PART 1 GENERAL

1.1. DESIGN REQUIREMENTS

A. Roof access

1. Where a roof will likely be accessed by non-Facilities personnel for any reason, provide roof access through stairway(s), instead of fixed ladder(s).

2. Locate roof access doors, hatches and fixed ladder locations at least 6 feet away from:
   a. Roof edges
   b. Unguarded elevated locations (30+ inches above adjacent work levels).
   c. Skylights or other roof openings
   d. Glazed surfaces

3. Design of roof access hatch or door should allow the hatch-cover or door to remain closed when personnel are on the roof with the ability to open the hatch-cover or door from the roof without being exposed to a fall hazard. In addition, guardrails shall be installed on the exposed sides of the access hatch when the hatch is open [Per Cal/OSHA 8 CCR Section 3212].

4. Install grab bars for roof access ladders.

B. Guardrails

1. 42” High guardrails, a 42” high parapet, or a combination of both creating a 42” high fall-protection edge, shall be provided at locations where there is a potential of an employee to approach within 6 feet of the edge of the roof. Where such roof access is needed no more than 4 times per year, harness and lanyards attached to an approved fall prevention system may be used in lieu of guardrails [Per Cal/OSHA 8 CCR Section 3210 and 3212].

2. Every ladderway floor opening or platform with access provided by ladderway, shall be protected by guardrails with toeboard on all exposed sides except at the entrance of the opening. Swinging gates or equivalent protection shall be installed at the opening through the
railing and can support a minimum weight of 200 lbs. per-person [Per Cal/OSHA 8 CCR Section 3210].

C. Anchorage points

1. Where fall prevention systems may be necessary, install anchorage points and life-lines that can support a minimum weight of 1800 lbs. per-person [Per Cal/OSHA 8 CCR Section 1670].

2. Where fall arrest systems are necessary, install anchorage points that can support a minimum of 5,000 pounds per person, and in compliance with CalOSHA codes [Per Cal/OSHA 8 CCR Section 1670].

3. Load testing and Marking
   a. All fall prevention anchors must be load-tested and certified by a CalOSHA certification agent prior to completion of construction work. Proof of certification for each individual anchor must be provided to the University by the General Contractor on the project.

   b. Mark each anchorage point with a unique identifying number that corresponds with the certification number.

   c. Mark each anchorage point with bright / fluorescent paint, and identify them with weatherproof tags / labels that include the unique identifying number of the anchor on the label.

D. Miscellaneous

1. Locate rooftop equipment (e.g. HVAC units, antennas, cooling towers, exhaust fans, etc.), and the associated access roof walk-ways and work-area access pads, at least 6 feet away from unguarded roof edges, skylights, glazed surfaces, and elevated locations.

2. For unguarded roof or other fall hazard edge, provide demarcations to warn employees that they are approaching within 6 feet of the edge. Acceptable demarcation methods include:
   a. High-contrast color (OSHA Red, Orange or Yellow / fluorescent) 4”-6” wide paint stripes-- applied parallel to the fall-hazard edge and at least 6 feet away from the edge. In addition, include warning-signage stenciled onto the roof deck in 6” high lettering stating “FALL HAZARD”. Warning signage should be applied at 6’ intervals along the entire length of the paint stripe.

   b. Permanent Warning lines-- consist of wire-rope or similar weather-proof materials, painted and flagged with highly visible material hanging from the warning lines at
approximately 6- feet intervals, installed 34 to 45 inches above the roof surface [Per Cal/OSHA 8 CCR Section 1730].

3. Any skylight or other roof-opening where an employee might approach within 6 feet shall be protected from falling through the skylight or opening by any one of the following methods: skylight screens, covers, nets, or guardrails [Per Cal/OSHA 8 CCR Section 3212].

   a. Skylight screens

      1. Skylight screens installed above the skylight shall be capable of supporting greater than 400 lbs or twice the weight of the employees. The screen construction shall be of:

         i. grillwork with openings not more than 4 inches by 4 inches.

         ii. slatwork with openings not more than 2 inches wide with length unrestricted.

      2. Skylight screens installed below the skylight shall be:

         i. installed within 2 feet of the walking / working surface. (A screen shall not be used for fall protection if it is more than 2 feet below the walking / working surface)

         ii. meet the strength requirements of greater than 400 lbs or twice the weight of the employees.

         iii. of grillwork with openings less than 12 inches.

   b. Skylight covers shall be capable of supporting greater than 400 lbs or twice the weight of the employees.

   c. Skylight nets

      i. Good quality materials that can absorb a 400 lbs load dropped from 42 inches above the surface of the net.

      ii. The maximum size of the mesh shall not be longer than 6 inches on any side.

      iii. Nets shall not be longer than 12 feet by 12 feet.

   d. Guardrails with toeboards and mid-rails shall be installed on all exposed sides except at the entrance to the opening. The opening through the railing shall have a swinging gate or equivalent protection.
PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

PART 4 APPENDIX

3. Fixed Ladders: https://www.dir.ca.gov/title8/3277.html
5. Guardrails at elevated locations: https://www.dir.ca.gov/title8/3210.html
6. Roof hazard: https://www.dir.ca.gov/title8/1730.html

END OF SECTION