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## Environmental Health and Instructional Safety POLICIES AND PROCEDURES

### FALL PROTECTION FOR ROOF WORKERS

Before working on roofs above 7 ½ feet,<sup>1</sup> Physical Plant staff should implement an approved fall protection system. Review the methods described below and select the safest, most practical method based on the proposed task and the criteria of use for each method. If parapet is not installed, the warning line and the guard rail system generally represent the most practical fall protection method.

Most roofs at CSUF qualify as monolithic roofing systems. It may involve a single layer of sealed rubber. Multiple unit roofing systems utilize shingles or tiles. The two roofing systems often require different methods of fall protection, and the slope of a roof may affect the choice. Any roof with greater than a 7:12 slope requires a personal fall arrest system.

**Warning lines** and headers offer protection only on monolithic roofs with a 4:12 slope or less. They include ropes or wires with minimum 500 pound tensile strength that are secured to prevent slack uptake between sections. Locate them 5 feet from edge<sup>2</sup> and flag them visibly every 6 feet. Also, support them to prevent displacement and ensure that they can withstand a vertical or horizontal force of 13 pounds per linear feet.

**Guard rails** offer protection on monolithic roofs and stairwells. They include 4 inch high toe-boards, 2x4 upright posts spaced 8 feet apart or closer, a 2x4 top rail 42 to 45 inches high, and a 1x6 mid-rail. Use select lumber or equivalent material for rails. The top rail should withstand a force of 13 pounds per linear foot applied vertically or horizontally.

#### OTHER OPTIONS:

**Catch platforms** include guardrails. Locate them just below eaves near the work area. They should extend 2 feet horizontally beyond the eave.

**Covers** for holes shall withstand a weight of 400 pounds or twice the potential weight of the employees, equipment, or material imposed upon the cover. Include a sign on the cover “Opening – Do Not Remove”. Fasten securely.

**Eave barriers** offer protection on monolithic roofs and multiple unit roofs with slope greater than 5:12. Anchor them substantially at eave level or by ropes to the roof.

**Parapets** are protective walls along the edge 24 inches or higher. They offer protection on monolithic roofs with slope greater than 4:12 and multiple unit roofs of any slope.

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<sup>1</sup> This height changes to 20 feet for roofers performing roofing operations. Use fall protection at any height when pulling felt laying equipment backward. Do not pull equipment backward on roofs with > 4:12 slope

<sup>2</sup> Locate 10 feet from edge when walking backward to pull equipment.

**Personal fall arrest** systems with safety lines need approval from a qualified<sup>3</sup> person. They offer protection on monolithic roofs with slopes greater than 4:12 and multiple unit roofs with slopes greater than 5:12. Anchor them to the roof; secure lanyards no lower than the employee's waist; and limit the falling distance to 4 feet. Anchors and lifeline shall support a 5,000 pound dead weight.

**Roof jack** systems offer protection on multiple unit roofs<sup>4</sup>.

**Safety nets** need approval before use and should extend 8 feet horizontally and not lower than 10 feet below the working surface. They offer protection when personal fall protection is required but impractical. Determine clearances by performing an impact loading test.

**Scaffold platforms**<sup>5</sup> offer protection on monolithic roofs or multiple unit roofs with slope of greater than 5:12. As a fully planked part of a scaffold, locate them near eave level.

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<sup>3</sup> A qualified person is a person designated by EH&IS who through training, experience, or instruction has demonstrated the ability to safely perform all assigned duties related to fall protection.

<sup>4</sup> Use safety lines when slope is greater than 7:12.

<sup>5</sup> Prohibited scaffolds include lean-to or jack scaffolds, shore scaffolds, nailed bracket, loose tile, loose blocks, stilts, or other similar unstable objects not to be used as platforms or supports. Bricklayer exemptions exist.