zone (but never directly under the suspended load.);
  - (ii) All employees engaged in the multiple-lift have been trained on the additional hazards imposed by multiple-lifts, understand and will avoid the associated hazards;
  - (iii) A maximum of 3 tiers are hoisted per lift;
  - (iv) Slings are protected with material of sufficient strength, thickness, and construction to prevent damage from sharp edges, corners, protrusions, or abrasive surfaces;
  - (v) No bundles of any kind are allowed in a multiple-lift;
  - (vi) Hooks with self-closing latches or their equivalent must be used.

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Multiple-lift rigging procedure

- (b) The total load must not exceed:
  - (i) The rated capacity of the hoisting equipment specified in the hoisting equipment load charts;
  - (ii) The rigging capacity specified in the rigging-rating chart.
- (c) You must rig the multiple-lift rigging assembly:
  - (i) Appropriately rigged and maintained reasonably level;
  - (ii) Rigged from the top down; and
  - (iii) Rigged with enough space for at least 7 feet apart from each load.
- (d) You must set the members on the multiple-lift rigging assembly from the bottom up.
- (e) As each load is landed, the remaining loads must be swung off to the side prior to disconnecting the landed load.
- (f) You must always use controlled load lowering.
- (g) Loads shall be landed on a stable surface to prevent movements causing hazards such as crush/pinch points.
- Note: This does not apply to steel erection work. Follow WAC 296-155 Part P for steel erection work.

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Definitions (some from previous stakeholder)

- Page 9 ~
- **Ballast** (other than for tower cranes). Weight used to supplement the weight of the machine in providing stability for lifting loads.
- **Ballast** (tower cranes). Weight added to a crane base to create additional stability; it does not rotate when the crane swings.
- Page 11 ~
- **Component**. A part or element of a larger whole, such as a part of a crane/equipment, rigging gear etc.
- **Counterweight** (tower cranes). Weights added to a crane superstructure to create additional stability or to counter the effects of the lifted load; they rotate with the crane as it swings.
- Page 12 ~
- **Crane lessee.** Has responsibilities of the crane/equipment as assigned by signed written contract/agreement with the crane owner. Responsibilities may range from limited to custodial control. If custodial control is not defined by contract/agreement, custodial control defaults to the crane owner of the crane/equipment, and not the crane lessee.

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Definitions (some from previous stakeholder)

- Page 12 ~
- **Crane owner.** Has the rightful title of the crane/equipment and is responsible for the crane owner duties. If custodial control is not defined by contract/agreement, custodial control defaults to the crane owner of the crane/equipment, not the crane lessee.
- **Crane user.** Arranges the crane's/equipment's location on a worksite and/or controls its use while using the crane/equipment to perform work. The crane user is responsible for the crane user duties while using the crane/equipment for their portion of work.
- Page 14 ~
- **Lift.** Lift means to hold, lower, and/or raise using cranes/equipment covered by this standard.
- Page 18 ~
- **Site Supervisor.** An employer that is a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the project, its planning, quality and completion.

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Definitions (some from previous stakeholder)

- Page 20 ~
- **Worksheet/annual certificate of operation**. A document issued by a Washington State accredited certifier on behalf of the department, once a successful inspection and proof load test are completed with no deficiencies found. The crane/equipment owner shall ensure this occurs prior to use for construction work, regardless if the crane/equipment is leased or not.

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Questions and comments

- Please email myself and Cindy both all comments at:
- SLON235@LNI.WA.GOV
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