1. This information provides guidelines for roof top tie-down systems for worker safety (fall restraint and fall arrest systems). Rough carpentry, roofing, flashing and sheet metal, safety, and temporary facilities and controls are covered in other parts of these standards or are available from the Facilities Management (FM) project representative.

2. FM project representative and Environmental Health and Safety Office shall approve selection of means and methods of installation, use of safety systems described, and material and color selection of permanent installations. Unless otherwise approved, design intent requires means and methods that provide minimal disruption to adjacent building activities and operations while providing safe working conditions for construction workers and maintenance personnel.

3. Provide proof that design for systems meets applicable code requirements, including Building Code, WISHA Fall Arrest and Fall Restraint, and WAC.


5. Require General Contractor to be responsible for verifying field measurements.

6. Design requirements: Each tie-down to provide fall arrest for 1 (one) person and fall restraint for up to 4 (four) persons when used in accordance with manufacturer’s recommendations and specifications.

7. The tie-down shall be designed to be a permanent fixture attached to the roof structure. The system shall allow any workman to perform any task needed, such as roof covering application, roof maintenance, or any other roof top work, without fear of injury.
   a. Catenary lines: Provide only when hooks are not feasible. Stainless steel cable with 5000 pound minimum fall impact load tensile strength, with (3) clamps at each end of cable tie-offs.
   b. Allow 1” – 3” sag or drop in cable between attachment points or as per manufacturers design.

8. Western Washington University has approved the following products and/or suppliers:

9. Use of an ANSI Z359-2007 approved personal fall protection equipment that is rated to 1,800 LBS maximum arrest force is required.

10. Use of an ANSI Z359-2007 approved full body harness is required XTS-Impact anchors and toggle anchor connection are designed to resist an ultimate load of 3,600 LBS.

11. Guardian Products are preferred to be used on campus.

12. All systems shall be engineered by the manufacturer.
a. Use only qualified installers.
b. At any roof containing asbestos, work must be done by a certified asbestos worker and
certified installer of Guardian products.
c. All installations must be inspected by a competent person certified by the manufacturer.
d. Substitutions to materials or equipment is not permitted.

13. Roofs that are 4:12 pitch or less
   a. Should be a Horizontal Lifeline System.
   b. If working on a lower roof and tied off to the fall anchors from the upper roof, solid post
      anchors must be used.
   c. Use XTS-Impact Horizontal Lifeline System or equivalent recommended by the
      manufacturer.
   d. Single posts, XTS-Globe or XTS-Impact (360 degree anchor) or equivalent recommended
      by the manufacturer.
   e. All Cables should be min. 5/16" stainless steel.
   f. Allow only 1-3" of sag or drop in cable between attachment points.

14. Horizontal Lifeline & Anchor Systems greater than 4:12 pitch
   a. Anchors must be fastened as per manufacture specs and into structurally sound surface.
   b. Allow only 1-3" of sag or drop in cable between attachment points.

15. Stationary Ladders
   a. Any vertical stationary ladder over 25’ must have a Self-Retracting Lifeline.
   b. Stationary ladders must be min 9" off the wall to allow proper foot placement when climbing
      and minimum 1' 6" wide.
   c. The top rails of a stationary ladder needs to be 2’ 6” past the top step or parapet wall.
   d. Stationary ladders should have a steel or galvanized grate above the last step that
      stretches over the parapet wall.
   e. Rungs, cleats or steps must have some kind of anti-slip resistance tread or coating for
      traction.
   f. The top opening of the stationary ladder will be 24" wide to allow one to walk through.
   g. Rungs, cleats, and steps need to be spaced a minimum of 10" to a maximum of 14" apart
      measured between the center lines of the rungs, cleats or steps.

16. Any temporary hole or skylight that’s big enough for a person to fall through must be covered
    with plywood or some type of netting to avoid a potential fall per OSHA 1926.501(b)(4)(iii).

17. Immediately remove from service all personal fall arrest systems and components that are
    damaged or subject to the forces of arresting a fallen authorized person.

18. Field verify existing anchoring fall protection systems for soundness before using.

End