

CCS Administrative Procedure

2.30.05-Z Fall Protection Plan

Implementing Board Policy [2.30.05](#)

Contact: Environmental Health & Safety, 533-8686

1.0 Purpose

Community Colleges of Spokane (CCS) is committed to the health and safety of its faculty and staff, and in maintaining a safe and efficient workplace that complies with all local, state and federal safety and health regulations, programmatic standards, and with any special safety concerns identified at the unit level. An important part of maintaining a safe work environment is the right for all employees to be notified of potential hazards in the workplace, as well as their obligation to notify CCS of any health hazards or unsafe conditions to supervisory personnel.

2.0 Definitions

- 2.1 Anchorage: A secure point of attachment for lifelines, lanyards or deceleration devices which can withstand the forces specified in the applicable section of these guidelines.
- 2.2 Approved: Tested and certified (for the purpose of this guideline) by the manufacturer, or any recognized national testing laboratory, to possess the strength requirements specified in the appropriate WAC regulation. Approved components should be identified by a legible manufacturer's stamp or label confirming compliance with the ANSI Z359.1 standard (Safety Requirements for personal fall arrest systems, subsystems and components).
- 2.3 Competent Person: As defined by WAC 296-155-012, an individual capable of recognizing potential hazards in the workplace who has the authority to take prompt, corrective action to eliminate those hazards.
- 2.4 Connector: A device used to couple (connect) parts of the personal fall arrest system and positioning device systems together.
- 2.5 Deceleration Device: Any mechanism such as a rope grab, rip-stitch lanyard, specifically woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc. which serves to dissipate a substantial amount of energy during a fall arrest or otherwise limit the energy imposed on an employee during fall arrest.
- 2.6 Fall Arrest System: The use of multiple approved safety equipment components that are interconnected and rigged to arrest a free fall.
- 2.7 Fall Protection Work Plan (FPWP): A written planning document in which the supervisor identifies all areas where a fall hazard of 10 feet or greater exists.
- 2.8 Fall Restraint System: An approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level.
- 2.9 Floor Hole: An opening measuring less than 12 inches but more than one inch in its least dimension in any floor, roof, platform, or surface through which materials but not persons may fall, such as a belt hole, pipe opening, or slot opening.
- 2.10 Floor Opening: An opening measuring 12 inches or more in its least dimension in any floor, roof, platform, or surface through which persons may fall.
- 2.11 Full Body Harness: A configuration of connected straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis with provisions for attaching a lanyard, lifeline or deceleration device.

- 2.12 Guardrail: A barrier erected to prevent employees from falling to lower levels.
- 2.13 Hardware: Snap hooks, D-rings, bucklers, carabiners, adjusters or O-rings that are used to attach the components of a fall protection system together.
- 2.14 Lanyard: A flexible line of webbing, rope or cable used to secure a body belt or harness to a lifeline of an anchorage point usually two to four feet long.
- 2.15 Low Pitched Roof: A roof having a slope equal to or less than 4 in 12.
- 2.16 Lifeline: A component consisting of a flexible line for connecting to an anchorage and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- 2.17 Positioning Device System: A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.
- 2.18 Rope Grab: A fall arrester that is designed to move up or down a lifeline suspended from a fixed overhead or horizontal anchorage point or lifeline to which the belt or harness is attached. In the event of a fall, the rope grab locks onto the lifeline rope through compression to arrest the fall.
- 2.19 Self-retracting Lifelines: A deceleration device which contains a drum-wound line which may be slowly extracted from or retracted onto the drum under slight tension during normal employee movement, and which after onset of a fall automatically locks the drum and arrests the fall.
- 2.20 Shock Absorbing Lanyard: A flexible line of webbing, cable or rope used to secure a body belt of harness to a lifeline or anchorage point that has an integral shock absorber.
- 2.21 Warning Line System: A barrier erected on a walking and working surface to warn employees that they are approaching an unprotected fall hazard(s).

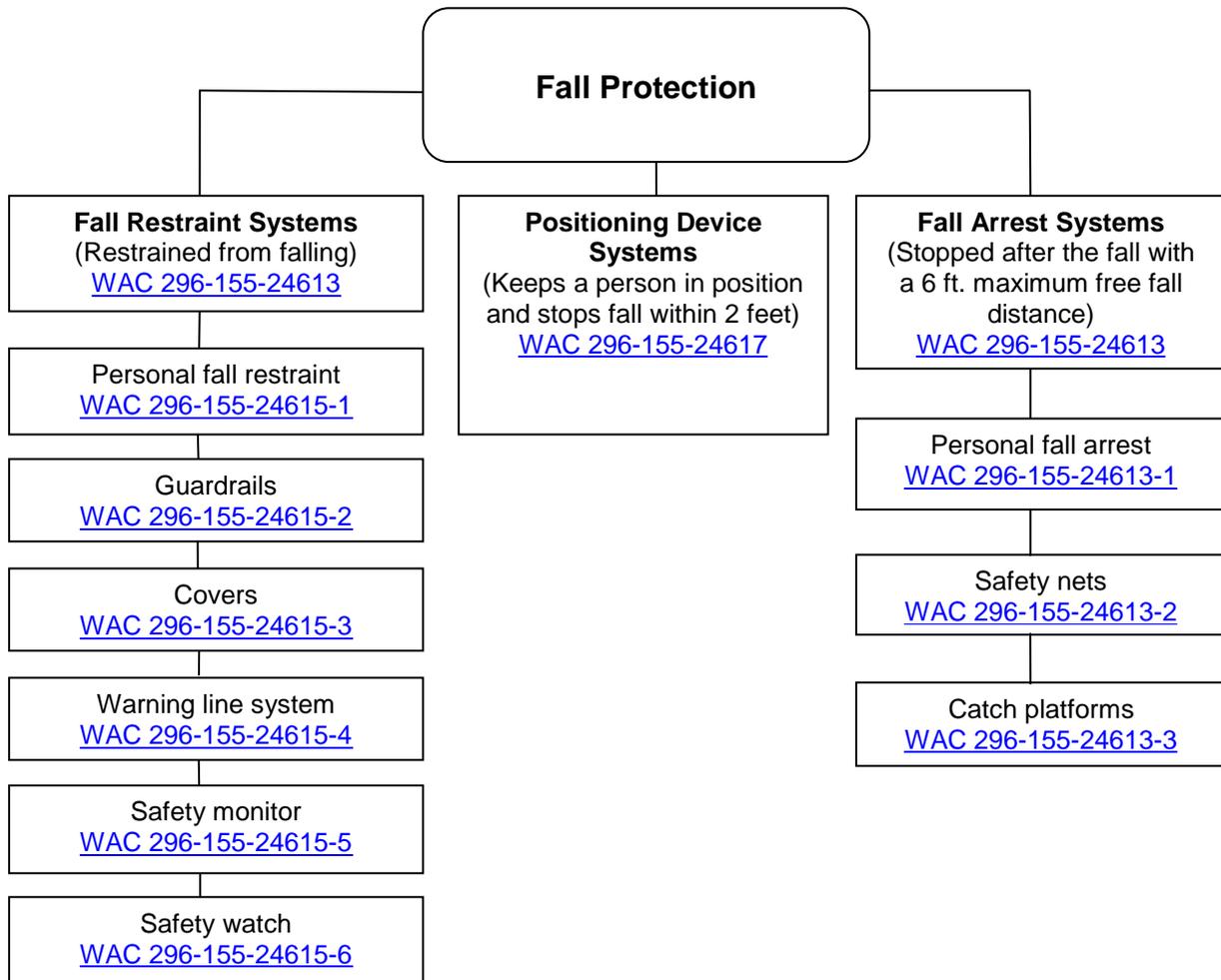
3.0 Responsibilities

- 3.1 Departments with covered employees must ensure that:
 - 3.1.1 Covered employees and their supervisors comply with this procedure;
 - 3.1.2 Covered employees are trained according to section 9.0 of this procedure; and
 - 3.1.3 A copy of this procedure is accessible for all covered employees.
- 3.2 Supervisors must:
 - 3.2.1 Ensure that a competent person prepares the Fall Protection Work Plan when it is required;
 - 3.2.2 Review and approve the written Fall Protection Work Plan prior to the start of the project and consult the Environmental Health and Safety Office as necessary;
 - 3.2.3 Provide approved fall protection equipment and systems to employees and ensure they are properly used; and
 - 3.2.4 Monitor the work activity to ensure that the requirements in these guidelines and other required safety precautions have been taken.

- 3.3 Employees must:
 - 3.3.1 Never attempt any task or operation for which they have not received the necessary level of training and equipment;
 - 3.3.2 Inspect all Personal Fall Protection equipment and components at the beginning and end of each job.
 - 3.3.3 Immediately report any problems or concerns to their supervisor or the Environmental Health and Safety Office.
- 3.4 Environmental Health and Safety (EH&S) Office will:
 - 3.4.1 Assist supervisors and employees in the evaluation of potential fall hazards;
 - 3.4.2 Monitor site activities and operations as necessary to ensure compliance with health and safety guidelines.

4.0 Fall Protection Systems

4.1 The purpose of fall protection is to either prevent a fall before it occurs or stop a fall after it occurs. The three categories of fall protection are shown in following chart.



Examples of what personal fall arrest, personal fall restraint and positioning device systems look like:



Fall Arrest



Fall Restraint



Positioning

4.2 **Fall Restraint** equipment keeps a person from reaching a fall point, such as a roof's edge, and consists of:

4.2.1 Personal Fall Restraint

4.2.1.1 A system used to prevent an employee from access to a leading edge or other fall-hazard location. It consists of anchorages, connectors, body belt, and harness. It may include lanyards, lifelines, and rope grabs designed for that purpose.

4.2.2 Guardrails.

4.2.2.1 Standard guardrails will consist of a top rail, intermediate rail, toe board and posts. The top rail will be between 42" +/- 3" from the floor platform. The intermediate rail will be half way between the top rail and the floor. The kick board will be on the floor. The posts will be spaced no more than 8' apart. The railing must withstand a 200 lbs. force applied horizontally to the top rail.

4.2.2.2 When a standard guardrail is not present, or a person's center of gravity is located outside of the protection offered by the guardrails, alternative fall protection equipment will be used.

4.2.3 Covers

4.2.3.1 All covers must be secured when installed to prevent accidental displacement by the wind, equipment, or employees.

4.2.3.2 All covers must be color coded or they must be marked with the word "**hole**" or "**cover**" to provide warning of the hazard.

4.2.3.3 Covers must be able to support twice the weight of employees, equipment, and materials that might cross them.

4.2.3.4 Floor opening or floor hole covers must be of any material that meets the following strength requirements:

4.2.3.4.1 Conduits, trenches, and manhole covers and their supports, when located in roadways, and vehicular aisles must be designed to carry a truck rear axle load of at least two times the maximum intended load;

- 4.2.3.4.2 All floor opening and floor hole covers must be capable of supporting the maximum potential load but never less than 200 pounds.

4.2.4 Warning Line System

Warning line system specifications will be used on pitches 4 in 12 or less for roofing work, leading edge work, and on low pitched open sided surfaces for work activities other than roofing work or leading edge work. Each department covered by this procedure will ensure the following:

- 4.2.4.1 Warning lines must be erected around all unprotected sides and edges of the work area.

4.2.4.2 Warning lines used during **roofing work**:

- 4.2.4.2.1 Warning lines will be erected not less than 6 feet from roof edge when no mechanical/mobile equipment is used or when roofing work is taking place.
- 4.2.4.2.2 When mechanical/mobile equipment is being used, the warning line will be erected not less than 6 feet from the roof edge which is parallel to the direction of the mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of mechanical/mobile equipment operation.

Note: The warning line is not required when performing roofing work on low pitched roofs less than 50 feet wide.

- 4.2.4.3 Warning lines erected on **low pitched open sided surfaces** for work activities other than roofing work or leading edge work, must be erected not less than 15 feet from the unprotected sides or edges of the open sided surface.

- 4.2.4.4 Warning lines must be erected to separate employees who are engaged in **leading edge work** (between the forward edge of the warning line and the leading edge), from other work areas on the low pitched surface. The responsible department will ensure:

- 4.2.4.4.1 The warning line is erected not less than 6 feet nor more than 25 feet from the leading edge;

- 4.2.4.4.2 When fall arrest systems or fall restraint systems as described in this procedure are not used, a safety monitor system as described in **section of 4.2.5** will be implemented to protect employees engaged in constructing the leading edge who are working between the forward edge of the warning line and the leading edge.

- 4.2.4.5 Warning line systems consist of ropes, wires, or chains and supporting stanchions that form a barrier to warn workers they are near an unprotected roof side or leading edge. The warning line systems must be erected as follows:

4.2.4.5.1 Warning lines will be erected around all unprotected sides and edges of the work area.

4.2.4.5.2 The rope, wire, or chain will be flagged at not more than 6 feet intervals with high visibility material.

Note: Highly visible caution or danger tape as described in section 4.2.4.5.5 of this plan does not need to be flagged.

4.2.4.5.3 The rope, wire, or chain will be rigged and supported in such a way that its lowest point (including sag) is not less than 36 inches from the roof surface and its highest point is no more than 45 inches from the roof surface.

4.2.4.5.4 After being erected, with the rope, wire or chain attached, stanchions will be capable of resisting, without tipping over, a force of at least 16 lbs. applied horizontally against the stanchion, 30 inches above the roof surface, perpendicular to the warning line, and in the direction of the roof edge.

4.2.4.5.5 The rope, wire, or chain will have a minimum tensile strength of 200 lbs., and after being attached to the stanchions, will be capable of supporting, without breaking, the loads applied to the stanchions.

Note: Highly visible caution or danger tape may be used in lieu of rope, wire, or chain as long as it is at least three inches wide and three mils (0.003 inches) thick and has a tensile strength of at least two hundred pounds.

4.2.4.5.6 The line will be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

4.2.4.6 Materials will not be stored within six feet of the roof edge unless guardrails are erected at the roof edge.

4.2.4.7 Work outside of the warning line must utilize a personal fall arrest system.

4.2.4.8 Warning lines may only be used on low-sloped roofs (pitch of less than or equal to 4 in 12) and as part of an approved Fall Protection Work Plan by a competent person.

4.2.4.9 The access path will be erected as follows:

4.2.4.9.1 Points of access, materials handling areas, and storage areas will be connected to the work area by a clear access path formed by two warning lines.

4.2.4.9.2 When the path to a point of access is not in use, a rope, wire, or chain equal in strength and height to the warning line will be placed across the path at the point where the path intersects the warning line erected around the work area.

4.2.5 Safety monitor system

4.2.5.1 A Safety Monitor System (SMS) may be used in conjunction with a warning line system as a method of guarding against falls during work on low-pitched roofs (less than or equal to 4 in 12 pitch), and leading edge work. This system does not provide a physical means of preventing or arresting falls.

4.2.5.2 When a safety monitor system is used, the supervisor must ensure that the safety monitor system is addressed in the fall protection work plan, including the name of the safety monitor(s) and the extent of their training in both the safety monitor and warning line systems.

4.2.5.3 The safety monitor system must not be used when adverse weather conditions create additional hazards.

4.2.5.4 The safety monitor(s) will be trained in the function of both the safety monitor and warning line systems, and will:

4.2.5.4.1 Have control authority over the work as it relates to fall protection.

4.2.5.4.2 Be instantly distinguishable over members of the work crew (such as, wearing a brightly colored vest).

4.2.5.4.3 Perform no other duties while acting as safety monitor.

4.2.5.4.4 Be on same surface as workers, be within visual sight, and close enough to communicate and warn other employees in a normal voice.

4.2.5.4.5 Not supervise more than eight exposed workers at one time.

4.2.5.4.6 Warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.

4.2.6 Safety Watch System

It is a fall protection system as described in [WAC 296-155-24615-6](#), in which a person monitors one worker who is engaged in repair work or servicing equipment on low pitch roofs only.

4.3 **Fall Arrest** equipment is used to protect a person from falling more than six feet and/or striking a lower surface/object and consists of:

4.3.1 Personal Fall Arrest System (PFAS)

4.3.1.1 An ANSI Class III full body harness; lanyard; lifeline, and an anchorage point. This system is called a Personal Fall Arrest System (PFAS).

PFAS = Class III body harness + lanyard + lifeline + anchor point

Important Note: A body belt is not acceptable as part of a personal fall arrest system.

4.3.1.2 Consider these three components of a fall when choosing the proper PFAS:

4.3.1.2.1 A free fall distance (not to exceed 6 feet) which is the distance a person falls before the PFAS begins to apply force to stop the fall.

4.3.1.2.2 The deceleration distance which is after the free fall, when the PFAS activates and applies force to stop the fall (not to exceed 3.5 feet and done by deceleration device such as a shock absorbing lanyard).

4.3.1.2.3 The arresting force, which is the force needed to stop the worker from falling (limited to 1800 lb. for body harness). The greater the free fall distance, the more force needed to arrest the fall. Equipment used must be able to withstand this arresting force, and the weight of the worker must be considered in the arresting force calculations.

4.3.2 A safety net system.
Please refer to [WAC 296-155-24613-2](#)

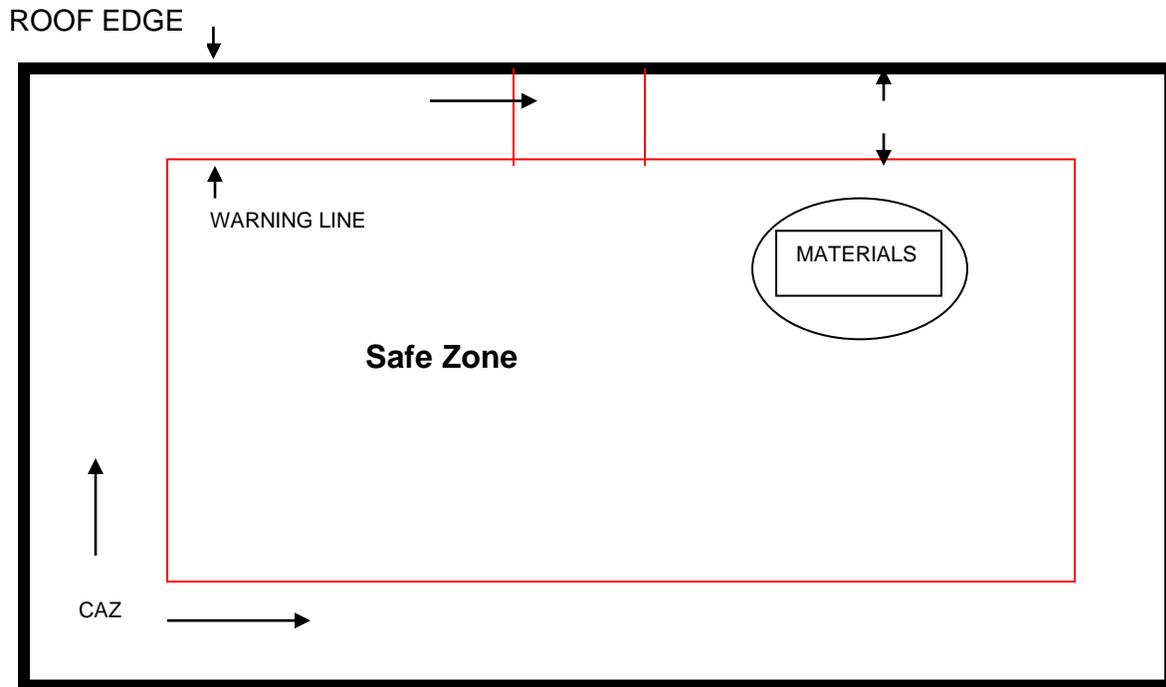
4.3.3 Catch platforms.
Please refer to [WAC 296-155-24613-3](#)

4.4 **Positioning Devices** are not recognized as fall arrest equipment and should not be used for such. This system holds the employee in place while keeping their hands free to work, and whenever an employee leans back, the system is activated. Positioning devices will be rigged so employees cannot free fall more than two feet.

4.5 **Leading Edge Work**

When performing leading edge work on low-pitched roofs, the department in charge must ensure that a Control Access Zone (CAZ) is established. A CAZ is the area between the warning line and the unprotected sides and the walking/working surface. The CAZ begins six feet back from the leading edge and is separated by other work areas by a warning line.

At all times when performing work within a CAZ, fall restraint or fall arrest systems must be used. When these systems are not feasible a safety monitor system will be used. A warning line is not mandatory on low-pitched roofs less than 50 feet wide, but a safety monitor is still required.



5.0 Fall Protection Work Plan (FPWP)

- 5.1 The following are examples of regular job duties with the potential for fall hazards in which CCS employees are regularly involved:
- 5.1.1 Window washing;
 - 5.1.2 Cleaning sawdust collectors;
 - 5.1.3 Changing filter systems (HVAC & dust collection on campus roofs);
 - 5.1.4 Electrical work;
 - 5.1.5 Changing light bulbs;
 - 5.1.6 Painting;
 - 5.1.7 Roof work and repair (cleaning gutters, painting roof trim, snow and ice removal, etc.);
 - 5.1.8 Gardening work (tree trimming);
 - 5.1.9 Construction work (structural carpentry/building houses); and
 - 5.1.10 Logging program (climbing vertical poles).
- 5.2 Fall hazards may also be recognized by the type of equipment used. For example, the following is a list of equipment select CCS employees regularly use to complete assigned job duties of ten feet or more in height:
- 5.2.1 Boom-truck;

- 5.2.2 Scaffolding; and
- 5.2.3 Platforms.
- 5.3 According to [WAC 296-155-24611-2](#), when a fall hazard of ten feet or greater exists, a written FPWP must be developed and should include:
 - 5.3.1 Identification of the fall hazards in the work area;
 - 5.3.2 A description of the method of fall arrest or fall restraint to be provided for each identified hazard;
 - 5.3.3 A description of the procedures for assembly, maintenance, inspection and disassembly of the fall protection system to be used;
 - 5.3.4 A description of the correct procedures for handling, storage and security of tools and materials;
 - 5.3.5 A description of the method(s) to provide overhead protection for workers who may be in, or pass through the area below the work site; and
 - 5.3.6 A description of the method for prompt, safe rescue and removal of injured workers.
- 5.4 A FPWP template is included in the attachments section of this procedure.

For more details about the requirements and when fall protection including FPWP is needed, please refer to CCS Fall Protection Requirements.

6.0 Fall Protection Equipment Inspection

- 6.1 All components (including hardware, lanyards, and positioning harnesses or full body harnesses depending on which system is used) of personal fall arrest systems, personal fall restraint systems and positioning device systems will be inspected prior to each use according to manufacturer's specifications for mildew, wear, damage, and other deterioration.
- 6.2 Defective components will be removed from service.
- 6.3 Fall arrest equipment will be inspected by the user before each use, after a fall event, and annually. The after a fall event and annual inspections will be conducted by a competent person.
- 6.4 Safety nets will be inspected at least once a week according to manufacturer's specifications for wear, damage, and other deterioration.
- 6.5 Safety nets must also be inspected after any occurrence which could affect the integrity of the safety net system.

7.0 Rescue Plan

- 7.1 Rescue personnel must be trained and have proper rescue and removal equipment before attempting to remove an injured worker from an elevated job site. If neither trained personnel nor equipment is available, the following procedures should be followed:

- 7.1.1 Never attempt to move an injured worker if no immediate danger exists;
- 7.1.2 Immediately call 911 emergency services as appropriate to the situation;
- 7.1.3 Provide first-aid/CPR as necessary; and
- 7.1.4 Inform CCS Facilities (533-8630) of the situation.

8.0 Weather conditions

- 8.1 The department in charge must ensure that work at height is carried out only when weather conditions do not place the safety and health of employees at risk.

9.0 Training

- 9.1 Training must be provided to all covered employees at the time of hire and as required thereafter.
- 9.2 Training must be provided at no cost to employees and during working hours.
- 9.3 Departments with covered employees must ensure all trainings are documented.

10.0 Attachments

- 10.1 Fall Protection Work Plan
- 10.2 CCS Fall Protection Requirements

11.0 Resources

- 11.1 [L&I Fall Protection Basics for Construction Activities](#)
- 11.2 [WAC 296-115, Part C-1, Fall Protection Requirements for Construction](#)
- 11.3 [L&I Fall Protection, Fall Restraint & Fall Arrest - Training & Videos](#)
- 11.4 [Fall Protection, Fall Restraint & Fall Arrest - Publications & Tools](#)
- 11.5 [OSHA Fall Prevention/Protection](#)