

(Effective until October 1, 2020)

WAC 296-45-25510 Fall protection. (1) Personal fall arrest systems must meet the requirements of chapter 296-155 WAC, Part C-1, Fall protection requirements for construction.

(2) Personal fall arrest equipment used by employees who are exposed to hazards from flames or electric arcs, as determined by the employer under WAC 296-45-325(13), must be capable of passing a drop test equivalent to that required by subsection (3)(1) of this section after exposure to an electric arc with a heat energy of 40 ± 5 cal/cm².

(3) Body belts and positioning straps for work-positioning equipment must meet the following requirements:

(a) Hardware for body belts and positioning straps must meet the following requirements:

(i) Hardware must be made of drop-forged steel, pressed steel, formed steel, or equivalent material.

(ii) Hardware must have a corrosion-resistant finish.

(iii) Hardware surfaces must be smooth and free of sharp edges.

(b) Buckles must be capable of withstanding an 8.9 kilonewton (2,000 pound-force) tension test with a maximum permanent deformation no greater than 0.4 millimeters (0.0156 inches).

(c) D-rings must be capable of withstanding a 22 kilonewton (5,000 pound-force) tensile test without cracking or breaking.

(d) Snaphooks must be capable of withstanding a 22 kilonewton (5,000 pound-force) tension test without failure.

Note: Distortion of the snaphook sufficient to release the keeper is considered to be tensile failure of a snaphook.

(e) Top grain leather or leather substitute may be used in the manufacture of body belts and positioning straps; however, leather and leather substitutes cannot be used alone as a load-bearing component of the assembly.

(f) Plyed fabric used in positioning straps and in load-bearing parts of body belts must be constructed in such a way that no raw edges are exposed and the plies do not separate.

(g) Positioning straps must be capable of withstanding the following tests:

(i) A dielectric test of 819.7 volts, AC, per centimeter (25,000 volts per foot) for three minutes without visible deterioration;

(ii) A leakage test of 98.4 volts, AC, per centimeter (3,000 volts per foot) with a leakage current of no more than 1 mA;

Note: Positioning straps that pass direct-current tests at equivalent voltages are considered as meeting this requirement.

(iii) Tension tests of 20 kilonewtons (4,500 pounds-force) for sections free of buckle holes and of 15 kilonewtons (3,500 pounds-force) for sections with buckle holes;

(iv) A buckle-tear test with a load of 4.4 kilonewtons (1,000 pounds-force); and

(v) A flammability test in accordance with Table 1.

Table 1 - Flammability Test

Test Method	Criteria for Passing the Test
Vertically suspend a 500 mm (19.7 inch) length of strapping supporting a 100 kg (220.5 lb) weight.	Any flames on the positioning strap must self-extinguish. The positioning strap must continue to support the 100 kg (220.5 lb) mass.
Use a butane or propane burner with a 76 mm (3 inch) flame.	
Direct the flame to an edge of the strapping at a distance of 25 mm (1 inch).	
Remove the flame after 5 seconds.	
Wait for any flames on the positioning strap to stop burning.	

(h) The cushion part of the body belt must contain no exposed rivets on the inside and must be at least 76 millimeters (3 inches) in width.

(i) Tool loops must be situated on the body of a body belt so that the 100 millimeters (4 inches) of the body belt that is in the center of the back, measuring from D-ring to D-ring, is free of tool loops and any other attachments.

(j) Copper, steel, or equivalent liners must be used around the bars of D-rings to prevent wear between these members and the leather or fabric enclosing them.

(k) Snaphooks must be of the locking type meeting the following requirements:

(i) The locking mechanism must first be released, or a destructive force must be placed on the keeper, before the keeper will open.

(ii) A force in the range of 6.7 N (1.5 lbf) to 17.8 N (4 lbf) must be required to release the locking mechanism.

(iii) With the locking mechanism released and with a force applied on the keeper against the face of the nose, the keeper cannot begin to open with a force of 11.2 N (2.5 lbf) or less and must begin to open with a maximum force of 17.8 N (4 lbf).

(l) Body belts and positioning straps must be capable of withstanding a drop test as follows:

(i) The test mass must be rigidly constructed of steel or equivalent material with a mass of 100 kg (220.5 lbf). For work-positioning equipment used by employees weighing more than 140 kg (310 lbf) fully equipped, the test mass must be increased proportionately (that is, the test mass must equal the mass of the equipped worker divided by 1.4).

(ii) For body belts, the body belt must be fitted snugly around the test mass and must be attached to the test-structure anchorage point by means of a wire rope.

(iii) For positioning straps, the strap must be adjusted to its shortest length possible to accommodate the test and connected to the test-structure anchorage point at one end and to the test mass on the other end.

(iv) The test mass must be dropped an unobstructed distance of 1 meter (39.4 inches) from a supporting structure that will sustain minimal deflection during the test.

(v) Body belts must successfully arrest the fall of the test mass and must be capable of supporting the mass after the test.

(vi) Positioning straps must successfully arrest the fall of the test mass without breaking, and the arrest force cannot exceed 17.8 kilonewtons (4,000 pounds-force). Additionally, snaphooks on positioning straps cannot distort to such an extent that the keeper would release.

Note: When used by employees weighing no more than 140 kg (310 lbm) fully equipped, body belts and positioning straps that conform to American Society of Testing and Materials *Standard Specifications for Personal Climbing Equipment*, ASTM F887-12^{e1}, are deemed to be in compliance with (l) of this subsection.

(4) The following requirements apply to the care and use of personal fall protection equipment.

(a) Work-positioning equipment must be inspected before use each day to determine that the equipment is in safe working condition. Work-positioning equipment that is not in safe working condition must not be used.

Note: Work-Positioning Equipment Inspection Guidelines are located in Appendix E of this chapter.

(b) Personal fall arrest systems must be used in accordance with chapter 296-155 WAC, Part C-1.

Note: Fall protection equipment rigged to arrest falls is considered a fall arrest system and must meet the applicable requirements for the design and use of those systems. Fall protection equipment rigged for work positioning is considered work-positioning equipment and must meet the applicable requirements for the design and use of that equipment.

(c) The employer must ensure that employees use fall protection systems as follows:

(i) Each employee working from an aerial lift must use a fall restraint system or a personal fall arrest system.

(ii) Except as provided in (c)(iii) of this subsection, each employee in elevated locations more than 1.2 meters (4 feet) above the ground on poles, towers, or similar structures must use a personal fall arrest system, work-positioning equipment, or fall restraint system, as appropriate, if the employer has not provided other fall protection meeting chapter 296-155 WAC, Part C-1.

(iii) Each qualified electrical employee climbing or changing location on poles, towers, or similar structures must use fall protection equipment unless the employer can demonstrate that climbing or changing location with fall protection is infeasible or creates a greater hazard than climbing or changing location without it.

Notes: • These subsections apply to structures that support overhead electric power transmission and distribution lines and equipment. They do not apply to portions of buildings, such as loading docks, or to electric equipment, such as transformers and capacitors. Chapter 296-155 WAC, Part C-1 contains the duty to provide fall protection associated with walking and working surfaces.
• Until the employer ensures that employees are proficient in climbing and the use of fall protection under WAC 296-45-065(8), the employees are not considered "qualified electrical employees" for the purposes of (c)(ii) and (iii) of this subsection. These subsections require unqualified employees (including trainees) to use fall protection any time they are more than 1.2 meters (4 feet) above the ground.

(d) Work-positioning systems must be rigged so that an employee can free fall no more than 0.6 meters (2 feet).

(e) Anchorages for work-positioning equipment must be capable of supporting at least twice the potential impact load of an employee's fall, or 13.3 kilonewtons (3,000 pounds-force), whichever is greater.

Note: Wood-pole fall-restriction devices meeting American Society of Testing and Materials *Standard Specifications for Personal Climbing Equipment*, ASTM F887-12^{e1}, are deemed to meet the anchorage-strength requirement when they are used in accordance with manufacturers' instructions.

(f) Unless the snaphook is a locking type and designed specifically for the following connections, snaphooks on work-positioning equipment must not be engaged:

(i) Directly to webbing, rope, or wire rope;

- (ii) To each other;
 - (iii) To a D-ring to which another snaphook or other connector is attached;
 - (iv) To a horizontal lifeline; or
 - (v) To any object that is incompatibly shaped or dimensioned in relation to the snaphook such that accidental disengagement could occur should the connected object sufficiently depress the snaphook keeper to allow release of the object.
- (5) Employees must not wear climbers while doing work where they are not required. Employees must not continue to wear their climbers while working on the ground; except for momentary or short periods of time on the ground.
- (6) Employees, when working from a hook ladder, must either belt themselves securely to the ladder, attach themselves to the structures by means of a safety line, or belt themselves to ladder safety equipment, which must consist of a safety rope or belting threaded through the rungs or secured to the ladder at intervals of not more than three feet.
- (7) Before an employee throws their weight on a belt, the employee must determine that the snap or fasteners are properly engaged.
- (8) Safety straps must not be placed around poles above the cross-arm except where it is not possible for the strap to slide or be slipped over the top of the pole by inadvertence of the employee. Neither end of the strap must be allowed to hang loose or dangle while the employee is ascending or descending poles or other structures.
- (9) Body belts and safety straps must not be stored with sharp-edged tools or near sharp objects. When a body belt, safety strap and climbers are kept in the same container, they must be stored in such a manner as to avoid cutting or puncturing the material of the body belt or safety strap with the gaffs or climbers.
- (10) Employees must not attach metal hooks or other metal devices to body belts. Leather straps or rawhide thongs must have hardwood or fibre crossbars. Leather straps and rawhide thongs must not have metal or other conductive crossbars on them.
- (11) Climbing gaffs must be kept properly sharpened and must be at least 1-1/8 inches in length.
- (12) Lifelines must be protected against being cut or abraded.
- (13) Fall arrest equipment, work positioning equipment, or travel restricting equipment must be used by employees working at elevated locations more than 4 feet (1.2 m) above the ground on poles, towers, or similar structures if other fall protection has not been provided.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and chapter 49.17 RCW. WSR 19-13-083, § 296-45-25510, filed 6/18/19, effective 8/1/19; WSR 16-10-082, § 296-45-25510, filed 5/3/16, effective 7/1/16. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and 29 C.F.R. 1926, Subpart M, Fall Protection. WSR 13-04-073, § 296-45-25510, filed 2/4/13, effective 4/1/13. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.440, 49.17.060, and 29 C.F.R. 1926, Subpart CC. WSR 12-01-086, § 296-45-25510, filed 12/20/11, effective 2/1/12. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 05-17-038, § 296-45-25510, filed 8/9/05, effective 10/1/05; WSR 98-07-009, § 296-45-25510, filed 3/6/98, effective 5/6/98.]

(Effective October 1, 2020)

WAC 296-45-25510 Fall protection. (1) Personal fall arrest systems must meet the requirements of chapter 296-880 WAC, Unified safety standards for fall protection.

(2) Personal fall arrest equipment used by employees who are exposed to hazards from flames or electric arcs, as determined by the employer under WAC 296-45-325(13), must be capable of passing a drop test equivalent to that required by subsection (3)(1) of this section after exposure to an electric arc with a heat energy of 40 ± 5 cal/cm².

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(b) Buckles must be capable of withstanding an 8.9 kilonewton (2,000 pound-force) tension test with a maximum permanent deformation no greater than 0.4 millimeters (0.0156 inches).

(c) D-rings must be capable of withstanding a 22 kilonewton (5,000 pound-force) tensile test without cracking or breaking.

(d) Snaphooks must be capable of withstanding a 22 kilonewton (5,000 pound-force) tension test without failure.

Note: Distortion of the snaphook sufficient to release the keeper is considered to be tensile failure of a snaphook.

(e) Top grain leather or leather substitute may be used in the manufacture of body belts and positioning straps; however, leather and leather substitutes cannot be used alone as a load-bearing component of the assembly.

(f) Plyed fabric used in positioning straps and in load-bearing parts of body belts must be constructed in such a way that no raw edges are exposed and the plies do not separate.

(g) Positioning straps must be capable of withstanding the following tests:

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(h) The cushion part of the body belt must contain no exposed rivets on the inside and must be at least 76 millimeters (3 inches) in width.

(i) Tool loops must be situated on the body of a body belt so that the 100 millimeters (4 inches) of the body belt that is in the center of the back, measuring from D-ring to D-ring, is free of tool loops and any other attachments.

(j) Copper, steel, or equivalent liners must be used around the bars of D-rings to prevent wear between these members and the leather or fabric enclosing them.

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Notes:

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