

WAC 296-56-099 Definitions. (1) Approved. The equipment has been approved for the specified use by a nationally recognized testing laboratory.

(2) Approved power-operated industrial truck. One listed or approved for the intended use by a nationally recognized testing laboratory.

(3) Apron. That open portion of a marine terminal immediately adjacent to a vessel berth and used in the direct transfer of cargo between the terminal and vessel.

(4) Assistant director for DOSH. The assistant director of DOSH services, department of labor and industries or their authorized representative.

(5) Authorized. In reference to an employee's assignment, means selected by the employer for that purpose.

(6) Cage (basket guard). A barrier enclosing or nearly enclosing a ladder's climbing space and fastened to one or both of the ladder's side rails or to another structure.

(7) Cargo board. The typical wing or lip-type stevedore board hoisted to or from vessels by means of a bar bridle. Other pallet boards include all other platforms used to hold cargo for the purpose of transporting it from place to place.

(8) Cargo door (transit shed door). A door designed to permit transfer of cargo to and from a marine terminal structure.

(9) Cargo packaging. Any method of containment for shipment, including cases, cartons, crates, and sacks, but excluding large units such as intermodal containers, vans, or similar devices.

(10) Confined space. A space that:

(a) Is large enough and so configured that an employee can bodily enter and perform assigned work; and

(b) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and

(c) Is not designed for continuous employee occupancy.

(11) Conveyor. A device designed exclusively for transporting bulk materials, packages or objects in a predetermined path and having fixed or selective points of loading or discharge.

(12) Danger zone. Any place in or about a machine or piece of equipment where an employee may be struck by or caught between moving parts, caught between moving and stationary objects or parts of the machine, caught between the material and a moving part of the machine, burned by hot surfaces or exposed to electric shock. Examples of danger zones are nip and shear points, shear lines, drive mechanisms, and areas beneath counterweights.

(13) Designated person. A person who possesses specialized abilities in a specific area and is assigned by the employer to perform a specific task in that area.

(14) Dock. A wharf or pier forming all or part of a waterfront facility, including marginal or quayside berthing facilities; not to be confused with "loading dock" as at a transit shed or container freight station, or with the body of water between piers or wharves.

(15) Dock facilities. Includes all piers, wharves, sheds, aprons, dolphins, cranes, or other gear or equipment owned or controlled by

the dock or facility owner, where cargo or materials are loaded, moved or handled to or from a vessel.

(16) **Dockboards (car and bridge plates).** Devices for spanning short distances between rail cars or highway vehicles and loading platforms that do not expose employees to falls greater than 4 feet (1.22 m).

(17) **DOSH.** Division of occupational safety and health.

(18) **Drayage truck operator.** The driver of any in-use on-road vehicle with a gross vehicle weight rating greater than 33,000 pounds operating on or transgressing through port or intermodal rail yard property for the purpose of loading, unloading, or transporting cargo, including containerized, bulk, or break-bulk goods.

(19) **Elevator.** A permanent hoisting and lowering mechanism with a car or platform moving vertically in guides and serving two or more floors of a structure. The term excludes such devices as conveyors, tiering or piling machines, material hoists, skip or furnace hoists, wharf ramps, lift bridges, car lifts, and dumpers.

(20) **Enclosed space.** An indoor space, other than a confined space, that may contain or accumulate a hazardous atmosphere due to inadequate natural ventilation. Examples of enclosed spaces are trailers, railcars, and storage rooms.

(21) **Escalator.** A power-driven continuous moving stairway principally intended for the use of persons.

(22) **Examination.** As applied to material handling devices required to be certified by this chapter, means a comprehensive survey consisting of the criteria outlined in WAC 296-56-60093 through 296-56-60097. The examination is supplemented by a unit proof test in the case of annual survey.

(23) **Fixed ladder.** A ladder, including individual rung ladders, permanently attached to a structure, building, or piece of equipment.

(24) **Fixed stairway.** Interior or exterior stairs serving machinery, tanks, or equipment, and stairs to or from floors, platforms, or pits. The term does not apply to stairs intended only for fire exit purposes, to articulated stairs (the angle of which changes with the rise and fall of the base support) or to stairs forming an integral part of machinery.

(25) **Flammable atmosphere.** An atmosphere containing more than ((ten)) 10 percent of the lower flammable limit (LFL) of a flammable or combustible vapor or dust mixed with air. Such atmospheres are usually toxic as well as flammable.

(26) **Front-end attachments.**

(a) As applied to power-operated industrial trucks, means the various devices, such as roll clamps, rotating and sideshifting carriages, magnets, rams, crane arms or booms, load stabilizers, scoops, buckets, and dumping bins, attached to the load end for handling lifts as single or multiple units.

(b) As applied to cranes, means various attachments applied to the basic machine for the performance of functions such as lifting, clamshell, or magnet services.

(27) **Fumigant.** Is a substance or mixture of substances, used to kill pests or prevent infestation, which is a gas or is rapidly or progressively transformed to the gaseous state even though some non-gaseous or particulate matter may remain and be dispersed in the treatment space.

(28) **Guarded.** Shielded, fenced, or enclosed by covers, casings, shields, troughs, spillways or railings, or guarded by position or location. Examples of guarding methods are guarding by location (posi-

tioning hazards so they are inaccessible to employees) and point of operation guarding (using barrier guards, two-hand tripping devices, electronic safety devices, or other such devices).

(29) Hazardous cargo, material, substance or atmosphere.

(a) Any substance listed in chapters 296-62 and 296-841 WAC;

(b) Any material in the hazardous materials table and hazardous materials communications regulations of the Department of Transportation, 49 C.F.R. Part 172;

(c) Any article not properly described by a name in the hazardous materials table and hazardous materials communications regulations of the Department of Transportation, 49 C.F.R. Part 172, but which is properly classified under the definition of those categories of dangerous articles given in 49 C.F.R. Part 173;

(d) Atmospheres having concentrations of airborne chemicals in excess of permissible exposure limits as defined in chapter 296-62 WAC; or

(e) Any atmosphere with an oxygen content of less than ((~~nineteen and one-half~~)) 19.5 percent by volume.

(30) Hot work. Riveting, welding, flame cutting or other fire or spark-producing operation.

(31) House falls. Spans and supporting members, winches, blocks, and standing and running rigging forming part of a marine terminal and used with a vessel's cargo gear to load or unload by means of married falls.

(32) Inspection. As applied to material handling devices required to be certified by this chapter, includes a complete visual examination of all visible parts of the device.

(33) Intermodal container. A reusable cargo container of rigid construction and rectangular configuration intended to contain one or more articles of cargo or bulk commodities for transportation by water and one or more other transport modes without intermediate cargo handling. The term includes completely enclosed units, open top units, fractional height units, units incorporating liquid or gas tanks and other variations fitting into the container system, demountable or with attached wheels. It does not include cylinders, drums, crates, cases, cartons, packages, sacks, unitized loads or any other form of packaging.

(34) Ladder safety device. A support system limiting an employee's drop or fall from the ladder, and which may incorporate friction brakes, lifelines and lanyards, or sliding attachments.

(35) Loose gear. Removable or replaceable components of equipment or devices which may be used with or as a part of assembled material handling units for purposes such as making connections, changing line direction and multiplying mechanical advantage. Examples include shackles and snatch blocks.

(36) Marina. A small harbor or boat basin providing dockage, supplies, and services for small craft.

(37) Marine terminal. Wharves, bulkheads, quays, piers, docks, and other berthing locations and adjacent storage or contiguous areas and structures associated with the primary movement of cargo or materials from vessel to shore or shore to vessel. It includes structures which are devoted to receiving, handling, holding, consolidation, loading or delivery of waterborne shipments and passengers, and areas devoted to the maintenance of the terminal or equipment. The term does not include production or manufacturing areas having their own docking facilities and located at a marine terminal nor storage facilities directly associated with those production or manufacturing areas.

(38) **Other pallet boards.** All other platforms used to hold cargo for the purpose of transporting it from place to place.

(39) **Permit-required confined space (permit space).** A confined space that has one or more of the following characteristics:

(a) Contains or has a potential to contain a hazardous atmosphere;

(b) Contains a material that has the potential for engulfing an entrant;

(c) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

(d) Contains any other recognized serious safety or health hazard.

(40) **Ramps.** Other flat-surface devices for passage between levels and across openings not covered under "dockboards."

(41) **Ship's stores.** Materials that are aboard a vessel for the upkeep, maintenance, safety, operation, or navigation of the vessel, or for the safety or comfort of the vessel's passengers or crew.

(42) **Spiral stairway.** One with closed circular form, uniform sector-shaped treads and a supporting column.

(43) **Spray booth.** An enclosure containing a flammable or combustible spraying operation and confining and limiting the escape of paint, vapor and residue by means of a powered exhaust system.

(44) **Spraying area.** Any area where flammable vapors, mists or combustible residues, dusts or deposits may be present due to paint spraying operations.

(45) **Terminal operator.** The business entity operating a marine terminal for loading and unloading cargo to and from marine vessels. It includes the port if the port is directly operating the marine terminal in loading and unloading cargo to and from marine vessels.

(46) **Well.** A permanent complete enclosure around a fixed ladder, which is attached to the walls of the well.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-600 Marine terminals.

Summary

Your responsibility: To protect employees from hazards associated with marine terminals.

| You must meet the requirements... | in this section: |
|--|-------------------------|
| Scope and applicability | WAC 296-56-60001 |
| Variance and procedure | WAC 296-56-60003 |
| Definitions | WAC 296-56-60005 |
| Personnel | WAC 296-56-60006 |
| Housekeeping | WAC 296-56-60007 |
| Accident prevention program | WAC 296-56-60009 |
| Emergency action plans | WAC 296-56-60010 |

All forms and applications related to this standard may be requested from the department or are available on the website at <https://lni.wa.gov/>

All correspondence related to this standard may be submitted to:

Department of Labor and Industries
Division of Occupational Safety and Health
P.O. Box 44650
Olympia, WA 98504-4650

Exception: For information specific to the cranes certification program, see WAC 296-56-60083.

Documents related to crane certification may be submitted to the above address or electronically to:

Email: LNICranes@lni.wa.gov

AMENDATORY SECTION (Amending WSR 14-07-086, filed 3/18/14, effective 5/1/14)

WAC 296-56-60001 Scope and applicability. (1) The rules included in this chapter apply throughout the state of Washington, to any and all waterfront operations under the jurisdiction of the department of labor and industries.

(2) These minimum requirements are promulgated in order to augment the general safety and health standards, and any other safety and health standards promulgated by the department of labor and industries which are applicable to all places of employment under the jurisdiction of the department of labor and industries. The rules of this chapter, and the rules of chapters 296-24, 296-62 and 296-800 WAC are applicable to all longshore, stevedore and related waterfront operations: Provided, That such rules (~~shall~~) will not be applicable to those operations under the exclusive safety jurisdiction of the federal government.

(3) The provisions of this chapter (~~shall~~) will prevail in the event of a conflict with, or duplication of, provisions contained in chapters 296-24, 296-62 and 296-800 WAC. Specific standards which are applicable include, but are not limited to:

(a) Electrical - Chapter 296-24 WAC Part L, and WAC 296-800-280.

(b) Toxic and hazardous substances are regulated by chapters 296-62 and 296-841 WAC. Where references to this chapter are given they are for informational purposes only. Where specific requirements of this chapter conflict with the provisions of chapters 296-62 and 296-841 WAC, this chapter prevails. Chapter 296-62 WAC does not apply when a substance or cargo is contained within a manufacturer's original, sealed, intact means of packaging or containment complying with the department of transportation or International Maritime Organization requirements.

(c) Hearing loss prevention (noise) - Chapter 296-817 WAC.

(d) Standards for commercial diving operations - Chapter 296-37 WAC.

(e) Safety requirements for scaffolding - Chapter 296-874 WAC.

(f) Safe practices of abrasive blasting operations - Chapter 296-818 WAC.

(g) Access to employee exposure and medical records - Chapter 296-802 WAC.

(h) Respiratory protection - Chapter 296-842 WAC.

- (i) Safety standards for grain handling facilities - Chapter 296-99 WAC.
- (j) Hazard communication - WAC 296-901-140.
- (k) Asbestos - Chapters 296-62 Part I-1 and 296-65 WAC.
- (l) Permit - Required confined spaces and confined space - Chapter 296-809 WAC.
- (m) Servicing multipiece and single-piece rim wheels - Chapter 296-864 WAC.
- (n) First-aid requirements - WAC 296-800-150.
- (o) Employee emergency plans and fire prevention plans - Chapter 296-24 WAC Part G-1.
- (4) The provisions of this chapter do not apply to the following:
 - (a) Fully automated bulk coal handling facilities contiguous to electrical power generating plants.
 - (b) Facilities subject to the regulations of the office of pipeline safety regulation of the materials transportation bureau, department of transportation, to the extent such regulations apply.
- (5) WAC 296-62-074 (~~shall~~) will apply to the exposure of every employee to cadmium in every employment and place of employment covered by chapter 296-56 WAC in lieu of any different standard on exposures to cadmium that would otherwise be applicable by virtue of those sections.

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-56-60003 Variance and procedure. Conditions may exist under which certain state standards will not have practical application. In these cases, the director of the department of labor and industries has made provisions for the issuance of variances. The director or his/her authorized representative may, pursuant to this section, RCW 49.17.080 and 49.17.090, and chapter 296-900 WAC, upon receipt of application and after investigation by the department, permit a variation from the requirements of this chapter. Any variance is limited to the particular case and application. It (~~shall~~) must remain posted during the time which it is in effect. Variance application forms may be obtained from the department.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60009 Accident prevention program. (1) You must establish an accident prevention program, which provides equitable management-employee participation, in all establishments, industrial plants, or operations.

(2) You must initiate and maintain the accident prevention program necessary to comply with this section. DOSH may be contacted for assistance in initiating and maintaining an effective accident prevention program.

(3) You must tailor all accident prevention programs to the needs of the particular operation.

(4) You must have employer and employee representatives, as elected, delegated or appointed, to attend and actively take part in frequent and regular safety committee meetings.

(5) You must provide in the accident prevention programs for employer-employee safety meetings and frequent and regular safety inspections of job sites, materials, equipment, and operating procedures.

(6) You must maintain a record of safety activities, such as inspections and meetings, for a period covering the previous ~~((twelve))~~ 12 months and must be made available, upon request, to ~~((noncompliance))~~ safety and health consultation personnel of the department of labor and industries.

(7) You must ensure employees individually comply with all safety rules and cooperate with management in carrying out the accident prevention program.

(8) You must establish committees in each port to make effective the preceding statement and promote on-the-job accident prevention. These committees must consist of an equal number of port or stevedore company and longshoremen representatives at the job level with the industry or company safety supervisor serving as secretary and coordinator. Some functions of the committee are to maintain the interest of the workers in accident prevention by providing for their actual participation in the program, to direct their attention to the real causes of accidents, and to provide a means for making practical use of their intimate knowledge of working conditions and practices.

(9) It is intended that this program will produce mutually practical and effective recommendations regarding correction of accident-producing circumstances and conditions.

Note: For first-aid requirements, see WAC 296-800-150.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60010 Emergency action plans. (1) You must develop and implement an emergency action plan. The emergency action plan must be in writing (except as provided in subsection (5)(d) of this section) and must cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.

Note: When an employer directs their employees to respond to an emergency that is beyond the scope of the emergency action plan developed in accordance with this section, then chapter 296-824 WAC must apply.

(2) You must include the following elements, at a minimum, in the plan:

(a) Emergency escape procedures and emergency escape route assignments;

(b) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;

(c) Procedures to account for all employees after emergency evacuation has been completed;

(d) Rescue and medical duties for those employees who are to perform them;

(e) The preferred means of reporting fires and other emergencies; and

(f) Names or regular job titles of persons or departments that can be contacted for further information or explanation of duties under the plan.

(3) You must establish an employee alarm system that provides warning for necessary emergency action and for reaction time for safe escape of employees from the workplace or the immediate work area.

(4) You must establish the types of evacuation to be used in emergency circumstances.

(5) You must meet the following requirements for training:

(a) Before implementing the emergency action plan, you must designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

(b) You must review the plan with each employee covered by the plan at the following times:

(i) Initially when the plan is developed;

(ii) Whenever the employee's responsibilities or designated actions under the plan change; and

(iii) Whenever the plan is changed.

(c) You must review with each employee upon initial assignment those parts of the plan that the employee must know to protect the employee in the event of an emergency. The written plan must be kept at the workplace and be made available for employee review.

(d) You may communicate the plan orally to employees and need not maintain a written plan, in a language understood by the employee, if you have ~~((ten))~~ 10 or fewer employees.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60039 Dockboards (car and bridge plates). (1) You must use portable and powered dockboards strong enough to carry the load imposed.

(2) You must secure portable dockboards in position, either by being anchored or equipped with devices which will prevent ~~((slipping))~~ movement.

(3) You must design ~~((and))~~, construct ((powered)), and maintain dockboards ((in accordance with commercial standards CS202-56 (1956) Industrial Lifts and Hinged Loading Ramps published by the United States Department of Commerce)) to prevent vehicles from running off the edge.

(4) You must provide handholds or other effective means on portable dockboards to permit safe handling.

(5) You must provide positive protection to prevent railroad cars or highway vehicles from being moved while dockboards or bridge plates are in position.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60041 Log handling. (1) You must ensure that structures (bunks) used to contain logs have rounded corners and rounded structural parts to avoid sling damage.

(2) You must have two or more binders or equivalently safe means of containment on logging trucks and railcars to secure logs during movement of the truck or car within the terminal. During unloading, logs must be prevented from moving while binders are being removed.

(3) You must hoist logs by two slings or by other gear designed for safe hoisting.

(4) You must not stack logs placed adjacent to vehicle curbs on the dock over one tier high unless placed in bunks or so stacked as not to roll or otherwise creating a hazard to employees.

(5) You must make sure before logs are slung up from the dock, they are stably supported to prevent spreading and to allow passage of slings beneath the load. When bunks or similar retaining devices are used, no log (~~shall~~) will be higher than the stanchions or retaining members of the device.

(6) You must make sure a draft of logs for hoisting aboard ship will not vary in length more than (~~twenty~~) 20 percent.

(7) You must make sure audible alarms meet the following requirements:

(a) All bidirectional machines, must be equipped with a horn, distinguishable from the surrounding noise level, which must be operated as needed when the machine is moving in either direction. The horn must be maintained in operable condition.

(b) Automatic back-up alarms must be installed on bidirectional equipment used to handle logs or containers and must be maintained in operable condition.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60051 Handling explosives or hazardous materials.

(1) You must thoroughly inform all workers handling explosive or other hazardous material which is properly labeled pursuant to the Washington State Labeling Code, chapters 296-62 and 296-64 WAC, promulgated by the department of labor and industries; or the Explosive Act, chapter 70.74 RCW and chapter 296-52 WAC; or the Federal and Washington State Food, Drug and Cosmetic Acts; the Federal Insecticide, Fungicide and Rodenticide Act, the Washington Pesticide Act, chapter 17.21 RCW; the Federal Hazardous Substances Labeling Act; or the Interstate Commerce Commission and Foreign Commerce regulations; or explosives or other dangerous cargo which is reasonably known by the employers to be mislabeled or to be lacking a required label, of the explosive or hazardous nature of the cargo.

(2) You must ensure that all shipping operations including, but not limited to, handling, storage, and preparation, compliance with the standards of the Interstate Commerce Commission, the United States Coast Guard, or the safety rules developed by the Institute of Makers of Explosives are deemed proper and safe methods of operation.

(3) You must require the foreman to order the work in the immediate area to cease, if breakage should occur while handling explosives or other hazardous materials, until the hazard has been removed. You must use a safe method of handling such breakage and placing it in a remote, safe location.

(4) You must prohibit all workers supervising or engaged in the handling, hoisting, stowing of explosives, combustible oxidizing materials or flammable materials from smoking, except in designated areas. (~~No person shall smoke~~) Smoking is prohibited within (~~one hundred~~) 100 feet of any location where such materials are handled or stored.

(5) You must take care in chuting packaged explosives to ensure that one package is taken from the mat before starting another. Each package must be completely removed from the mat before another is placed on the chute.

(6) You must construct chutes only of wood in the loading of explosive merchandise in package form where chutes are used. All fastenings (~~shall~~) must be of wooden pins, (~~dowelings~~) dowels, or pegs. Metal fastenings may be used, provided they are countersunk.

(7) You must provide a stuffed mattress not less than four inches thick and of sufficient width and length to allow for safe landing of packages at the bottoms of the chutes.

(8) You must sling and secure drafts of hazardous or explosive cargo shall be so slung and secured that neither the draft nor individual packages can fall as a result of tipping the draft or slackening the supporting gear.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60055 Carbon monoxide. (1) You must maintain the carbon monoxide content of the atmosphere in a room, building, vehicle, railcar or any enclosed space (~~shall~~) must be maintained below (~~fifty~~) 50 parts per million (0.005%) as an eight-hour time-weighted average. Employees must be removed from the enclosed space if the carbon monoxide concentration exceeds (~~one hundred~~) 100 parts per million (0.01%).

(2) You must conduct tests to determine carbon monoxide concentration whenever necessary to ensure that employee exposure does not exceed the limits specified in subsection (1) of this section.

(3) You must make sure tests for carbon monoxide concentration are made by designated persons using gas detector tube units certified by NIOSH under 30 C.F.R. Part 11 or other measuring instruments whose accuracy is as great or greater.

(4) You must make available a record of the date, time, location and result of carbon monoxide tests for at least (~~thirty~~) 30 days.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60057 Fumigants, pesticides, insecticides and hazardous preservatives (see also WAC 296-56-60049, 296-56-60051 and

296-56-60053). (1) You must make a determination as to whether a hazardous atmosphere is present whenever cargo in a space is or has been stowed, handled, or treated with a fumigant, pesticide, insecticide, or hazardous preservative. Only employees protected as required in subsection (5) of this section (~~shall~~) will enter the space if it is hazardous.

(2) You must make sure tests to determine the atmospheric concentration of chemicals used to treat cargo are:

(a) Appropriate for the hazard involved;

(b) Conducted by designated persons; and

(c) Performed at the intervals necessary to ensure that employee exposure does not exceed the permissible exposure limit for the chemical involved, see chapters 296-62 and 296-841 WAC.

(3) You must make available any test results for at least (~~thirty~~) 30 days.

(4) You must make sure chemicals are only applied to cargoes by designated persons.

(5) You must make sure only designated persons enter hazardous atmospheres. Whenever a hazardous atmosphere is entered the following provisions apply:

(a) Persons entering a space containing a hazardous atmosphere must be protected by respiratory and emergency protective equipment meeting the requirements of part G of this standard; and

(b) Persons entering a space containing a hazardous atmosphere must be instructed in the nature of the hazard, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, must continuously monitor the activity of employees within such a space.

(6) You must clearly post signs where fumigants, pesticides or hazardous preservatives have created a hazardous atmosphere. These signs must note the danger, identify specific chemical hazards, and give appropriate information and precautions, including instructions for the emergency treatment of employees affected by any chemical in use.

(7) You must aerate the contents of a container by opening the container doors for a period of (~~forty-eight~~) 48 hours after the completion of fumigation and prior to loading in the case of containerized shipments of fumigated tobacco. When tobacco is within shipping cases having polyethylene or similar bag liners, the aeration period must be (~~seventy-two~~) 72 hours. You must obtain a written warranty from the fumigation facility stating that the appropriate aeration period has been met.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60073 Miscellaneous auxiliary gear. (1) You must meet the following requirements for routine inspections:

(a) At the completion of each use, loose gear such as slings, chains, bridles, blocks, and hooks must be so placed as to avoid damage to the gear. Loose gear must be inspected and any defects corrected before reuse.

(b) All loose gear must be inspected by the employer or their authorized representative before each use and, when necessary, at inter-

vals during its use, to ensure that it is safe. Any gear which is found upon inspection to be unsafe must not be used until it is made safe.

(c) Defective gear must not be used. Distorted hooks, shackles, or similar gear must be discarded.

(d) Chains or other gear which have been lengthened, altered, or repaired by welding must be properly heat treated, and before again being put into use, must be tested and reexamined in the manner set forth in WAC 296-56-60097 and 296-56-60098.

(2) You must maintain a record of the dates and results of the tests with each unit of gear concerned clearly identified. The records must be available for examination by division of ~~((consultation and compliance))~~ occupational safety and health, crane certification program personnel and the employee safety committee.

(3) You must meet the following requirements for wire rope and wire rope slings:

(a) You must ascertain and adhere to the manufacturer's recommended ratings for wire rope and wire rope slings and must have such ratings available at the terminal. When the manufacturer is unable to supply such ratings, you must use the tables for wire rope and wire rope slings found in American National Safety Standard for Slings, ANSI/ASME B30.9-1984. A design safety factor of at least five must be maintained for the common sizes of running wire used as falls, in purchases or in such uses as light load slings. Wire rope with a safety factor of less than five may be used only:

(i) In specialized equipment, such as cranes designed to be used with lesser wire rope safety factors;

(ii) In accordance with design factors in standing rigging applications; or

(iii) For heavy lifts or other purposes for which a safety factor of five is impractical and for which the employer can demonstrate that equivalent safety is ensured.

(b) Wire rope or wire rope slings exhibiting any of the following conditions must not be used:

(i) Ten randomly distributed broken wires in one rope lay or three or more broken wires in one strand in one rope lay;

(ii) Kinking, crushing, bird caging, or other damage resulting in distortion of the wire rope structure;

(iii) Evidence of heat damage;

(iv) Excessive wear, corrosion, deformation or other defect in the wire or attachments, including cracks in attachments;

(v) Any indication of strand or wire slippage in end attachments; or

(vi) More than one broken wire in the close vicinity of a socket or swaged fitting.

(c) Four by ~~((twenty-nine))~~ 29 (4 x 29) wire rope must not be used in any running rigging.

(d) Protruding ends of strands in splices on slings and bridles must be covered or blunted. Coverings must be removable so that splices can be examined. Means used to cover or blunt ends must not damage the wire.

(e) Where wire rope clips are used to form eyes, you must adhere to the manufacturer's recommendations, which must be available at the terminal. If "U" bolt clips are used and the manufacturer's recommendations are not available, Table C-1 must be used to determine the number and spacing of clips. "U" bolts must be applied with the "U" section in contact with the dead end of the rope.

Table C-1
Number and Spacing of U-Bolt Wire Rope
Clips

| Improved plow steel, rope diameter | Minimum number of clips | | Minimum spacing |
|--|----------------------------|-------------------|--------------------|
| | Drop forged | Other material | |
| inches/(cm) | | | inches/(cm) |
| 1/2 or less (1.3) | 3 | 4 | 3 (7.6) |
| 5/8 (1.6) | 3 | 4 | 3 3/4 (9.5) |
| 3/4 (1.9) | 4 | 5 | 4 1/2 (11.4) |
| 7/8 (2.2) | 4 | 5 | 5 1/4 (13.3) |
| 1 (2.5) | 5 | 7 | 6 (15.2) |
| 1 1/8 (2.9) | 6 | 7 | 6 3/4 (17.1) |
| 1 1/4 (3.2) | 6 | 8 | 7 1/2 (19.1) |
| 1 3/8 (3.5) | 7 | 8 | 8 1/4 (21.0) |
| 1 1/2 (3.8) | 7 | 9 | 9 (22.9) |

(f) Wire rope must not be secured by knots.

(g) Eyes in wire rope bridles, slings, bull wires, or in single parts used for hoisting must not be formed by wire rope clips or knots.

(h) Eye splices in wire ropes must have at least three tucks with a whole strand of the rope and two tucks with one-half of the wire cut from each strand. Other forms of splices or connections which are demonstrated to be equally safe may be used.

(i) Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in bulging cargo, must consist of one continuous piece without knot or splice.

(4) You must meet the following requirements for natural fiber rope.

(a) You must ascertain the manufacturer's ratings for the specific natural fiber rope used and have such ratings available at the terminal. The manufacturer's ratings must be adhered to and a minimum design safety factor of five maintained.

(b) Eye splices must consist of at least three full tucks. Short splices must consist of at least six full tucks, three on each side of the center line.

(5) You must meet the following requirements for synthetic rope:

(a) You must adhere to the manufacturer's ratings and use recommendations for the specific synthetic fiber rope used and must have such ratings available at the terminal.

(b) Unless otherwise recommended by the manufacturer, when synthetic fiber ropes are substituted for manila ropes of less than three inches (7.62 cm) circumference, the substitute must be of equal size. Where substituted for manila rope of three inches or more in circumference, the size of the synthetic rope must be determined from the formula:

$$C = \sqrt{6(C_s^2) + .4(C_m^2)}$$

Where C = the required circumference of the synthetic rope in inches, C_s = the circumference to the nearest one-quarter inch of a synthetic rope having a breaking strength not less than that of the size manila rope that would be required by subsection (4) of this section, and

C_m = the circumference of manila rope in inches which would be required by subsection (4) of this section.

(c) In making such substitution, it must be ascertained that the inherent characteristics of the synthetic fiber are suitable for hoisting.

(6) You must remove natural or synthetic rope having any of the following defects from service:

- (a) Abnormal wear;
- (b) Powdered fiber between strands;
- (c) Sufficient cut or broken fibers to affect the capacity of the rope;
- (d) Variations in the size or roundness of strands;
- (e) Discolorations other than stains not associated with rope damage;
- (f) Rotting; or
- (g) Distortion or other damage to attached hardware.

(7) You must use properly fitting thimbles where any rope is secured permanently to a ring, shackle or attachment, where practical.

(8) You must meet the following requirements for synthetic web slings:

(a) Slings and nets or other combinations of more than one piece of synthetic webbing assembled and used as a single unit (synthetic web slings) must not be used to hoist loads in excess of the sling's rated capacity.

(b) Synthetic web slings must be removed from service if they exhibit any of the following defects:

- (i) Acid or caustic burns;
- (ii) Melting or charring of any part of the sling surface;
- (iii) Snags, punctures, tears or cuts;
- (iv) Broken or worn stitches;
- (v) Distortion or damage to fittings; or
- (vi) Display of visible warning threads or markers designed to indicate excessive wear or damage.

(c) Defective synthetic web slings removed from service must not be returned to service unless repaired by a sling manufacturer or similar entity. Each repaired sling must be proof tested by the repairer to twice the slings' rated capacity prior to its return to service. You must retain a certificate of the proof test and make it available for examination.

(d) Synthetic web slings provided by you must only be used in accordance with the manufacturer's recommendations, which must be made available upon request.

(e) Fittings must have a breaking strength at least equal to that of the sling to which they are attached and must be free of sharp edges.

(9) You must meet the following requirements for chains and chain slings used for hoisting.

(a) You must adhere to the manufacturer's recommended ratings for safe working loads for the sizes of the wrought iron and alloy steel chains and chain slings used and must have such ratings available. When the manufacturer is unable to provide such ratings, you must use the tables for chains and chain slings found in American National Safety Standard for Slings, ANSI B30.9-1971.

(b) Proof coil steel chain, also known as common or hardware chain, and other chain not recommended by the manufacturer for slinging or hoisting must not be used for slinging or hoisting.

(c) Sling chains, including end fastenings, must be inspected for visible defects before each day's use and as often as necessary during use to ensure integrity of the sling.

(i) Thorough inspections of chains in use must be made quarterly to detect wear, defective welds, deformation, increase in length or stretch. The month of inspection must be indicated on each chain by color of paint on a link or by other effective means.

(ii) Chains must be removed from service when maximum allowable wear, as indicated in Table C-2, is reached at any point of link.

(iii) Chain slings must be removed from service when stretch has increased the length of a measured section by more than five percent; when a link is bent, twisted or otherwise damaged; or when a link has a raised scarf or defective weld.

(iv) Only designated persons (~~shall~~) may inspect chains used for slinging and hoisting.

**Table C-2
Maximum Allowable Wear at Any Point of Link**

| Chain Size | | Maximum Allowable Wear | |
|------------|-------|------------------------|-------|
| Inches | (cm) | Inches | (cm) |
| 1/4 (9/32) | (0.6) | 3/64 | (0.1) |
| 3/8 | (1.0) | 5/64 | (0.2) |
| 1/2 | (1.3) | 7/64 | (0.3) |
| 5/8 | (1.6) | 9/64 | (0.4) |
| 3/4 | (1.9) | 5/32 | (0.4) |
| 7/8 | (2.2) | 11/64 | (0.4) |
| 1 | (2.5) | 3/16 | (0.5) |
| 1 1/8 | (2.9) | 7/32 | (0.6) |
| 1 1/4 | (3.2) | 1/4 | (0.6) |
| 1 3/8 | (3.5) | 9/32 | (0.7) |
| 1 1/2 | (3.8) | 5/16 | (0.8) |
| 1 3/4 | (4.4) | 11/32 | (0.9) |

(d) Chains must only be repaired under qualified supervision. Links or portions of chain defective under any of the criteria under (c) of this subsection must be replaced with properly dimensioned links or connections of material similar to that of the original chain. Before repaired chains are returned to service, they must be tested to the proof test load recommended by the manufacturer for the original chain. Tests must be performed by the manufacturer or must be certified by an agency accredited for the purpose under WAC 296-56-60093. Test certificates must be available at the terminal.

(e) Wrought iron chains in constant use must be annealed or normalized at intervals not exceeding six months. Heat treatment certificates must be available at the terminal. Alloy chains must not be annealed.

(f) Kinked or knotted chains must not be used for lifting. Chains must not be shortened by bolting, wiring or knotting. Makeshift links or fasteners such as wire, bolts or rods must not be used.

(g) Hooks, rings, links and attachments affixed to sling chains must have rated capacities at least equal to that of the chains to which they are attached.

(h) Chain slings must bear identification of size, grade and rated capacity.

(10) You must meet the following requirements for shackles:

(a) If available, the manufacturer's recommended safe working loads for shackles must not be exceeded. In the absence of manufacturer's recommendations, Table C-3 must apply.





(b) Screw pin shackles used aloft in house fall or other gear, except in cargo hook assemblies, must have their pins moused or otherwise effectively secured.

**Table C-3
Safe Working Loads for Shackles**

| Material Size | | Pin Diameter | | Safe Working Load in 2,000 lb Tons |
|---------------|-------|--------------|-------|------------------------------------|
| Inches | (cm) | Inches | (cm) | |
| 1/2 | (1.3) | 5/8 | (1.6) | 1.4 |
| 5/8 | (1.6) | 3/4 | (1.9) | 2.2 |
| 3/4 | (1.9) | 7/8 | (2.2) | 3.2 |
| 7/8 | (2.2) | 1 | (2.5) | 4.3 |
| 1 | (2.5) | 1 1/8 | (2.9) | 5.6 |
| 1 1/8 | (2.9) | 1 1/4 | (3.2) | 6.7 |
| 1 1/4 | (3.2) | 1 3/8 | (3.5) | 8.2 |
| 1 3/8 | (3.5) | 1 1/2 | (3.8) | 10.0 |
| 1 1/2 | (3.8) | 1 5/8 | (4.1) | 11.9 |
| 1 3/4 | (4.4) | 2 | (5.1) | 16.2 |
| 2 | (5.1) | 2 1/4 | (5.7) | 21.2 |

(c) Tables G-2 through G-5 must be used to determine the safe working loads of various sizes and classifications of improved plow steel wire rope slings with various types of terminals. For sizes, classifications and grades not included in these tables the safe working load recommended by the manufacturer for specific, identifiable products must be followed, however, a safety factor of not less than five must be maintained.

**TABLE G-1
MANILA ROPE
In Pounds or Tons of 2,000 Pounds**

| Circumference | Diameter in Inches | Single Leg | 60 Degree | 45 Degree | 30 Degree |
|---------------|--------------------|---|---|---|---|
| | |  |  |  |  |
| | | Lbs. | Lbs. | Lbs. | Lbs. |
| 3/4 | 1/4 | 120 | 204 | 170 | 120 |
| 1 | 5/16 | 200 | 346 | 282 | 200 |
| 1 1/8 | 3/8 | 270 | 467 | 380 | 270 |
| 1 1/4 | 7/16 | 350 | 605 | 493 | 350 |
| 1 3/8 | 15/32 | 450 | 775 | 635 | 450 |
| 1 1/2 | 1/2 | 530 | 915 | 798 | 530 |
| 1 3/4 | 9/16 | 690 | 1190 | 973 | 690 |
| 2 | 5/8 | 880 | 1520 | 1240 | 880 |
| 2 1/4 | 3/4 | 1080 | 1870 | 1520 | 1080 |
| 2 1/2 | 13/16 | 1300 | 2250 | 1830 | 1300 |
| 2 3/4 | 7/8 | 1540 | 2660 | 2170 | 1540 |
| 3 | 1 | 1800 | 3120 | 2540 | 1800 |
| | | Tons | Tons | Tons | Tons |
| 3 1/4 | 1 1/16 | 1.0 | 1.7 | 1.4 | 1.0 |





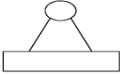
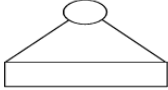
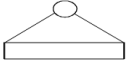
| Circumference | Diameter in Inches | Single Leg | 60 Degree | 45 Degree | 30 Degree |
|---------------|--------------------|---|---|---|---|
| | |  |  |  |  |
| | | Lbs. | Lbs. | Lbs. | Lbs. |
| 3 1/2 | 1 1/8 | 1.2 | 2.1 | 1.7 | 1.2 |
| 3 3/4 | 1 1/4 | 1.35 | 2.3 | 1.9 | 1.35 |
| 4 | 1 5/16 | 1.5 | 2.6 | 2.1 | 1.5 |
| 4 1/2 | 1 1/2 | 1.8 | 3.1 | 2.5 | 1.8 |
| 5 | 1 5/8 | 2.25 | 3.9 | 3.2 | 2.25 |
| 5 1/2 | 1 3/4 | 2.6 | 4.5 | 3.7 | 2.6 |
| 6 | 2 | 3.1 | 5.4 | 4.4 | 3.1 |
| 6 1/2 | 2 1/8 | 3.6 | 6.2 | 5.1 | 3.6 |

TABLE G-2
RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT
WIRE ROPE CORE, WIRE ROPE AND WIRE SLINGS
(In Tons of 2,000 Pounds)

| Rope Diameter Inches | Single Leg | | | | | |
|--|------------|-----|-----|--------|-----|-----|
| | Vertical | | | Choker | | |
| | A | B | C | A | B | C |
| 6 x 19 Classification | | | | | | |
| 1/4" | .59 | .56 | .53 | .44 | .42 | .40 |
| 3/8" | 1.3 | 1.2 | 1.1 | .98 | .93 | .86 |
| 1/2" | 2.3 | 2.2 | 2.0 | 1.7 | 1.6 | 1.5 |
| 5/8" | 3.6 | 3.4 | 3.0 | 2.7 | 2.5 | 2.2 |
| 3/4" | 5.1 | 4.9 | 4.2 | 3.8 | 3.6 | 3.1 |
| 7/8" | 6.9 | 6.6 | 5.5 | 5.2 | 4.9 | 4.1 |
| 1" | 9.0 | 8.5 | 7.2 | 6.7 | 6.4 | 5.4 |
| 1 1/8" | 11 | 10 | 9.0 | 8.5 | 7.8 | 6.8 |
| 6 x 37 Classification | | | | | | |
| 1 1/4" | 13 | 12 | 10 | 9.9 | 9.2 | 7.9 |
| 1 3/8" | 16 | 15 | 13 | 12 | 11 | 9.6 |
| 1 1/2" | 19 | 17 | 15 | 14 | 13 | 11 |
| 1 3/4" | 26 | 24 | 20 | 19 | 18 | 15 |
| 2" | 33 | 30 | 26 | 25 | 23 | 20 |
| 2 1/4" | 41 | 38 | 33 | 31 | 29 | 25 |
| (A) — Socket or Swaged Terminal Attachment. (B) — Mechanical Sleeve Attachment. (C) — Hand Tucked Splice Attachment. | | | | | | |

TABLE G-3
RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE SLING (IN TONS OF 2,000 POUNDS)

| Two-leg bridle or basket hitch | | | | | | | | | | | | |
|--------------------------------|----------|-----|-----|--|-----|-----|---|-----|-----|--|-----|-----|
| Rope dia. inches | Vertical | | | 60 Degree  | | | 45 Degree  | | | 30 Degree  | | |
| | A | B | C | A | B | C | A | B | C | A | B | C |
| 6 x 19 Classification | | | | | | | | | | | | |
| 1/4" | 1.2 | 1.1 | 1.0 | 1.0 | .97 | .92 | .83 | .79 | .75 | .59 | .56 | .53 |
| 3/8" | 2.6 | 2.5 | 2.3 | 2.3 | 2.1 | 2.0 | 1.8 | 1.8 | 1.6 | 1.3 | 1.2 | 1.1 |
| 1/2" | 4.6 | 4.4 | 3.9 | 4.0 | 3.8 | 3.4 | 3.2 | 3.1 | 2.8 | 2.3 | 2.2 | 2.0 |
| 5/8" | 7.2 | 6.8 | 6.0 | 6.2 | 5.9 | 5.2 | 5.1 | 4.8 | 4.2 | 3.6 | 3.4 | 3.0 |
| 3/4" | 10 | 9.7 | 8.4 | 8.9 | 8.4 | 7.3 | 7.2 | 6.9 | 5.9 | 5.1 | 4.9 | 4.2 |
| 7/8" | 14 | 13 | 11 | 12 | 11 | 9.6 | 9.8 | 9.3 | 7.8 | 6.9 | 6.6 | 5.5 |
| 1" | 18 | 17 | 14 | 15 | 15 | 12 | 13 | 12 | 10 | 9.0 | 8.5 | 7.2 |
| 1 1/8" | 23 | 21 | 18 | 19 | 18 | 16 | 16 | 15 | 13 | 11 | 10 | 9.0 |
| 6 x 37 Classification | | | | | | | | | | | | |
| 1 1/4" | 26 | 24 | 21 | 23 | 21 | 18 | 19 | 17 | 15 | 13 | 12 | 10 |
| 1 3/8" | 32 | 29 | 25 | 28 | 25 | 22 | 22 | 21 | 18 | 16 | 15 | 13 |
| 1 1/2" | 38 | 35 | 30 | 33 | 30 | 26 | 27 | 25 | 21 | 19 | 17 | 15 |
| 1 3/4" | 51 | 47 | 41 | 44 | 41 | 35 | 36 | 33 | 29 | 26 | 24 | 20 |
| 2" | 66 | 61 | 53 | 57 | 53 | 46 | 47 | 43 | 37 | 33 | 30 | 26 |
| 2 1/4" | 83 | 76 | 66 | 72 | 66 | 57 | 58 | 54 | 47 | 41 | 38 | 33 |

(A) Socket or Swaged Terminal Attachment.
(B) Mechanical Sleeve Attachment.
(C) Hand Tucked Splice Attachment.

TABLE G-4
RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE,
WIRE ROPE AND WIRE ROPE SLINGS
(In Tons of 2,000 pounds)

| Rope dia. Inches | Single leg | | | | | |
|------------------------------|------------|-----|-----|--------|-----|-----|
| | Vertical | | | Choker | | |
| | A | B | C | A | B | C |
| 6 x 19 Classification | | | | | | |
| 1/4" | .55 | .51 | .49 | .41 | .38 | .37 |
| 3/8" | 1.2 | 1.1 | 1.1 | .91 | .85 | .80 |
| 1/2" | 2.1 | 2.0 | 1.8 | 1.6 | 1.5 | 1.4 |
| 5/8" | 3.3 | 3.1 | 2.8 | 2.5 | 2.3 | 2.1 |
| 3/4" | 4.8 | 4.4 | 3.9 | 3.6 | 3.3 | 2.9 |
| 7/8" | 6.4 | 5.9 | 5.1 | 4.8 | 4.5 | 3.9 |
| 1" | 8.4 | 7.7 | 6.7 | 6.3 | 5.8 | 5.0 |
| 1 1/8" | 10 | 9.5 | 8.4 | 7.9 | 7.1 | 6.3 |
| 6 x 37 Classification | | | | | | |
| 1 1/4" | 12 | 11 | 9.8 | 9.2 | 8.3 | 7.4 |
| 1 3/8" | 15 | 13 | 12 | 11 | 10 | 8.9 |
| 1 1/2" | 17 | 16 | 14 | 13 | 12 | 10 |
| 1 3/4" | 24 | 21 | 19 | 18 | 16 | 14 |
| 2" | 31 | 28 | 25 | 23 | 21 | 18 |

| Rope dia. Inches | Single leg | | | | | |
|---|------------|---|---|--------|---|---|
| | Vertical | | | Choker | | |
| | A | B | C | A | B | C |
| (A) — Socket or Swaged Terminal Attachment. | | | | | | |
| (B) — Mechanical Sleeve Attachment. | | | | | | |
| (C) — Hand Tucked Splice Attachment. | | | | | | |

TABLE G-5
RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE SLINGS
(IN TONS OF 2,000 POUNDS)

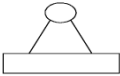
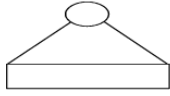
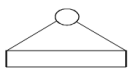




| Rope dia. inches | Two-leg bridle or basket hitch | | | | | | | | | | | |
|---|--------------------------------|-----|-----|--|-----|-----|---|-----|-----|--|-----|-----|
| | Vertical | | | 60 Degree  | | | 45 Degree  | | | 30 Degree  | | |
| | A | B | C | A | B | C | A | B | C | A | B | C |
| 6 x 19 Classification | | | | | | | | | | | | |
| 1/4" | 1.1 | 1.0 | .99 | .95 | .88 | .85 | .77 | .72 | .70 | .55 | .51 | .49 |
| 3/8" | 2.4 | 2.2 | 2.1 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.2 | 1.1 | 1.1 |
| 1/2" | 4.3 | 3.9 | 3.7 | 3.7 | 3.4 | 3.2 | 3.0 | 2.8 | 2.6 | 2.1 | 2.0 | 1.8 |
| 5/8" | 6.7 | 6.2 | 5.6 | 5.8 | 5.3 | 4.8 | 4.7 | 4.4 | 4.0 | 3.3 | 3.1 | 2.8 |
| 3/4" | 9.5 | 8.8 | 7.8 | 8.2 | 7.6 | 6.8 | 6.7 | 6.2 | 5.5 | 4.8 | 4.4 | 3.9 |
| 7/8" | 13 | 12 | 10 | 11 | 10 | 8.9 | 9.1 | 8.4 | 7.3 | 6.4 | 5.9 | 5.1 |
| 1" | 17 | 15 | 13 | 14 | 13 | 11 | 12 | 11 | 9.4 | 8.4 | 7.7 | 6.7 |
| 1 1/2" | 21 | 19 | 17 | 18 | 16 | 14 | 15 | 13 | 12 | 10 | 9.5 | 8.4 |
| 6 x 37 Classification | | | | | | | | | | | | |
| 1 1/4" | 25 | 22 | 20 | 21 | 19 | 17 | 17 | 16 | 14 | 12 | 11 | 9.8 |
| 1 3/8" | 30 | 27 | 24 | 26 | 23 | 20 | 21 | 19 | 17 | 15 | 13 | 12 |
| 1 1/2" | 35 | 32 | 28 | 30 | 27 | 24 | 25 | 22 | 20 | 17 | 16 | 14 |
| 1 3/4" | 48 | 43 | 38 | 41 | 37 | 33 | 34 | 30 | 27 | 24 | 21 | 19 |
| 2" | 62 | 55 | 49 | 53 | 48 | 43 | 43 | 39 | 35 | 31 | 28 | 25 |
| (A) Socket or Swaged Terminal Attachment. | | | | | | | | | | | | |
| (B) Mechanical Sleeve Attachment. | | | | | | | | | | | | |
| (C) Hand Tucked Splice Attachment. | | | | | | | | | | | | |

TABLE G-6
ALLOY STEEL CHAIN
(In Tons of 2,000 Pounds)

| Nominal Size Chain Stock Inch | Single Leg  | 60 Degree  | 45 Degree  | 30 Degree  |
|-------------------------------|---|--|--|--|
| 1/4 | 1.62 | 2.82 | 2.27 | 1.62 |
| 3/8 | 3.30 | 5.70 | 4.65 | 3.30 |
| 1/2 | 5.62 | 9.75 | 7.90 | 5.62 |
| 5/8 | 8.25 | 14.25 | 11.65 | 8.25 |
| 3/4 | 11.5 | 19.9 | 16.2 | 11.5 |
| 7/8 | 14.3 | 24.9 | 20.3 | 14.3 |
| 1 | 19.3 | 33.5 | 27.3 | 19.8 |
| 1 1/8 | 22.2 | 38.5 | 31.5 | 22.2 |
| 1 1/4 | 28.7 | 49.7 | 40.5 | 28.7 |

| Nominal Size Chain Stock Inch | Single Leg | 60 Degree | 45 Degree | 30 Degree |
|-------------------------------|------------|-----------|-----------|-----------|
| 1 3/8 | 33.5 | 58.0 | 47.0 | 33.5 |
| 1 1/2 | 39.7 | 68.5 | 56.0 | 39.7 |
| 1 5/8 | 42.5 | 73.5 | 59.5 | 42.5 |
| 1 3/4 | 47.0 | 81.5 | 62.0 | 47.0 |

(11) You must meet the following requirements for hooks other than hand hooks:

(a) The manufacturer's recommendations must be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available must be tested to twice the intended safe working load before they are initially put into use. You must maintain a record of the dates and results of such tests.

(b) Loads must be applied to the throat of the hook since loading the point may overstress, bend, or spring the hook.

(c) Hooks must be inspected once a month to see that they have not been bent by overloading. Bent or sprung hooks must not be used.

(d) For crane hooks, magnetic particle or other suitable crack detecting inspection must be performed at least once each year. When testing by X-ray, the pertinent provisions of the Nuclear Regulatory Commission's standards for protection against radiation, relating to protection against occupational radiation exposure, must apply.

(e) Any activity which involves the use of radioactive materials or X-rays, whether or not under license from the Nuclear Regulatory Commission, must be performed by competent persons specially trained in the proper and safe operation of such equipment. In the case of materials used under commission license, only persons actually licensed, or competent persons under direction and supervision of the licensee, must perform such work.

(f) Teeth of case hooks must not be split, cracked, or deformed.

(g) Jaws of patent clamp type plate hooks must be kept in safe condition so that they will grip plates securely.

(12) You must meet the following requirements for pallets:

(a) Pallets must be made and maintained to safely support and carry loads being handled. Fastenings of reusable pallets used for hoisting must be bolts and nuts, drive screws (helically threaded nails), annular threaded nails or fastenings of equivalent holding strength.

(b) Damaged pallets must be stored in designated areas and identified.

(c) Reusable wing or lip-type pallets must be hoisted by bar bridles or other suitable gear and must have an overhanging wing or lip of at least three inches (7.62 cm). They must not be hoisted by wire slings alone.

(d) Loaded pallets that do not meet the requirements of this subsection (12)(d) must be hoisted only after being placed on pallets meeting such requirements or must be handled by other means providing equivalent protection.

(e) Bridles for handling flush end or box-type pallets must be designed to prevent disengagement from the pallet under load.

(f) Pallets must be stacked or placed to prevent falling, collapsing or otherwise causing a hazard under standard operating conditions.

(g) Disposable pallets intended only for one use must not be reused for hoisting.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60075 Cargo boards and other type pallet boards. (1)

You must make sure all pallets and cargo boards are of such material and construction as to safely support and carry loads being handled.

(2) You must make sure all cargo boards are sheathed (decked) top and bottom with the top sheathing being of two-inch lumber and extending at least six inches beyond the end stringers.

(3) You must fasten the outer sheathing boards or boards adjacent thereto on cargo boards to the stringers by bolts and nuts. Other sheathing must be fastened by bolts and nuts, drive screws (helically threaded nails), annular threaded nails, or fastenings of equivalent strength.

(4) You may hoist pallet boards, other than cargo boards, if safe means are provided for the type of board used.

(5) You must make sure loaded cargo or pallet boards which do not meet the requirements of this section are reboarded or placed on cargo boards meeting the requirements of this section before being hoisted, only if the weight of the load can be safely distributed on the cargo board.

(6) You must prohibit cargo boards from being hoisted which are not loaded and secured so that the load will not tip or fall.

(7) You must make sure bridles used to handle flush-end or box-type pallets are designed to prevent them from becoming disengaged from the pallet under load.

Note: In areas where a two lip cargo board is being used, that practice ((~~shall~~)) must continue. The department of labor and industries recommends the use of the two lip cargo board.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60077 Powered industrial trucks. (1)

This section applies to every type of powered industrial truck used for material or equipment handling within a marine terminal. You must comply with the provisions of chapter 296-863 WAC and this section. It does not apply to over-the-road vehicles.

(2) You must meet the following general requirements for powered industrial trucks:

(a) Modifications, such as adding counterweights, that might affect the vehicle's capacity or safety must not be performed without either the manufacturer's prior written approval or the written approval of a professional engineer experienced with the equipment who has consulted with the manufacturer, if available. Capacity, operation and maintenance instruction plates, tags or decals must be changed to conform to the equipment as modified.

(b) Unauthorized personnel must not ride on powered industrial trucks. A safe place to ride must be provided when riding is authorized.

(c) When a powered industrial truck is left unattended, load-engaging means must be fully lowered, controls neutralized and brakes set. Unless the truck is in view and within (~~twenty-five~~) 25 feet (7.62 m) of the operator, power must be shut off. Wheels must be blocked or curbed if the truck is on an incline.

(d) Powered industrial trucks must not be operated inside highway vehicles or railcars having damage which could affect operational safety.

(e) Powered industrial trucks must be marked with their rated capacities, which must be visible to the operator.

(f) Only stable and safely arranged loads within the rated capacity of the truck must be handled.

(g) Drivers must ascend and descend grades slowly.

(h) Drivers must slow down and sound the horn at cross aisles and other locations where visibility is obstructed.

(i) If the load obstructs the forward view drivers must travel with the load trailing.

(j) Steering knobs must not be used unless the truck is equipped with power steering.

(k) When powered industrial trucks use cargo lifting devices that have a means of engagement hidden from the operator, a means must be provided to enable the operator to determine that the cargo has been engaged.

(l) When cargo is being towed on pipe trucks or similar equipment, a safe means must be provided to protect the driver from sliding loads.

(3) You must meet the following requirements for maintenance:

(a) Only designated persons must perform maintenance and repair.

(b) Batteries on all powered trucks must be disconnected during repairs to the primary electrical system unless power is necessary for testing and repair. On trucks equipped with systems capable of storing residual energy, that energy must be safely discharged before work on the primary electrical system begins.

(c) Replacement parts whose function might affect operational safety must be equivalent in strength and performance capability to the original parts which they replace.

(d) Braking systems or other mechanisms used for braking must be operable and in safe condition.

(e) Powered industrial trucks must be maintained in safe working order. Safety devices must not be removed or made inoperative except as otherwise provided in this section. Trucks with a fuel system leak or any other safety defect must not be operated.

(f) Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards must be conducted only in locations designated as safe for such repairs.

(4) You must meet these requirements for approved trucks:

(a) Approved trucks acquired and used after February 15, 1972, must bear a label or other identification indicating testing laboratory approval.

(b) When the atmosphere in an area is hazardous and the provisions of United States Coast Guard regulations at 33 C.F.R. 126.15(e) do not apply, only power-operated industrial trucks approved for such locations must be used.

(5) You must meet these requirements for operator duties:

(a) A power-driven vehicle operator's special duties are:

(i) To operate the vehicle in a safe manner.

(ii) To test brakes, steering gear, lights, horns, or other warning devices, clutches, etc., before starting work.

(iii) To have the vehicle at all times under control so that it can be brought to an emergency stop in the clear space in front of the vehicle.

(iv) To back down any incline of two percent or more when traveling with a load on the fork lift jitney.

(b) When traveling, power-propelled vehicles must at all times be operated in a manner giving the operator a reasonably unobstructed view in the direction of travel. Where this is impractical, the operator must be directed in travel, by a person designated to do so.

(c) Operators and authorized passengers are not permitted to ride with legs or arms extending outside any vehicle nor are they permitted to ride while standing unless the vehicle is designed to be operated from a standing position.

(d) Vehicles must be controlled manually while being pushed or towed except when a tow bar is used. Special precautions must be taken when pushing vehicles where the view is obstructed. Vehicles must not be pushed with blades of a forklift.

(e) In all cargo operations involving the use of highway trailers, trailers must be moved in such a manner that the moving trailer is completely under control at all times. Special caution must be exercised when such trailers are moving on inclines. Trailers must be loaded in a manner which will prevent the cargo from shifting, and the load in the trailer must be evenly distributed to prevent the trailer from tipping to one side.

(f) Riding on tongue or handles of trailers or forks of power-propelled vehicles is prohibited.

(g) No one except the operator (~~shall~~) may ride on power-driven vehicles unless regular seats are provided to accommodate passengers.

(h) Employees must not jump on or off moving vehicles.

(i) If a power-driven vehicle is at any time found to be in any way unsafe, the operator must report the defect immediately to the person in charge and such vehicle must not be used for production work until it has been made safe.

(6) You must meet the following requirements for vehicle equipment and maintenance:

(a) All power-propelled vehicles must be provided with horns or other warning devices.

(b) Power-propelled vehicles used for night work, when required to travel away from an illuminated work area must be equipped with a light or lights directed in the direction of travel in order to safely travel about the area.

(c) Every power truck operated from an end platform or standing position must be equipped with a substantial guard securely attached to the platform or frame of the vehicle in such a manner as to protect the operator from falling objects and so designed that the operator can easily mount or dismount from the operating station.

(d) All vehicles having a driver's seat must be provided with resilient seat cushions fixed in place.

(e) Counterbalances of all power-driven vehicles must be positively secured to prevent accidental dislodging, but may be a removable type which may be removed, if desired, prior to hoisting the vehicle.

(f) Exhaust pipes and mufflers of internal combustion engines, where workers are exposed to contact (~~(shall)~~) must be isolated or insulated. Exhaust pipes must be constructed to discharge not less than (~~(seventy-two)~~) 72 inches above the floor on jitneys and (~~(eighty-four)~~) 84 inches on forklifts or less than (~~(twenty)~~) 20 inches from the floor.

(g) Internal combustion engines may be used only in areas where adequate ventilation is provided.

(h) Concentration levels of carbon monoxide gas created by powered industrial truck operations must not exceed the levels specified in WAC 296-56-60055.

(i) When disputes arise concerning degree of concentration, methods of sampling to ascertain the conditions should be referred to a qualified industrial hygienist.

(j) Couplings installed on cargo trucks (four-wheelers) must be of a type which will prevent accidental disengaging.

(k) Operating levers on power-driven vehicles must be so placed as not to project toward the operator's body.

(l) The front axle assembly on all trailers must be securely fastened to the truck bed.

(m) Tractors hauling heavy duty highway trailers must have an air line brake hook-up.

(n) On power-driven vehicles where the operator stands on a platform, resilient foot mats must be securely attached.

(o) All power-propelled vehicles must be cleaned at frequent intervals to remove any accumulation of dust and grease that may present a hazard.

(7) You must meet the following requirements for forklift trucks:

(a) Overhead guards.

(i) When operators are exposed to overhead falling hazards, forklift trucks must be equipped with securely attached overhead guards. Guards must be constructed to protect the operator from falling boxes, cartons, packages, or similar objects.

(ii) Overhead guards must not obstruct the operator's view, and openings in the top of the guard must not exceed six inches (15.24 cm) in one of the two directions, width or length. Larger openings are permitted if no opening allows the smallest unit of cargo being handled to fall through the guard.

(iii) Overhead guards must be built so that failure of the vehicle's mast tilting mechanism will not displace the guard.

(iv) An overhead guard, otherwise required by this paragraph, may be removed only when it would prevent a truck from entering a work space and if the operator is not exposed to low overhead obstructions in the work space.

(v) Overhead guards must be large enough to extend over the operator during all truck operations, including forward tilt.

(b) Cargo or supplies must not be hoisted to or from ship's rail with a forklift. This does not apply to ramp or side port loading.

(c) When standing, lift forklift forks must be lowered to floor. When moving, lift forklift forks must be kept as low as possible.

(d) Not less than two forklifts must be used to place or remove gangplanks unless fork width prevents tipping and manufacturer's rated lifting capacity of the forklift is not exceeded.

(e) Seats on forklifts must be provided with a removable waterproof cover when they are exposed to the weather.

(f) Workers must not work below the raised bed of a dump truck, raised buckets of front end loaders, raised blades of tractors or in

similar positions without blocking the equipment in a manner that will prevent it from falling. When working under equipment suspended by use of jacks, safety stands or blocking must be used in conjunction with the jack.

(g) The maximum speed for forklifts on all docks must not exceed eight miles per hour. The speed limit must be prominently posted on such docks.

(h) Where necessary to protect the operator, forklift trucks must be fitted with a vertical load backrest extension to prevent the load from hitting the mast when the mast is positioned at maximum backward tilt. For this purpose, a "load backrest extension" means a device extending vertically from the fork carriage frame to prevent raised loads from falling backward.

(i) Forks, fork extensions and other attachments must be secured so that they cannot be accidentally dislodged, and must be used only in accordance with the manufacturer's recommendations.

(j) Counterweights must be so affixed that they cannot be accidentally dislodged.

(k) Capacities and weights:

(i) Forklift truck rated capacities, with and without removable counterweights, must not be exceeded. Rated capacities must be marked on the vehicle and be visible to the operator. The vehicle weight, with and without counterweight, must be similarly marked.

(ii) If loads are lifted by two or more trucks working in unison, the total weight of the load must not exceed the combined rated lifting capacity of all trucks involved.

(l) Employees may be elevated by forklift trucks only when a platform is secured to the lifting carriage or forks. The platform must meet the following requirements:

(i) The platform must have a railing complying with WAC 296-56-60123(3).

(ii) The platform must have toeboards complying with WAC 296-56-60123(4), if tools or other objects could fall on employees below.

(iii) When the truck has controls which are elevated with the lifting carriage, means must be provided for employees on the platform to shut off power to the vehicle.

(iv) Employees on the platform must be protected from exposure to moving truck parts.

(v) The platform floor must be skid resistant.

(vi) A truck operator must be at the truck's controls when employees are elevated unless the truck's controls are elevated with the lifting carriage.

(vii) While employees are elevated, the truck may be moved only to make minor placement adjustments.

(8) You must meet the following requirements for bulk cargo-moving vehicles:

(a) Where a seated operator may come into contact with projecting overhead members, crawler-type bulk cargo-moving vehicles that are rider operated must be equipped with operator guards.

(b) Guards and their attachment points must be so designed as to be able to withstand, without excessive deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

(c) After July 26, 1999, bulk cargo-moving vehicles must be equipped with rollover protection of such design and construction as

to prevent the possibility of the operator being crushed because of a rollover or upset.

(9) You must meet the following requirements for straddle trucks:

(a) Straddle trucks must have a permanent means of access to the operator's station, including any handholds necessary for safe ascent and descent.

(b) Guarding:

(i) Main sprockets and chains to the wheels must be guarded as follows:

(A) The upper sprocket must be fully enclosed;

(B) The upper half of the lower sprocket must be enclosed; and

(C) The drive chain must be enclosed to a height of eight feet (2.44 m) except for that portion at the lower half of the lower sprocket.

(ii) Gears must be fully enclosed and revolving parts which may be contacted by the operator must be guarded.

(iii) When straddle trucks are used in the vicinity of employees, personnel-deflecting guards must be provided around leading edges of front and rear wheels.

(c) Operator visibility must be provided in all directions of movement.

(10) You must meet the following requirements for trailer-spotting tractors:

(a) Trailer-spotting tractors (fifth wheels) must be fitted with any hand grabs and footing necessary for safe access to the fifth wheel.

(b) Rear cab windows must be of safety glass or equivalent material.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60079 General rules applicable to vehicles. (1) The requirements of this section apply to general vehicle use within marine terminals except in cases where the provisions of subsections (3) and (13) of this section are preempted by regulations of the department of transportation.

(2) You must allow private vehicle parking in marine terminals only in designated areas.

(3) You must not disconnect trailers from tractors at loading docks until the road wheels have been immobilized. The road wheels must be immobilized from the time the brake system is disconnected until braking is again provided. Supplementary front end support must be employed as necessary to prevent tipping when a trailer is entered by a material handling vehicle. Rear end support must be employed if rear wheels are so far forward as to allow tipping when the trailer is entered.

(4) You must direct motor vehicle operators to comply with any posted speed limits, other traffic control signs or signals, and written traffic instructions.

(5) You must post stop signs at main entrances and exits of structures where visibility is impaired, and at blind intersections, unless direct traffic control, warning mirror systems or other systems of equivalent safety are provided.

(6) You must establish, identify, and use vehicular routes, traffic rules and parking areas.

(7) You must make sure vehicle drivers warn anyone in traffic lanes of the vehicle's approach.

(8) You must clearly post signs indicating pedestrian traffic at vehicular check-in and check-out lines and similar locations where employees may be working.

(9) You must maintain a distance of not less than (~~twenty~~) 20 feet (6.1 m) between the first two vehicles in a check-in, check-out, road ability, or vessel loading/discharging line. This distance must be maintained between any subsequent vehicles behind which employees are required to work.

(10) You must make sure no unattended vehicle (~~shall be~~) is left with its engine running unless secured against movement (see WAC 296-56-60077 for powered industrial trucks).

(11) You must provide and secure a ramp when the rear of a vehicle is elevated to facilitate loading or discharging. The vehicle must be secured against accidental movement during loading or discharging.

(12) You must make sure only vehicle floors in safe condition are used.

(13) You must make sure when flatbed trucks, platform containers or similar conveyances are loaded or discharged and the cargo consists of pipe or other products which could spread or roll to endanger employees, the cargo is contained to prevent movement.

(14) You must maintain vehicles used to transport employees within a terminal in safe working order and safety devices not be removed or made inoperable.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60083 Cranes and derricks. (1) Scope and application. The sections of this chapter, WAC 296-56-60083 through 296-56-60099, apply to cranes, derricks, and crane operations.

All forms and applications related to crane operations may be requested from the department or are available on the website at <https://lni.wa.gov/>

All correspondence related to crane operations may be submitted to:

Department of Labor and Industries
Division of Occupational Safety and Health Crane Certification Program

P.O. Box 44650
Olympia, WA 98504-4650

OR submitted electronically to:

Email: LNICranes@lni.wa.gov

(a) This section through WAC 296-56-60103 applies to every kind of crane and derrick and to any other type of equipment performing the functions of a crane or derrick except as noted in (b) of this subsection.

(b) This section does not apply to small industrial truck-type cranes, container handling toploaders and sideloaders, chain hoists,

and mobile straddle-type cranes incapable of straddling two or more intermodal containers (~~((sixteen))~~) 16 feet (4.88 m) in width).

(2) You must meet the following requirements for ratings:

(a) Except for bridge cranes covered by subsection (7) of this section, cranes and derricks having ratings that vary with boom length, radius (outreach) or other variables must have a durable rating chart visible to the operator, covering the complete range of the manufacturer's (or design) capacity ratings. The rating chart must include all operating radii (outreach) for all permissible boom lengths and jib lengths as applicable, with and without outriggers, and alternate ratings for optional equipment affecting such ratings. Precautions or warnings specified by the owner or manufacturer must be included.

(b) The manufacturer's (or design) rated loads for the conditions of use must not be exceeded.

(c) Designated working loads must not be increased beyond the manufacturer's ratings or original design limitations unless such increase receives the manufacturer's approval. When the manufacturer's services are not available or where the equipment is of foreign manufacture, engineering design analysis must be performed or approved by a person accredited for certifying the equipment under WAC 296-56-60093. Cranes must conform with the manufacturer's specifications or any current ANSI standards that apply. Engineering design analysis must be performed by a registered professional engineer competent in the field of cranes and derricks. Any structural changes necessitated by the change in rating must be carried out.

(3) You must make sure when the rated load varies with the boom radius, the crane or derrick is fitted with a boom angle or radius indicator visible to the operator.

(4) You must prohibit the following usage:

(a) Equipment must not be used in a manner that exerts sideloading stresses upon the crane or derrick boom.

(b) No crane or derrick having a visible or known defect that affects safe operation must be used.

(5) You must meet the following requirements for protective devices:

(a) When exposed moving parts such as gears, chains and chain sprockets present a hazard to employees during crane and derrick operations, those parts must be securely guarded.

(b) Crane hooks must be latched or otherwise secured to prevent accidental load disengagement.

(c) When hoisting personnel in an approved man basket, the hook must have a positive safety latch to prevent rollouts.

(6) You must meet the following general requirements:

(a) Operating controls:

(i) Crane and derrick operating controls must be clearly marked, or a chart indicating their function must be posted at the operator's position.

(ii) All crane controls must operate in a uniform manner within a given port.

(iii) Overhead bridge and container gantry crane operating control levers must be self-centering so that they will automatically move to the "off" position when the operator releases the control.

(b) Cranes with elevatable booms and without operable automatic limiting devices must be provided with boom stops if boom elevation can exceed maximum design angles from the horizontal.

(c) Foot pedals must have a nonskid surface.

(d) Ladders, stairways, stanchions, grab irons, foot steps or equivalent means must be provided as necessary to ensure safe access to footwalks, cab platforms, the cab and any portion of the superstructure which employees must reach.

(i) Footwalks must be of rigid construction and capable of supporting a load of (~~one hundred~~) 100 pounds (4.79 kPa) per square foot.

(ii) If more than (~~twenty~~) 20 feet (6.1 m) in height, vertical ladders must comply with WAC 296-56-60209 (4), (5) (a), (5) (b) (iii) and (5) (b) (iv).

(iii) Stairways on cranes must be equipped with rigid handrails meeting the requirements of WAC 296-56-60123 (5) (a).

(iv) If the top of a ladder or stairway or any position thereof is located where a moving part of a crane, such as a revolving house, could strike an employee ascending or descending the ladder or stairway, a prominent warning sign must be posted at the foot of the ladder or stairway. A system of communication (such as a buzzer or bell) must be established and maintained between the foot of the ladder or stairway and the operator's cab.

(e) The cab, controls, and mechanism of the equipment must be so arranged that the operator has a clear view of the load or signal person, when one is used. Cab glass, when used, must be safety plate glass or equivalent and good visibility must be maintained through the glass. Clothing, tools and equipment must be stored so as not to interfere with access, operation, or the operator's view.

(f) A seat (lap) belt, meeting the requirements of 49 C.F.R. 571.208-210 for a Type 1 seat belt assembly, must be installed on the operator's seat of high speed container gantry cranes where the seat trolleys.

(g) Cranes must be operated only with the specified type and amount of ballast or counterweights. Ballast or counterweight must be located and secured only as provided in the manufacturer's or design specifications, which must be available.

(h) Outriggers must be used according to the manufacturer's specifications or design data, which must be available. Floats, when used, must be securely attached to the outriggers. Wood blocks or other support must be of sufficient size to support the outrigger, free of defects that may affect safety and of sufficient width and length to prevent the crane from shifting or toppling under load.

(i) Engine exhaust gases must be discharged away from the normal position of crane operating personnel.

(j) Electrical equipment must be so located or enclosed that live parts will not be exposed to accidental contact. Designated persons may work on energized equipment only if necessary during inspection, maintenance, or repair.

(k) Fire extinguisher:

(i) At least one portable fire extinguisher of at least (~~5-BC~~) 10-BC rating or equivalent must be accessible in the cab of the crane or derrick.

(ii) No portable fire extinguisher using carbon tetrachloride or chlorobromomethane extinguishing agents must be used.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

(l) At least three full turns of rope must remain on ungrooved drums, and two turns on grooved drums, under all operating conditions. Wire rope must be secured to drums by clamps, U-bolts, shackles, or equivalent means. Fiber rope fastenings are prohibited.

(m) Mobile crane booms being assembled or disassembled on the ground with or without the support of the boom harness must be blocked to prevent dropping of the boom or boom sections.

(n) Brakes:

(i) Each independent hoisting unit of a crane must be equipped with at least one holding brake, applied directly to the motor shaft or gear train.

(ii) Each independent hoisting unit of a crane, except worm geared hoists, the angle of whose worm is such as to prevent the load from accelerating in the lowering direction, must, in addition to a holding brake, be equipped with a controlled braking means to control lowering speeds.

(iii) Holding brakes for hoist units must have not less than the following percentage of the rated load hoisting torque at the point where the brake is applied:

(A) One hundred twenty-five percent when used with a controlled braking means.

(B) One hundred percent when used with a mechanically controlled braking means.

(C) One hundred percent when two holding brakes are provided.

(iv) All power control braking means must be capable of maintaining safe lowering speeds of rated loads.

(o) Each crane or derrick must be equipped with sufficient lights to maintain five foot candles in the working area around the load hook. All crane ladders and machinery houses must be illuminated at a minimum of two candle power.

(p) Light fixtures connected to the boom, gantry legs, or machinery house must be provided with safety devices which will prevent the light fixture from falling in case of bracket failure.

(q) Electronic devices may be installed to prevent collision subject to approval of the accredited certification agency.

(r) On all rail gantry cranes, truck guards must extend on the ends of the trucks, close to the top of the rail to prevent worker's feet from being caught between the rail and wheel. This subsection does not apply if rail sweeps are present.

(s) All hydraulic cylinders used to control crane booms or to provide crane stability (outriggers) must be equipped with a pilot operated check valve or a device which will prevent the boom or outrigger from retracting in case of failure of a component of the hydraulic system.

(t) Gantry cranes must be provided with automatic rail clamps or other devices to prevent the crane from moving when not being used or when power is off.

(7) You must meet the following requirements for rail-mounted cranes (excluding locomotive types):

(a) For the purposes of this section, rail-mounted cranes include bridge cranes and portal cranes.

(b) The rated loads of bridge cranes must be plainly marked on each side of the crane and in the cab. If there is more than one hoisting unit, each hoist must have its rated load marked on it or on its load block. Marking must be legible from the ground level.

(c) Wind-indicating devices:

(i) Each rail-mounted bridge and portal crane located outside of an enclosed structure must be fitted with an operable wind-indicating device.

(ii) The wind indicating device must provide a visible or audible warning to alert the operator of high wind conditions. That warning must be transmitted whenever the following circumstances are present:

(A) When wind velocity reaches the warning speed, not exceeding the crane manufacturer's recommendations; and

(B) When wind velocity reaches the shutdown speed, not exceeding the crane manufacturer's recommendations, at which work is to be stopped and the crane secured.

(iii) You must post operating instructions for high wind conditions in the operator's cab of each crane. Operators must be directed to comply with these instructions. The instructions must include procedures for responding to high wind alerts and for any coordination necessary with other cranes.

(d) Securing of cranes in high winds.

(i) When the wind reaches the crane's warning speed:

(A) Gantry travel must be stopped; and

(B) The crane must be readied for shutdown.

(ii) When the wind reaches the crane's shutdown speed:

(A) Any portion of the crane spanning or partially spanning a vessel must be moved clear of the vessel if safe to do so; and

(B) The crane must be secured against travel, using all available means of securing.

(e) You must monitor local weather conditions by subscribing to a weather service or using equally effective means.

(f) The following applies for stops and bumpers:

(i) The ends of all tracks must be equipped with stops or bumpers. If a stop engages the tread of the wheel, it must be of a height not less than the radius of the wheel.

(ii) When more than one crane operates on the same runway or more than one trolley on the same bridge, each crane or trolley must be equipped with bumpers or equivalent devices at adjacent ends subject to impact.

(g) Employee exposure to crane movement. When employees may be in the vicinity of the tracks, crane trucks must be equipped with personnel-deflecting guards.

(h) If the track area is used for employee passage or for work, a minimum clearance of three feet (0.91 m) must be provided between trucks or the structures of rail-mounted cranes and any other structure or obstruction. When the required clearance is not available on at least one side of the crane's trucks, the area must not be used and must be marked and identified.

(i) Rail-mounted cranes must be equipped with an effective audible and visible travel warning device which must be used to warn employees who may be in the path of the moving crane.

(j) The following are requirements for communications:

(i) Means of communication must be provided between the operator's cab and the base of the gantry of all rail-mounted cranes. This requirement may be met by telephone, radio, sound-signaling system or other effective methods, but not solely by hand-signaling.

(ii) All rail-mounted cranes (~~(thirty)~~) 30 ton and above capacity must be equipped with a voice hailing device (PA system) from the operator to the ground, audible within (~~(one hundred)~~) 100 feet.

(k) Limit switch bypass systems must be secured during all cargo operations. Such bypass systems must not be used except in an emergency or during noncargo handling operations such as stowing cranes or derricks or performing repairs. When a situation requiring the use of

a bypass system or the readjustment of a limit switch arises, it must be done only under the direction of a crane mechanic.

~~(1) ((Cranes and crane operations Scope and application. The sections of this chapter, WAC 296-56-60083 through 296-56-60099, apply to cranes, derricks, and crane operations.~~

~~(m))~~ A signal person must be required when a crane operator's visibility is obstructed. When a signal person is required to transmit hand signals, they must be in such a position that the operator can plainly see the signals.

~~((n))~~ (m) All operators and signal persons must use standard signals as illustrated for longshore crane operations. (See Appendices C and D, at the end of this chapter.)

~~((o))~~ (n) Where power units, such as cranes and winches are utilized and signaling is required, the operator must be instructed as to who is authorized to give signals. The operator must take signals only from such authorized person. In case of emergency, any worker must be authorized to give a stop signal.

(i) No draft must be hoisted unless the winch or crane operator can clearly see the draft itself or see the signals of any signal person associated with the operation.

(ii) Loads requiring continuous manual guidance while in motion must be provided with tag lines.

~~((p))~~ (o) Persons assisting in landing a load must face the load and use caution to prevent themselves from getting in a position where they may be caught between the load and a fixed object.

(8) You may hoist loads by locomotive cranes only if outriggers are in place, unless means are taken to prevent the load being carried by the truck springs of the crane.

(9) You must meet the following requirements for operations:

(a) When two or more cranes hoist a load in unison, a designated person must direct the operation and instruct personnel in positioning, rigging of the load and movements to be made.

(b) Accessible areas within the swing radius of the body of a revolving crane must be physically guarded during operations to prevent an employee from being caught between the body of the crane and any fixed structure or between parts of the crane.

(c) The crane's superstructure and boom must be secured against rotation and carried in line with the direction of travel except when negotiating turns with an operator in the cab or when the boom is supported on a dolly. The empty hook or other attachment must be secured.

(d) The following steps must be taken before leaving a crane unattended between work periods:

(i) Suspended loads, such as those hoisted by lifting magnets or clamshell buckets, must be landed unless the storage position or maximum hoisting of the suspended device will provide equivalent safety;

(ii) Clutches must be disengaged;

(iii) The power supply must be shut off;

(iv) The crane must be secured against accidental travel; and

(v) The boom must be lowered or secured against movement.

(e) Operating near electric power lines:

(i) Unless electrical distribution and transmission lines are deenergized and visibly grounded at point of work, or unless insulating barriers not a part of or an attachment to the crane have been erected to prevent physical contact with lines, cranes may be operated near power lines only in accordance with the following:

(A) For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load must be ~~((ten))~~ 10 feet (3.05 m);

(B) For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load must be either 10 feet (3.05 m) plus 0.4 inch (10.16 mm) for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than ~~((ten))~~ 10 feet; and

(C) In transit with no load and boom lowered, the clearance must be a minimum of four feet (1.22 m).

(ii) Cage-type boom guards, insulating links or proximity warning devices may be used on cranes, but they must not be used in place of the clearances required by ~~((subsection--(9))~~(e)(i) of this ~~((see--
tion))~~ subsection.

(iii) Any overhead line must be presumed to be energized until the owner of the line indicates that it is not energized.

(10) You must meet the following requirements for protection for employees being hoisted:

(a) You must make sure no employee is hoisted by the load hoisting apparatus of a crane or derrick except:

(i) On intermodal container spreaders, equipped in accordance with this subsection; or

(ii) In a boatswain's chair or other device rigged to prevent it from accidental disengagement from the hook or supporting member; or

(iii) On a platform meeting the following requirements:

(A) Enclosed by a railing or other means providing protection equivalent to that described in WAC 296-56-60123(3). If equipped with open railings, the platform must be fitted with toe boards;

(B) Having a safety factor of four based on ultimate strength;

(C) Bearing a plate or permanent marking indicating maximum load rating, which must not be exceeded, and the weight of the platform itself;

(D) Equipped with a device to prevent access doors, when used, from opening accidentally;

(E) Equipped with overhead protection for employees on the platform if they are exposed to falling objects or overhead hazards;

(F) Secured to the load line by means other than wedge and socket attachments, unless the free (bitter) end of the line is secured back to itself by a clamp placed as close above the wedge as possible.

(b) Except in an emergency, the hoisting mechanism of all overhead and container gantry cranes used to hoist personnel must operate in power up and power down, with automatic brake application when not hoisting or lowering.

(c) Variable radius booms of a crane or derrick used to hoist personnel must be so constructed or secured as to prevent accidental boom movement.

(d) Platforms or devices used to hoist employees must be inspected for defects before each day's use and must be removed from service if defective.

(e) Employees being hoisted must remain in continuous sight of and communication with the operator or signal person.

(f) Operators must remain at the controls when employees are hoisted.

(g) Cranes must not travel while employees are hoisted, except in emergency or in normal tier to tier transfer of employees during container operations.

(h) When intermodal container spreaders are used to transfer employees to or from the tops of containers, the spreaders must be

equipped with a personnel platform equipped with fixed railings, provided that the railings have one or more openings for access. The openings must be fitted with a means of closure, such as chains with hooks. Existing railings must be at least ~~((thirty-six))~~ 36 inches (0.91 m) in height. New railings installed after October 3, 1983, must be ~~((forty-two))~~ 42 inches (1.07 m), plus or minus three inches (7.62 cm), in height. The provisions of (a)(iii)(C), (D), and (F) of this subsection also apply to personnel platforms when container spreaders are used.

(i) Positive safety latch-type hooks or moused hooks must be used.

(j) Employees must not be hoisted on intermodal container spreaders while a load is engaged. Additional requirements are located in WAC 296-24-23533.

(11) You must meet the following requirements for routine inspections:

(a) Designated persons must visually inspect each crane and derrick on each day of use for defects in functional operating components and must report any defect found to the employer. You must inform the operator of the findings.

(b) A designated person must thoroughly inspect all functional components and accessible structural features of each crane or device at monthly intervals.

(c) Any defects found during such inspections which may create a safety hazard must be corrected before further use. Repairs must be performed only by designated persons.

(d) A record of monthly inspections must be maintained for six months in or on the crane or derrick or at the terminal.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60085 Crane load and limit devices. (1) You must fit every crane with a load indicating device or alternative device in proper working condition, except as provided in subsection (8) of this section. The type or model or any load indicating or alternate device which is used ~~((shall))~~ must provide:

(a) A direct indication in the cab of actual weight hoisted or a means of determining this by referencing a weight indication to crane ratings posted and visible to the operator. The use of a dynamometer or simple scale alone must not meet this requirement; or

(b) Indications in the cab according to the radius and load at the moment; or

(c) A direct means to prevent an overload from occurring.

(2) You must make sure the accuracy of the devices required by this section must be such that any indicated load (or limit), including the sum of actual weight hoisted and additional equipment or "add ons" such as slings, sensors, blocks, etc., is within the range from no less than ~~((ninety-five))~~ 95 percent of the actual true total load (five percent overload) to ~~((one hundred ten))~~ 110 percent of the actual true total load ~~((ten))~~ 10 percent underload). Such accuracy must be required over the range of the daily operating variables to be expected under the conditions of use.

(3) You must make sure the device permits the operator to determine, before making any lift, that the indicating or substitute system is operative. In the alternative, if a device is so mounted or attached to preclude such a determination, it may not be used unless it has been certified by the manufacturer to remain operable within the limits stated in subsection (2) of this section for a specific period of use. Checks for accuracy, using known values of load, must be performed at the time of every certification survey (see WAC 296-56-60093) and at such additional times as may be recommended by the manufacturer.

(4) You must make sure when a load indicating device or alternative system is so arranged in the supporting system (crane structure) that its failure could cause the load to be dropped, its strength must not be the limiting factor of the supporting system (crane structure).

(5) You must make sure marking is conspicuously placed giving: Units of measure in pounds or both pounds and kilograms, capacity of the indicating system, accuracy of the indicating system, and operating instructions and precautions. In the case of systems utilizing indications other than actual weights, the marking must include data on: The means of measurement, capacity of the system, accuracy of the system, operating instructions and precautions. If the system used provides no read-out, but it is such as to automatically cease crane operation when the rated load limit under any specific condition of use is reached, marking must be provided giving the make and model of the device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All weight indications, other types of loading indications, and other data required must be readily visible to the operator.

(6) You must make sure all load indicating devices are operative over the full operating radius. Overall accuracy must be based on actual applied load and not on full scale (full capacity) load.

Explanatory note: For example, if accuracy of the load indicating device is based on full scale load and the device is arbitrarily set at plus or minus (~~ten~~) 10 percent, it would accept a reading between (~~ninety thousand and one hundred ten thousand~~) 90,000 and 110,000 pounds, at full capacity of a machine with (~~one hundred thousand~~) 100,000 pounds, maximum rating, but would also allow a reading between zero and (~~twenty thousand~~) 20,000 pounds, at that outreach (radius) at which the rating would be (~~ten thousand~~) 10,000 pounds capacity—an unacceptable figure. If, however, accuracy is based on actual applied load under the same conditions, the acceptable range would remain the same with the (~~one hundred thousand~~) 100,000 pound load but becomes a figure between (~~nine thousand and eleven thousand~~) 9,000 and 11,000 pounds, a much different and acceptable condition, at the (~~ten thousand~~) 10,000 pound load.

(7) You must make sure when the device uses the radius as a factor in its use or in its operating indications, the indicated radius (which may be in feet and/or meters, or degrees of boom angle, depending on the system used) is a figure which is within the range of a figure no greater than (~~one hundred ten~~) 110 percent of the actual radius to a figure which is no less than (~~ninety seven~~) 97 percent of the actual (true) radius. A conversion chart must be provided whenever it is necessary to convert between degrees of radius and feet or meters.

(8) The load indicating device requirements of this section do not apply to a crane:

(a) Of trolley equipped bridge type while handling container known to be and identified as empty, or loaded, and in either case in compliance with the provisions of WAC 296-56-60103, or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose, and in all cases within the crane rating;

(b) While handling bulk commodities or cargoes by means of clam-shell bucket or magnet;

(c) While used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products; or

(d) While the crane is used exclusively to handle cargo or equipment the total actual gross weight of which is known by means of marking of the unit or units hoisted, when such total actual gross weight never exceeds (~~eleven thousand two hundred~~) 11,200 pounds, and when (~~eleven thousand two hundred~~) 11,200 pounds, is less than the rated capacity of the crane at the maximum outreach that is possible under the conditions of use at the time.

(9) You must install limit switches on the main line and whip line assemblies, of all cranes and derricks, which will deactivate the hoisting power when a load reaches the upper limits of travel and at such other places as required by this chapter. Line limit switches must be tested prior to or at the beginning of each shift to determine if they are functioning properly. Any malfunction must be reported to the person in charge immediately and must be repaired prior to use.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60093 Certification of marine terminal material handling devices. (1) You must not use any material handling device listed in WAC 296-56-60098(8) until you have ascertained that the device has been certified, as evidenced by current and valid documents attesting to compliance with the requirements of WAC 296-56-60097 and 296-56-60098.

(2) You must make sure certification surveys are completed for the conditions of use found at the time such surveys are performed. Equipment owners or users may change the configurations of the equipment according to the manufacturer's specifications without affecting the established certification status for the equipment.

(3) These rules apply to employment within a marine terminal including the loading, unloading, movement, or other handling of cargo, ship's stores, or gear within the terminal or into or out of any land carrier, holding or consolidation area, or any other activity within and associated with the overall operation and functions of the terminal, such as the use and routine maintenance of facilities and equipment.

(4) You must (~~make sure~~) ensure inspection and test certificates are issued only for that equipment which meets or exceeds the requirements specified in these rules. All inspection and test certificates must be issued through the office of the assistant director of the division of consultation and compliance, department of labor and industries, and must be valid for a period not to exceed one year from the date of issuance.

(5) You must make sure equipment requiring certification is inspected by individuals who have received a "certificate of competency"

from the assistant director of DOSH indicating that they are qualified and capable of performing such work.

(6) You must make sure that when deficiencies are found they are noted on forms provided for such purpose by the division of (~~consultation and compliance~~) occupational safety and health (DOSH). Copies must be delivered to the owner of the equipment and the division of (~~consultation and compliance at the headquarter's office by the person conducting such tests or inspections.~~) occupational safety and health, crane certification program:

Department of Labor and Industries
Division of Occupational Safety and Health Crane Certification Program

P.O. Box 44650
Olympia, WA 98504-4650

Or submitted electronically to:

Email: LNICranes@lni.wa.gov

(7) You must make sure a certificate of unit test or examination of equipment is not issued for any equipment found not to be in compliance with the provisions of this chapter.

(8) You must make sure persons desiring a "certificate of competency" demonstrate and document their capabilities and qualifications to the assistant director of the division of (~~consultation and compliance~~) occupational safety and health, who will issue certificates to those persons who have demonstrated competency. The assistant director reserves the right to revoke such certificates at any time for cause. A "certificate of competency" must be issued for a period of not more than three years. Applications for renewal may be made not more than (~~sixty~~) 60 days prior to the expiration date shown on the certificate.

(9) The assistant director of the division of (~~consultation and compliance~~) occupational safety and health or their representative, reserves the right to inspect such equipment or to witness or attend any test or inspection in order to ascertain the adequacy of any certification activity performed.

(10) You must make sure, unless otherwise exempted, all cranes or derricks required to be certified by these regulations must have a current test certificate posted in the operator's cab or station. No person may operate such crane or derrick unless a current valid certificate is posted.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60095 Advisory crane certification panel. (1) Any person desiring a certificate of competency for crane inspection or certification must make application to the assistant director of the division of (~~consultation and compliance~~) occupational safety and health for the certificate of competency. The application must include documentation of all qualifications, including all past experience, education, training and any other factors deemed to be relevant to the application.

(2) The advisory crane certification panel must assist the assistant director of the division of (~~consultation and compliance~~) occupational safety and health in their duties under this chapter. The panel must consist of six members. Two members must represent labor, two members must represent management, and one member must be a crane expert. The sixth member must be chair of the panel. The chair must be the assistant director of (~~consultation and compliance~~) the division of occupational safety and health or the chair's designee. The panel must be responsible for advising the assistant director as to the issuance of any certificate of competency. The panel must review all applications for certificates of competency. Minutes of meetings must be kept.

(3) In addition, the panel must, upon request by the assistant director, render advice concerning any matter which is relevant to crane safety. The panel must meet twice yearly or more often as deemed necessary by the chairman of the panel. Any panel member who is not an employee of the state of Washington must serve voluntarily.

(4) To renew the certification, an application is available on the LNI website. It must be filled out and submitted to the department. All correspondence related to this standard may be submitted to:

Department of Labor and Industries
Division of Occupational Safety and Health Crane Certification Program

P.O. Box 44650
Olympia, WA 98504-4650

Or submitted electronically to:

Email: LNICranes@lni.wa.gov

AMENDATORY SECTION (Amending WSR 18-03-159, filed 1/23/18, effective 2/23/18)

WAC 296-56-60103 Terminals handling intermodal containers or roll-on roll-off operations. (1) You must make sure every intermodal container is legibly and permanently marked with:

- (a) The weight of the container when empty, in pounds;
- (b) The maximum cargo weight the container is designed to carry, in pounds; and
- (c) The sum of the maximum weight of the container with cargo, in pounds (gross container capacity).

(2) You must make sure no container is hoisted by any crane or derrick unless the following conditions have been met:

(a) You must ascertain from the carrier whether a container to be hoisted is loaded or empty. Empty containers must be identified before loading or discharge in such a manner as will inform every supervisor and foreman on the site and in charge of loading or discharging, and every crane or other hoisting equipment operator and signalman, if any, that the container is empty. Methods of identification may include cargo plans, manifests or markings on the container.

(b) In the case of a loaded container:

(i) The actual gross weight must be plainly marked so as to be visible to the crane operator, other hoisting equipment operator, sig-

nalman, and to every supervisor and foreman on the site and in charge of the operation; or

(ii) The cargo stowage plan or equivalent permanently recorded display serving the same purpose, containing the actual gross weight and the serial number or other positive identification of that specific container, must be provided to the crane or other hoisting equipment operator and signalman, if any, and to every supervisor and foreman on the site and in charge of the operation.

(c) Every outbound loaded container which is received at a marine terminal ready to load aboard a vessel without further consolidation or loading must be weighed to obtain the actual gross weight before being hoisted.

(d) When container weighing scales are located at a marine terminal, any outbound container with a load consolidated at that terminal must be weighed to obtain an actual weight before being hoisted.

(i) If the terminal has no scales, the actual gross weight may be calculated on the basis of the container's contents and the container's empty weight. The weights used in the calculation must be posted conspicuously on the container, with the name of the person making the calculation and the date.

(ii) Container weights must be subject to random sample weight checks at the nearest weighing facility. In cases where such weight checks or experience otherwise indicate consistently inaccurate weights, the weight of containers so calculated at the source from which the inaccurate weights originated must no longer be recognized as true gross weights. Such containers must not be hoisted unless actual gross weights have been obtained by weighing.

(e) The following containers are exempted from the requirements of (c) and (d) of this subsection:

(i) Open type vehicle containers.

(ii) The container is marked on the outside in such a manner that an employee can readily discern that the container is carrying vehicles.

(iii) Containers built specifically for the carriage of compressed gases.

(iv) The container carries only completely assembled vehicles and no other cargo.

(v) The vehicles were loaded into the container at the marine terminal.

(f) The weight of loaded inbound containers from foreign ports must be determined by weighing or by the method of calculation described in (d)(ii) of this subsection or by shipping documents.

(g) Any scale used within Washington state to weigh containers for the purpose of the requirements of this section must meet the accuracy standards of the state or local public authority in which the scale is located.

(3) You must make sure no container is hoisted if its actual gross weight exceeds the weight marked as required in subsection (1)(c) of this section, or if it exceeds the capacity of the crane or other hoisting device intended to be used.

(4) You must make sure there are marked or designated areas set aside within a container or roll-on roll-off terminal for passage of employees to and from active cargo transfer points, except where you provide transportation to and from those points.

(5) You must direct employees to stay clear of the area beneath a suspended container. Employees must stay clear of the area beneath a suspended container.

(6) You must make sure each employee working in the immediate area of container handling equipment or in the terminal's traffic lanes wears a high visibility vest (or equivalent protection).

Note to subsection (6) of this section: High visibility vests or equivalent protection means high visibility/retroreflective materials which are intended to provide conspicuity of the user by day through the use of high visibility (fluorescent) material and in the dark by vehicle headlights through the use of retroreflective material. The minimum area of material for a vest or equivalent protection is .5m(2) (760 in.(2)) for fluorescent (background) material and .13m(2) (197 in.(2)) for retroreflective material. Vests or equivalent protection, such as high visibility/retro-reflective coveralls, that are available for industrial use, may also be acceptable.

(7) You must make sure containers are handled using lifting fittings or other arrangements suitable and intended for the purposes as set forth in (a) and (c) of this subsection, unless when damage to an intermodal container makes special means of handling necessary.

(a) Loaded intermodal containers of (~~twenty~~) 20 feet (6.1 m) or more in length must be hoisted as follows:

(i) When hoisting by the top fittings, the lifting forces must be applied vertically from at least four top fittings or by means which will safely lift the container without damage. The lifting fittings provided must be used.

(A) The container being lifted is an ISO closed box container;

(B) The condition of the box is sound;

(C) The speed of hoisting and lowering is moderated when heavily (~~laden~~) loaded containers are (~~encountered~~) moved;

(D) The lift angle is at (~~eighty to ninety~~) 80 to 90 degrees;

(E) The distance between the lifting beam and the load is at least eight feet and 2.4 inches (2.5 m); and

(F) The length of the spreader beam is at least 16.3 feet (5 m) for a (~~twenty-foot~~) 20-foot container, and at least 36.4 feet (11.1 m) for a (~~forty-foot~~) 40-foot container.

(ii) If hoisted from bottom fittings, the hoisting connections must bear on the fittings only, making no other contact with the container. The angles of the four bridle legs must not be less than (~~thirty~~) 30 degrees to the horizontal in the case of (~~forty~~) 40 foot (12.2 m) containers, (~~thirty-seven~~) 37 degrees in the case of (~~thirty~~) 30 foot (9.1 m) containers, or (~~forty-five~~) 45 degrees in the case of (~~twenty~~) 20 foot (6.1 m) containers.

(iii) Lifting containers by fork lift trucks or by grappling arms from above or from one side may be done only if the container is designed for this type of handling.

(b) Other means of hoisting may be used only if the containers and hoisting means are designed for such use.

(c) When using intermodal container spreaders that employ lanyards for activation of load disengagement, all possible precautions must be taken to prevent accidental release of the load. Intermodal container spreader twistlock systems must be designed and used so that a suspended load cannot accidentally be released.

(d) (~~Flat-bed~~) Flatbed trucks or container chassis used to move intermodal containers must be equipped with pins, flanges, or other means to prevent the container from shifting.

(e) (~~Flat-bed~~) Flatbed, low boy trailers (mafis) and other similar equipment used to transport containers must be marked with their cargo capacities and must not be overloaded.

(f) Each tractor must have all brake air lines connected when pulling trailers equipped with air brakes and must have the brakes tested before commencing operations.

(8) You must inspect intermodal containers for defects in structural members or fittings before handling. Any intermodal container found to be unsafe must be identified as such, promptly removed from service and repaired before being returned to service.

(9) You must make sure containers are not hoisted unless all engaged chassis twist locks are released.

(10) You must meet the following requirements for operations involving the lifting of two or more intermodal containers by the top container, also known as vertical tandem lifts (VTLs).

(a) Each employee involved in VTL operations must be trained and competent in the safety-related work practices, safety procedures, and other requirements in this section that pertain to their respective job assignments.

(b) No more than two intermodal containers may be lifted in a VTL.

(c) Before the lift begins, you must ensure that the two containers lifted as part of a VTL are empty.

Note: The lift begins immediately following the end of the prelift required by subsection (10)(c) of this section. Thus, the weight may be determined during the prelift using a load indicating device meeting WAC 296-56-60085 (1)(a) on the crane being used to lift the VTL.

(d) The lift must be performed using either a shore-based container gantry crane or another type of crane that:

(i) Has the precision control necessary to restrain unintended rotation of the containers about any axis;

(ii) Is capable of handling the load volume and wind sail potential of VTLs; and

(iii) Is specifically designed to handle containers.

(e) You must ensure that the crane operator pauses the lift when the vertically coupled containers have just been lifted above the supporting surface to assure that each interbox connector is properly engaged.

(f) Containers below deck may not be handled as a VTL.

(g) VTL operations may not be conducted when the wind speed exceeds the lesser of:

(i) Fifty-five km/h (~~((thirty-four))~~) 34 mph or (~~((thirty))~~) 30 knots); or

(ii) The crane manufacturer's recommendation for maximum wind speed.

(h) You must ensure that each interbox connector used in a VTL operation:

(i) Automatically locks into corner castings on containers but only unlocks manually (manual twistlocks or latchlocks are not permitted);

(ii) Is designed to indicate whether it is locked or unlocked when fitted into a corner casting;

(iii) Locks and releases in an identical direction and manner as all other interbox connectors in the VTL;

(iv) Has been tested and certificated by a competent authority of this chapter (for interbox connectors that are a part of a vessel's gear) or WAC 296-56-60093 (for other interbox connectors):

(A) As having a load-bearing surface area of (~~((eight-hundred))~~) 800 mm\two\ when connected to a corner casting with an opening that is (~~((sixty-five))~~) 65 mm wide; and

(B) As having a safe working load of (~~((ninety-eight kN (ten thousand kg))~~) 98 kN (10,000 kg) with a safety factor of five when the

load is applied by means of two corner castings with openings that are (~~sixty-five~~) 65 mm wide or equivalent devices;

(v) Has a certificate that is available for inspection and that attests that the interbox connector meets the strength criteria given in (h)(iv) of this subsection; and

(vi) Is clearly and durably marked with its safe working load for lifting and an identifying number or mark that will enable it to be associated with its test certificate.

(i) Reserved.

(j) You must ensure that each container and interbox connector used in a VTL and each corner casting to which a connector will be coupled is inspected immediately before use in the VTL.

(i) Each employee performing the inspection must be capable of detecting defects or weaknesses and be able to assess their importance in relation to the safety of VTL operations.

(ii) The inspection of each interbox connector must include: A visual examination for obvious structural defects, such as cracks, a check of its physical operation to determine that the lock is fully functional with adequate spring tension on each head; and a check for excessive corrosion and deterioration.

(iii) The inspection of each container and each of its corner castings must include: A visual examination for obvious structural defects, such as cracks, a check for excessive corrosion and deterioration; and a visual examination to ensure that the opening to which an interbox connector will be connected has not been enlarged, that the welds are in good condition, and that it is free from ice, mud, or other debris.

(iv) You must establish a system to ensure that each defective or damaged interbox connector is removed from service.

(v) An interbox connector that has been found to be defective or damaged must be removed from service and may not be used in VTL operations until repaired.

(vi) A container with a corner casting that exhibits any of the problems listed in (j)(iii) of this subsection may not be lifted in a VTL.

(k) No platform container may be lifted as part of a VTL unit.

(11) You must meet the following requirements for transporting vertically coupled containers:

(a) Equipment other than cranes used to transport vertically connected containers must be either specifically designed for this application or evaluated by a qualified engineer and determined to be capable of operating safely in this mode of operation.

(b) You must develop, implement, and maintain a written plan for transporting vertically connected containers. The written plan must establish procedures to ensure safe operating and turning speeds and must address all conditions in the terminal that could affect the safety of VTL-related operations, including communication and coordination among all employees involved in these operations.

(12) You must establish a safe work zone within which employees may not be present when vertically connected containers are in motion.

(a) The safe work zone must be sufficient to protect employees in the event that a container drops or overturns.

(b) The written transport plan required by subsection (11)(b) of this section must include the safe work zone and procedures to ensure that employees are not in this zone when a VTL is in motion.

AMENDATORY SECTION (Amending WSR 18-03-159, filed 1/23/18, effective 2/23/18)

WAC 296-56-60107 Terminal facilities handling menhaden and similar species of fish. (1) You must make sure tanks in terminal areas used for receiving or storing bailwater for recirculating into vessel holds in discharging operations are opened or ventilated to minimize contamination of water circulated to the vessel.

(a) Bailwater tanks must be thoroughly drained upon completion of each day's operations and must be left open to the air. Drainage is unnecessary when bailwater has been treated to remove hydrogen sulfide-producing contaminants and the efficiency of such treatment has been established.

(b) Before employees enter a dock tank, it (~~shall~~) must first be drained, rinsed and tested for hydrogen sulfide and oxygen deficiency. Employees must not enter the tank when the hydrogen sulfide level exceeds (~~twenty~~) 20 ppm or oxygen content is less than (~~nineteen and one-half~~) 19.5 percent, except in emergencies such as to affect a rescue in accordance with terminal's emergency action plan complying with WAC 296-56-60010 (2) (d).

(c) Tests must be conducted by designated personnel with suitable test equipment and respiratory protective equipment complying with the provisions of this chapter and chapter 296-842 WAC.

(2) You must make sure pipelines and hoses on the dock or terminal used for receiving and circulating used bailwater are completely drained upon completion of each day's operation and left open to the air.

(3) You must make sure at least four units of respiratory protective equipment consisting of supplied-air respirators or self-contained breathing apparatus complying with the requirements of chapter 296-842 WAC are available in a suitably labeled cabinet for immediate use in case of an emergency caused by oxygen deficiency or hydrogen sulfide. Any employee entering a tank in an emergency must, in addition to respiratory protective equipment, wear a lifeline and safety harness to facilitate rescue. At least two other employees, similarly equipped, must be continuously stationed outside the tank to observe and to provide rescue services.

(4) You must make sure the plant superintendent and foremen are trained and knowledgeable about the hazards of hydrogen sulfide and oxygen deficiency. They must be trained in the use of appropriate respiratory and other protective equipment, and in rescue procedures. Other supervisory plant personnel must be informed of these hazards and instructed in the necessary safety measures, including use of respiratory and rescue equipment.

(5) You must make sure supervisory personnel are on hand at dockside to supervise discharging of bailwater from vessels.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60121 Minimum safety requirements for docks and dock facilities.

Important:

No provision of this section ((shall)) may be construed to imply that an employer or employees are responsible for repair, construction or otherwise bringing into compliance facilities over which they have no control.

(1) You must not allow employees to perform work on docks or dock facilities which you should know do not meet the minimum safety requirements of this section.

(2) Employees must not work on docks or dock facilities which they should know do not meet the minimum safety requirements of this section.

(3) You must install a safety bulletin board at each dock, pier, warehouse or designated area at the job site.

(4) You must post at prominent places in or adjacent to the work area, legible notices stating:

(a) The location of stretchers, blankets, first-aid equipment and telephones. (Where possible, directional arrows should point to locations.)

(b) The phone numbers of doctors, ambulance services and hospitals within the area and the phone numbers of the police department or other law enforcement agency. (Where possible these numbers must also be posted on or inside the cover of first-aid cabinets and kits.)

(5) You must ventilate all areas where employees are required to work as required by the "general occupational health standards," chapter 296-62 WAC.

(6) You must locate power outlets installed to supply power to vessels in such a manner that the workers will not come into contact with supply lines. Unprotected power lines must not be driven over by equipment. If located on the underside or waterside of the bull rail, a well lighted walkway with hand rails must be provided to the power outlets.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60131 Elevators and escalators. (1) You must prohibit an elevator or escalator with a defect which affects safety from being used.

(2) You must make sure elevator safety devices ((shall)) are not ((be)) overridden or made inoperable.

(3) You must thoroughly inspect elevators and escalators at intervals not exceeding one year. Additional monthly inspections for satisfactory operation must be conducted by designated persons. Records of the results of the latest annual elevator inspections must be posted in elevators. Records of annual escalator inspections must be posted in the vicinity of the escalator or be available at the terminal.

(4) You must make sure elevator landing openings are provided with doors, gates, or equivalent protection, which must be in place when the elevator is not at that landing, to prevent employees from falling into the shaft.

(5) You must post and make sure the elevator or escalator maximum load limits are not exceeded. Elevator load limits must be posted conspicuously both inside and outside of the car.

(6) You must make sure elevators are operated only by designated persons except for automatic or door interlocking elevators which provide full shaft door closing and automatic car leveling.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60145 Elevator car. (1) You must fully enclose elevator cars to car height or to a height of not less than six feet six inches whichever is greater. Elevator cars may be of perforated or solid material provided the material will withstand a horizontal thrust of (~~seventy-five~~) 75 pounds without deflecting one-quarter inch and all openings will reject a one inch ball.

(a) Car frames must be of substantial metal or wood construction with a safety factor of four for metal frames and six for wood frames.

(b) Wood frames must be gusseted and bolted or otherwise secured with large washers and lock washers.

(c) The car platform must not exceed (~~thirty~~) 30 inches inside dimension on each side (6.25 square foot area).

(2) Every car must have a substantial protective top. The front half may be hinged. The protective top may be made from number nine U.S. wire gauge screen, (~~eleven~~) 11 gauge expanded metal, (~~fourteen~~) 14 gauge sheet steel, or three-quarter inch or heavier plywood. If made of wire screen or metal, the openings (~~shall~~) must reject a one-half inch diameter ball.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60183 Hoistway landings. (1) You must protect every hoistway landing on all sides other than the landing opening side with a standard guard rail and intermediate guard rail. All landings except the bottom landing must have a toe board installed on all sides except the landing opening side.

(2) You must make sure all hoistway entrances are not less than six feet six inches in height and in no case (~~shall~~) will the width exceed the corresponding car dimensions.

(3) You must provide all hoistway entrances with an approved maze or with a hoistway gate which must:

(a) Be at least (~~thirty-six~~) 36 inches in height.

(b) Extend downward to within one inch of the landing sill.

(c) Be of the self-closing type, designed to swing horizontally out from the hoistway and closing against a full jam stop.

(d) Be located within four inches of the hoistway edge of the landing sill.

(e) Have a "DANGER" sign conspicuously posted on the landing side of the hoistway gate.

(f) Withstand a (~~two hundred fifty~~) 250 pound horizontal thrust.

(4) You must make sure all projections extending inwardly from the hoistway enclosure at the entrance side of the car platform are

bevelled and substantially guarded on the underside by smooth solid material set at an angle of not less than ~~((sixty))~~ 60 degrees, nor more than ~~((seventy-five))~~ 75 degrees from the horizontal when cars are not equipped with gates.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60193 Car specifications. (1) You must make sure the car ~~((shall be))~~ is built to the following specifications:

(a) The car platform is not greater than ~~((thirty))~~ 30 inches on either side (6.25 square feet area).

(b) The car frame and platform must be of steel or sound seasoned wood construction and be designed with a safety factor of not less than four for metal and six for wood, based on a maximum capacity of ~~((two hundred fifty))~~ 250 pounds.

(c) All frame members must be securely bolted, riveted or welded and braced. If bolted, lock washers or lock nuts must be used.

(d) Where wooden frame members are bolted, large washers or metal plates must be used to minimize the possibility of splitting or cracking the wood.

(2) You must enclose the sides of the car by a minimum of two safety guard rails with the top rail not less than ~~((thirty-six))~~ 36 inches nor more than ~~((forty-two))~~ 42 inches from the car floor. Rails must sustain a horizontal thrust of ~~((two hundred fifty))~~ 250 pounds. If solid material is used it must be smooth surfaced and not less than one-half inch thickness, if wood; not less than ~~((sixteen))~~ 16 gauge thickness, if steel; and must be constructed from the car floor to a height of not less than three feet.

(a) Where the hoistway is not enclosed on the entrance side of the car, a self-locking or drop bar gate must be provided. The car gate may be of the folding type, horizontally swung, provided it swings into the car enclosure. Drop bar gates must be of two bar construction, parallelogram type, and conform to requirements specified for car guard rails.

(b) The car gate must drop into locking slots or be provided with a positive locking type latch capable of withstanding ~~((two hundred fifty))~~ 250 pounds horizontal thrust.

(3) You must make sure every car has a substantial protective top. The front half may be hinged. The protective top may be made from number nine U.S. wire gauge screen, ~~((eleven))~~ 11 gauge expanded metal, ~~((fourteen))~~ 14 gauge sheet steel, three-quarter inch or heavier plywood. If made of wire screen or metal, the openings must reject a one-half inch diameter ball.

(4) You must make sure every car has a proper rack to hold the balance weights.

(5) You must conspicuously post a sign within the car bearing the following information:

(a) Maximum capacity one person;

(b) Total load limit in pounds;

(c) For authorized personnel use only.

(6) You must equip every car with a spring loaded foot brake which:

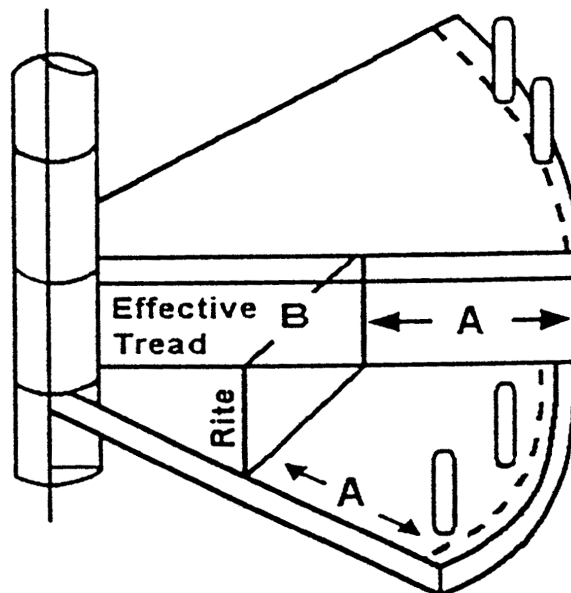
(a) Operates independently of the car safeties;

- (b) Operates in both directions and will stop and hold the car and its load;
- (c) Locks the car in its position automatically whenever the operator releases the pressure on the foot pedal.
- (7) You must equip every car with a car safety device which:
 - (a) Applies to the sides of the main guide rails;
 - (b) Stops and holds the car and its load immediately when the hoisting rope breaks.
- (8) You must make sure every car has a minimum clearance of six feet six inches from the top of the car platform to the bottom edge of the crosshead or any other obstruction.
- (9) You must provide and firmly attach a tool box with minimum dimensions of four inches wide by ~~((sixteen))~~ 16 inches long by three inches in depth to the car structure.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

- WAC 296-56-60217 Spiral stairways.** (1) You must meet the following requirements for spiral stairways:
- (a) Stairways must conform to the minimum dimensions of Figure F-1;

Figure F-1



| Spiral Stairway—Minimum Dimensions | | |
|------------------------------------|------------------------|-----------------------|
| | A (Half-tread width) | B |
| Normal use by employees | 11 inches (27.9 cm) | 6 inches (15.2 cm) |
| Limited access | 9 inches (22.9 cm) | 5 inches (12.7 cm) |

(b) Stairway risers must be uniform and (~~shall~~) range from six and one-half to (~~ten and one-half~~) 10.5 inches (16.5 to 26.67 cm) in height;

(c) Minimum loading capability be (~~one hundred~~) 100 pounds per square foot (445 N), and minimum tread center concentrated loading shall be (~~three hundred~~) 300 pounds (1334 N);

(d) Railing must conform to the requirements of WAC 296-56-60123(3). If balusters are used, there must be a minimum of one per tread. Handrails must be a minimum of one and one-fourth inches (3.18 cm) in outside diameter; and

(e) Vertical clearance must be at least six feet, six inches (1.98 m) above the top step.

(2) You must maintain spiral stairways in safe condition.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60219 Employee exits. (1) You must clearly mark employee exits.

(2) You must post directional signs indicating routes to the exit if an employee exit is not visible from employees' work stations.

(3) You must make sure exits are readily accessible and sufficient in number to provide employees with a convenient means of escape in emergencies. A clear passage to the exit (~~shall~~) must be maintained.

(4) You must make sure the minimum width of any employee exit is (~~twenty-eight~~) 28 inches (71.12 cm).

(5) You must clearly mark and keep clear all fire exits and aisles of all docks and warehouses. All main aisles must be wide enough to permit passage of a fire truck.

(6) You must maintain a (~~twenty-eight~~) 28 inch clearance where employees use a passageway to an exit.

(7) You must provide every building, structure or crane, new or old, with an emergency means of egress to permit the prompt escape of occupants in case of fire or other emergency, at all locations with a vertical height of (~~thirty~~) 30 feet or more. Cranes, buildings, or structures erected prior to January 1, 1985, must comply with the provisions of this standard by July 1, 1986.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60221 Illumination. You must light all areas to meet the requirements of this code.

(1) You must light active work areas in such a manner that the general area being worked will be illuminated at a minimum intensity of approximately five foot candles measured (~~thirty~~) 30 inches above the dock floor. Supplemental lighting must be utilized where more than the minimum intensity is necessary for safe operation.

(a) The lighting intensity must be measured at the task/working surface in the plane in which the task/working surface is present.

(b) Lights must, so far as possible, be placed so that they will not shine in the eyes of employees.

(2) You must maintain a minimum of three foot candles illumination measured in the manner described above at all points along the bull rail.

(3) You must make sure the quality of light is such that it is reasonably free from glare, and has correct direction, diffusion, and distribution.

(4) You must make sure that lighting (~~shall~~) is not (~~be~~) obstructed by any placement of cargo, structures or other objects which might create a shadow in the work area. Portable lighting must be provided in those areas that do not meet the minimum requirements of this subsection.

(5) You must meet the following requirements for portable illumination:

(a) All walking and working areas must be illuminated.

(b) Portable lights must meet the following requirements:

(i) Portable lights must be equipped with reflectors and guards to prevent flammable and other material from coming in contact with the bulb, except that guards are not required where the construction of the reflector is such that the bulb is recessed.

(ii) Portable lights must be equipped with heavy duty electric cords. They may be suspended by such cords only when the means of attachment of the cord to the light is such as to prevent the light from being suspended by the electrical connections.

(iii) All connections and insulation must be maintained.

(iv) Lighting wires and fixtures for portable lights must be so arranged as to be free from contact with drafts, running gear, or other moving equipment.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60229 Sanitation. (1) You must meet the following requirements for washing and toilet facilities:

(a) You must provide accessible washing and toilet facilities sufficient for the sanitary requirements of employees. The facilities must have:

(i) Running water, including hot and cold or tepid water (when cargo handling is conducted at locations without permanent facilities, containers of potable water may be provided in lieu of running water);

(ii) Soap;

(iii) Individual hand towels, clean individual sections of continuous toweling or air blowers; and

(iv) Fixed or portable toilets in separate compartments with latch-equipped doors.

(b) Separate toilet facilities must be provided for male and female employees except when toilet rooms are occupied by only one person at a time. A means of locking must be provided.

(c) Washing and toilet facilities must be regularly cleaned and maintained in good order.

(2) You must meet the following requirements for drinking water.

(a) Potable drinking water (~~shall~~) must be accessible to employees at all times.

(b) Potable drinking water containers must be clean, containing only water and ice, and must be fitted with covers.

(c) Common drinking cups are prohibited.

(3) You must prohibit consumption of food or beverages in areas where hazardous materials are being stored or handled.

(4) You must prohibit work from being conducted in the immediate vicinity of uncovered garbage or in the area of overboard discharges from the vessel's sanitary lines unless employees are protected from the garbage or discharge by a baffle or splash boards.

NEW SECTION

WAC 296-56-60230 Drayage truck operators—Access to restroom facilities. A terminal operator must provide a sufficient number of restrooms for use by drayage truck operators in areas of the terminal that drayage truck operators typically have access to, such as inside the gate and truck queuing lots. Restrooms may include fixed bathrooms with flush toilets or portable chemical toilets. At least one restroom provided by the terminal operator must be a private space suitable for and dedicated to expressing breast milk.

(1) A terminal operator is deemed in compliance with this section if the terminal operator:

(a) Allows drayage truck operators access to existing restrooms while the drayage truck operators are on port property in areas of the terminal that drayage truck operators typically have access to and when access does not pose an obvious safety risk to the drayage truck operators and other workers in the area and does not violate federal terminal security requirements;

(b) When necessary, provides additional restrooms at locations where there is the most need. To determine need, the terminal operator must assess the use and accessibility of existing restrooms and conduct a survey of drayage truck operators; and

(c) Has a policy that allows drayage truck operators to leave their vehicles at reasonable times and locations for purposes of accessing restrooms.

(2) Restrooms for drayage truck operators must be located in areas where access would not pose an obvious health or safety risk to the drayage truck operators or other workers in the area.

(3)(a) The departments of health and labor and industries have jurisdiction to enforce this section.

(b) The department of health may issue a warning letter to the port terminal operator for a first violation of this section, informing the port terminal operator of the requirements of this section. A port terminal operator that violates this section after receiving a warning letter is guilty of a class 2 civil infraction under chapter 7.80 RCW.

(c) Failure of a terminal operator to comply with this section is a violation of chapter 49.17 RCW.

(d) The departments may not take duplicate enforcement actions against an individual or business for violations arising from the same conduct.

WAC 296-56-60235 Welding, cutting and heating (hot work) (see also definition of "hazardous cargo, material, substance or atmosphere"). (1) You must make sure hot work is not performed in confined space until all requirements of chapter 296-809 WAC, are met.

(2) You must provide fire protection for employees performing hot work as follows:

(a) To the extent possible, hot work must be performed in designated locations that are free of fire hazards.

(b) When hot work must be performed in a location that is not free of fire hazards, all necessary precautions must be taken to confine heat, sparks, and slag so that they cannot contact flammable or combustible material.

(c) Fire extinguishing equipment suitable for the location must be immediately available and must be maintained in readiness for use at all times.

(d) When the hot work operation is such that normal fire prevention precautions are not sufficient, additional personnel must be assigned to guard against fire during hot work and for a sufficient time after completion of the work to ensure that no fire hazard remains. The employer must instruct all employees involved in hot work operations as to potential fire hazards and the use of firefighting equipment.

(e) Drums and containers which contain or have contained flammable liquids must be kept closed. Empty containers must be removed from the hot work area.

(f) When openings or cracks in flooring cannot be closed, precautions must be taken to ensure that no employees or flammable or combustible materials are exposed to sparks dropping through the floor. Similar precautions must be taken regarding cracks or holes in walls, open doorways and open or broken windows.

(g) Hot work (~~shall~~) must not be performed:

(i) In flammable or potentially flammable atmospheres;

(ii) On or in equipment or tanks that have contained flammable gas or liquid or combustible liquid or dust-producing material, until a designated person has tested the atmosphere inside the equipment or tanks and determined that it is not hazardous; or

(iii) Near any area in which exposed readily ignitable materials such as bulk (~~sulphur~~) sulfur, baled paper or cotton are stored. Bulk (~~sulphur~~) sulfur is excluded from this prohibition if suitable precautions are followed, the person in charge is knowledgeable and the person performing the work has been instructed in preventing and extinguishing (~~sulphur~~) sulfur fires.

(h) Drums, containers or hollow structures that have contained flammable or combustible substances must either be filled with water or cleaned, and must then be ventilated.

(i) A designated person must test the atmosphere and determine that it is not hazardous before hot work is performed on or in such structures.

(ii) Before heat is applied to a drum, container or hollow structure, an opening to release built-up pressure during heat application must be provided.

(3) You must follow these requirements for gas welding and cutting:

(a) Compressed gas cylinders must be used only as follows:

(i) Must have valve protection caps in place except when in use, hooked up or secured for movement. Oil must not be used to lubricate caps;

(ii) Must be hoisted only while secured, as on a cradle or pallet, and must not be hoisted by magnet, choker sling or cylinder caps;

(iii) Must be moved only by tilting or rolling on their bottom edges;

(iv) Must be secured when moved by vehicle;

(v) Must be secured while in use;

(vi) Must have valves closed when cylinders are empty, being moved or stored;

(vii) Must be secured upright except when hoisted or carried;

(viii) Must not be freed when frozen by prying the valves or caps with bars or by hitting the valve with a tool;

(ix) Must not be thawed by boiling water;

(x) Must not be exposed to sparks, hot slag, or flame;

(xi) Must not be permitted to become part of electrical circuits or have electrodes struck against them to strike arcs;

(xii) Must not be used as rollers or supports;

(xiii) Must not have contents used for purposes not authorized by the supplier;

(xiv) Must not be used if damaged or defective;

(xv) Must not have gases mixed within, except by gas suppliers;

(xvi) Must be stored so that oxygen cylinders are separated from fuel gas cylinders and combustible materials by either a minimum distance of (~~twenty~~) 20 feet (6.1 m) or a barrier having a fire-resistance rating of (~~thirty~~) 30 minutes; and

(xvii) Must not have objects that might either damage the safety device or obstruct the valve placed on top of the cylinder when in use.

(b) Fuel gas must be used only as follows:

(i) Before regulators are connected to cylinder valves, the valves must be opened slightly (cracked) and closed immediately to clear away dust or dirt. Valves must not be cracked if gas could reach possible sources of ignition;

(ii) Cylinder valves must be opened slowly to prevent regulator damage and must not be opened more than one and one-half turns. Any special wrench required for emergency closing must be positioned on the valve stem during cylinder use. For manifolded or coupled cylinders, at least one wrench must be immediately available. Nothing must be placed on top of a cylinder or associated parts when the cylinder is in use;

(iii) Pressure-reducing regulators must be attached to cylinder valves when cylinders are supplying torches or devices equipped with shut-off valves;

(iv) Cylinder valves must be closed and gas released from the regulator or manifold before regulators are removed;

(v) Leaking fuel gas cylinder valves must be closed and the gland nut tightened. If the leak continues, the cylinder must be tagged, removed from service, and moved to a location where the leak will not be hazardous. If a regulator attached to a valve stops a leak, the cylinder need not be removed from the workplace but must be tagged and may not be used again before it is repaired; and

(vi) If a plug or safety device leaks, the cylinder must be tagged, removed from service, and moved to a location where the leak will not be hazardous.

(c) Hose must be used only as follows:

(i) Fuel gas and oxygen hoses must be easily distinguishable from each other by color or sense of touch. Oxygen and fuel hoses must not be interchangeable. Hoses having more than one gas passage must not be used.

(ii) When oxygen and fuel gas hoses are taped together, not more than four of each (~~twelve~~) 12 inches (10.16 cm of each 30.48 cm) must be taped.

(iii) Hose must be inspected before use. Hose subjected to flash-back or showing evidence of severe wear or damage must be tested to twice the normal working pressure but not less than (~~two hundred~~) 200 p.s.i. (1378.96 kPa) before reuse. Defective hose must not be used.

(iv) Hose couplings must not unlock or disconnect without rotary motion.

(v) Hose connections must be clamped or securely fastened to withstand twice the normal working pressure but not less than (~~three hundred~~) 300 p.s.i. (2068.44 kPa) without leaking.

(vi) Gas hose storage boxes must be ventilated.

(d) Torches must be used only as follows:

(i) Torch tip openings must only be cleaned with devices designed for that purpose.

(ii) Torches must be inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches must be inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches with such defects must not be used.

(iii) Torches must not be lighted from matches, cigarette lighters, other flames or hot work.

(e) Pressure regulators, including associated gauges, must be maintained in safe working order.

(f) Gas welding equipment must be maintained free of oil and grease.

(4) You must meet these requirements for arc welding and cutting:

(a) Manual electrode holders must be used as follows:

(i) You must ensure that only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting must be used.

(ii) Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder must be insulated against the maximum voltage to ground.

(b) Welding cables and connectors must be used as follows:

(i) Arc welding and cutting cables must be insulated, flexible and capable of handling the maximum current required by the operation, taking into account the duty cycles.

(ii) Only cable free from repair or splice for (~~ten~~) 10 feet (3 m) from the electrode holder must be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

(iii) When a cable other than the lead mentioned in (b)(ii) of this subsection wears and exposes bare conductors, the portion exposed must not be used until it is protected by insulation equivalent in performance capacity to the original.

(iv) Insulated connectors of equivalent capacity must be used for connecting or splicing cable. Cable lugs, where used as connectors, must provide electrical contact. Exposed metal parts must be insulated.

(c) Ground returns and machine grounding must be used as follows:

(i) Ground return cables must have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.

(ii) Structures or pipelines, other than those containing gases or flammable liquids or conduits containing electrical circuits, may be used in the ground return circuit if their current-carrying capacity equals or exceeds the total maximum output capacities of the welding or cutting units served.

(iii) Structures or pipelines forming a temporary ground return circuit must have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit must cause rejection as a ground circuit.

(iv) Structures or pipelines acting continuously as ground return circuits must have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.

(v) Arc welding and cutting machine frames must be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits must have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(vi) Ground connections must be mechanically and electrically adequate to carry the current.

(d) When electrode holders are left unattended, electrodes must be removed and holders placed to prevent employee injury.

(e) Hot electrode holders must not be dipped in water.

(f) You must ensure that when arc welders or cutters leave or stop work or when machines are moved, the power supply switch is kept in the off position.

(g) Arc welding or cutting equipment having a functional defect must not be used.

(h) Arc welding and cutting operations must be separated from other operations by shields, screens, or curtains to protect employees in the vicinity from the direct rays and sparks of the arc.

(i) Employees in areas not protected from the arc by screening must be protected by appropriate filter lenses in accordance with subsection (8) of this section.

(ii) When welders are exposed to their own arc or to each other's arc, they must wear filter lenses complying with the requirements of subsection (8) of this section.

(i) The control apparatus of arc welding machines must be enclosed, except for operating wheels, levers, and handles.

(j) Input power terminals, top change devices and live metal parts connected to input circuits must be enclosed and accessible only by means of insulated tools.

(k) When arc welding is performed in wet or high-humidity conditions, employees must use additional protection, such as rubber pads or boots, against electric shock.

(5) You must meet the following requirements in ventilation and employee protection in welding, cutting and heating:

(a) You must ensure that general mechanical ventilation or local exhaust systems must meet the following requirements:

(i) General mechanical ventilation must maintain vapors, fumes and smoke below a hazardous level;

(ii) Local exhaust ventilation must consist of movable hoods positioned close to the work and must be of such capacity and arrangement as to keep breathing zone concentrations below hazardous levels;

(iii) Exhausts from working spaces must be discharged into the open air, clear of intake air sources;

(iv) Replacement air must be clean and respirable; and

(v) Oxygen must not be used for ventilation, cooling or cleaning clothing or work areas.

(b) You must ensure that when hot work is performed in a confined space, in addition to the requirements of chapter 296-809 WAC and except as specified in (c)(ii) and (iii) of this subsection, the following requirements for ventilation are met:

(i) General mechanical or local exhaust ventilations must be provided; or

(ii) Employees in the space must wear respirators in accordance with chapter 296-842 WAC.

(c) Requirements for welding, cutting or heating of toxic metals are as follows:

(i) In confined or enclosed spaces, hot work involving the following metals must only be performed with general mechanical or local exhaust ventilation that ensures that employees are not exposed to hazardous levels of fumes:

(A) Lead base metals;

(B) Cadmium-bearing filler materials; and

(C) Chromium-bearing metals or metals coated with chromium-bearing materials.

(ii) In confined or enclosed spaces, hot work involving the following metals must only be performed with local exhaust ventilation meeting the requirements of this subsection or by employees wearing supplied air respirators in accordance with chapter 296-842 WAC;

(A) Zinc-bearing base or filler metals or metals coated with zinc-bearing materials;

(B) Metals containing lead other than as an impurity, or coated with lead-bearing materials;

(C) Cadmium-bearing or cadmium-coated base metals; and

(D) Metals coated with mercury-bearing materials.

(iii) Employees performing hot work in confined or enclosed spaces involving beryllium-containing base or filler metals must be protected by local exhaust ventilation and wear supplied air respirators or self-contained breathing apparatus, in accordance with the requirements of chapter 296-842 WAC.

(iv) You must ensure that employees performing hot work in the open air that involves any of the metals listed in (c)(i) and (ii) of this subsection must be protected by respirators in accordance with the requirements of chapter 296-842 WAC and those working on beryllium-containing base or filler metals must be protected by supplied air respirators, in accordance with the requirements of chapter 296-842 WAC.

(v) Any employee exposed to the same atmosphere as the welder or burner must be protected by the same type of respiratory and other protective equipment as that worn by the welder or burner.

(d) You must make sure employees will not engage in and not be exposed to the inert-gas metal-arc welding process unless the following precautions are taken:

(i) Chlorinated solvents must not be used within (~~two hundred~~) 200 feet (61 m) of the exposed arc. Surfaces prepared with chlorinated solvents must be thoroughly dry before welding is performed on them.

(ii) Employees in areas not protected from the arc by screening must be protected by appropriate filter lenses in accordance with the requirements of subsection (7) of this section. When welders are ex-

posed to their own arc or to each other's arc, filter lenses complying with the requirements of subsection (7) of this section must be worn to protect against flashes and radiant energy.

(iii) Employees exposed to radiation must have their skin covered completely to prevent ultraviolet burns and damage. Helmets and hand shields must not have leaks, openings or highly reflective surfaces.

(iv) Inert-gas metal-arc welding on stainless steel must not be performed unless exposed employees are protected either by local exhaust ventilation or by wearing supplied air respirators in accordance with the requirements of chapter 296-842 WAC.

(6) You must meet these requirements for welding, cutting and heating on preservative coatings:

(a) Before hot work is commenced on surfaces covered by a preservative coating of unknown flammability, a test must be made by a designated person to determine the coating's flammability. Preservative coatings must be considered highly flammable when scrapings burn with extreme rapidity.

(b) Appropriate precaution must be taken to prevent ignition of highly flammable hardened preservative coatings. Highly flammable coatings must be stripped from the area to be heated. An uncoiled fire hose with fog nozzle, under pressure, must be immediately available in the hot work area.

(c) Surfaces covered with preservative coatings must be stripped for at least four inches (10.16 cm) from the area of heat application or employees must be protected by supplied air respirators in accordance with the requirements of chapter 296-842 WAC.

(7) You must protect employees against radiant energy as follows:

(a) Employees must be protected from radiant energy eye hazards by spectacles, cup goggles, helmets, hand shields or face shields with filter lenses complying with the requirements of this subsection.

(b) Filter lenses must have an appropriate shade number, as indicated in Table G-1, for the work performed. Variations of one or two shade numbers are permissible to suit individual preferences.

(c) If filter lenses are used in goggles worn under the helmet, the shade numbers of both lenses equals the value shown in Table G-1 for the operation.

Table G-1
Filter Lenses for Protection Against Radiant Energy

| Operation | Shade No. |
|---|------------------|
| Soldering | 2 |
| Torch Brazing | 3 or 4 |
| Light Cutting, up to 1 inch | 3 or 4 |
| Medium Cutting, 1-6 inches | 4 or 5 |
| Heavy Cutting, over 6 inches | 5 or 6 |
| Light Gas Welding, up to 1/8 inch | 4 or 5 |
| Medium Gas Welding, 1/8-1/2 inch | 5 or 6 |
| Heavy Gas Welding, over 1/2 inch | 6 or 8 |
| Shielded Metal-Arc Welding 1/16 to 5/32-inch electrodes | 10 |
| Inert Gas Metal-Arc Welding (nonferrous) 1/16 to 5/32-inch electrodes | 11 |
| Shielded Metal-Arc Welding: 3/16 to 1/4-inch electrodes | 12 |

| Operation | Shade No. |
|------------------------------|------------------|
| 5/16 and 3/8-inch electrodes | 14 |

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60237 Spray painting. (1) This section covers painting operations connected with maintenance of structures, equipment and gear at the marine terminal and of transient equipment serviced at the terminal. It does not apply to overall painting of terminal structures under construction, major repair or rebuilding of terminal structures, or portable spraying apparatus not used regularly in the same location.

(2) For the purpose of this section, approved means that the equipment has been approved for the specified use by a nationally recognized testing laboratory.

(3) You must meet the following spray painting requirements for indoor and outdoor spraying areas and booths:

(a) Shut-off valves, containers or piping with attached hoses or flexible connections must have shut-off valves closed at the connection when not in use.

(b) Pumps used to transfer paint supplies must have automatic pressure-relieving devices.

(c) Hoses and couplings must be inspected before use. Hoses showing deterioration, leakage or weakness in the carcass or at the couplings must be removed from service.

(d) No open flame or spark-producing equipment must be within ((twenty)) 20 feet (6.1 m) of a spraying area unless it is separated from the spraying area by a fire-retardant partition.

(i) Hot surfaces must not be located in spraying areas.

(ii) Whenever combustible residues may accumulate on electrical installations, wiring must be in rigid conduit or in boxes containing no taps, splices or connections.

(iii) Portable electric lights must not be used during spraying operations. Lights used during cleaning or repairing operations must be approved for the location in which they are used.

(e) When flammable or combustible liquids are being transferred between containers, both containers must be bonded and grounded.

(f) Spraying must be performed only in designated spray booths or spraying areas.

(i) Spraying areas must be kept as free from combustible residue accumulations as practical.

(ii) Residue scrapings, debris, rags, and waste must be removed from the spraying area as they accumulate.

(g) Spraying with organic peroxides and other dual-component coatings must only be conducted in sprinkler-equipped spray booths.

(h) Only the quantity of flammable or combustible liquids required for the operation must be allowed in the spraying area, and in no case must the amount exceed a one-day supply.

(i) Smoking must be prohibited and "No Smoking" signs must be posted in spraying and paint storage areas.

(4) You must meet these additional requirements for spraying areas and spray booths:

(a) Distribution or baffle plates must be of noncombustible material and must be removable or accessible for cleaning. They must not be located in exhaust ducts.

(b) Any discarded filter must be removed from the work area or placed in water.

(c) Filters must not be used when the material being sprayed is highly susceptible to spontaneous heating and ignition.

(d) Filters must be noncombustible or of an approved type. The same filter must not be used when spraying with different coating materials if the combination of materials may spontaneously ignite.

(e) Spraying areas must be mechanically ventilated for removal of flammable and combustible vapor and mist.

(f) Mechanical ventilation must be in operation during spraying operations and long enough thereafter to exhaust hazardous vapor concentrations.

(g) Rotating fan elements must be nonsparking or the casing must consist of or be lined with nonsparking material.

(h) Piping systems conveying flammable or combustible liquids to the spraying booth or area must be made of metal and be both electrically bonded and grounded.

(i) Air exhausted from spray operations must not contaminate makeup air or other ventilation intakes. Exhausted air must not be recirculated unless it is first cleaned of any hazardous contaminants.

(j) Original closed containers, approved portable tanks, approved safety cans or a piping system must be used to bring flammable or combustible liquids into spraying areas.

(k) If flammable or combustible liquids are supplied to spray nozzles by positive displacement pumps, the pump discharge line must have a relief valve discharging either to a pump section or detached location, or the line must be equipped with a device to stop the prime mover when discharge pressure exceeds the system's safe operating pressure.

(l) Wiring, motors and equipment in a spray booth must be of approved explosion-proof type for Class I, Group D locations and conform with the requirements of chapter 296-24 WAC Part L for Class I, Division 1, Hazardous Locations. Wiring, motors and equipment within (~~twenty~~) 20 feet (6.1 m) of any interior spraying area and not separated by vapor-tight partitions must not produce sparks during operation and must conform to the requirements of chapter 296-24 WAC Part L for Class I, Division 2, Hazardous Locations.

(m) Outside electrical lights within (~~ten~~) 10 feet (3.05 m) of spraying areas and not separated from the areas by partitions must be enclosed and protected from damage.

(5) You must meet these additional requirements for spray booths:

(a) Spray booths must be substantially constructed of noncombustible material and have smooth interior surfaces. Spray booth floors must be covered with noncombustible material. As an aid to cleaning, paper may be used to cover the floor during painting operations if it is removed after the painting is completed.

(b) Spray booths must be separated from other operations by at least 3 feet (0.91 m) or by fire-retardant partitions or walls.

(c) A space of at least 3 feet (0.91 m) on all sides of the spray booth must be maintained free of storage or combustible materials.

(d) Metal parts of spray booths, exhaust ducts, piping(~~s~~), airless high-pressure spray guns and conductive objects being sprayed must be grounded.

(e) Electric motors driving exhaust fans must not be located inside booths or ducts.

(f) Belts must not enter ducts or booths unless the belts are completely enclosed.

(g) Exhaust ducts must be made of steel, must have sufficient access doors to permit cleaning, and must have a minimum clearance of 18 inches (0.46 m) from combustible materials. Any installed dampers must be fully opened when the ventilating system is operating.

(h) Spray booths must not be alternately used to spray different types of coating materials if the combination of the materials may spontaneously ignite unless deposits of the first material are removed from the booth and from exhaust ducts before spraying of the second material begins.

AMENDATORY SECTION (Amending WSR 15-24-102, filed 12/1/15, effective 1/5/16)

WAC 296-56-60253 Canneries and cold storage docks. (1) You must inspect hoisting equipment used to load or unload cargo or supplies of fishing vessels once a month certified in accordance with the requirements of WAC 296-56-60093. The record of inspection must be made available upon request.

(2) Slippery surfaces must be cleaned and nonslip material (~~shall~~) must be used if necessary.

AMENDATORY SECTION (Amending WSR 85-01-022, filed 12/11/84)

WAC 296-56-60255 Excerpts from Revised Code of Washington. (1) RCW 49.28.100 Hours of operators of power equipment in waterfront operations—Penalty. It shall be unlawful for any employer to permit any of his or her employees to operate on docks, in warehouses and/or in or on other waterfront properties any power driven mechanical equipment for the purpose of loading cargo on, or unloading cargo from, ships, barges, or other watercraft, or of assisting in such loading or unloading operations, for a period in excess of (~~twelve and one-half~~) 12.5 hours at any one time without giving such person an interval of eight hours' rest: Provided, however, The provisions of this section and RCW 49.28.110 shall not be applicable in cases of emergency, including fire, violent storms, leaking or sinking ships or services required by the armed forces of the United States.

(2) RCW 51.28.010 Notice of accident—Notification of worker's rights—Claim suppression. Whenever any accident occurs to any worker it shall be the duty of such worker or someone in his or her behalf to forthwith report such accident to his or her employer, superintendent, or (~~foreman or forewoman~~) supervisor in charge of the work, and of the employer to at once report such accident and the injury resulting therefrom to the department pursuant to RCW 51.28.025(~~as now or hereafter amended,~~) where the worker has received treatment from a physician or a licensed advanced registered nurse practitioner, has

been hospitalized, disabled from work, or has died as the apparent result of such accident and injury.

Upon receipt of such notice of accident, the department shall immediately forward to the worker or his or her beneficiaries or dependents notification, in nontechnical language, of their rights under this title.