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Chapter 296-56
Safety Standards for Longshore, Stevedore and Related Waterfront Operations

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PART A
GENERAL

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WAC 296-56-600 Marine terminals.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-600, filed 12/11/84.]

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 not be applicable to those operations under the exclusive safety jurisdiction of the federal government.

(3) The provisions of this chapter shall 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 296-842 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 296-842 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 296-24 WAC Part J-2.

(f) Safe practices of abrasive blasting operations-Chapter 296-24 WAC Part H-2.

(g) Access to employee exposure and medical records-Chapter 296-62 WAC Part B.

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

(i) Safety standards for grain handling facilities-Chapter 296-99 WAC.

(j) Chemical hazard communication program--WAC 296-800-170.

(k) Asbestos-Chapters 296-62 Part I-1 and 296-65 WAC.

(l) Permit - required confined spaces and confined space-Chapter 296-62 WAC Part M.

(m) Servicing multi-piece and single-piece rim wheels--Chapter 296-24 WAC Part D.

(n) First aid requirements--WAC 296-800-150.

(o) Employee emergency plan and fire prevention plans--Chapter 296-24 WAC Part G-1.

WAC 296-56-60001 (Cont.)

(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 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.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60001, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-11-060 (Order 02-16), § 296-56-60001, filed 05/19/03, effective 08/01/03. Statutory Authority: RCW 49.17.010, .040, .050. 01-11-038 (Order 99-36), § 296-56-60001, filed 05/09/01, effective 09/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60001, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60001, filed 1/18/95, effective 3/1/95; 93-07-044 (Order 93-01),§ 296-56-60001, filed 3/13/93, effective 4/27/93. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60001, filed 10/30/92, effective 12/8/92. Statutory Authority: Chapter 49.17 RCW. 91-24-017 (Order 91-07), § 296-56-60001, filed 11/22/91, effective 12/24/91; 89-11-035 (Order 89-03), § 296-56-60001, filed 5/15/89, effective 6/30/89; 88-14-108 (Order 88-11), § 296-56-60001, filed 7/6/88. Statutory Authority: RCW 49.17.040 60001, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60001, filed 12/11/84.]

WAC 296-56-60003 Variance and procedure. Realizing 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 WAC 296-350-700, 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 remain posted during the time which it is in effect. Variance application forms may be obtained from the department.

[Statutory Authority: RCW 49.17.010, .040, .050. 01-11-038 (Order 99-36), § 296-56-60003, filed 05/09/01, effective 09/01/01. Statutory Authority: Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60003, filed 1/18/95, effective 3/1/95. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60003, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60003, filed 12/11/84.]

WAC 296-56-60005 Definitions.

"Apron" means 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.

"Assistant director for the division of WISHA services" means the assistant director of WISHA services, department of labor and industries or his/her authorized representative.

"Authorized" in reference to an employee's assignment, means selected by the employer for that purpose.

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

"Cargo packaging" means any method of containment for shipment, including cases, cartons, crates and sacks, but excluding large units such as intermodal containers, vans or similar devices.

"Confined space" means a space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- 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
- Is not designed for continuous employee occupancy.

WAC 296-56-60005 (Cont.)

"Conveyor" means 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.

"Danger zone" means 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.

"Designated person" means a person who possesses specialized abilities in a specific area and is assigned by the employer to perform a specific task in that area.

"Dock" means 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.

"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.

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

"Enclosed space" means 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.

"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.

"Flammable atmosphere" means an atmosphere containing more than ten percent of the lower flammable limit (LEL) of a flammable or combustible vapor or dust mixed with air. Such atmospheres are usually toxic as well as flammable.

"Front-end attachments."

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

"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 nongaseous or particulate matter may remain and be dispersed in the treatment space.

"Hazardous cargo, material, substance or atmosphere" means:

- Any substance listed in chapters 296-62 and 296-841 WAC;
- Any material in the hazardous materials table and hazardous materials communications regulations of the Department of Transportation, 49 CFR Part 172;

WAC 296-56-60005 (Cont.)

- Any article not properly described by a name in the hazardous materials table and hazardous materials communications regulations of the Department of Transportation, 49 CFR Part 172, but which is properly classified under the definition of those categories of dangerous articles given in 49 CFR Part 173;
- Atmospheres having concentrations of airborne chemicals in excess of permissible exposure limits as defined in chapter 296-62 WAC; or
- Any atmosphere with an oxygen content of less than nineteen and one-half percent by volume.

"House falls" means 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.

"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.

"Intermodal container" means 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.

"Loose gear" means 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.

"Marina" means a small harbor or boat basin providing dockage, supplies, and services for small craft.

"Marine terminal" means 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.

"Permit-required confined space (permit space)" means a confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- 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
- Contains any other recognized serious safety or health hazard.

"Ramp" means other flat-surface devices for passage between levels and across openings not covered under "dockboards."

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60005, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60005, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60005, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60005, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60005, filed 1/18/95, effective 3/1/95. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60005, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60005, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60005, filed 12//11/84.]

WAC 296-56-60006 Personnel.

(1) Qualifications of machinery operators.

(a) Only those employees determined by the employer to be competent by reason of training or experience, who understand the signs, notices, and operating instructions and are familiar with the signal code in use shall be permitted to operate a crane, winch, or other power-operated cargo handling apparatus, or any power-operated vehicle, or give signals to the operator of any hoisting apparatus. Employees being trained and supervised by a designated individual may operate such machinery and give signals to operators during training.

(b) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate the employee shall be permitted to operate a crane, winch, other power-operated cargo handling apparatus, or a power-operated vehicle.

(c) Persons who have recovered from a heart attack shall be exempted from the provisions of (b) of this subsection, as it pertains to their heart condition, provided:

(i) A medical release is obtained from their attending medical doctor.

(ii) The release shall state that the operation of a crane, winch, power-operated cargo handling apparatus, or power-operated vehicle, will not present a hazard to themselves or others.

(iii) An examination by a medical doctor, and renewal of the work release certification is required annually.

(2) Supervisory accident prevention proficiency.

(a) Immediate supervisors of cargo-handling operations of more than five persons shall satisfactorily complete a course in accident prevention. Employees newly assigned to supervisory duties shall be required to meet the provisions of this subsection (2)(a) within ninety days of such assignment.

(b) The course shall consist of instruction suited to the particular operations involved.

(c) No minor under eighteen years of age shall be employed in occupations involving the operation of any power-operated hoisting apparatus or assisting in such operations by performing work such as hooking on or landing drafts, rigging gear, etc.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60006, filed 12/30/98, effective 03/30/99.]

WAC 296-56-60007 Housekeeping.

(1) Active work areas shall be kept free of equipment and materials not in use, and clear of debris, projecting nails, strapping and other sharp objects not necessary for the work in progress.

(2) Hatch beams, covers, and pontoons placed in terminal working areas shall be stowed in stable piles with beams secured against tipping or falling. Alternatively, beams may be laid on their sides. When beams and pontoons are stowed in tiers more than one high, dunnage or other suitable material shall be used under and between tiers.

(3) Cargo and material shall not obstruct access to vessels, cranes, vehicles, or buildings. Means of access and egress within buildings shall be unobstructed.

WAC 296-56-60007 (Cont.)

(4) The employer shall eliminate, to the extent possible, conditions causing slippery working or walking surfaces in immediate work areas used by employees.

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60007, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60007, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60007, filed 12/11/84.]

WAC 296-56-60009 Accident prevention program.

(1) An accident prevention program, which provides equitable management-employee participation, shall be established in all establishments, industrial plants, or operations.

(2) It shall be the responsibility of the employer to initiate and maintain the accident prevention program necessary to comply with this section. The division of WISHA services may be contacted for assistance in initiating and maintaining an effective accident prevention program.

(3) All accident prevention programs shall be tailored to the needs of the particular operation.

(4) Employer and employee representatives, as elected, delegated or appointed, shall attend and actively take part in frequent and regular safety committee meetings.

(5) Accident prevention programs shall provide for employer-employee safety meetings and frequent and regular safety inspections of job sites, materials, equipment, and operating procedures.

(6) A record of safety activities, such as inspections and meetings, shall be maintained by the employer for a period covering the previous twelve months and shall be made available, upon request, to noncompliance personnel of the department of labor and industries.

(7) Employees shall individually comply with all safety rules and cooperate with management in carrying out the accident prevention program.

(8) To make effective the preceding statement and promote on-the-job accident prevention, committees shall be established in each port. These committees shall 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.

Note: For emergency plan and fire prevention plan requirements, see chapter 296-24 WAC, Part G-1.

[Statutory Authority: RCW 49.17.010, .040, .050. 01-11-038 (Order 99-36), § 296-56-60009, filed 05/09/01, effective 09/01/01. Statutory Authority: Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60009, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60009, filed 1/18/95, effective 3/1/95. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60009, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60009, filed 12/11/84.]

PART B
WATERFRONT OPERATIONS

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WAC 296-56-60011 Slinging.

(1) Drafts shall be safely slung before being hoisted. Loose dunnage or debris hanging or protruding from loads shall be removed.

(2) Bales of cotton, wool, cork, wood pulp, gunny bags, or similar articles shall be hoisted only by straps strong enough to support the weight of the bale. At least two hooks, each in a separate strap, shall be used.

(3) Unitized loads bound by bands or straps shall only be hoisted by the banding or strapping if the banding or strapping is suitable for hoisting and is strong enough to support the weight of the load.

(4) Additional means of hoisting shall be employed to ensure safe lifting of unitized loads having damaged banding or strapping.

(5) Case hooks shall be used only with cases designed to be hoisted by these hooks.

(6) Loads requiring continuous manual guidance during handling shall be guided by guide ropes (tag lines) that are long enough to control the load.

(7) Intermodal containers shall be handled in accordance with WAC 296-56-60103.

(8) The employer shall require employees to stay clear of the area beneath overhead drafts or descending lifting gear.

(9) Employees shall not be permitted to ride the hook or the load.

(10) Cargo handling bridles, such as pallet bridles, which are to remain attached to the hoisting gear while hoisting successive drafts, shall be attached by shackles, or other positive means shall be taken to prevent them from becoming accidentally disengaged from the cargo hook.

(11) Drafts of lumber, pipe, dunnage and other pieces, the top layer of which is not bound by the sling, shall be slung in such a manner as to prevent sliders. Double slings shall be used on unstrapped dunnage, except, when due to the size of hatch or deep tank openings, it is impractical to use them.

(12) Hand loaded buckets, tubs, bins and baskets used in handling bulk cargo shall not be loaded above their rim.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60011, filed 12/30/98, effective 03/30/99. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60011, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60011, filed 12/11/84.]

WAC 296-56-60013 Stacking of cargo and pallets. Cargo, pallets, and other material stored in tiers shall be stacked in such a manner as to provide stability against sliding and collapse.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60013, filed 12/11/84.]

WAC 296-56-60015 Coopering. Repair and reconditioning of damaged or leaking cargo packaging (coopering) shall be performed so as not to endanger employees.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60015, filed 12/11/84.]

WAC 296-56-60017 Line handling.

(1) In order to provide safe access for handling lines while mooring and unmooring vessels, cargo or material shall not be stowed or vehicles placed where they obstruct the work surface.

(2) When stringpiece or apron width is insufficient for safe footing, grab lines on rails shall be installed on the sides of permanent structures. (**"Stringpiece"** means a narrow walkway between the water edge of a berth and a shed or other structure.)

WAC 296-56-60017 (Cont.)

(3) Areas around bitts or cleats where workers perform their duties as line handlers shall be lighted as required by this chapter. There shall be a nonslip surface around each bitt or cleat.

(4) Walkways on which mooring hausers must be moved may have the handrail omitted on the line handling side provided a six inch by six inch toeboard is installed.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60017, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60017, filed 12/11/84.]

WAC 296-56-60019 Standard gauge railroad operations. WAC 296-56-60019 through 296-56-60041 apply to standard gauge railroad operations.

(1) Work shall be performed in railcars only if floors of the railcars are in visibly safe condition for the work activity being conducted and the equipment being used.

(2) A route shall be established to allow employees to pass to and from places of employment without passing under, over or through railcars, or between cars less than ten feet (3 m) apart on the same track.

(3) The employer shall direct that no employees remain in railcars after work is concluded. No employee shall remain in a railcar after work is concluded.

(4) Railcars shall be chocked or otherwise prevented from moving:

(a) While dockboards or carplates are in position; or

(b) While employees are working within, on or under the railcars or near the tracks at the ends of the cars.

(5) When employees are working in, on, or under a railcar, positive means shall be taken to protect them from exposure to impact from moving railcars.

(6) Work being carried on, in, or under cars which subjects employees to the hazard of moving railroad equipment shall be protected by flags and derails set a minimum of fifty feet from one or both ends of the worksite. Where the spur track switch is less than fifty feet from the work location, the switch padlocked in the open position may take the place of the derail. The blue flag shall be placed at that point.

(7) Before cars are moved, unsecured and over-hanging stakes, wire straps, banding, and similar objects shall be removed or placed so as not to create hazards.

(8) The employer shall institute all necessary controls during railcar movement to safeguard personnel. If winches or capstans are employed for movement, employees shall stand clear of the hauling rope and shall not stand between the rope and the cars.

(9) Before being opened fully, doors shall be opened slightly to ensure that the load has not shifted during transit. Special precautions shall be taken if the doors being opened are visibly damaged.

(10) If power industrial trucks are used to open freight car doors, the trucks or the railcar doors shall be equipped with door opening attachments. Employees shall stand clear of the railcar doors while they are being opened and closed.

(11) Only railcar door openers or power trucks equipped with door opening attachments shall be used to open jammed doors.

WAC 296-56-60019 (Cont.)

(12) Employees shall not remain in or on gondolas or flat cars when drafts that create overhead, caught-in, caught-between or struck-by hazards are being landed in or on the railcar. End gates, if raised, shall be secured.

(13) Operators of railcar dumps shall have an unrestricted view of dumping operations and shall have emergency means of stopping movement.

(14) Recessed railroad switches shall be enclosed to provide a level surface.

(15) Warning signs shall be posted where doorways open onto tracks, at blind corners and at similar places where vision may be restricted.

(16) Warning signs shall be posted if insufficient clearance for personnel exists between railcars and structures.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60019, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60019, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60019, filed 12/11/84.]

WAC 296-56-60021 Signals displayed by each maintenance crew. Each maintenance crew shall display and remove its own set of blue signals.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60021, filed 12/11/84.]

WAC 296-56-60023 Warning flags or lights. A blue flag, bright colored flag or blue light shall be displayed at one or both ends of an engine, car or train to indicate that workers are under or about the railway equipment. When such warning devices are displayed, the equipment shall not be coupled to or moved. On a dead end spur, a blue light or flag may be displayed adjacent to the switch opening while cars are being loaded or unloaded.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60023, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60023, filed 12/11/84.]

WAC 296-56-60025 Signals unobscured. Equipment which could obscure signals shall not be placed on the track.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60025, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60025, filed 12/11/84.]

WAC 296-56-60027 Audible warning system. A clearly audible warning system shall be employed when cars are being moved in areas where workers may be in the vicinity of the tracks. When the audible warning signal might not be heard above the surrounding noises, a person shall be delegated and stationed close enough to the track crew to warn them, by contact, of the oncoming equipment.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60027, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60027, filed 12/11/84.]

WAC 296-56-60029 Safety observer on railroad switching. When persons are required to work between railway cars, underneath railway cars or in areas where switching is done, there shall be a person charged with the responsibility to warn of an approaching switch of the railway car or cars, unless other reasonable and practical safeguards are provided.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60029, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60029, filed 12/11/84.]

WAC 296-56-60031 Warning at road crossing. An audible whistle, horn or bell shall be sounded by the locomotive engineer to give adequate warning prior to switching across any road crossing. Whenever cars are pushed with a locomotive, a signalman shall be located at the crossing to give signals in conjunction with other warnings by the engineer.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60031, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60031, filed 12/11/84.]

WAC 296-56-60033 Flying switches. Flying switches shall not be used when switching railroad equipment in congested areas or across roadways or walkways.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60033, filed 12/11/84.]

WAC 296-56-60035 Clearance from railroad tracks. Materials shall not be stacked or piled closer than eight and one-half feet from the centerline of the railroad tracks.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60035, filed 12/11/84.]

WAC 296-56-60037 Car plates. Whenever workers are required to move cargo into or out of a railway car, a railway car plate shall be used which shall meet the following specifications:

(1) All car plates shall be strong enough to carry maximum loads with a safety factor of three.

(2) All car plates shall be provided with positive stops to prevent shifting of plates. One set of these stops shall be adjustable to allow for different spaces between car door and platform.

(3) Car plates shall be so shaped that edges will always bear on the floor of car and platform to prevent "teetering" or rocking.

(4) All car plates shall have skid resistant surfaces.

(5) All car plates shall be provided with toe or guard plates at the sides with a minimum height of four inches.

(6) All car plates must bear no less than six inches back from edge of platform.

(7) Maximum capacity of car plates shall be marked in a conspicuous place.

(8) Car plates shall be provided with an appropriate fixture to enable the plates to be lifted and moved by fork trucks.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60037, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60037, filed 12/11/84.]

WAC 296-56-60039 Dockboards (bridge plates).

(1) Portable and powered dockboards shall be strong enough to carry the load imposed.

(2) Portable dockboards shall be secured in position, either by being anchored or equipped with devices which will prevent slipping.

(3) Powered dockboards shall be designed and constructed in accordance with commercial standards CS202-56 (1956) Industrial Lifts and Hinged Loading Ramps published by the United States Department of Commerce.

(4) Handholds or other effective means, shall be provided on portable dockboards to permit safe handling.

(5) Positive protection shall be provided to prevent railroad cars from being moved while dockboards or bridge plates are in position.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60039, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60039, filed 12/11/84.]

WAC 296-56-60041 Log handling.

(1) The employer shall ensure that structures (bunks) used to contain logs have rounded corners and rounded structural parts to avoid sling damage.

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

WAC 296-56-60041 (Cont.)

(3) Logs shall be hoisted by two slings or by other gear designed for safe hoisting.

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

(5) Before logs are slung up from the dock, they shall be 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 be higher than the stanchions or retaining members of the device.

(6) A draft of logs for hoisting aboard ship shall not vary in length more than twenty percent.

(7) Audible alarms.

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

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

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60041, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60041, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60041, filed 12/11/84.]

WAC 296-56-60043 Movement of barges and railcars. Barges and railcars shall not be moved by cargo runners (running rigging) from vessel cargo booms, cranes or other equipment not suitable for the purpose.

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60043, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60043, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60043, filed 12/11/84.]

WAC 296-56-60045 Communication.

(1) Radio. When practical and safe, crane operators shall be provided with a radio or telephone to be in contact with the signalman or crane chaser in those cases where a signalman or crane chaser is required.

(2) Interference. Cargo handling operations shall not be carried on when noise-producing maintenance, construction or repair work interferes with communication of warnings or instructions.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-10-004 (Order 85-09), § 296-56-60045, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60045, filed 12/11/84.]

WAC 296-56-60047 Open fires. Open fires and fires in drums or similar containers are prohibited.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60047, filed 12/11/84.]

PART C
HAZARDOUS ATMOSPHERES AND MATERIALS

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WAC 296-56-60049 Hazardous cargo.

(1) Before cargo handling operations begin, the employer shall ascertain whether any hazardous cargo is to be handled and shall determine the nature of the hazard. The employer shall inform employees of the nature of any hazard and any special precautions to be taken to prevent employee exposure, and shall instruct employees to notify the employer of any leaks or spills.

(2) All hazardous cargo shall be slung and secured so that neither the draft nor individual packages can fall as a result of tipping the draft or slackening of the supporting gear.

(3) If hazardous cargo is spilled or if its packaging leaks, employees shall be removed from the affected area until the employer has ascertained the specific hazards, provided any equipment, clothing, ventilation and fire protection equipment necessary to eliminate or protect against the hazard. Cleanup employees shall be instructed as to the safe method of cleaning up and disposing of the spill, and handling and disposing of leaking containers. Actual cleanup or disposal work shall be conducted under the supervision of a designated person.

(4) The Department of Transportation and the United States Coast Guard impose requirements related to handling, storing and transportation of hazardous cargo (see 33 CFR Part 126, 46 CFR, 49 CFR).

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60049, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60049, filed 12/11/84.]

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

(1) 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, shall be thoroughly informed by the employer of the explosive or hazardous nature of the cargo.

(2) In 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 shall be deemed proper and safe methods of operation.

(3) Handling of breakage. If breakage should occur while handling explosives or other hazardous materials, the foreman shall order the work in the immediate area to cease until the hazard has been removed. It shall be the responsibility of the employer to use a safe method of handling such breakage and placing it in a remote, safe location.

(4) No smoking. All workers supervising or engaged in the handling, hoisting, stowing of explosives, combustible oxidizing materials or flammable materials shall smoke only in designated areas. No person shall smoke within one hundred feet of any location where such materials are handled or stored.

(5) Loading chute. In chuting packaged explosives, care must be exercised to ensure that one package is taken from the mat before starting another. Each package shall be completely removed from the mat before another is placed on the chute.

(6) Specifications for chutes. In the loading of explosive merchandise in package form where chutes are used, the chutes shall be constructed only of wood. All fastenings shall be of wooden pins, dowelings, or pegs. Metal fastenings may be used, provided they are countersunk.

WAC 296-56-60051 (Cont.)

(7) Mattress landing buffer. The bottoms of the chutes shall be provided with a stuffed mattress not less than four inches thick and of sufficient width and length to allow for safe landing of packages.

(8) 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.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60051, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60051, filed 12/11/84.]

WAC 296-56-60053 Hazardous atmospheres and substances.

(1) Purpose and scope. This section covers areas where a hazardous atmosphere or substance may exist, except where one or more of the following sections apply: WAC 296-56-60049 Hazardous cargo; WAC 296-56-60051 Handling explosives or hazardous materials; WAC 296-56-60055 Carbon monoxide; WAC 296-56-60057 Fumigants, pesticides, insecticides and hazardous preservatives; WAC 296-56-60107 Terminal facilities handling menhaden and similar species of fish; WAC 296-56-60235 Welding, cutting and heating (hot work); and WAC 296-56-60237 Spray painting.

(2) Determination of hazard.

(a) Whenever a room, building, vehicle, railcar or other space contains or has contained a hazardous atmosphere, a designated and appropriately equipped person shall test the atmosphere before entry to determine whether a hazardous atmosphere exists.

(b) Records of results of any tests required by this section shall be maintained for at least thirty days.

(3) Testing during ventilation. When mechanical ventilation is used to maintain a safe atmosphere, tests shall be made by a designated person to ensure that the atmosphere is not hazardous.

(4) Entry into hazardous atmospheres. Only designated persons shall enter hazardous atmospheres. The following provisions shall apply:

(a) Persons entering a space containing a hazardous atmosphere shall be protected by respiratory and emergency protective equipment meeting the requirements of chapter 296-842 WAC;

(b) Persons entering a space containing a hazardous atmosphere shall 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, shall continuously monitor the activity of employees within such space; and

(c) Except for emergency or rescue operations, employees shall not enter into any atmosphere which has been identified as flammable or oxygen deficient (less than nineteen and one-half percent oxygen). Persons who may be required to enter flammable or oxygen deficient atmospheres in emergency operations shall be instructed in the dangers attendant to those atmospheres and instructed in the use of self-contained breathing apparatus, which shall be utilized.

(d) To prevent inadvertent employee entry into spaces that have been identified as having hazardous, flammable or oxygen deficient atmospheres, appropriate warning signs or equivalent means shall be posted at all means of access to those spaces.

(5) When the packaging of asbestos cargo leaks, spillage shall be cleaned up by designated employees protected from the harmful effects of asbestos as required by WAC 296-62-07517 and chapter 296-65 WAC.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60053, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.19.010, .040, .050. 99-10 (Order 98-10), § 296-56-60053, filed 05/04/99, effective 09/01/99. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60053, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60053, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60053, filed 12/11/84.]

WAC 296-56-60055 Carbon monoxide.

(1) Exposure limits. The carbon monoxide content of the atmosphere in a room, building, vehicle, railcar or any enclosed space shall be maintained below fifty parts per million (0.005%) as an eight-hour time-weighted average. Employees shall be removed from the enclosed space if the carbon monoxide concentration exceeds one hundred parts per million (0.01%).

(2) Testing. Tests to determine carbon monoxide concentration shall be made whenever necessary to ensure that employee exposure does not exceed the limits specified in subsection (1) of this section.

(3) Instrumentation. Tests for carbon monoxide concentration shall be made by designated persons using gas detector tube units certified by NIOSH under 30 CFR Part 11 or other measuring instruments whose accuracy is as great or greater.

(4) Records. A record of the date, time, location and result of carbon monoxide tests shall be available for at least thirty days.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60055, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60055, filed 12/11/84.]

WAC 296-56-60057 Fumigants, pesticides, insecticides and hazardous preservatives (see also WAC 296-56-60049, 296-56-60051 and WAC 296-62-60053.

(1) Whenever cargo in a space is or has been stowed, handled, or treated with a fumigant, pesticide, insecticide, or hazardous preservative, a determination shall be made as to whether a hazardous atmosphere is present in the space. Only employees protected as required in subsection (5) of this section shall enter the space if it is hazardous.

(2) Tests to determine the atmospheric concentration of chemicals used to treat cargo shall be:

(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) Results of any tests shall be available for at least thirty days.

(4) Chemicals shall only be applied to cargoes by designated persons.

(5) Only designated persons shall enter hazardous atmospheres. Whenever a hazardous atmosphere is entered the following provisions apply.

(a) Persons entering a space containing a hazardous atmosphere shall 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 shall 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, shall continuously monitor the activity of employees within such a space.

(6) Signs shall be clearly posted where fumigants, pesticides or hazardous preservatives have created a hazardous atmosphere. These signs shall 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.

WAC 296-56-60057 (Cont.)

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

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60057, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60057. filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60057, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60057, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60057, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60057, filed 12/11/84.]

PART D

Reserved.

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CARGO HANDLING GEAR AND EQUIPMENT

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WAC 296-56-60071 House falls.

(1) Span beams shall be secured to prevent accidental dislodgment.

(2) A safe means of access shall be provided for employees working with house fall blocks.

(3) Designated employees shall inspect chains, links, shackles, swivels, blocks and other loose gear used in house fall operations before each day's use. Defective gear shall not be used.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60071, filed 12/11/84.]

WAC 296-56-60073 Miscellaneous auxiliary gear.

(1) Routine inspection.

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

(b) All loose gear shall be inspected by the employer or his/her authorized representative before each use and, when necessary, at intervals during its use, to ensure that it is safe. Any gear which is found upon inspection to be unsafe shall not be used until it is made safe.

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

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

(2) The employer shall maintain a record of the dates and results of the tests with each unit of gear concerned clearly identified. The records shall be available for examination by division of consultation and compliance personnel and the employee safety committee.

(3) Wire rope and wire rope slings.

(a) The employer shall ascertain and adhere to the manufacturer's recommended ratings for wire rope and wire rope slings and shall have such ratings available at the terminal. When the manufacturer is unable to supply such ratings, the employer shall 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 shall 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 shall 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;

WAC 296-56-60073 (Cont.)

(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 (4 x 29) wire rope shall not be used in any running rigging.

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

(e) Where wire rope clips are used to form eyes, the employer shall adhere to the manufacturer's recommendations, which shall be available at the terminal. If “U” bolt clips are used and the manufacturer's recommendations are not available, Table C-1 shall be used to determine the number and spacing of clips. “U” bolts shall 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
Inches (cm)	Drop Forged	Other Material	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 shall not be secured by knots.

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

(h) Eye splices in wire ropes shall 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.

WAC 296-56-60073 (Cont.)

(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 bulling cargo, shall consist of one continuous piece without knot or splice.

(4) Natural fiber rope.

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

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

(5) Synthetic rope.

(a) The employer shall adhere to the manufacturer's ratings and use recommendations for the specific synthetic fiber rope used and shall 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 shall be of equal size. Where substituted for manila rope of three inches or more in circumference, the size of the synthetic rope shall be determined from the formula:

$$C=/.6(C_s^2)+.4(C_m^2)$$

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 shall be ascertained that the inherent characteristics of the synthetic fiber are suitable for hoisting.

(6) Removal of natural and synthetic rope from service. Natural or synthetic rope having any of the following defects shall be removed 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.

WAC 296-56-60073 (Cont.)

(7) Thimbles. Properly fitting thimbles shall be used where any rope is secured permanently to a ring, shackle or attachment, where practical.

(8) 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) shall not be used to hoist loads in excess of the sling's rated capacity.

(b) Synthetic web slings shall 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 shall not be returned to service unless repaired by a sling manufacturer or similar entity. Each repaired sling shall be proof tested by the repairer to twice the slings' rated capacity prior to its return to service. The employer shall retain a certificate of the proof test and make it available for examination.

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

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

(9) Chains and chain slings used for hoisting.

(a) The employer shall 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 shall have such ratings available. When the manufacturer is unable to provide such ratings, the employer shall 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 shall not be used for slinging or hoisting.

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

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

WAC 296-56-60073 (Cont.)

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

(iv) Chain slings shall 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.

(v) Only designated persons shall 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 shall only be repaired under qualified supervision. Links or portions of chain defective under any of the criteria of WAC 296-56-60073 (9)(c) shall 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 shall be tested to the proof test load recommended by the manufacturer for the original chain. Tests shall be performed by the manufacturer or shall be certified by an agency accredited for the purpose under WAC 296-56-60093. Test certificates shall be available at the terminal.

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

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

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

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

(10) Shackles.

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

WAC 296-56-60073 (Cont.)

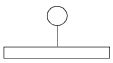
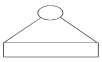
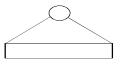
(b) Screw pin shackles used aloft in house fall or other gear, except in cargo hook assemblies, shall have their pins moused or otherwise effectively secured.

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 shall 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 shall be followed, however, a safety factor of not less than five shall be maintained.

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

Circum-Ference	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
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

WAC 296-56-60073 (Cont.)

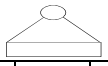
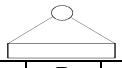
In making such a substitution it should be ascertained that the inherent characteristics of the synthetic fiber are suitable for the intended service of the rope.

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 SLINGS (IN TONS OF 2,000 POUNDS)

	Two-leg bridle or basket hitch											
Rope dia. inches	Vertical			60 Degree			45Degree 			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.

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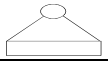
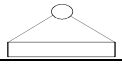
TABLE G-4 RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE, AND WIRE ROPE SLINGS (IN TONS OF 2,000 POUNDS)

Rope Diameter Inches	Single Leg					
	Vertical			Choker		
	A	B	C	A	B	C
6 x 19 Classification						
1/4"	.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

(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)

	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"	1.1	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.

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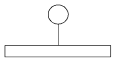
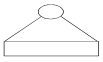
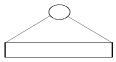
TABLE G-6 ALLOY STEEL CHAIN
(In Tons of 2,000 Pounds)

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
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) Hooks other than hand hooks.

(a) The manufacturer's recommendations shall 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 shall be tested to twice the intended safe working load before they are initially put into use. The employer shall maintain a record of the dates and results of such tests.

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

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

(d) Crane hooks. Magnetic particle or other suitable crack detecting inspection shall 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, shall apply.

(e) Any activity which involves the use of radioactive materials or x-rays, whether or not under license from the Nuclear Regulatory Commission, shall 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, shall perform such work.

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

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

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(12) Pallets.

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

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

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

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

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

(f) Pallets shall 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 shall not be re-used for hoisting.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60073, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296.-056-60073,filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60073, filed 1/18/95, effective 3/1/95. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60073, filed 10/30/92, effective 12/8/92. Statutory Authority: Chapter 49.17 RCW. 91-11-070 (Order 91-01), § 296-56-60073, filed 5/20/91, effective 6/20/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60073, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60073, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60073, filed 12/11/84.]

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

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

(2) All pallets and cargo boards shall be of such material and construction as to safely support and carry loads being handled.

(3) All cargo boards shall be sheathed (decked) top and bottom with the top sheathing being of two-inch lumber and extending at least six inches beyond the end stringers.

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

(5) Pallet boards, other than cargo boards, may be hoisted if safe means are provided for the type of board used.

(6) Loaded cargo or pallet boards which do not meet the requirements of this section shall be 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.

WAC 296-56-60075 (Cont.)

(7) Cargo boards which are not loaded and secured so that the load will not tip or fall shall not be hoisted.

(8) Bridles used to handle flush-end or box-type pallets shall be of such a design as 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 continue. The department of labor and industries recommends the use of the two lip cargo board.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60075, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60075, filed 12/11/84.]

WAC 296-56-60077 Powered industrial trucks.

(1) Applicability. This section applies to every type of powered industrial truck used for material or equipment handling within a marine terminal. Employers must comply with the provisions of WAC 296-24-230 and this section. It does not apply to over-the-road vehicles.

(2) General.

(a) Modifications, such as adding counterweights, that might affect the vehicle's capacity or safety shall 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 shall be changed to conform to the equipment as modified.

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

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

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

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

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

(g) Drivers shall ascend and descend grades slowly.

(h) Drivers shall slow down and sound the horn at crossaisles and other locations where visibility is obstructed.

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

(j) Steering knobs shall 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 shall be provided to enable the operator to determine that the cargo has been engaged.

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

(3) Maintenance.

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

(b) Batteries on all powered trucks shall 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 shall be safely discharged before work on the primary electrical system begins.

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

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

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

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

(4) Approved trucks.

(a) **"Approved power-operated industrial truck"** means one listed or approved for the intended use by a nationally recognized testing laboratory.

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

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

(5) Duties of operator.

(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.

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(b) Unobstructed view. When traveling, power-propelled vehicles shall 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 shall be directed in travel, by a person designated to do so.

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

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

(e) Moving highway trailers. In all cargo operations involving the use of highway trailers, trailers shall be moved in such a manner that the moving trailer is completely under control at all times. Special caution shall be exercised when such trailers are moving on inclines. Trailers shall be loaded in a manner, which will prevent the cargo from shifting, and the load in the trailer shall be evenly distributed so as not to cause the trailer to tip to one side.

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

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

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

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

(6) Vehicle equipment and maintenance.

(a) Horns and lights. All power-propelled vehicles shall 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 shall be equipped with a light or lights directed in the direction of travel in order to safely travel about the area.

(c) Guards on operator's platform. Every power truck operated from an end platform or standing position shall 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) Seat cushions. All vehicles having a driver's seat shall be provided with resilient seat cushions fixed in place.

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

WAC 296-56-60077 (Cont.)

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

(g) Ventilation where internal combustion vehicles are used. 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 shall 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) Cargo truck couplings. Couplings installed on cargo trucks (four-wheelers) shall be of a type, which will prevent accidental disengaging.

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

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

(m) Air line hook-up. Tractors hauling heavy duty highway trailers shall have an airline brake hook-up.

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

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

(7) Forklift trucks.

(a) Overhead guards.

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

(ii) Overhead guards shall not obstruct the operator's view, and openings in the top of the guard shall 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 shall 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.

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

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

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

(d) Forklift use in gangplank moving. Not less than two forklifts shall 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) Forklift seat covers. Seats on forklifts shall be provided with a removable waterproof cover when they are exposed to the weather.

(f) Raised equipment to be blocked. Workers shall 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 shall be used in conjunction with the jack.

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

(h) Load backrest extensions. Where necessary to protect the operator, forklift trucks shall 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. Forks, fork extensions and other attachments shall be secured so that they cannot be accidentally dislodged, and shall be used only in accordance with the manufacturer's recommendations.

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

(k) Capacities and weights.

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

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

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

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

WAC 296-56-60077 (Cont.)

(ii) The platform shall 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 shall be provided for employees on the platform to shut off power to the vehicle.

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

(v) The platform floor shall be skid resistant.

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

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

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

(8) 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 shall be equipped with operator guards.

(b) Guards and their attachment points shall 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 shall 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) Straddle trucks.

(a) Accessibility. Straddle trucks shall 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 shall be guarded as follows:

(A) The upper sprocket shall be fully enclosed;

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

(C) The drive chain shall 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 shall be fully enclosed and revolving parts which may be contacted by the operator shall be guarded.

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

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

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(10) Trailer-spotting tractors.

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

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

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60077, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-56-60077, filed 12/21/99, effective 03/01/2000. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60077, filed 12/30/98, effective 03/30/99. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60077, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60077, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60077, filed 12/11/84.]

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) Private vehicle parking in marine terminals shall be allowed only in designated areas.

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

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

(5) Stop signs shall be posted 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) Vehicular routes, traffic rules and parking areas shall be established, identified and used.

(7) Vehicle drivers shall warn anyone in traffic lanes of the vehicle's approach.

(8) Signs indicating pedestrian traffic shall be clearly posted at vehicular check-in and checkout lines and similar locations where employees may be working.

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

(10) No unattended vehicle shall be left with its engine running unless secured against movement (see WAC 296-56-60077 for powered industrial trucks).

(11) When the rear of a vehicle is elevated to facilitate loading or discharging, a ramp shall be provided and secured. The vehicle shall be secured against accidental movement during loading or discharging.

(12) Only vehicle floors in safe condition shall be used.

WAC 296-56-60079 (Cont.)

(13) 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 shall be contained to prevent movement.

(14) Vehicles used to transport employees within a terminal shall be maintained in safe working order and safety devices shall not be removed or made inoperable.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60079, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60079, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60079, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60079, filed 12/11/84.]

WAC 296-56-60081 Multipiece and single-piece rim wheels. Servicing of multipiece and single-piece rim wheels in marine terminal and other maritime work locations on large vehicles is regulated by requirements of WAC 296-24-21701.

[Statutory Authority: Chapter 49.17 RCW. 88-14-108 (Order 88-11), § 296-56-60081, filed 7/6/88. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60081, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60081, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60081, filed 12/11/84.]

WAC 296-56-60083 Cranes and derricks.

(1) Scope.

(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 feet (4.88 m) in width).

(2) 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 shall have a durable rating chart visible to the operator, covering the complete range of the manufacturer's (or design) capacity ratings. The rating chart shall 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 shall be included.

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

(c) Designated working loads shall 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 shall be performed or approved by a person accredited for certifying the equipment under WAC 296-56-60093. Cranes shall conform with the manufacturer's specifications or any current ANSI standards that apply. Engineering design analysis shall be performed by a registered professional engineer competent in the field of cranes and derricks. Any structural changes necessitated by the change in rating shall be carried out.

(3) Radius indicator. When the rated load varies with the boom radius, the crane or derrick shall be fitted with a boom angle or radius indicator visible to the operator.

WAC 296-56-60083 (Cont.)

(4) Prohibited usage.

(a) Equipment shall 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 shall be used.

(5) 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 shall be securely guarded.

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

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

(6) General.

(a) Operating controls.

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

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

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

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

(c) Foot pedals. Foot pedals shall have a nonskid surface.

(d) Access. Ladders, stairways, stanchions, grab irons, foot steps or equivalent means shall 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 shall be of rigid construction, and shall be capable of supporting a load of one hundred pounds (4.79 kPa) per square foot.

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

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

WAC 296-56-60083 (Cont.)

(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 shall be posted at the foot of the ladder or stairway. A system of communication (such as a buzzer or bell) shall be established and maintained between the foot of the ladder or stairway and the operator's cab.

(e) Operator's station. The cab, controls, and mechanism of the equipment shall be so arranged that the operator has a clear view of the load or signal person, when one is used. Cab glass, when used, shall be safety plate glass or equivalent and good visibility shall be maintained through the glass. Clothing, tools and equipment shall 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, shall be installed on the operator’s seat of high speed container gantry cranes where the seat trolleys.

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

(h) Outriggers. Outriggers shall be used according to the manufacturer's specifications or design data, which shall be available. Floats, when used, shall be securely attached to the outriggers. Wood blocks or other support shall 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) Exhaust gases. Engine exhaust gases shall be discharged away from the normal position of crane operating personnel.

(j) Electrical equipment shall 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 rating or equivalent shall be accessible in the cab of the crane or derrick.

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

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

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

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

(n) Brakes.

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

WAC 296-56-60083 (Cont.)

(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, shall, in addition to a holding brake, be equipped with a controlled braking means to control lowering speeds.

(iii) Holding brakes for hoist units shall 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 shall be capable of maintaining safe lowering speeds of rated loads.

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

(p) Light fixtures connected to the boom, gantry legs, or machinery house shall 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 shall 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) shall 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 shall 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) Rail-mounted cranes (excluding locomotive types).

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

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

WAC 296-56-60083 (Cont.)

(c) Wind-indicating devices.

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

(ii) The wind indicating device shall provide a visible or audible warning to alert the operator of high wind conditions. That warning shall 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) Instructions. The employer shall post operating instructions for high wind conditions in the operator's cab of each crane. Operators shall be directed to comply with these instructions. The instructions shall 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 shall be stopped; and

(B) The crane shall 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 shall be moved clear of the vessel if safe to do so; and

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

(e) The employer shall monitor local weather conditions by subscribing to a weather service or using equally effective means.

(f) Stops and bumpers.

(i) The ends of all tracks shall be equipped with stops or bumpers. If a stop engages the tread of the wheel, it shall 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 shall 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 shall be equipped with personnel-deflecting guards.

WAC 296-56-60083 (Cont.)

(h) Pedestrian clearance. If the track area is used for employee passage or for work, a minimum clearance of three feet (0.91 m) shall 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 shall not be used and shall be marked and identified.

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

(j) Communications.

(i) Means of communication shall 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 ton and above capacity shall be equipped with a voice hailing device (PA system) from the operator to the ground, audible within one hundred feet.

(k) Limit switch bypass systems shall be secured during all cargo operations. Such bypass systems shall 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 shall be done only under the direction of a crane mechanic.

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

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

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

(i) No draft shall 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 shall be provided with tag lines.

(p) Landing loads. Persons assisting in landing a load shall 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) Stabilizing of locomotive cranes. Loads may be hoisted 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.

WAC 296-56-60083 (Cont.)

(9) Operations.

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

(b) Guarding of swing radius. Accessible areas within the swing radius of the body of a revolving crane shall 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) Securing mobile crane components in transit. The crane's superstructure and boom shall 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 shall be secured.

(d) Unattended cranes. The following steps shall be taken before leaving a crane unattended between work periods:

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

(ii) Clutches shall be disengaged;

(iii) The power supply shall be shut off;

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

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

(e) Operating near electric power lines.

(i) Clearance. 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 following:

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

(B) For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall 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 feet; and

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

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

WAC 296-56-60083 (Cont.)

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

(10) Protection for employees being hoisted.

(a) No employee shall be 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 shall 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 shall 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 shall 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 shall be so constructed or secured as to prevent accidental boom movement.

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

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

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

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

WAC 296-56-60083 (Cont.)

(h) When intermodal container spreaders are used to transfer employees to or from the tops of containers, the spreaders shall be equipped with a personnel platform equipped with fixed railings, provided that the railings have one or more openings for access. The openings shall be fitted with a means of closure, such as chains with hooks. Existing railings shall be at least thirty-six inches (0.91 m) in height. New railings installed after October 3, 1983 shall be forty-two 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 shall be used.

(j) Employees shall not be hoisted on intermodal container spreaders while a load is engaged.

(11) Routine inspection.

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

(b) A designated person shall 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 shall be corrected before further use. Repairs shall be performed only by designated persons.

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

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60083, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60083, filed 12/30/98, effective 03/30/99.] Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60083, filed 1/18/95, effective 3/1/95. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60083, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60083, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60083, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60083, filed 12/11/84.]

WAC 296-56-60085 Crane load and limit devices.

(1) Except as provided in subsection (8) of this section, every crane shall be fitted with a load indicating device or alternative device in proper working condition.

The type or model or any load indicating or alternate device which is used shall 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 shall 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) Accuracy of the devices required by this section shall 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 percent of the actual true total load (five percent overload) to one hundred ten percent of the actual true total load (ten percent underload). Such accuracy shall be required over the range of the daily operating variables to be expected under the conditions of use.

WAC 296-56-60085 (Cont.)

(3) The device shall permit 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, shall 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) 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 shall not be the limiting factor of the supporting system (crane structure).

(5) Marking shall be 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 shall 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 shall 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 shall be readily visible to the operator.

(6) All load-indicating devices shall be operative over the full operating radius. Overall accuracy shall 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 percent, it would accept a reading between ninety thousand and one hundred ten thousand pounds, at full capacity of a machine with one hundred thousand pounds, maximum rating, but would also allow a reading between zero and twenty thousand pounds, at that outreach (radius) at which the rating would be ten thousand 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 pound load but becomes a figure between nine thousand and eleven thousand pounds, a much different and acceptable condition, at the ten thousand pound load.*

(7) 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) shall be a figure which is within the range of a figure no greater than one hundred ten percent of the actual radius to a figure which is no less than ninety-seven percent of the actual (true) radius. A conversion chart shall 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 clamshell bucket or magnet;

WAC 296-56-60085 (Cont.)

(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 pounds, and when eleven thousand two hundred 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) Limit switches shall be installed 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 shall be tested prior to or at the beginning of each shift to determine if they are functioning properly. Any malfunction shall be reported to the person in charge immediately and shall be repaired prior to use.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60085, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60085, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60085, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60085, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60085, filed 12/11/84.]

WAC 296-56-60087 Winches.

(1) Moving winch parts which present hazards to employees shall be guarded.

(2) Winches shall have clearly identifiable and readily accessible stop controls.

(3) Portable winches shall be secured against accidental shifting while in use.

(4) Portable winches shall be fitted with limit switches if employees have access to areas from which it is possible to be drawn into the winch.

(5) The provisions of WAC 296-56-60083 (6)(1) apply to winches.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60087, filed 12/30/98, effective 03/30/99. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60087, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60087, filed 12/11/84.]

WAC 296-56-60089 Conveyors.

(1) Guards.

(a) Danger zones at or adjacent to conveyors shall be guarded to protect employees.

(b) An elevated walkway with guardrail or equivalent means of protection shall be provided where employees cross over moving conveyors. Suitable guarding shall be provided when employees pass under moving conveyors.

(2) Moving parts. Conveyor rollers and wheels shall be secured in position.

(3) Positioning. Gravity conveyor sections shall be firmly placed and secured to prevent them from falling.

WAC 296-56-60089 (Cont.)

(4) Braking.

(a) When necessary for safe operation, provisions shall be made for braking objects at the delivery end of the conveyor.

(b) Conveyors using electrically released brakes shall be constructed so that the brakes cannot be released until power is applied, and the brakes are automatically engaged if the power fails or the operating control is returned to the "stop" position.

(5) Stability. Portable conveyors shall be stable within their operating ranges. When used at variable fixed levels, the unit shall be secured at the operating level.

(6) Emergency stop devices. Readily accessible stop controls shall be provided for use in an emergency whenever employees are required to walk or work in the vicinity of the conveyor. The emergency stop device shall be available within easy reach from any position on or adjacent to the conveyor.

(7) Starting powered conveyors. Powered conveyors shall not be started until all employees are clear of the conveyor or have been warned that the conveyor is about to start.

(8) Loading and unloading. The area around conveyor loading and unloading points shall be kept clear of obstructions during conveyor operations.

(9) Lockout/tagout.

(a) Conveyors shall be stopped and their power sources locked out and tagged out during maintenance, repair, and servicing, unless power is necessary for testing.

(b) The starting device shall be locked out and tagged out in the stop position before an attempt is made to remove the cause of a jam or overload of the conveying medium, unless it is necessary to have the power on to remove the jam.

(10) Chutes, gravity conveyors and rollers.

(a) Chutes used in the manual handling of cargo shall be adequate for the use to which they are put and shall be kept free of splinters and sharp edges.

(b) Chutes shall be equipped with sideboards of sufficient height to prevent cargo from falling off.

(c) Chutes and gravity roller sections shall be firmly placed or secured to prevent displacement.

(d) Gravity rollers shall be of sufficient strength for the weight of material, which is placed upon them. Rollers shall be locked in position to prevent them from falling or jumping out of the frame.

(e) Frames shall be kept free of burrs and sharp edges.

(f) When necessary, provision shall be made for braking objects at the delivery end of the roller or chute.

(11) Safe practices.

(a) Only designated persons shall operate, repair or service powered conveyors.

WAC 296-56-60089 (Cont.)

(b) The employer shall direct employees to stay off operating conveyors.

(c) Conveyors shall be operated only with all overload devices, guards and safety devices in place and functional.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60089, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60089, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60089, filed 12/11/84.]

WAC 296-56-60091 Spouts, chutes, hoppers, bins, and associated equipment.

(1) Standing and running rigging and associated gear used as a permanent part of spouts, chutes or similar devices shall be inspected before each use and shall not be used if it has any functional defects. (See WAC 296-56-60093 for certification requirements.)

(2) Direct communication shall be provided between the discharge or shipboard control end of loading spouts or chutes, and the point in the terminal from which the flow of cargo is controlled.

(3) Chute and hopper openings which present a hazard shall be guarded to prevent employees from falling through.

(4) When employees are working on hoppers, the hopper shall be equipped with a safe walkway and safe means of access.

(5) When necessary for the safety of employees, chutes shall be equipped with sideboards to afford protection from falling objects.

(6) Chutes shall be firmly placed and secured to prevent them from falling.

(7) When necessary for the safety of employees, provisions shall be made for braking objects other than bulk commodities at the delivery end of the chute.

(8) Before an employee enters an empty bin:

(a) Personnel controlling the flow of cargo into the bin shall be notified of the entry; and

(b) The power supply to the equipment carrying the cargo to the bin shall be turned off, locked out and tagged.

(9) Before an employee enters a bin containing a bulk commodity such as coal or sugar, the employer shall ensure that:

(a) Personnel controlling the flow of cargo into the bin shall be notified of the entry;

(b) The power supply to the equipment carrying the cargo to the bin shall be turned off, locked out and tagged;

(c) The employee entering the bin shall wear a life-line and safety harness; and

(d) A standby attendant equipped to perform a rescue shall be continuously stationed outside the bin until the employee has left the bin.

WAC 296-56-60091 (Cont.)

(10) Bin top openings that present a hazard to employees shall be covered to prevent employees from falling into bins.

(11) Chutes and hoppers shall be repaired only by designated persons.

(12) (a) Before power shoveling operations begin, a designated person shall inspect the equipment to be used. The inspection shall include at least the eye bolts, wires, and sheaves.

(b) Power shovels and associated equipment with defects affecting safe operation shall not be used.

(c) Before adjustments are made to a power shovel, wire, or associated equipment, the power supply to the shovel shall be turned off, locked out, and tagged, the belt stopped, and the hopper closed.

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60091, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60091, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60091, filed 12/11/84.]

WAC 296-56-60093 Certification of marine terminal material handling devices.

(1) The employer shall not use any material handling device listed in WAC 296-56-60098(8) until he/she has 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) Certification surveys are to be 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) Inspection and test certificates shall be issued only for that equipment which meets or exceeds the requirements specified in these rules. All inspection and test certificates shall be issued through the office of the assistant director of the division of consultation and compliance, department of labor and industries, and shall be valid for a period not to exceed one year from the date of issuance.

(5) Equipment requiring certification shall be inspected by individuals who have received a “certificate of competency” from the assistant director, division of WISHA services indicating that they are qualified and capable of performing such work.

(6) When deficiencies are found they shall be noted on forms provided for such purpose by the division of consultation and compliance. Copies shall be delivered to the owner of the equipment and the division of consultation and compliance at the headquarters office by the person conducting such tests or inspections.

(7) A certificate of unit test or examination of equipment shall not be issued for any equipment found not to be in compliance with the provisions of this chapter.

WAC 296-56-60093 (Cont.)

(8) Persons desiring a "certificate of competency" shall demonstrate and document their capabilities and qualifications to the assistant director of the division of consultation and compliance, 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" shall be issued for a period of not more than three years. Applications for renewal may be made not more than sixty days prior to the expiration date shown on the certificate.

(9) The assistant director of the division of consultation and compliance or his/her 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) Unless otherwise exempted, all cranes or derricks required to be certificated by these regulations shall have a current test certificate posted in the operator's cab or station. No person shall operate such crane or derrick unless a current valid certificate is posted.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60093, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60093, filed 1/18/95, effective 3/1/95. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60093, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60093, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60093, filed 12/11/84.]

WAC 296-56-60095 Advisory crane certification panel.

(1) Any person desiring a certificate of competency for crane inspection or certification shall make application to the assistant director of the division of consultation and compliance for the certificate of competency. The application shall 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 shall assist the assistant director of the division of consultation and compliance in his/her duties under this chapter. The panel shall consist of six members. Two members shall represent labor, two members shall represent management, and one member shall be a crane expert. The sixth member shall be chair of the panel. He/she shall be the assistant director of consultation and compliance or his/her designee. The panel shall be responsible for advising the assistant director as to the issuance of any certificate of competency. The panel shall review all applications for certificates of competency. Minutes of meetings shall be kept.

(3) In addition, the panel shall, upon request by the assistant director, render advice concerning any matter which is relevant to crane safety. The panel shall 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 shall serve voluntarily.

[Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60095, filed 1/18/95, effective 3/1/95. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60095, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60095, filed 12/11/84.]

WAC 296-56-60097 Unit proof load test and inspection. Cranes and derricks shall be proof load tested, rated and certified in tons (2,000 lbs. = 1 ton). Cranes and derricks shall be inspected and unit proof load tested prior to being put into use, after any significant modification or repairs of structural parts, or when deemed necessary by the assistant director of consultation and compliance or his/her designee. However, each crane or derrick shall be unit proof load tested at least once during each twelve-month period. Unit proof load tests shall be carried out by the use of weights as a dead load. When use of weights for unit proof load tests is not possible or reasonable a dynamometer or other recording test equipment may be used. Such equipment shall be tested for accuracy with certified calibrating equipment within twelve months prior to being used and a copy of the certified calibration test shall be made available to authorized representatives of the division of consultation and compliance upon request.

WAC 296-56-60097 (Cont.)

The weight of the objects used for a dead load weight test shall be certified and a record of the weight shall be made available upon request. Any replacements or repairs deemed necessary by the person conducting a test shall be carried out before application of the required proof load unit test.

(1) The proof load tests for derricks shall be conducted as follows:

Safe Working Load	Proof Load
to 20 tons	25% in excess
20-50 tons	5 tons in excess
Over 50 tons	10% in excess of manufacturer's recommended lifting capacity.

Proof load shall be applied at the designed maximum and minimum boom angles or radii, or if this is impractical, as close to these as practical. The angles or radii of test shall be stated in the certificate of test. Proof loads shall be swung as far as possible in all directions. The weight of auxiliary handling devices such as spreader bars, robots, clams, magnets, or other gear shall be considered a part of the load. Brakes shall be tested by holding the proof load suspended without other mechanical assistance. After satisfactory completion of a unit proof load test the derrick and all component parts thereof shall be carefully examined and nondestructive tests may be conducted to assure that the equipment is safe for use and has not been damaged in the unit proof load testing process.

(2) Unit proof load tests for cranes shall be carried out with the boom in the least stable direction relative to the mounting, based on the manufacturer's specifications.

Unit proof load tests for cranes shall be based on the manufacturer's load ratings for the conditions of use and shall, except in the case of bridge type cranes utilizing a trolley, consist of application of a proof load of ten percent in excess of the load ratings at maximum and minimum radius, and at such intermediate radii as the certifying authority may deem necessary in the circumstances. (The manufacturer's load ratings are usually based upon percentage of tipping loads under some conditions and upon limitations of structural competence at others, as well as on other criteria such as type of crane mounting, whether or not outriggers are used, etc. Some cranes utilizing a trolley may have only one load rating assigned and applicable at any outreach. It is important that the manufacturer's ratings be used.) Trolley equipped cranes shall be subject to a proof load of twenty-five percent in excess of the manufacturer's load rating. In cases of foreign manufacture, the manufacturer's specifications shall be subject to approval by the certifying authority. The weight of all auxiliary handling devices such as magnets, hooks, slings, and clamshell buckets shall be considered part of the load.

(3) If the operation in which equipment is engaged never utilizes more than a fraction of the safe working load rating, the owner of the equipment may, at his/her option, have the crane or derrick certified for and operated at a lesser maximum safe working load in keeping with the use and based on radius and other pertinent factors, however, the equipment concerned shall be physically capable of operation at the original load rating and the load reduction shall not be for the purpose of avoiding correction of any deficiency.

(4) Safe working load ratings shall not be increased beyond the manufacturer's ratings or original design limitations without prior approval by the accredited certification agency. Such prior approval shall be based on the manufacturer's approval of such increase or documented engineering design analysis or both. All necessary structural changes shall be completed prior to approval by the accredited certification agency.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60097, filed 12/30/98, effective 03/30/99.] Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60097, filed 1/18/95, effective 3/1/95. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60097, filed 1/17/86. (Order 84-24), § 296-56-60097, filed 12/11/84.]

WAC 296-56-60098 Examination and inspection of cranes and derricks.

(1) An examination shall be carried out in conjunction with each annual unit proof load test. The accredited person, or their authorized representative, shall make a determination as to correction of deficiencies found. The examination shall include the following: (Refer to WAC 296-56-60093(8) for definition of accredited person.)

(a) All functional operating mechanisms shall be examined for improper function, maladjustment, and excessive component wear, with particular attention to sheaves, pins, and drums. The examinations shall include operation with partial load, in which all functions and movements, including maximum possible rotation in both directions, are checked.

(b) All safety devices shall be examined for malfunction.

(c) Lines, tanks, valves, drains, pumps, and other parts of air or hydraulic systems shall be examined for deterioration or leakage.

(d) Rope reeving shall comply with the manufacturer's recommendations.

(e) Deformed, cracked, or excessively corroded members in crane structure and boom shall be repaired or replaced as necessary.

(f) Loose bolts, rivets, or other connections shall be corrected.

(g) Worn, cracked, or distorted parts affecting safe operation shall be corrected.

(h) All brakes, used to control the load, boom or travel of the crane, shall be tested. Air, hydraulic, or electrically operated brakes shall be of such design as to set and stop the load if the source of power fails.

(i) Brake and clutch system parts, linings, pawls, and ratchets shall be examined for excessive wear and free operation.

(j) Load, boom angle, or other indicators shall be checked over their full range. Defects in such indicators shall be immediately corrected.

(k) Where used, clamshell buckets or other similar equipment, such as magnets, shall be carefully examined in all respects, with particular attention to closing line wires and sheaves. The accredited person may supplement such examination by requesting any operational tests deemed appropriate.

(l) Careful examination of the junction areas of removable boom sections, particularly for proper seating, cracks, deformities, or other defects in securing bolts and in the vicinity of such bolts, shall be made.

(m) All platforms, steps and footwalks located on cranes where workers are exposed to the hazard of slipping shall be of a nonslip material. Wire rope used for railings on cranes shall be kept taut at all times.

Note: In critical areas such as footwalks along booms, a grating material should be used.

(n) No counterweights in excess weight of the manufacturer's specifications shall be fitted or used.

WAC 296-56-60098 (Cont.)

(o) Such other examination or supplemental functional tests shall be made as may be deemed necessary by the accredited person under the circumstances.

(2) Wire rope.

(a) All wire rope shall be inspected at least once a month, dependent upon conditions to which the wire ropes are subjected, and at intervals not exceeding a twelve-month period. Records of inspection of wire rope shall be kept and shall be available to the department of labor and industries representative. Records shall be kept for one year. Refer to the general safety and health standards, WAC 296-24-24013.

(b) Wire rope shall not be used if in any length of eight diameters, the total number of visible broken wires exceeds ten percent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect. Particular attention shall be given to the condition of those sections of wire rope adjacent to any terminal connections, those sections exposed to abnormal wear, and those sections not normally exposed for examination.

(c) Documentation available for inspection shall include wire rope test certificates relating to any replacements made since the last unit test or annual examination as required.

(d) Wire rope and replacement wire rope shall be of the same size, same or better grade, and same construction as originally furnished by the equipment manufacturer or contemplated in the design, unless otherwise recommended by the equipment or wire rope manufacturer due to actual working conditions. In the absence of specific requirements, wire rope shall be of a size and construction suitable for the purpose, and shall have the capacity to handle five times the heaviest expected load, verified by wire rope test certificate.

(e) Wire rope in use on equipment previously constructed and prior to initial certification of said equipment shall not be required to be tested but shall be subject to thorough examination at the time of initial certification of the equipment.

(3) (a) Accessory components. Container spreader bar twist locks shall be carefully examined periodically and at the time of annual examination and inspection. Cracked or deformed hooks shall be discarded immediately and not re-used.

(b) Crane hooks and container spreader bar twist lock. Magnetic particle or other suitable crack detecting inspection shall 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, shall apply.

(4) In the event that heat treatment of any loose gear is recommended by the manufacturer, the latest heat treatment certificate attesting to compliance with the manufacturer's specifications shall be part of the available documentation. Heat treatment shall be carried out in accordance with the specifications of the manufacturer by persons competent to perform such work.

(5) Replacement parts shall be of equal or better quality than the original equipment and suitable for the purpose. Repairs or modifications shall be such as to render the equipment equal to or better than the original construction or design.

(6) In cases of foreign manufactured cranes, there shall be an owner's warranty that the design is adequate for the intended use. The warranty shall be based on a thorough examination of the design specifications by a registered professional engineer familiar with the equipment.

WAC 296-56-60098 (Cont.)

(7) The certifications required by this section shall be performed in accordance with WAC 296-56-60093 by persons accredited by the assistant director of WISHA services.

(8) The marine terminal material handling devices listed below shall be certified in the following manner:

(a) Each crane and derrick shall be tested and examined as a unit annually. A copy of the certificate of tests and examinations shall be posted in the crane operator's cab.

(b) Bulk cargo spouts and suckers, together with any portable extensions and rigging or outriggers supporting them vertically, shall be examined annually. Certificates attesting to the required examination shall be made readily available for inspection.

(c) Vertical pocket or bucket conveyors such as banana, sugar, and grain marine legs (other than those within a grain elevator structure) used within a marine terminal facility shall be examined annually. The annual examination shall include all supporting structures, rigging, mechanical components and observation of all steps of operations. Certificates attesting to the required examinations shall be readily available for inspection.

(d) (i) House fall cargo-handling gear shall be proof load tested as a unit upon initial certification and every fourth year thereafter. An examination shall be carried out in conjunction with each unit proof load test and annually thereafter. The unit test shall consist of a proof load of twenty-five percent in excess of the rated safe working load. Examinations shall include all supporting structures and components. Certificates attesting to the required tests and examinations shall be readily available for inspection.

(ii) House fall span beams or other house fall block supports shall be marked with the safe working load, which shall not be exceeded.

(e) Special gear.

(i) Special stevedoring gear provided by the employer, the strength of which depends upon components other than commonly used stock items such as shackles, ropes or chains, shall be tested as a unit in accordance with the following table before initially being put into use (see Table A). In addition, any special stevedoring gear that suffers damage necessitating structural repair shall be inspected and retested after repair and before being returned to service.

Table A

Safe Working Load	Proof Load
Up to 20 short tons	25 percent in excess
Over 20 to 50 short tons	5 short tons in excess
Over 50 short tons	10 percent in excess

(ii) Special stevedoring gear provided by the employer that has a SWL of five short tons (10,000 or 4.54 metric tons) or less shall be inspected and tested as a unit before initial use according to (d) and (e) of this subsection or by a designated person (see Table A).

(iii) Every spreader not a part of ship's gear and used for hoisting intermodal containers shall be tested to a proof load equal to twenty-five percent in excess of its rated capacity. Additionally, any spreader which suffers damage necessitating structural repair shall be retested after repair and before being returned to service.

WAC 296-56-60098 (Cont.)

(iv) Certificates attesting to the required tests shall be available for inspection.

(v) All cargo handling gear covered by this section with a SWL greater than five short tons (10,000 lbs. or 4.54 metric tons) shall be proof load tested according to Table A every four years in accordance with subsection (7) of this section or by a designated person.

(f) Wire rope and loose gear used for material handling shall be tested and certified before being placed into use in accordance with the provisions of WAC 296-56-60097. Certificates attesting to the required tests, inspections and examinations shall be available.

(9) Disassembly and reassembly of equipment does not require recertification of the equipment provided that the equipment is reassembled and used in a manner consistent with its certification.

(10) Equipment certified in Washington and transferred to a site in another state does not require recertification in this state upon its return, until the next inspection or examination becomes due as if it had not been moved.

(11) Certification procedures shall not be construed as a substitute for, or cause for elimination of, normal operational inspection and maintenance routine throughout the year.

(12) (a) Every unit of equipment requiring annual certification shall have had such annual certification within the previous twelve months. Equipment requiring annual certification shall have had such annual certification within the previous twelve months, except that no annual certification is required within twelve months after any required certification. Annual examinations for certification may be accomplished up to one month early without effect on subsequent due dates.

(b) When certified equipment is out of service for six months or more beyond the due date of a certification inspection, an examination equivalent to an initial certification, including unit proof load test, shall be performed before the equipment re-enters service.

(13) Loose gear shall bear a legible mark indicating that it has been tested (see WAC 296-56-60097). Single sheave blocks shall be marked with safe working loads and proof test loads. Marks relating to testing shall be identifiable on the related certificates, which shall be available.

(14) The certification requirements of this section do not apply to the following equipment:

(a) Industrial trucks and small industrial crane trucks; and

(b) Any straddle truck not capable of straddling two or more intermodal containers sixteen feet. (4.88 m) in width.

(15) Safe working load.

(a) The safe working load of gear as specified in this section shall not be exceeded.

(b) All cargo handling gear provided by the employer with a safe working load greater than five short tons (10,000 lbs. or 4.54 metric tons) shall have its safe working load plainly marked on it.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60098, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60098, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60098, filed 1/18/95, effective 3/1/95. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60098, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60098, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60098, filed 12/11/84.]

WAC 296-56-60099 Hand tools.

(1) Hand tools used by employees shall be maintained in safe operating condition.

(2) (a) Hand-held portable electric tools shall be equipped with switches that must be manually held in a closed position to operate the tool.

(b) Portable power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc needed to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc needed to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

(3) Only cutting tools shall be used to cut metal strapping or banding used to secure cargo.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-10-004 (Order 85-09), § 296-56-60099, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60099, filed 12/11/84.]

PART F
SPECIALIZED TERMINALS

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WAC 296-56-60101 General. The provisions of this part apply to specialized terminals.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60101, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60101, filed 12/11/84.]

WAC 296-56-60103 Terminals handling intermodal containers or roll-on roll-off operations.

(1) Every intermodal container shall be 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) No container shall be hoisted by any crane or derrick unless the following conditions have been met:

(a) The employer shall ascertain from the carrier whether a container to be hoisted is loaded or empty. Empty containers shall 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 shall be plainly marked so as to be visible to the crane operator, other hoisting equipment operator, signalman, 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, shall 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 shall be weighed to obtain the actual gross weight before being hoisted.

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

(ii) 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 shall be posted conspicuously on the container, with the name of the person making the calculation and the date.

(iii) Container weights shall 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 shall no longer be recognized as true gross weights. Such containers shall not be hoisted unless actual gross weights have been obtained by weighing.

WAC 296-56-60103 (Cont.)

(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 are loaded into the container at the marine terminal.

(f) The weight of loaded inbound containers from foreign ports shall 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 shall meet the accuracy standards of the state or local public authority in which the scale is located.

(3) No container shall be 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) (a) Marked or designated areas shall be set aside within a container or roll-on roll-off terminal for passage of employees to and from active cargo transfer points, except where transportation to and from those points is provided by the employer.

(b) The employer shall direct employees to stay clear of the area beneath a suspended container. Employees shall stay clear of the area beneath a suspended container.

(5) Each employee working in the immediate area of container handling equipment or in the terminal's traffic lanes shall wear a high visibility vest (or equivalent protection).

Note to Subsection (5): High visibility vests or equivalent protection means high visibility/retro-reflective 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 retro-reflective 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 retro-reflective material. Vests or equivalent protection, such as high visibility/retro-reflective coveralls, that are available for industrial use, may also be acceptable.

(6) Containers shall be 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 feet (6.1 m) or more in length shall be hoisted as follows:

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

WAC 296-56-60103 (Cont.)

(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 ladened containers are encountered;

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

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

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

(ii) If hoisted from bottom fittings, the hoisting connections shall bear on the fittings only, making no other contact with the container. The angles of the four bridle legs shall not be less than thirty degrees to the horizontal in the case of forty foot (12.2 m) containers, thirty-seven degrees in the case of thirty foot (9.1 m) containers, or forty-five degrees in the case of twenty 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) (i) When using intermodal container spreaders that employ lanyards for activation of load-disengagement, all possible precautions shall be taken to prevent accidental release of the load.

(ii) Intermodal container spreader twistlock systems shall be designed and used so that a suspended load cannot accidentally be released.

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

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

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

(7) (a) Intermodal containers shall be inspected for defects in structural members or fittings before handling.

(b) Any intermodal container found to be unsafe shall be identified as such, promptly removed from service and repaired before being returned to service.

(8) Containers shall not be hoisted unless all engaged chassis twist locks are released.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60103, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040. 99-02-024 (Order 98-16), § 296-56-60103, filed 12/30/98, effective 03/30/99. [Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60103, filed 10/30/92, effective 12/8/92. Statutory Authority: Chapter 49.17 RCW. 89-11-035 (Order 89-03), § 296-56-60103, filed 5/15/89, effective 6/30/89. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60103, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60103, filed 12/11/84.]

WAC 296-56-60105 Grain elevator terminals. Reserved.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60105, filed 12/11/84.]

WAC 296-56-60107 Terminal facilities handling menhaden and similar species of fish.

(1) (a) Tanks in terminal areas used for receiving or storing bailwater for recirculating into vessel holds in discharging operations shall be opened or ventilated to minimize contamination of water circulated to the vessel. Bailwater tanks shall be thoroughly drained upon completion of each day's operations and shall 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 first be drained, rinsed and tested for hydrogen sulfide and oxygen deficiency. Employees shall not enter the tank when the hydrogen sulfide level exceeds twenty ppm or oxygen content is less than nineteen and one-half percent, except in emergencies.

(c) Tests shall 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) Pipelines and hoses on the dock or terminal used for receiving and circulating used bailwater shall be completely drained upon completion of each day's operation and left open to the air.

(3) 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 shall be 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 shall, in addition to respiratory protective equipment, wear a lifeline and safety harness to facilitate rescue. At least two other employees, similarly equipped, shall be continuously stationed outside the tank to observe and to provide rescue services.

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

(5) Supervisory personnel shall be on hand at dockside to supervise discharging of bailwater from vessels.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60107, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60107, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60107, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60107, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60107, filed 12/11/84.]

PART G
PERSONAL PROTECTION

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WAC 296-56-60109 Eye protection.

(1) (a) When employees perform work hazardous to the eyes, the employer shall provide eye protection equipment marked or labeled as meeting the manufacturing specifications of American National Standards Practice for Occupational and Educational Eye and Face Protection, ANSI Z87.1-1989, and shall direct that it be used.

(b) For employees wearing corrective spectacles, eye protection equipment required by (a) of this subsection shall be of a type which can be worn over spectacles. Prescription ground safety lenses may be substituted if they provide equivalent protection.

(c) For additional requirements covering eye protection against radiant energy, see WAC 296-56-60235(8).

(2) Eye protection equipment shall be maintained in good condition.

(3) Used eye protection equipment shall be cleaned and disinfected before reissuance to another employee.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60109, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60109, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60109, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60109, filed 12/11/84.]

WAC 296-56-60110 Respiratory protection. The respiratory protection requirements of chapter 296-842 WAC, Respirators apply.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60110, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60110, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60110, filed 12/11/84.]

WAC 296-56-60111 Head protection.

(1) Employees exposed to impact, falling or flying objects, or electric shocks or burns shall wear protective hats.

(2) Protective hats shall bear identifying marks or labels indicating compliance with the manufacturing provisions of American National Standard Safety Requirements for Industrial Head Protection, ANSI Z89.1-1986.

(3) Protective hats previously worn shall be cleaned and disinfected before issuance by the employer to another employee.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60111, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60111, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60111, filed 12/11/84.]

WAC 296-56-60113 Foot protection.

(1) The employer shall ensure that each affected employee wears protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects or objects piercing the sole.

(2) Protective shoes shall bear identifying marks or labels indicating compliance with the manufacturing provisions of American National Standard for Men's Safety Toe Footwear, ANSI Z41.1-1991.

(3) The employer shall, through means such as vendors or local stores, make safety shoes readily available to all employees.

[Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60113, filed 12/30/98, effective 03/30/99. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60113, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60113, filed 12/11/84.]

WAC 296-56-60115 Other protective measures.

(1) Protective clothing.

(a) Employees performing work that requires special protective clothing shall be directed by the employer to wear the necessary special protective clothing.

(b) When necessary, protective clothing previously worn shall be cleaned and disinfected before reissuance.

(2) Personal flotation devices.

(a) The employer shall provide, and shall direct the wearing of personal flotation devices for those employees, such as line handlers, who are engaged in work in which they may be pulled into the water:

(i) When such employees are working in isolation: or

(ii) Where physical limitations of available working space creates a hazard of falling into the water; or

(iii) Where the work area is obstructed by cargo or other obstacles so as to prevent employees from obtaining safe footing for their work.

(b) Employees working on, over or along water, where the danger of drowning exists, shall be provided with and shall wear approved personal flotation devices.

(i) Employees are not considered exposed to the danger of drowning when:

(A) Working behind standard height and strength guardrails;

(B) Working inside operating cabs or stations which eliminate the possibility of accidental falling into the water;

(C) Wearing approved safety belts with lifeline attached so as to preclude the possibility of falling into the water.

(ii) Prior to and after each use, personal flotation devices shall be inspected for defects which would reduce their designed effectiveness. Defective personal flotation devices shall not be used.

(iii) To meet the requirement of (b) of this subsection, a personal flotation device shall be approved by the United States Coast Guard as a Type I PFD, Type II PFD, Type III PFD, or Type V PFD, or equivalent, pursuant to 46 CFR 160 (Coast Guard Lifesaving Equipment Specifications) and 33 CFR 175.23 (Coast Guard Table of Devices Equivalent to Personal Flotation Devices). Ski belt or inflatable type personal flotation devices are specifically prohibited.

(c) Life rings.

(i) Along docks, walkways or other fixed installations on or adjacent to open water more than five feet deep, approved life rings with line attached shall be provided. The life rings shall be spaced at intervals not to exceed two hundred feet and shall be kept in easily visible and readily accessible locations.

WAC 296-56-60115 (Cont.)

(ii) When employees are assigned work at other casual locations where exposure to drowning exists, at least one approved life ring with line attached shall be provided in the immediate vicinity of the work.

(iii) Work assigned over water where the vertical drop from an accidental fall exceeds fifty feet, is subject to specific procedures approved by the department.

(iv) Lines attached to life rings shall be at least ninety feet (27.43 m) in length, at least one-quarter inch in diameter and have a minimum breaking strength of five hundred pounds.

(v) Life rings must be United States Coast Guard approved thirty inch size (76.2 cm).

(vi) Life rings and attached lines must be maintained to retain at least seventy-five percent of their designed buoyancy and strength.

(3) Emergency facilities. When employees are exposed to hazardous substances which may require emergency bathing, eye washing or other facilities, the employer shall provide such facilities and maintain them in good working order.

(4) Employers shall instruct employees to report every injury, regardless of severity, to the employer.

(5) Stretchers.

(a) There shall be available for each vessel being worked, one Stokes basket stretcher, or its equivalent, permanently equipped with bridles for attaching to the hoisting gear.

(b) Stretchers shall be kept close to vessels and shall be positioned to avoid damage to the stretcher.

(c) A blanket or other suitable covering shall be available.

(d) Stretchers shall have at least four sets of effective patient restraints in operable condition.

(e) Lifting bridles shall be of adequate strength, capable of lifting 1,000 pounds (454 kg) with a safety factor of five, and shall be maintained in operable condition. Lifting bridles shall be provided for making vertical patient lifts at container berths. Stretchers for vertical lifts shall have foot plates.

(f) Stretchers shall be maintained in operable condition. Struts and braces shall be inspected for damage. Wire mesh shall be secured and have no burrs. Damaged stretchers shall not be used until repaired.

(g) Stretchers in permanent locations shall be mounted to prevent damage and shall be protected from the elements if located out-of-doors. If concealed from view, closures shall be marked to indicate the location of the life saving equipment.

(6) Telephone or equivalent means of communication shall be readily available.

(7) Employees working on any bridge or structure leading to a detached vessel berthing installation shall wear United States Coast Guard approved personal flotation devices except where protected by railings, nets, or safety belts and lifelines.

WAC 296-56-60115 (Cont.)

(8) Life ladders. On all docks there shall be substantial built-in place ladders, spaced at intervals not to exceed four hundred feet, to reach the lowest water use. When portable ladders are to be used, ladders may be bolted to the bullrail or dock structure, or ladders can be secured to an embedded eye bolt in a concrete dock surface. The immediate area where such ladders or fastenings are located shall be painted with a bright color or of a color which contrasts with the surrounding area. There shall be a ladder at each end of the dock.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 04-11-066 (Order 04-07, § 296-56-60115, filed 05/13/04, effective 07/01/04. Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60115, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60115, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60115, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60115, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60115, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60115, filed 12/11/84.]

WAC 296-56-60117 Maintenance and load limits.

(1) The structural integrity of docks, piers, wharves, terminals and working surfaces shall be maintained.

(2) Maximum safe load limits, in pounds per square foot (kilograms per square meter), of floors elevated above ground level, and pier structures over the water shall be conspicuously posted in all cargo areas.

Exception: *Pier structures used primarily for vehicle traffic may be posted in maximum pounds per axle weight.*

(3) Maximum safe load limits shall not be exceeded.

(4) All walking and working surfaces in the terminal area shall be maintained in good repair.

(5) All steel plates, boards, etc., used to temporarily cover small holes or weakened surfaces shall be secured in such a manner as to prevent movement.

(6) All large openings or weakened surfaces shall be barricaded on all exposed sides with barricades equipped with blinkers, flashing lights, or reflectors.

(7) Areas around bitts or cleats where workers perform their duties shall be lighted as required in this section and have a nonslip surface around each bitt or cleat.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60117, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60117, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60117, filed 12/11/84.]

WAC 296-56-60119 Protection from falling. Employees doing maintenance work on cranes, spouts or similar types of equipment, eight feet or more above the ground or surface and not in an area that is protected by any standard safeguards such as walkways with standard railings, or ladders with protective cages, shall wear a safety belt and lanyard which can be attached to the structure.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60119, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60119, filed 12/11/84.]

WAC 296-56-60121 Minimum safety requirements for docks and dock facilities. No provision of this section shall 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) Working prohibited on unsafe docks or dock facilities. Employers shall not allow employees to perform work on docks or dock facilities which the employer should know do not meet the minimum safety requirements of this section.

(2) Known unsafe conditions by employees. Employees shall not work on docks or dock facilities which they should know do not meet the minimum safety requirements of this section.

WAC 296-56-60121 (Cont.)

(3) Bulletin boards. At each dock, pier, warehouse or designated area at the job site, there shall be installed a safety bulletin board.

(4) Posting of notices. It shall be the responsibility of the employer to 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 shall also be posted on or inside the cover of first-aid cabinets and kits.)

(5) Ventilation. All areas where employees are required to work shall be ventilated as required by the "general occupational health standards, chapter 296-62 WAC.

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

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60121, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60121, filed 12/11/84.]

WAC 296-56-60122 Access to vessels.

(1) Access to vessels. The employer shall not permit employees to board or leave any vessel, except a barge or river towboat, until the following requirements have been met:

(a) Whenever practical a gangway of not less than twenty inches wide walking surface of adequate strength, maintained and secured shall be used. If a gangway is not practical a substantial straight ladder, extending at least thirty-six inches above the upper landing surface and adequately secured against shifting or slipping shall be provided. When conditions are such that neither a gangway nor a straight ladder can be used, a Jacob's ladder meeting the requirements of subsection (4) of this section may be used.

(b) Each side of such gangway, and the turn table if used, shall have a railing with a minimum height of thirty-three inches measured perpendicularly from rail to walking surface at the stanchion, and a mid rail. Rails shall be of wood, pipe, chain, wire or rope and shall be kept taut at all times.

(c) Gangways on vessels inspected and certified by the United States Coast Guard are deemed to meet the foregoing requirements, except in cases where the vessel's regular gangway is not being used.

(d) The gangway shall be kept properly trimmed at all times.

(e) When a fixed tread accommodation ladder is used, and the angle is low enough to require employees to walk on the edge of the treads, cleated duckboards shall be laid over and secured to the ladder.

(f) When the lower end of a gangway overhangs the water between the ship and the dock in such a manner that there is danger of employees falling between the ship and the dock, a net or other suitable protection shall be rigged at the foot of the gangway in such a manner as to prevent employees from falling from the end of the gangway into the water or into the surface.

WAC 296-56-60122 (Cont.)

(g) If the foot of the gangway is more than one foot away from the edge of the apron, the space between them shall be bridged by a firm walkway equipped with railings, with a minimum height of thirty-three inches with midrails on both sides.

(h) Supporting bridles shall be kept clear so as to permit unobstructed passage for employees using the gangway.

(i) When the upper end of the means of access rests on or flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial handrail approximately thirty-three inches in height shall be provided between the top of the bulwark and the deck.

(j) Obstructions shall not be laid on or across the gangway.

(k) The means of access shall be illuminated for its full length.

(l) Unless construction of the vessel makes it impossible, the means of access shall be so located that drafts of cargo do not pass over it. Loads shall not be passed over the means of access while employees are on it.

(2) Access to vessels in drydock or between vessels. Gangways meeting the requirements of subsection (1)(a), (b), (i), (j) and (k) of this section shall be provided for access from wingwall to vessel or, when two or more vessels other than barges or river towboats are lying abreast, from one vessel to another.

(3) Access to barges and river towboats.

(a) Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained and properly secured.

(b) Unless employees can step safely to or from the wharf, float, barge, or river towboat, a ramp meeting the requirements of subsection (1)(a) of this section shall be provided. When a walkway is impractical, a substantial straight ladder, extending at least thirty-six inches above the upper landing surface and adequately secured against shifting or slipping, shall be provided. When conditions are such that neither a walkway nor a straight ladder can be used, a Jacob's ladder meeting the requirements of subsection (4) of this section may be used.

(c) The means of access shall meet the requirements of subsection (1)(i), (j), and (k) of this section.

(4) Jacob's ladders.

(a) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

(b) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60122, filed 1/17/86.]

WAC 296-56-60123 Guarding of edges.

(1) Vehicle protection.

(a) Vehicle curbs, bull rails, or other effective barriers at least six inches (15.24 cm) in height and six inches in width, shall be provided at the waterside edges of aprons and bulkheads, except where vehicles are prohibited. Curbs or bull rails installed after January 1, 1985, shall be at least ten inches (22.9 cm) in height.

(b) The provisions of (a) of this subsection also apply at the edge of any fixed level above the common floor area from which vehicles may fall, except at loading docks, platforms and skids where cargo is moved by vehicles.

(2) Employee protection.

(a) Guardrails shall be provided at locations where employees are exposed to falls of more than four feet from floor or wall openings or waterside edges, including bridges or gangway-like structures leading to pilings, vessel mooring or berthing installations.

(b) Guardrails are not required:

(i) At loading platforms and docks;

(ii) At waterside edges used for cargo or mooring line handling;

(iii) On the working sides of work platforms, skids, or similar workplaces which abut the work area; or

(iv) On railroad rolling stock, highway vehicles, intermodal containers, or similar equipment.

(c) Where guardrails are impractical due to machinery requirements or work processes, an alternate means of fall protection, such as nets, shall be used.

(3) Criteria for guardrails. Guardrails shall meet the following criteria:

(a) They shall be capable of withstanding a force of at least two hundred pounds (890 N) applied in any direction at mid-span of the top rail (when used), or at the uppermost point if there is no guard rail.

(b) If not of solid baluster, grillwork, slatted, or similar construction, guardrails shall consist of top rails and midrails. Midrails, when used, shall be positioned at approximately half the height of the top rail.

(c) The top surface of guardrails installed before October 3, 1983, shall be at least thirty-six inches (.091 m) high. Those installed after October 3, 1983, shall be forty-two inches (1.07 m) high, plus or minus two inches (5.1 cm), high.

(d) Any nonrigid railing such as chain or wire rope shall have a maximum sag, at the mid-point between posts, of not more than six inches (15.24 cm).

(e) Top rails shall be free of sharp edges and maintained in good repair.

(f) Rail ends shall not overhang. This does not prohibit scrollwork, boxed ends or similar nonhazardous projections.

WAC 296-56-60123 (Cont.)

(4) Toeboards. Toeboards shall be provided when employees below could be exposed to falling objects such as tools. Toeboards shall be at least three and one-half inches (8.9 cm) in height from top edge to floor level, and be capable of withstanding a force of fifty pounds (222 N) applied in any direction. Drainage clearance not in excess of one-eighth inch under toeboards is permitted.

(5) Stair railings. Stair railings shall be capable of withstanding a force of at least two hundred pounds (890 N) applied in any direction, and shall not be more than thirty-six inches (0.91 m) nor less than thirty-two inches (0.81 m) in height from the upper top rail surface to the tread surface in line with the leading edge of the tread. Railings and midrails shall be provided at any stairway having four or more risers, as follows:

(a) For stairways less than forty-four inches (1.12 m) wide, at least one railing; and

(b) For stairways more than forty-four inches (1.12 m) but less than eighty-eight inches (2.24 m) wide, a stair rail or handrail on each side, and if eighty-eight or more inches wide, an additional intermediate handrail.

(6) Condition. Railings shall be maintained free of sharp edges and in good repair.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60123, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60123, filed 12/30/98, effective 03/30/99. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60123, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60123, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60123, filed 12/11/84.]

WAC 296-56-60125 Clearance heights. Clearance heights shall be prominently posted where the height is insufficient for vehicles or equipment.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60125, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60125, filed 12/11/84.]

WAC 296-56-60127 Cargo doors.

(1) Mechanically operated cargo doors.

(a) Cargo door counterweights shall be guarded.

(b) Lift trucks and cranes shall not be used to move mechanically operated doors except when necessary during repair to the doors. Ropes or other guarding shall be provided to prevent entry into any area if the door may fall or slide.

(c) Vertically operated doors partially opened for work or ventilation shall be secured to prevent accidental closing.

(2) Tackle operated cargo doors.

(a) Doors shall be connected to their lifting tackle with shackles or other secure means.

(b) Lifting bridles and tackles shall have a safety factor of five, based upon maximum anticipated static loading conditions.

(c) Devices shall be provided to hold overhead doors in the open position and to secure them when closed.

(d) Lifting gear and hardware shall be maintained in safe condition.

(e) Lifting ropes shall be placed out of the work area and off the floor.

WAC 296-56-60127 (Cont.)

(3) Horizontal sliding.

(a) Horizontal sliding door rollers shall be constructed to prevent the door from disengaging from overhead tracks.

(b) Sliding doors shall be secured to prevent them from swinging.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60127, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60127, filed 12/11/84.]

WAC 296-56-60129 Platforms and skids.

(1) Platforms and skids extending from piers, transit sheds or lofts and used for landing or hooking drafts shall be provided with guardrails meeting the requirements of WAC 296-56-60123(3) on all open sides. Alternate means, such as nets or safety belts and lifelines, may be used if guardrails are impractical.

(2) Any employee working below a second-story platform or skid shall be protected from falling objects.

(3) Platforms and skids shall be strong enough to bear the loads handled and shall be maintained in safe condition. Safe working loads, which shall be posted or marked on or adjacent to platforms and skids, shall have a minimum safety factor of five for all parts, based upon maximum anticipated static loading conditions and the ultimate strength of the construction material.

(4) The employer shall provide and maintain platform and skid attachments that will prevent accidental movement of the skid or platform.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60129, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60129, filed 12/11/84.]

WAC 296-56-60131 Elevators and escalators.

(1) **"Elevator"** means 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.

(2) **"Escalator"** means a power-driven continuous moving stairway principally intended for the use of persons.

(3) No elevator or escalator with a defect which affects safety shall be used.

(4) Elevator safety devices shall not be overridden or made inoperable.

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

(6) Elevator landing openings shall be provided with doors, gates, or equivalent protection, which shall be in place when the elevator is not at that landing, to prevent employees from falling into the shaft.

(7) The elevator or escalator maximum load limits shall be posted and shall not be exceeded. Elevator load limits shall be posted conspicuously both inside and outside of the car.

WAC 296-56-60131 (Cont.)

(8) Elevators shall be operated only by designated persons except for automatic or door interlocking elevators which provide full shaft door closing and automatic car leveling.

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60131, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60131, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60131, filed 12/11/84.]

WAC 296-56-60133 Manlifts.

(1) Inspection. Manlifts shall be inspected monthly by a designated person. Safety switches shall be checked weekly. Manlifts found to be unsafe shall not be operated until repaired. Inspections shall include at least the following:

(a) Step fastenings;

(b) Rails;

(c) Rail supports and fastenings;

(d) Roller and slides;

(e) Belt and belt tension;

(f) Handholds and fastenings;

(g) Floor landings;

(h) Guardrails;

(i) Lubrication;

(j) Safety switches;

(k) Warning signs and lights;

(l) Illumination;

(m) Drive pulley;

(n) Bottom (boot) pulley and clearance;

(o) Pulley supports;

(p) Motor;

(q) Drive mechanism;

(r) Brake;

(s) Electrical switches;

(t) Vibration and misalignment;

WAC 296-56-60133 (Cont.)

(u) "Skip" on up or down run when mounting the step (indicating worn gears); and

(v) Emergency exit ladders.

(2) Inspection records. Inspection records shall be kept for at least one year. The record of the most recent inspection shall be posted in the vicinity of the manlift or in the terminal.

(3) Emergency stop. An emergency stop device shall be available within easy reach from any position on the belt.

(4) Instructions. Manlift use instructions shall be conspicuously posted.

(5) Top floor warning sign and light. An illuminated sign and red light that are visible to the user shall be provided under the top floor opening of the manlift to warn the user to get off at that floor.

(6) Bottom floor warning sign. A sign visible to descending passengers shall be provided to warn them to get off at the bottom floor.

(7) Upper limit stop. An automatic stop device shall be provided to stop the manlift when a loaded step passes the top landing, except that manlifts installed after October 3, 1983, shall have two such devices.

(8) Handholds and steps. Each step shall be provided with a corresponding handhold.

(9) Emergency ladder. A fixed emergency ladder accessible from any position on the lift and meeting the requirements of WAC 296-56-60209 shall be provided for the entire run of the manlift.

(10) Landings.

(a) Clear and unobstructed landing spaces shall be provided at each level. Manlifts constructed after October 3, 1983, that have a distance of fifty feet (15.24 m) or more between floor landings shall have an emergency landing every twenty-five feet (7.62 m) or less of manlift travel.

(b) Open sides of emergency landings shall be protected by guardrails.

(c) Floor landing entrances and exits shall be guarded by mazes, self-closing gates, or equivalent protection.

(d) Landings shall be of sufficient size and strength to support two hundred fifty pounds (1112 N).

(11) Floor opening guards. The ascending sides of manlift floor openings shall be provided with cones or bevel guards to direct the user through the openings.

(12) Maintenance. Manlifts shall be equipped, maintained, and used in accordance with the manufacturer's specifications, which shall be available at the terminal.

(13) Bottom pulley.

(a) The lower pulley shall be supported by the lowest landing.

(b) Sides of the bottom pulley support shall be guarded to prevent contact with the pulley or the steps.

WAC 296-56-60133 (Cont.)

(14) Top clearance. A clearance of at least eleven feet (3.35 m) shall be provided between the top landing and the ceiling.

(15) Brakes. Manlifts shall be equipped with brakes that are:

(a) Self-engaging;

(b) Electrically released; and

(c) Capable of stopping and holding the manlift when the descending side is loaded with the maximum rated load.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60133, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60133, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60133, filed 12/11/84.]

PART H
MANLIFTS-ELECTRIC

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WAC 296-56-60135 Manlifts-Electric.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60135, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60135, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60135, filed 12/11/84.]

WAC 296-56-60139 Hoistway enclosures and landings. Hoistways shall be fully enclosed, or enclosed on all landings to a height of six feet above the landing floor or six feet above highest working level or stair level adjacent to the hoistway. Perforated hoistway enclosures can be used where fire resistance is not required, provided:

(1) Steel wire grill or expanded metal grill shall be at least thirteen U.S. gauge steel wire.

(2) Openings in the enclosure shall reject a one inch steel ball.

(3) All hoistway landings shall be properly and adequately lighted.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60139, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60139, filed 12/11/84.]

WAC 296-56-60141 Scope and application. WAC 296-56-60141 through 296-56-60171 apply to the installation, design, and use of all one man capacity, electric elevators subject to inspection under RCW 49.17.120.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60141, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60141, filed 12/11/84.]

WAC 296-56-60143 Hoistway gates.

(1) Hoistway gates may be constructed of wood slat, steel wire grill, expanded metal or solid material, providing all openings reject a two inch ball and resist a two hundred fifty pound horizontal thrust.

(a) Steel wire and expanded metal gates shall be of at least thirteen gauge steel.

(b) Wood slats must be not less than two inches wide and one-half inch thick, nominal size.

(c) Solid material shall be not less than one-eighth inch reinforced sheet steel or one-half inch plywood.

(2) Hoistway gates may be horizontal swinging, vertical or horizontal sliding or biparting gates.

(a) Hoistway gates shall extend the full width of the elevator car and from one inch above the landing floor to six feet or more above the floor.

(b) Horizontal swinging gates shall be prevented from swinging into hoistway.

(3) Gates shall be equipped with interlocks or mechanical locks and electric contacts designed so that hoistway gates cannot be opened when the car is away from the landing.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60143, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60143, filed 12/11/84.]

WAC 296-56-60145 Elevator car.

(1) Elevator cars shall be fully enclosed 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 pounds without deflecting one-quarter inch and all openings will reject a one inch ball.

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

WAC 296-56-60145 (Cont.)

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

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

(2) Every car shall 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 gauge expanded metal, fourteen gauge sheet steel, or three-quarter inch or heavier plywood. If made of wire screen or metal, the openings shall reject a one-half inch diameter ball.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60145, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60145, filed 12/11/84.]

WAC 296-56-60147 Elevator doors. Elevator car doors shall be provided on all elevators, except on fully enclosed hoistways equipped with hoistway gates and enclosed from the top of the hoistway opening to the ceiling on the landing side.

(1) Car doors may be of solid or perforated construction and shall be capable of resisting a seventy-five pound thrust without deflecting one-quarter inch.

(2) Car doors may be biparting or otherwise horizontally swung provided the door swings within the elevator car.

(3) A positive locking latch device which resists a two hundred fifty pound thrust shall be provided.

(4) Interlocks or mechanical locks and electric contacts must be provided on cars operating in open hoistways.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60147, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60147, filed 12/11/84.]

WAC 296-56-60149 Counterweight, enclosures, and fastenings. All counterweights shall be fully enclosed for their full length of travel except in closed hoistways where counterweight guide rails have been provided.

(1) Counterweight enclosures shall provide an inspection opening in the bottom of the enclosure large enough to provide for the inspection of cable fastenings, counterweight and buffer. Counterweights of rectangular shape shall be secured by not less than two one-half inch mild steel bolts with locknuts. Round counterweights shall be fastened with a center bolt not less than three-quarter inch diameter and secured with a locknut.

(2) Bolt eyes shall be welded closed.

(3) Cable fastenings shall be not less than three U-shaped clamps with U's on the dead side of the rope or babbitted tapered elevator sockets.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60149, filed 12/11/84.]

WAC 296-56-60151 Guide rails. A minimum of two car guide rails shall be provided. They shall:

(1) Extend at least six inches beyond the maximum travel of the car with buffers compressed.

(2) Be securely fastened to a vertical supporting member for the full length of elevator travel.

(3) Be not less than one and one-half inch by one and one-half inch vertical grain fir or equivalent, one-quarter inch by two inch by two inch angle iron or equivalent.

WAC 296-56-60151 (Cont.)

(4) Not vary more than three-sixteenths inch thickness on brake surfaces for wood guide rails.

(5) Be secured to resist more than one-half inch total deflection on car safety application and resist a two hundred fifty pound horizontal thrust.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60151, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60151, filed 12/11/84.]

WAC 296-56-60153 Hoisting ropes. Hoisting ropes shall be of good grade elevator traction wire rope and shall:

(1) Be at least two ropes of not less than three-eighths inch diameter providing a safety factor of five.

(2) Be fastened by at least three U-type cable clamps with the U on the dead return end of the rope or by approved elevator sockets of the babbitted type.

(3) Be of such length that the car platform will not be more than six inches above the top landing when the counterweight buffer is fully compressed. The counterweight shall be six inches or more away from the counterbalance sheave when the car buffer is fully compressed.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60153, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60153, filed 12/11/84.]

WAC 296-56-60155 Space under hoistway. There shall be no habitable space below the elevator hoistway and counterweight shaft unless the floor is designed to withstand an impact one hundred twenty-five percent greater than the impact generated by a free fall of either the car or counterweight from the full height of the hoistway.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60155, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60155, filed 12/11/84.]

WAC 296-56-60157 Car safeties. All cars suspended or operated from overhead machinery shall be equipped with an approved car safety capable of stopping and holding the car with rated load.

(1) Car safeties shall operate mechanically and be independent of interruption of any electrical circuit.

(2) Car safeties and governor controlled safeties shall automatically operate and the control circuit shall be broken in the event of cable breakage.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60157, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60157, filed 12/11/84.]

WAC 296-56-60159 Brakes. All elevators shall be equipped with brakes designed to engage mechanically and release electrically.

(1) Brakes shall be located on the final drive of all elevator machines.

(2) The brake actuating circuit shall be so designed that interruption of power by slack cable switch, control switch, and limit switches actuate the brake.

(3) The brakes shall actuate under short circuit, phase failure, or reverse phase conditions.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60159, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60159, filed 12/11/84.]

WAC 296-56-60161 Car controls and safety devices.

(1) Car controls may be automatic pushbutton, constant pressure pushbutton or momentary pushbutton types. Hand rope and car switch controls shall not be used.

(2) Manually operated emergency stop switches shall be installed in all cars not equipped with constant pressure pushbutton controls. The switch shall be clearly marked "emergency stop."

(3) Terminal limiting devices shall operate independently of the car controls and automatically stop the car at the top and bottom terminal landings.

(4) All winding drum machine type elevators shall be equipped with top and bottom final limit switches.

(5) A slack rope device of manual reset design shall be required on all winding drum type machines. The device shall be designed to de-energize the circuit to the drive motor and brake.

(6) All installations shall be equipped with an overspeed governor. This governor shall be set not to exceed one hundred seventy-five feet per minute and shall be designed to de-energize the brake control and motor drive circuits simultaneously with the activation of the car safety mechanism. Car speeds for these types of installations shall not exceed a speed of one hundred twenty-five feet per minute.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60161, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60161, filed 12/11/84.]

WAC 296-56-60167 Hoisting machine mechanisms.

(1) Elevator machines shall be driven by approved type units.

(a) On direct drive or approved worm gear driven type, a mechanically actuated, electrically released brake shall be installed on the driving unit.

(b) On V belt driven types, a minimum of four belts, one-half inch minimum size, shall be used to transmit power from the motor to the drive shaft and a mechanically actuated, electrically released brake shall be installed on the final drive shaft.

(2) Wherever practical, elevator machines shall be installed on the top side of their supporting structure.

(3) All components of the driving mechanism and parts subject to stress involved in suspending the load or related equipment shall be designed to withstand eight times the total weight to be suspended, including load, counterweight, car and cables.

(4) Gears shall be made of steel or equivalent material. Cast iron gears are prohibited.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60167, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60167, filed 12/11/84.]

WAC 296-56-60169 Elevator car and counterweight buffers.

(1) Elevator cars shall be provided with adequate car buffers.

(2) All elevators using a counterweight shall be provided with adequate counterweight buffers.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60169, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60169, filed 12/11/84.]

WAC 296-56-60171 General requirements.

(1) Adequate lighting shall be provided at each landing and in the shaftway.

(2) A sign bearing the following information shall be conspicuously posted within the car:

(a) Maximum capacity one person;

(b) Total load limit in pounds;

(c) For authorized personnel use only.

(3) A fire extinguisher in proper working condition shall be available in the car.

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

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60171, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60171, filed 12/11/84.]

PART I
MANLIFTS-HAND POWER

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WAC 296-56-60180 Scope and application. WAC 296-56-60180 through 296-56-60207 apply to the installation, design, and use of all one man capacity, hand power counterweighted elevators subject to inspection under RCW 49.17.120.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60180, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60180, filed 12/11/84.]

WAC 296-56-60183 Hoistway landings.

(1) Every hoistway landing shall be protected on all sides other than the landing opening side with a standard guard rail and intermediate guard rail. All landings except the bottom landing shall have a toe board installed on all sides except the landing opening side.

(2) All hoistway entrances shall be not less than six feet six inches in height and in no case shall the width exceed the corresponding car dimensions.

(3) All hoistway entrances must be provided with an approved maze or with a hoistway gate which shall:

(a) Be at least thirty-six 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 pound horizontal thrust.

(4) All projections extending inwardly from the hoistway enclosure at the entrance side of the car platform shall be bevelled and substantially guarded on the underside by smooth solid material set at an angle of not less than sixty degrees, nor more than seventy-five degrees from the horizontal when cars are not equipped with gates.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60183, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60183, filed 12/11/84.]

WAC 296-56-60185 Hoistway clearances.

(1) The minimum clearance between the side of the car and a hoistway enclosure shall be one inch.

(2) The clearance between the car platform and the landing sill shall not be less than one-half inch and not more than one and one-half inches.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60185, filed 12/11/84.]

WAC 296-56-60187 Habitable space under hoistways. There shall be no habitable space below the elevator hoistway or counterweight shaft unless the floor is supported to withstand any impact caused by the car or counterweight dropping freely onto the floor.
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60187, filed 12/11/84.]

WAC 296-56-60189 Hoistway guide rails.

(1) There shall be a minimum of two opposing guide rails extending to a point six inches beyond the full height of travel of the car when the counterweight buffer is fully compressed.

(2) All rails shall be attached by bolts, lag screws or other approved methods to a vertical supporting member which shall not exceed one-half inch deflection with the application of a two hundred fifty pound horizontal thrust at any point.

WAC 296-56-60189 (Cont.)

(3) Wood guide rails shall be at least one and one-half inch by one and one-half inch vertical grain fir or equivalent and shall not vary more than three-sixteenth inch in thickness on the sides which the brakes contact. All joints shall be kept smooth and even.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60189, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60189, filed 12/11/84.]

WAC 296-56-60191 Buffer springs and overtravel of car. Substantial spring buffers shall be installed below the car and also below the counterweight. The hoisting rope shall be of such length that the car platform will not be more than eight inches above the top landing when the counterweight buffer spring is fully compressed.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60191, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60191, filed 12/11/84.]

WAC 296-56-60193 Car specifications.

(1) The car shall be built to the following specifications:

(a) The car platform shall be not greater than thirty inches on either side (6.25 square feet area).

(b) The car frame and platform shall 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 pounds.

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

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

(2) The sides of the car shall be enclosed by a minimum of two safety guard rails with the top rail not less than thirty-six inches nor more than forty-two inches from the car floor. Rails shall sustain a horizontal thrust of two hundred fifty pounds. If solid material is used it shall be smooth surfaced and not less than one-half inch thickness, if wood; not less than sixteen gauge thickness, if steel; and shall 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 shall drop into locking slots or be provided with a positive locking type latch capable of withstanding two hundred fifty pounds horizontal thrust.

(3) Every car shall 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 gauge expanded metal, fourteen gauge sheet steel, three-quarter inch or heavier plywood. If made of wire screen or metal, the openings shall reject a one-half inch diameter ball.

(4) Every car shall have a proper rack to hold the balance weights.

(5) A sign bearing the following information shall be conspicuously posted within the car:

(a) Maximum capacity one person;

(b) Total load limit in pounds;

WAC 296-56-60193 (Cont.)

(c) For authorized personnel use only.

(6) Every car shall be equipped 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) Every car shall be equipped 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) Every car shall have 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) A tool box with minimum dimensions of four inches wide by sixteen inches long by three inches in depth shall be provided and firmly attached to the car structure.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60193, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60193, filed 12/11/84.]

WAC 296-56-60195 Counterweights.

(1) The assembly of sectional counterweights shall conform to the following requirements:

(a) Rectangular counterweights shall be held together by at least two tie rods one-half inch in diameter fastened with lock washers and double nuts or other approved means.

(b) One three-quarter inch rod may be used to hold the sections of a round counterweight together. Any additional sections or weights shall be secured by an approved means.

(2) The eye bolt for the rope hitch shall be attached to the counterweight in a manner that will prevent the eye bolt from coming loose. The eye of eye bolts shall be welded to prevent it from opening.

(3) Every counterweight runway shall be enclosed with substantial unperforated material for its full distance of travel. Inspection openings shall be provided at either the top or bottom of the counterweight runway. These openings shall be substantially covered at all times except when actually being used for inspection of counterweight fastenings.

(4) Workmen shall load the counterweight for the proper balance of the heaviest person using the elevator and others shall use compensating weights, which shall be available, to maintain a balance.

(5) On elevators with travel of seventy-five feet or more, a compensating chain or cable shall be installed to maintain the proper balance of the counterweight to the car and load in all positions.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60195, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60195, filed 12/11/84.]

WAC 296-56-60197 Sheaves. The minimum sheave diameter shall be forty times the diameter of the ropes used, i.e., fifteen inch for three-eighths inch rope.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60197, filed 12/11/84.]

WAC 296-56-60199 Hoisting ropes.

(1) Hoisting rope shall be of good grade traction elevator wire rope, and shall:

(a) Be not less than three-eighths inches in diameter.

(b) Provide a safety factor of five based on the maximum weight supported.

(c) Be of sufficient length to prevent the counterweight from striking the overhead structure when car is at bottom, and prevent the car from striking the overhead before the counterweight is at its lower limit of travel.

(d) Be fastened at each end by at least three or more clamps, with the "U" of the clamp bearing on the dead end of the rope.

(e) Where passed around a metal or other object less than three times the diameter of the cable, have a thimble of the correct size inserted in the eye.

(2) Approved sockets or fittings with the wire properly turned back and babbitted may be used in place of clamps noted in subsection (1)(d) of this section.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60199, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60199, filed 12/11/84.]

WAC 296-56-60201 Operating rope. The operating rope shall be of soft hemp or cotton at least three-quarter inch in diameter. It shall be securely fastened at each end and shall be in proper vertical alignment to prevent bending or cutting where it passes through the openings in the platform or the protective top of the car.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60201, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60201, filed 12/11/84.]

WAC 296-56-60203 Lighting. Adequate lighting shall be provided at each landing and in the shaftway.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60203, filed 12/11/84.]

WAC 296-56-60205 Overhead supports. The overhead supporting members shall be designed, based upon impact loads, with a safety factor of:

(1) Nine if wood;

(2) Five if steel.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60205, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60205, filed 12/11/84.]

WAC 296-56-60207 General requirements.

(1) No person other than an employee or duly authorized person shall ride or be permitted to ride in the car.

(2) Escape ladders shall be installed extending the full length of the hoistway and shall be located in a position so that, in an emergency, a person can safely transfer from the car platform to the ladder. An "IMPAIRED CLEARANCE" sign shall be posted at the bottom of a ladder when the face of the ladder is less than thirty inches from any structure.

WAC 296-56-60207 (Cont.)

(3) An automatic safety dog or device which will prevent the car from leaving the landing until manually released by the operator shall be installed at the bottom landing.

(4) A fire extinguisher in proper working condition shall be available in the car.

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

[Statutory Authority: RCW 49.17.010, .040, .050. 01-11-038 (Order 99-36), § 296-56-60207, filed 05/09/01, effective 09/01/01. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60207, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60207, filed 12/11/84.]

PART J
LADDERS, STAIRWAYS OPENINGS, SANITATION, SIGNS, ETC.

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WAC 296-56-60209 Fixed ladders.

(1) Scope. This section applies to all fixed ladders except:

(a) Ladders forming an integral part of railway cars, highway carriers, cargo containers, or other transportation carrier equipment;

(b) Climbing devices such as step bolts or structural members of tanks and towers;

(c) Ladders built into or vertically attached to tubular scaffold framing; and

(d) Ladders used only for fire fighting or emergency purposes are exempt from the provisions of subsection (5) of this section. All other requirements of this section apply.

(2) Definitions.

(a) **"Cage"** (basket guard) means 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.

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

(c) **"Ladder safety device"** means 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.

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

(3) Defects.

(a) Ladders with broken, split, or missing rungs, steps or rails, broken welds or connections, corrosion or wastage, or other defect which may affect safe use shall be removed from service.

(b) Ladder repairs shall provide strength at least equivalent to that of the original ladder.

(4) Ladder specifications.

(a) (i) Ladders installed before October 3, 1983, shall be capable of withstanding without damage a minimum concentrated load, applied uniformly over a three and one-half inch (8.9 cm) width at the rung center, of two hundred pounds (890 N).

(ii) Ladders installed after October 3, 1983, shall be capable of withstanding two hundred fifty pounds (1112 N) applied as described in (a)(i) of this subsection. If used by more than one employee simultaneously, the ladder as a unit shall be capable of simultaneous additional loading in two hundred fifty pound (1112 N) increments for each additional employee, applied to a corresponding number of rungs. The unit shall have a safety factor of four based on ultimate strength, in the designed service.

(b) (i) Ladders installed before October 3, 1983, shall have rungs evenly spaced from nine to sixteen and one-half inches (22.9 to 41.9 cm) apart, center to center.

(ii) Ladders installed after October 3, 1983, shall have rungs evenly spaced twelve inches apart, plus or minus two inches (30.5 cm, plus or minus 5.08 cm), center to center.

WAC 296-56-60209 (Cont.)

(c) (i) Ladders installed before October 3, 1983, shall have a width between side rails of at least ten inches (25.4 cm).

(ii) Ladders installed after October 3, 1983, shall have a width between side rails of at least twelve inches (30.48 cm).

(d) The minimum distance between the rung center line and the nearest permanent object behind the rung shall be four inches (10.16 cm), except that in ladders installed after October 3, 1983, the minimum distance shall be seven inches (17.78 cm) unless physical limitations make a lesser distance, not less than four and one-half inches (11.43 cm), necessary.

(e) When a ladder passes through an opening or past overhead obstructions, a minimum twenty-four inch (.61 m) clearance shall exist between the climbing side and any obstruction. Where this distance is less than thirty inches (0.76 m), a deflection device shall be installed for guidance through the opening.

(f) The side rails of ladders shall extend at least thirty-six inches (0.91 m) above the top landing surface, unless grab bars or equivalent holds are provided.

(g) Ladders whose pitch exceeds ninety degrees to the horizontal (slanting backward on the climbing side) shall not be used.

(5) Protection against falls.

(a) Fixed ladders more than twenty feet (6.1 m) in height shall be provided with a cage, well, or ladder safety device.

(b) When a well or cage is used, ladders with length of climb exceeding thirty feet (9.14 m) shall comply with the following provisions:

(i) The ladder shall consist of multiple sections not exceeding thirty feet (9.14 m) each;

(ii) Each section shall be horizontally offset from adjacent sections, except as specified in (b)(iv) of this subsection; and

(iii) A landing platform capable of supporting a load of one hundred pounds per square foot (4.79 kPa) and fitted with guardrails complying with WAC 296-56-60123(3) shall be provided at least every thirty feet (9.14 m), except as specified in (b)(iv) of this subsection;

(iv) For ladders installed after October 3, 1983, offset sections and landing platforms are not required if hinged platforms capable of supporting one hundred pounds per square foot (4.79 kPa), and which are kept closed except when opened for passage, are within the cage or well at intervals not exceeding thirty feet (9.14 m).

(c) Ladders equipped with ladder safety devices shall have rest platforms:

(i) Capable of supporting a load of one hundred pounds per square foot (4.79 kPa);

(ii) Located at intervals of one hundred fifty feet (45.7 m) or less; and

(iii) Protected by guardrails complying with WAC 296-56-60123(3) on three sides.

WAC 296-56-60209 (Cont.)

(d) Where used, ladder safety devices shall:

(i) Be installed and maintained in accordance with the manufacturer's instructions, which shall be available for inspection upon request;

(ii) Be repaired only with replacement parts having performance capability at least equal to that of the original parts;

(iii) Have a connection length between carrier centerlines and safety belts of 10 ± 2 inches (25.4 ± 5.08 cm); and

(iv) Be installed in a manner that does not reduce the ladder's structural capacity.

(e) Ladder cages or wells shall:

(i) Be of rigid construction that allows unobstructed use but prevents an employee from falling through or dislodging the cage or well by falling against it;

(ii) Have smooth inner surfaces;

(iii) Extend at least thirty-six inches (0.91 m) above landings; and

(iv) Extend to within eight feet (2.44 m) above the ground or base, except that a maximum of twenty feet (6.1 m) is permitted where the cage or well would extend into traffic lanes.

(f) Ladders installed after January 1, 1985, on radio, microwave communications, electrical power and similar towers, poles and structures, including stacks and chimneys, shall meet the requirements of this subsection.

(6) Individual rung ladders. Ladders consisting of individual rungs that are attached to walls, conical manhole sections or river cells shall:

(a) Be capable of supporting a load of three hundred fifty pounds (1557 N) without deformation;

(b) Form a continuous ladder, uniformly spaced vertically from twelve inches to sixteen inches (30.5 to 40.6 cm) apart, with a minimum width of ten inches (25.4 cm), and projecting at least four and one-half inches (11.43 cm) from the wall;

(c) Be so constructed that an employee's foot cannot slide off the ends; and

(d) Be firmly attached and without sharp edges.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60209, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60209, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60209, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60209, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60209, filed 12/11/84.]

WAC 296-56-60211 Portable ladders.

(1) Scope and applicability. This section applies to all portable ladders, including job-made ladders for temporary use, unless otherwise specified.

(2) Standards for existing manufactured portable ladders.

(a) Rungs of manufactured portable ladders obtained before October 3, 1983, shall be capable of supporting a two hundred pound (890 N) load without deformation.

WAC 296-56-60211 (Cont.)

(b) Rungs shall be evenly spaced from nine to sixteen and one-half inches (22.9 to 41.9 cm), center to center.

(c) Rungs shall be continuous members between rails. Each rung of a double-rung ladder (two side rails and a center rail) shall extend the full width of the ladder.

(d) Width between side rails at the base of the ladder shall be at least twelve inches (30.48 cm) for ladders ten feet (3.05 m) or less in overall length, and shall increase at least one-fourth inch (0.64 cm) for each additional two feet (0.61 m) of ladder length.

(3) Standards for manufactured portable ladders. Manufactured portable ladders obtained after October 3, 1983, shall bear identification indicating that they meet the appropriate ladder construction requirements of the following standards:

ANSI A14.1-1990 Safety Requirements for Portable Wood Ladders
ANSI A14.2-1990 Safety Requirements for Portable Metal Ladders
ANSI A14.5-1992 Safety Requirements for Portable Reinforced Plastic Ladders

(4) Standards for job-made portable ladders. Job-made ladders shall:

(a) Have a minimum and uniform distance between rungs of twelve inches (30.48 cm), center to center;

(b) Be capable of supporting a two hundred fifty pound (1112 N) load without deformation; and

(c) Have a minimum width between side rails of twelve inches (30.48 cm) for ladders ten feet (3.05 m) in height. Width between rails shall increase at least one-fourth inch (0.64 cm) for each additional two feet (0.61 m) of ladder length.

(5) Maintenance and inspection.

(a) The employer shall maintain portable ladders in safe condition. Ladders with the following defects shall not be used and either shall be tagged as unusable if kept on the premises or shall be removed from the worksite:

(i) Broken, split or missing rungs, cleats, or steps;

(ii) Broken or split side rails;

(iii) Missing or loose bolts, rivets, or fastenings;

(iv) Defective ropes; or

(v) Any other structural defect.

(b) Ladders shall be inspected for defects prior to each day's use, and after any occurrence, such as a fall, which could damage the ladder.

(6) Ladder usage.

(a) Ladders made by fastening rungs or devices across a single rail are prohibited.

(b) Ladders shall not be used:

WAC 296-56-60211 (Cont.)

(i) As guys, braces, or skids; or

(ii) As platforms, runways, or scaffolds.

(c) Metal and wire-reinforced ladders with wooden side rails shall not be used when employees on the ladder might come into contact with energized electrical conductors.

(d) Individual sections from different multisectional ladders or two or more single straight ladders shall not be tied or fastened together to achieve additional length.

(e) Except for combination ladders, self-supporting ladders shall not be used as single straight ladders.

(f) Unless intended for cantilever operation, nonself-supporting ladders shall not be used to climb above the top support point.

(g) Ladders shall extend at least thirty-six inches (0.91 m) above the upper support level if employees are to leave or mount the ladder at that level, except that where such extension is impractical other equivalent means such as grab bars may be used to provide a hand grip.

(h) Ladders shall be securely positioned on a level and firm base.

(i) Ladders shall be fitted with slip-resistant bases and secured at top or bottom to prevent the ladder from slipping.

(j) Ladders shall be placed so that employees climbing are not exposed to injury from projecting objects or doors that open toward the ladder.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60211, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60211, filed 12/30/98, effective 03/30/99. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60211, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60211, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60211, filed 12/11/84.]

WAC 296-56-60213 Jacob's ladders.

(1) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured to the dock.

(2) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60213, filed 12/11/84.]

WAC 296-56-60215 Fixed stairways.

(1) Definition**. "Fixed stairway"** means 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.

(2) New installations.

(a) Fixed stairs installed after October 3, 1983, shall be positioned within the range of thirty degrees to fifty degrees to the horizontal with uniform riser height and tread width throughout each run and be capable of a minimum loading of one hundred pounds per square foot (445 N) and a

WAC 296-56-60215 (Cont.)

minimum concentrated load of three hundred pounds (1334 N) at the center of any treadspan. Riser height shall be from six to seven and one-half inches (15.24 to 19.05 cm), stair width a minimum of twenty-two inches (55.88 cm) between vertical barriers, and tread depth a minimum of 12 ± 2 inches (30.48 ± 5.08 cm), and tread nosing shall be straight leading edges.

(b) Stair landings shall be at least twenty inches (50.8 cm) in depth. Where doors or gates open on a stairway, a landing platform shall be provided. Door swing shall not reduce the effective standing area on the landing to less than eighteen inches (45.72 cm) in depth.

(c) Fixed stairs having four or more risers shall have stair railings or handrails complying with WAC 296-56-60123(3).

(d) The railing height from tread surface at the riser face shall be 33 plus or minus 3 inches (83.82 cm plus or minus 7.62 cm).

(e) Restricted areas. When physical features require stairs steeper than those provided for by (a) of this subsection, stairs at angles of fifty degrees to seventy-five degrees from the horizontal may be used if they:

(i) Are capable of supporting a single concentrated load of two hundred pounds (890 N) at the tread centers;

(ii) Have open treads at least four inches (10.16 cm) in depth and eighteen inches (45.72 cm) in width with a uniformly spaced vertical rise between treads of six to nine and one-half inches (15.24 to 24.13 cm); and

(iii) Have handrails that meet the requirements of WAC 296-56-60123(3) on both sides that are not less than thirty inches (76.2 cm) in height from the tread surface at the riser face.

(f) Maintenance. Fixed stairways shall be maintained in safe condition and shall not be obstructed.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60215, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60215, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60215, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60215, filed 12/11/84.]

WAC 296-56-60217 Spiral stairways.

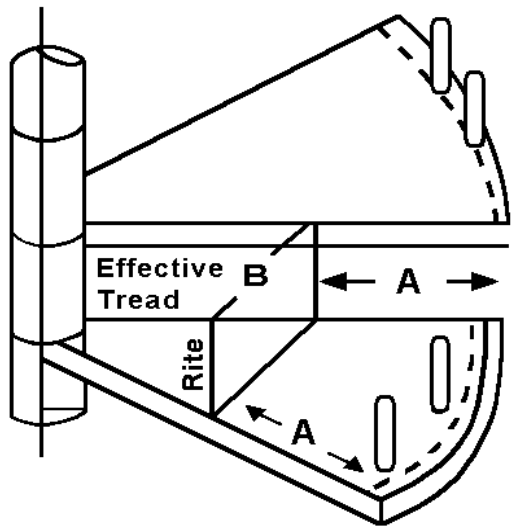
(1) Definition. **"Spiral stairway"** means one with closed circular form, uniform sector-shaped treads and a supporting column.

(2) Requirements. Spiral stairways shall meet the following requirements:

(a) Stairways shall conform to the minimum dimensions of Figure F-1;

WAC 296-56-60217 (Cont.)

Figure F-1



Spiral Stairway-Minimum Dimensions

	A (Half-Thread 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 shall be uniform and shall range from six and one-half to ten and one-half inches (16.5 to 26.67 cm) in height;

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

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

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

(3) Maintenance. Spiral stairways shall be maintained in safe condition.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60217, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17.040 RCW. 99-02-024 (Order 98-16), § 296-56-60217, filed 12/30/98, effective 03/30/99. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60217, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60217, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60217, filed 12/11/84.]

WAC 296-56-60219 Employee exits.

(1) Employee exits shall be clearly marked.

(2) If an employee exit is not visible from employees' work stations, directional signs indicating routes to the exit shall be posted.

WAC 296-56-60219 (Cont.)

(3) Exits shall be readily accessible and sufficient in number to provide employees with a convenient means of escape in emergencies. A clear passage to the exit shall be maintained.

(4) The minimum width of any employee exit shall be twenty-eight inches (71.12 cm).

(5) All fire exits and aisleways of all docks and warehouses shall be clearly marked and kept clear. All main aisleways shall be wide enough to permit passage of a fire truck.

(6) There shall be a twenty-eight inch clearance maintained where employees use a passageway to an exit.

(7) Every building, structure or crane, new or old, shall be provided 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 feet or more. Cranes, buildings, or structures erected prior to January 1, 1985, shall comply with the provisions of this standard by July 1, 1986.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60219, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60219, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60219, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60219, filed 12/11/84.]

WAC 296-56-60221 Illumination.

Lighting. All areas shall be lighted to meet the requirements of this code.

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

(2) A minimum of three foot candles illumination measured in the manner described above shall be maintained at all points along the bull rail.

(3) The quality of light shall be such that it is reasonably free from glare, and has correct direction, diffusion, and distribution.

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

(5) Portable illumination.

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

(b) Portable lights shall meet the following requirements:

(i) Portable lights shall 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 shall 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 shall be maintained.

WAC 296-56-60221 (Cont.)

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

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60221, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60221, filed 12/11/84.]

WAC 296-56-60223 Passage between levels and across openings.

(1) General. The employer shall provide safe means of passage between different surface levels and across openings.

(2) Dockboards (car and bridge plates).

(a) Dockboards shall be strong enough to support the loads imposed on them.

(b) Portable dockboards shall be anchored in position or be equipped with devices to prevent their movement.

(c) Hand holds or other effective means shall be provided on portable dockboards to permit safe handling.

(d) Positive means shall be used to prevent railcars or highway vehicles from being moved while dockboards or bridge plates are in position.

(3) Ramps.

(a) Ramps shall be strong enough to support the loads imposed on them, provided with sideboards, properly secured and well maintained.

(b) Ramps shall be equipped with guardrails meeting the requirements of WAC 296-56-60123(3) if the slope is more than twenty degrees to the horizontal or if employees could fall more than four feet (1.22 m).

(c) Ramps shall have slip-resistant surfaces.

(d) When necessary to prevent displacement by vehicle wheels, steel plates or similar devices, used to temporarily bridge or cover uneven surfaces or tracks, shall be anchored.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60219, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60223, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60223, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60223, filed 12/11/84.]

WAC 296-56-60225 Guarding temporary hazards. Ditches, pits, excavations, and surfaces in poor repair shall be guarded by readily visible barricades, rails or other equally effective means.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60225, filed 12/11/84.]

WAC 296-56-60227 River banks.

(1) This section applies to temporary installations or temporary operations near a river bank.

(2) Where working surfaces at river banks slope so steeply that an employee could slip or fall into the water, the employer shall ensure that the outer perimeter of the working surface is protected by posting or other portable protection such as roping off, and that employees wear a personal flotation device meeting the requirements of WAC 296-56-60115(2).

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-10-004 (Order 85-09), § 296-56-60227, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60227, filed 12/11/84.]

WAC 296-56-60229 Sanitation.

(1) Washing and toilet facilities.

(a) The employer shall provide accessible washing and toilet facilities sufficient for the sanitary requirements of employees. The facilities shall 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 warm air blowers; and

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

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

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

(2) Drinking water.

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

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

(c) Common drinking cups are prohibited.

(3) Prohibited eating areas. Consumption of food or beverages in areas where hazardous materials are being stored or handled shall be prohibited.

(4) Garbage and overboard discharges. Work shall not be 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.

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60229, filed 10/30/92, effective 12/8/92. Statutory Authority: Chapter 49.17 RCW. 91-11-070 (Order 91-01), § 296-56-60229, filed 5/20/91, effective 6/20/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60229, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60229, filed 12/11/84.]

WAC 296-56-60231 Signs and marking.

(1) General. Signs required by this chapter shall be clearly worded and legible. They shall contain a key word or legend indicating the reason for the sign.

(a) Key words are such words as danger, warning, caution.

(b) Legends are more specific explanations such as high voltage, close clearance, pedestrian crossing.

WAC 296-56-60231 (Cont.)

(2) Specific. Every marine terminal shall have conspicuously posted signs as follows:

(a) Locations of first-aid facilities;

(b) Locations of telephones;

(c) Telephone numbers of the closest ambulance service, hospital or other source of medical attention, police, fire department, and emergency squad (if any); and

(d) Locations of fire fighting and emergency equipment and fire exits.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60231, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60231, filed 12/11/84.]

PART K
RELATED TERMINAL OPERATIONS AND EQUIPMENT

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WAC 296-56-60233 Related terminal operations and equipment-Machine guarding.

(1) Definition. **"Guarded"** means 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 (positioning 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).

(2) General.

(a) Danger zones on machines and equipment used by employees shall be guarded.

(b) Where chips and dust produced by machine operation may result in a hazard to the operator, the machinery shall be equipped with an effective exhaust system at the point of origin, or other equally effective means shall be provided to protect the operator.

(c) Fixed machinery shall be secured to prevent shifting.

(d) A power cut-off device for machinery and equipment shall be provided at the operator's working position.

(e) Machines driven by belts and shafting shall be fitted with a belt-locking or equivalent protective device if the belt can be shifted.

(f) In operations where injury to the operator might result if motors were to restart after power failures, provisions shall be made to prevent machines from automatically restarting upon restoration of power.

(g) The power supply to machines shall be turned off, locked out, and tagged out during repair, adjustment, or servicing.

(h) Machines shall be maintained in a safe working condition.

(i) Only designated employees shall maintain or repair machinery and equipment.

(j) Machines with defects that affect the safety of operation shall not be used.

(3) Hand-fed circular ripsaws and hand-fed circular crosscut table saws. Unless fixed or manually adjustable enclosures or guarding provides equivalent protection, hand-fed circular ripsaws and hand-fed circular crosscut table saws shall be guarded as follows:

(a) They shall be equipped with hoods completely enclosing those portions of the saw above the table and the material being cut;

(b) They shall have spreaders to prevent material from squeezing the saw. Spreaders shall be in true alignment with the saw. Spreaders may be removed only during grooving, dadoing, or rabbeting operations, and shall be replaced at the completion of such operations; and

(c) They shall have nonkickback fingers or dogs to oppose the tendency of the saw to pick up material or throw material toward the operator.

WAC 296-56-60233 (Cont.)

(4) Swing cutoff saws.

(a) Swing cutoff saws shall have hoods completely enclosing the upper half of the saw, the arbor end and the point of operation at all saw positions to protect the operator from material thrown up by the saw. The hood shall automatically cover the lower portion of the blade so that when the saw returns to the back of the table the hood rises on top of the fence, and when the saw is moved forward the hood drops on top, remaining in contact with the table or the material.

(b) Swing cutoff saws shall have a device to return the saw automatically to the back of the table without rebound. The device shall not be dependent upon rope, cord or springs.

(c) Devices shall be provided to prevent saws from swinging beyond the front or back edges of the table.

(d) Inverted swing cutoff saws shall have hoods covering the part of the saw protruding above the table top or the material being cut. Hoods shall automatically adjust to the thickness of, and remain in contact with, material being cut.

(5) Radial saws. Unless fixed or manually adjustable enclosures or guards provide equivalent protection, radial saws shall be guarded as follows:

(a) The upper hood of radial saws shall enclose the upper portion of the blade up to and including the end of the saw arbor and shall protect the operator from being struck by debris. The sides of the lower exposed portion of the blade shall be guarded to the blade diameter by a device automatically adjusting to the thickness of the stock and remaining in contact with the stock. The lower guard may be removed only when the saw is used for bevel cuts;

(b) Radial saws used for ripping shall have nonkickback fingers or dogs on both sides to oppose the thrust or tendency of the saw to pick up material or throw material toward the operator;

(c) An adjustable stop shall be provided to prevent travel of radial saw blades beyond the table's edge;

(d) Radial saws shall be installed so that the cutting head returns to the starting position without rebound when released; and

(e) The employer shall direct that employees perform ripping and ploughing against the saw turning direction. Rotation direction and an indication of the end of the saw to be used shall be conspicuously marked on the hood.

(6) Band saws and band resaws.

(a) Saw blades and band saw wheels shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table, to protect employees from point-of-operation hazards and flying debris.

(b) Band saws shall be equipped with brakes to stop the band saw wheel if the blade breaks.

(c) Band saws shall be equipped with a tension control device to keep the blade taut.

WAC 296-56-60233 (Cont.)

(7) Abrasive wheels and machinery.

(a) Abrasive wheels shall be used only on machines having enclosure guards to restrain pieces of grinding wheels and to protect employees if the wheel breaks, except as provided in (b) and (c) of this subsection. Where the operator stands in front of the safety guard opening, the safety guard shall be adjustable or have an adjustable tongue or piece at the top of the opening. The safety guard or the tongue shall be adjusted so that it is always within one-fourth inch of the periphery of the wheel. Guards shall be aligned with the wheel and the strength of fastenings shall be greater than the strength of the guard.

(b) When the work provides equivalent protection, or when the machine is designed as a portable saw, guards may be constructed with the spindle end, nut and outer flange exposed. When the work entirely covers the side of the wheel, the side covers of the guard may be removed.

(c) Guarding is not required:

(i) For wheels used for internal work while the wheel is contained within the work being ground; or

(ii) For mounted wheels two inches (5 cm) and smaller in diameter used in portable operations.

(d) Work rests shall be used on fixed grinding machines. Work rests shall be rigidly constructed and adjustable for wheel wear. They shall be adjusted closely to the wheel with a maximum opening of one-eighth inch (3.18 mm) and shall be securely clamped. Adjustment shall not be made while the wheel is in motion.

(e) Grinding wheels shall fit freely on the spindle. The spindle nut shall be tightened only enough to hold the wheel in place.

(f) Grinding machine wheels shall turn at a speed that is compatible with the rated speed of the wheel.

(g) Flanges and blotters shall be used only with wheels designed for their use. Flanges shall be of a type ensuring retention of pieces of the wheel in case of breakage.

(h) Abrasive wheels with operational defects shall not be used.

(8) Rotating parts, drives and connections.

(a) Rotating parts, such as gears and pulleys, that are located seven feet (2.13 m) or less above working surfaces shall be guarded to prevent employee contact with moving parts.

(b) Belt, rope and chain drives shall be guarded to prevent employees from coming into contact with moving parts.

(c) Gears, sprockets and chains shall be guarded to prevent employees coming into contact with moving parts. This requirement does not apply to manually operated sprockets.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60233, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60233, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60233, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60233, filed 12/11/84.]

WAC 296-56-60235 Welding, cutting and heating (hot work) see also definition of "hazardous cargo, material, substance or atmosphere".

(1) Definition. "Hot work" means riveting, welding, flame cutting or other fire or spark-producing operation.

(2) Hot work in confined spaces. Hot work shall not be performed in a confined space until all requirements of chapter 296-62 WAC, Part M, are met.

(3) Fire protection.

(a) To the extent possible, hot work shall 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 shall 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 shall be immediately available and shall 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 shall 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 shall instruct all employees involved in hot work operations as to potential fire hazards and the use of fire fighting equipment.

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

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

(g) Hot work shall 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, baled paper or cotton are stored. Bulk sulphur 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 fires.

(h) (i) Drums, containers or hollow structures that have contained flammable or combustible substances shall either be filled with water or cleaned, and shall then be ventilated. A designated person shall test the atmosphere and determine that it is not hazardous before hot work is performed on or in such structures.

WAC 296-56-60235 (Cont.)

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

(4) Gas welding and cutting.

(a) Compressed gas cylinders:

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

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

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

(iv) Shall be secured when moved by vehicle;

(v) Shall be secured while in use;

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

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

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

(ix) Shall not be thawed by boiling water;

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

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

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

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

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

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

(xvi) Shall be stored so that oxygen cylinders are separated from fuel gas cylinders and combustible materials by either a minimum distance of twenty feet (6 m) or a barrier having a fire-resistance rating of thirty minutes; and

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

(b) Use of fuel gas. Fuel gas shall be used only as follows:

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

WAC 296-56-60235 (Cont.)

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

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

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

(v) Leaking fuel gas cylinder valves shall be closed and the gland nut tightened. If the leak continues, the cylinder shall 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 shall be tagged and may not be used again before it is repaired; and

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

(c) Hose.

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

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

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

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

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

(vi) Gas hose storage boxes shall be ventilated.

(d) Torches.

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

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

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

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

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(f) Operational precaution. Gas welding equipment shall be maintained free of oil and grease.

(5) Arc welding and cutting.

(a) Manual electrode holders.

(i) The employer shall 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 shall 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 shall be insulated against the maximum voltage to ground.

(b) Welding cables and connectors.

(i) Arc welding and cutting cables shall 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 feet (3 m) from the electrode holder shall 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 shall not be used until it is protected by insulation equivalent in performance capacity to the original.

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

(c) Ground returns and machine grounding.

(i) Ground return cables shall 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 shall have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit shall cause rejection as a ground circuit.

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

(v) Arc welding and cutting machine frames shall 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 shall have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

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

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

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

(f) The employer shall 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 shall not be used.

(h) (i) Arc welding and cutting operations shall 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.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with subsection (8) of this section. When welders are exposed to their own arc or to each other's arc, they shall wear filter lenses complying with the requirements of subsection (8) of this section.

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

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

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

(6) Ventilation and employee protection in welding, cutting and heating.

(a) Mechanical ventilation requirements. The employer shall ensure that general mechanical ventilation or local exhaust systems shall meet the following requirements:

(i) General mechanical ventilation shall maintain vapors, fumes and smoke below a hazardous level;

(ii) Local exhaust ventilation shall consist of movable hoods positioned close to the work and shall be of such capacity and arrangement as to keep breathing zone concentrations below hazardous levels;

(iii) Exhausts from working spaces shall be discharged into the open air, clear of intake air sources;

(iv) Replacement air shall be clean and respirable; and

(v) Oxygen shall not be used for ventilation, cooling or cleaning clothing or work areas.

(b) Hot work in confined spaces. Except as specified in (c)(ii) and (iii) of this subsection, when hot work is performed in a confined space the employer shall, in addition to the requirements of chapter 296-62 WAC, Part M, ensure that:

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(i) General mechanical or local exhaust ventilations shall be provided; or

(ii) Employees in the space shall wear respirators in accordance with chapter 296-842 WAC.

(c) Welding, cutting or heating of toxic metals.

(i) In confined or enclosed spaces, hot work involving the following metals shall 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 shall 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 shall 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) The employer shall 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 shall be protected by respirators in accordance with the requirements of chapter 296-842 WAC, and those working on beryllium-containing base or filler metals shall 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 shall be protected by the same type of respiratory and other protective equipment as that worn by the welder or burner.

(d) Inert-gas metal-arc welding. Employees shall not engage in and shall not be exposed to the inert-gas metal-arc welding process unless the following precautions are taken:

(i) Chlorinated solvents shall not be used within two hundred feet (61 m) of the exposed arc. Surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.

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(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with the requirements of subsection (8) of this section. When welders are exposed to their own arc or to each other's arc, filter lenses complying with the requirements of subsection (8) of this section shall be worn to protect against flashes and radiant energy.

(iii) Employees exposed to radiation shall have their skin covered completely to prevent ultraviolet burns and damage. Helmets and hand shields shall not have leaks, openings or highly reflective surfaces.

(iv) Inert-gas metal-arc welding on stainless steel shall 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.

(7) 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 shall be made by a designated person to determine the coating's flammability. Preservative coatings shall be considered highly flammable when scrapings burn with extreme rapidity.

(b) Appropriate precaution shall be taken to prevent ignition of highly flammable hardened preservative coatings. Highly flammable coatings shall be stripped from the area to be heated. An uncoiled fire hose with fog nozzle, under pressure, shall be immediately available in the hot work area.

(c) Surfaces covered with preservative coatings shall be stripped for at least four inches (10.16 cm) from the area of heat application or employees shall be protected by supplied air respirators in accordance with the requirements of chapter 296-62 WAC.

(8) Protection against radiant energy.

(a) Employees shall 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 shall 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.

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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 (non-ferrous) 1/16 to 5/32-inch electrodes	11
Shielded Metal-Arc Welding	
3/16 to 1/4-inch electrodes	12
5/16 to 3/8-inch electrodes	14

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-03-093 (Order 04-41), § 296-56-60235, filed 01/18/05, effective 03/01/05. Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60235, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.010, .040, .050. 99-10 (Order 98-10), § 296-56-60235, filed 05/04/99, effective 09/01/99.] Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-56-60235, filed 1/18/95, effective 3/1/95. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60235, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60235, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60235, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60235, filed 12/11/84.]

WAC 296-56-60237 Spray painting.

(1) Scope. 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) Definitions.

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

(b) **"Spray booth"** means 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.

(c) **"Approved"** means, for the purpose of this section, that the equipment has been approved for the specified use by a nationally recognized testing laboratory.

(3) Spray painting requirements for indoor and outdoor spraying areas and booths.

(a) Shut-off valves, containers or piping with attached hoses or flexible connections shall have shut-off valves closed at the connection when not in use.

(b) Pumps used to transfer paint supplies shall have automatic pressure-relieving devices.

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(c) Hoses and couplings shall be inspected before use. Hoses showing deterioration, leakage or weakness in the carcass or at the couplings shall be removed from service.

(d) (i) No open flame or spark-producing equipment shall be within twenty feet (6.1 m) of a spraying area unless it is separated from the spraying area by a fire-retardant partition.

(ii) Hot surfaces shall not be located in spraying areas.

(iii) Whenever combustible residues may accumulate on electrical installations, wiring shall be in rigid conduit or in boxes containing no taps, splices or connections.

(iv) Portable electric lights shall not be used during spraying operations. Lights used during cleaning or repairing operations shall be approved for the location in which they are used.

(e) When flammable or combustible liquids are being transferred between containers, both containers shall be bonded and grounded.

(f) (i) Spraying shall be performed only in designated spray booths or spraying areas.

(ii) Spraying areas shall be kept as free from combustible residue accumulations as practical.

(iii) Residue scrapings, debris, rags, and waste shall be removed from the spraying area as they accumulate.

(g) Spraying with organic peroxides and other dual-component coatings shall only be conducted in sprinkler-equipped spray booths.

(h) Only the quantity of flammable or combustible liquids required for the operation shall be allowed in the spraying area, and in no case shall the amount exceed a one-day supply.

(i) Smoking shall be prohibited and “No Smoking” signs shall be posted in spraying and paint storage areas.

(4) Additional requirements for spraying areas and spray booths.

(a) Distribution or baffle plates shall be of noncombustible material and shall be removable or accessible for cleaning. They shall not be located in exhaust ducts.

(b) Any discarded filter shall be removed from the work area or placed in water.

(c) Filters shall not be used when the material being sprayed is highly susceptible to spontaneous heating and ignition.

(d) Filters shall be noncombustible or of an approved type. The same filter shall not be used when spraying with different coating materials if the combination of materials may spontaneously ignite.

(e) Spraying areas shall be mechanically ventilated for removal of flammable and combustible vapor and mist.

(f) Mechanical ventilation shall be in operation during spraying operations and long enough thereafter to exhaust hazardous vapor concentrations.

WAC 296-56-60237 (Cont.)

(g) Rotating fan elements shall be nonsparking or the casing shall consist of or be lined with nonsparking material.

(h) Piping systems conveying flammable or combustible liquids to the spraying booth or area shall be made of metal and be both electrically bonded and grounded.

(i) Air exhausted from spray operations shall not contaminate makeup air or other ventilation intakes. Exhausted air shall 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 shall 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 shall have a relief valve discharging either to a pump section or detached location, or the line shall 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 shall 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 feet (6.1 m) of any interior spraying area and not separated by vapor-tight partitions shall not produce sparks during operation and shall conform to the requirements of chapter 296-24 WAC Part L for Class I, Division 2, Hazardous Locations.

(m) Outside electrical lights within ten feet (3.05 m) of spraying areas and not separated from the areas by partitions shall be enclosed and protected from damage.

(5) Additional requirements for spray booths.

(a) Spray booths shall be substantially constructed of noncombustible material and have smooth interior surfaces. Spray booth floors shall 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 shall 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 shall be maintained free of storage or combustible materials.

(d) Metal parts of spray booths, exhaust ducts, pipings, airless high-pressure spray guns and conductive objects being sprayed shall be grounded.

(e) Electric motors driving exhaust fans shall not be located inside booths or ducts.

(f) Belts shall not enter ducts or booths unless the belts are completely enclosed.

(g) Exhaust ducts shall be made of steel, shall have sufficient access doors to permit cleaning, and shall have a minimum clearance of 18 inches (0.46 m) from combustible materials. Any installed dampers shall be fully opened when the ventilating system is operating.

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(h) Spray booths shall 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.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60237, filed 10/18/00, effective 02/01/01. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60237, filed 10/30/92, effective 12/8/92. Statutory Authority: Chapter 49.17 RCW. 91-24-017 (Order 91-07), § 296-56-60237, filed 11/22/91, effective 12/24/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60237, filed 1/17/86; 85-10-004 (Order 85-09), § 296-56-60237, filed 4/19/85; 85-01-022 (Order 84-24), § 296-56-60237, filed 12/11/84.]

WAC 296-56-60239 Compressed air. Employees shall be protected by appropriate eye protection and personal protective equipment complying with the requirements of WAC 296-56-60109 through 296-56-60115 during cleaning with compressed air. Compressed air used for cleaning shall not exceed a pressure of thirty p.s.i. Compressed air shall not be used to clean employees.

[Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. 92-22-067 (Order 92-06), § 296-56-60239, filed 10/30/92, effective 12/8/92. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60239, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60239, filed 12/11/84.]

WAC 296-56-60241 Air receivers.

(1) Application. This section applies to compressed air receivers and equipment used for operations such as cleaning, drilling, hoisting and chipping. It does not apply to equipment used to convey materials or in transportation applications such as railways, vehicles or cranes.

(2) Gauges and valves.

(a) Air receivers shall be equipped with indicating pressure gauges and spring-loaded safety valves. Safety valves shall prevent receiver pressure from exceeding one hundred ten percent of the maximum allowable working pressure.

(b) No other valves shall be placed between air receivers and their safety valves.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60241, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60241, filed 12/11/84.]

WAC 296-56-60243 Fuel handling and storage.

(1) Liquid fuel.

(a) Only designated persons shall conduct fueling operations.

(b) In case of spillage, filler caps shall be replaced and spillage disposed of before engines are started.

(c) Engines shall be stopped and operators shall not be on the equipment during refueling operations.

(d) Smoking and open flames shall be prohibited in areas used for fueling, fuel storage or enclosed storage of equipment containing fuel.

(e) Equipment shall be refueled only at designated locations.

(f) Liquid fuels not handled by pump shall be handled and transported only in portable containers designed for that purpose. Portable containers shall be metal, have tight closures with screw or spring covers and shall be equipped with spouts or other means to allow pouring without spilling. Leaking containers shall not be used.

WAC 296-56-60243 (Cont.)

(g) Flammable liquids shall only be dispensed in the open from a tank or from other vehicles equipped for delivering fuel to another vehicle if:

(i) Dispensing hoses do not exceed fifty feet (15.24 m) in length; and

(ii) Any powered dispensing nozzles are of the automatic-closing type.

(h) Liquid fuel dispensing devices shall be provided with an easily accessible and clearly identified shut-off device, such as a switch or circuit breaker, to shut off the power in an emergency.

(i) Liquid fuel dispensing devices, such as pumps, shall be mounted either on a concrete island or be otherwise protected against collision damage.

(2) Liquefied gas fuels. See WAC 296-24-475 through 296-24-47517.

(a) Fueling locations.

(i) Liquefied gas powered equipment shall be fueled only at designated locations.

(ii) Equipment with permanently mounted fuel containers shall be charged outdoors.

(iii) Equipment shall not be fueled or stored near underground entrances, elevator shafts or other places where gas or fumes might accumulate.

(b) Fuel containers.

(i) When removable fuel containers are used, the escape of fuel when containers are exchanged shall be minimized by:

(A) Automatic quick-closing couplings (closing in both directions when uncoupled) in fuel lines; or

(B) Closing fuel container valves and allowing engines to run until residual fuel is exhausted.

(ii) Pressure-relief valve openings shall be in continuous contact with the vapor space (top) of the cylinder.

(iii) Fuel containers shall be secured to prevent their being jarred loose, slipping or rotating.

(iv) Containers shall be located to prevent damage to the container. If located within a compartment, that compartment shall be vented. Containers near the engine or exhaust system shall be shielded against direct heat radiation.

(v) Container installation shall provide the container with at least the vehicle's road clearance under maximum spring deflection, measured from the bottom of the container or to the lowest fitting on the container or housing, whichever is lower.

(vi) Valves and connections shall be protected from contact damage. Permanent protection shall be provided for fittings on removable containers.

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(vii) Defective containers shall be removed from service.

(c) Fueling operations. See WAC 296-24-47517.

(i) Fueling operations for liquefied gas fuels shall also comply with the requirements of subsection (1) of this section.

(ii) Using matches or flames to check for leaks is prohibited.

(iii) Containers shall be examined before recharging and again before reuse for the following:

(A) Dents, scrapes and gouges of pressure vessels;

(B) Damage to valves and liquid level gauges;

(C) Debris in relief valves;

(D) Leakage at valves or connections; and

(E) Deterioration or loss of flexible seals in filling or servicing connections.

(d) Fuel storage. See WAC 296-24-47517(6).

(i) Stored fuel containers shall be located to minimize exposure to excessive temperatures and physical damage.

(ii) Containers shall not be stored near exits, stairways or areas normally used or intended for egress.

(iii) Outlet valves of containers in storage or transport shall be closed. Relief valves shall connect with vapor spaces.

(e) Vehicle storage and servicing.

(i) Liquefied gas fueled vehicles may be stored or serviced inside garages or shops only if there are no fuel system leaks.

(ii) Liquefied gas fueled vehicles under repair shall have container shut-off valves closed unless engine operation is necessary for repairs.

(iii) Liquefied gas fueled vehicles shall not be parked near open flames, sources of ignition or unventilated open pits.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 04-11-066 (Order 04-07), § 296-56-60243, filed 05/18/04, effective 07/01/04. Statutory Authority: RCW 49.17.010, .040, .050. 00-21-103 (Order 00-16), § 296-56-60243, filed 10/18/00, effective 02/01/01. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60243, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60243, filed 12/11/84.]

WAC 296-56-60245 Battery charging and changing.

(1) Only designated persons shall change or charge batteries.

(2) Battery charging and changing shall be performed only in areas designated by the employer.

(3) Smoking and other ignition sources are prohibited in charging areas.

(4) Filler caps shall be in place when batteries are being moved.

(5) Parking brakes shall be applied before batteries are charged or changed.

(6) When a jumper battery is connected to a battery in a vehicle, the ground lead shall connect to ground away from the vehicle's battery. Ignition, lights and accessories on the vehicle shall be turned off before connections are made.

WAC 296-56-60245 (Cont.)

(7) Batteries shall be free of corrosion buildup and cap vent holes shall be open.

(8) Adequate ventilation shall be provided during charging.

(9) Facilities for flushing the eyes, body and work area with water shall be provided wherever electrolyte is handled, except when employees are only checking battery electrolyte levels or adding water.

(10) Carboy tilters or siphons shall be used to handle electrolyte in large containers.

(11) Battery handling equipment which could contact battery terminals or cell connectors shall be insulated or otherwise protected.

(12) Metallic objects shall not be placed on uncovered batteries.

(13) When batteries are being charged, the vent caps shall be in place.

(14) Chargers shall be turned off when leads are being connected or disconnected.

(15) Installed batteries shall be secured to avoid physical or electrical contact with compartment walls or components.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60245, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60245, filed 12/11/84.]

WAC 296-56-60247 Prohibited operations.

(1) Spray painting and abrasive blasting operations shall not be conducted in the vicinity of cargo handling operations.

(2) Welding and burning operations shall not be conducted in the vicinity of cargo handling operations unless such hot work is part of the cargo operation.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60247, filed 12/11/84.]

WAC 296-56-60249 Petroleum docks.

(1) Pipe lines which transport petroleum liquids from or to a wharf shall be equipped with valves on shore, so located as to be readily accessible and not endangered by fire on the wharf.

(2) Drip pans, buckets, or other means shall be provided and shall be used to prevent oil spillage upon wharves during loading, disconnecting and draining hoses. After transfer is completed the contents of drip pans and buckets shall be removed and taken to a place of disposal.

(3) Package goods, freight or ship stores shall not be swing-loaded or unloaded during the bulk handling of oils or other flammable liquids in such a manner that the swing-loads will endanger the hose.

(4) Water lights for use at petroleum wharves shall be a type which does not create a source of ignition.

[Statutory Authority: Chapter 49.17 RCW. 88-14-108 (Order 88-11), § 296-56-60249, filed 7/6/88. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60249, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60249, filed 12/11/84.]

WAC 296-56-60251 Boat marinas.

(1) All hoisting equipment including derricks, cranes, or other devices used for boat launching, handling cargo, or supplies shall be inspected once a month. Records of this inspection shall be made available upon request.

(2) Floating docks are not required to have bull rails unless lift trucks or other power driven equipment is used on the dock.

(3) "No smoking" signs shall be posted in areas where fueling or flammable material is present.

(4) Flammable material or petroleum products shall be stored in a fireproof storage room or shed.

(5) Slippery surfaces shall be cleaned and nonslip material shall be used if necessary.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60251, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60251, filed 12/11/84.]

WAC 296-56-60253 Canneries and cold storage docks.

(1) Hoisting equipment used to load or unload cargo or supplies of fishing vessels shall be inspected once a month certified in accordance with the requirements of WAC 296-56-60093. The record of inspection shall be made available upon request.

(2) Slippery surfaces shall be cleaned and nonslip material shall be used if necessary.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-60253, filed 1/17/86; 85-01-022 (Order 84-24), § 296-56-60253, 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. It shall be unlawful for any employer to permit any of his 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 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.

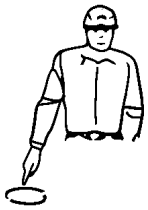
(2) RCW 51.28.010 Notice of accident-Notification of worker's rights. Whenever any accident occurs to any worker it shall be the duty of such worker or someone in his or her behalf to forthwith report such accident to his or her employer, superintendent or foreman or forewoman in charge of the work, 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, 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.

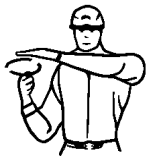
[Statutory Authority: RCW 49.17.040 and 49.17.050. 85-01-022 (Order 84-24), § 296-56-60255, filed 12/11/84.]

WAC 296-56-99002, Form-Appendix A-Standard signals for longshore crane signals.

HOIST THE LOAD



LOWER THE LOAD

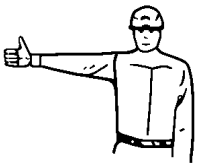


HOIST THE LOAD SLOWLY

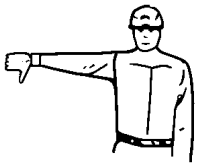
LOWER THE LOAD SLOWLY

USE MAIN HOOK

USE WHIP HOOK



RAISE THE BOOM

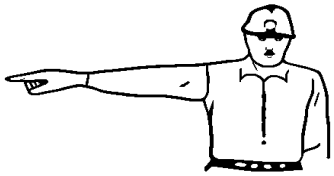


LOWER THE BOOM

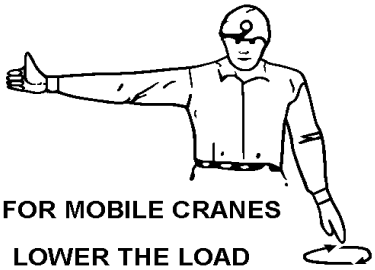
[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-99002, filed 1/17/86; Order 74-14, Appendix C (codified as WAC 296-56-99002), filed 4/22/74; Rules (part), filed 9/24/65; Rules (part), filed 3/23/60.]

WAC 296-56-99003 Form-Appendix B-Standard signals for longshore crane signals.

STOP

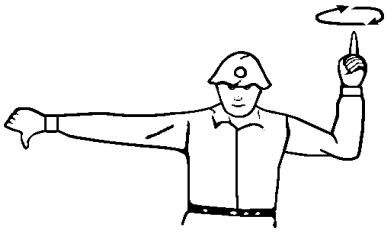


SWING LOAD IN DIRECTION FINGER POINTS



FOR MOBILE CRANES

LOWER THE LOAD AND RAISE THE BOOM



FOR MOBILE CRANES

HOIST THE LOAD AND LOWER THE BOOM

FOR MOBILE CRANES

LOCK THE CRAWLER BELT ON SIDE INDICATED BY RAISED FIST TRAVEL OTHER CRAWLER BELT IN DIRECTION INDICATED BY REVOLVING FIST

FOR MOBILE CRANES

TRAVEL BOTH CRAWLER BELTS IN DIRECTION INDICATED BY REVOLVING FISTS

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-56-99003, filed 1/17/86; Order 74-14, Appendix D (codified as WAC 296-56-99003), filed 4/22/74; Rules (part), filed 9/24/65; Rules (part), filed 3/23/60.]