



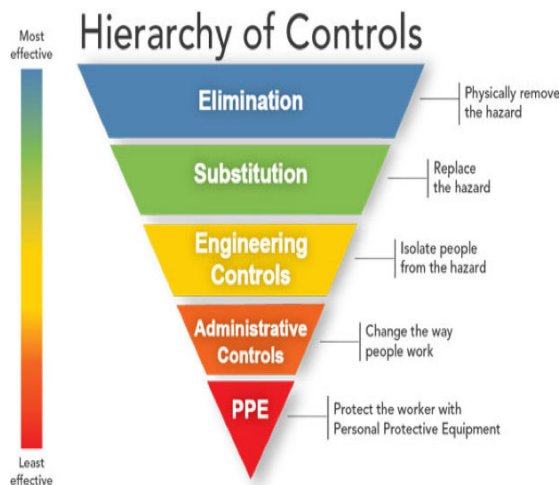
Fall Protection Safe Roof Access and Elevated Work Surface Guidance

Re: Roof Access and Elevated Work Surfaces Guidance

VCU staff perform routine maintenance and emergency repair every day. Through the course of normal work tasks, employees and contractors must access roof tops, platforms, catwalks and the top of stationary equipment on every VCU property. Each physical environment and task present its own unique challenges and no two work orders are exactly the same. OSHA requires fall protection for all employees exposed to fall hazards of ≥ 4 feet. This short guidance is intended to create a summary of VCU's Fall Protection requirements for roof access and elevated work surfaces. Further details are available from the Safety and Risk Management Occupational Safety team.

Summarized VCU Fall Protection Requirements:

At VCU, any work within 15 feet of a fall hazard of ≥ 4 requires Fall Protection. Fall hazards include unprotected leading edges, skylights, open roof hatches, and any hole in a roof, walking surface or wall big enough for a person to fit through. The nature and duration of the work dictates when and where Fall Protection measures are needed. Following the hierarchy of controls, engineered solutions are much more preferred than Personal Protection Equipment.



- Elimination of fall hazards may be achieved at the design phase of a large project, but often cannot be completely avoided
- Engineering controls, such as guardrails and parapets are preferred where fall hazards cannot be designed out of the environment
- Limiting access to only those individuals who are trained and qualified is an administrative control
- PPE, such as Safety Harnesses, Fall Prevention lanyards and Fall Arrest Systems
- *Designated Areas* are an administrative Fall Protection control, but for the fall protection program specifically, are not as desirable as PPE solutions



Fall Protection Selection (In Order of Preference)

Elimination > Guardrails > Fall Prevention > Fall Arrest > Designated Area

Guardrails & Parapets - For all work near fall hazards ≥ 4 feet, guardrails or parapets are the preferred Fall Protection solution. Guardrails must be between 39 and 45 inches and able to withstand 200 lbs. of force without deflection. While permanent installations are preferred, there are commercially available temporary/portable OSHA compliant guardrail systems that may be employed as a temporary bridge to a budgeted, engineered fall protection solution.

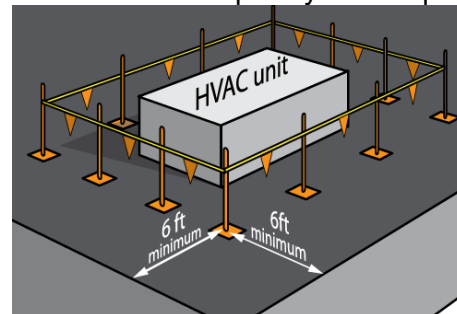
PPE – Fall Prevention – A safety harness attached to a lanyard short enough to prevent a worker from ever falling is preferred to a Fall Arrest system. The safety harness needs to fit the worker's body comfortably and the lanyard attached to both the harness and an engineered anchor point on the work surface. Permanent anchor points are preferred, but temporary anchor points are commercially available and may be a viable solution while permanent solutions are planned, budgeted and installed.

PPE – Fall Arrest – A fall arrest system includes a safety harness, self-retracting lanyard (SRL), fall shock absorber, and engineered anchor point. Use of a Fall Arrest system accepts that the worker will actually be exposed to the risk of a fall during the scheduled work.

Designated Area – A designated area may be used as an administrative fall protection measure under specific circumstances. OSHA believes there is no safe distance that can prevent a worker from falling, so use of a Designated Area is less preferable to the methods above. Using a Designated Area hinges on the assessment of:

- Distance from the leading edge
- Duration of the task
- Frequency of the task

Maintenance: Temporary & Infrequent



Many maintenance activities are often short, uncomplicated tasks conducted quarterly or annually. These, in addition to short duration emergency repairs, qualify as “*Temporary and Infrequent*”. Temporary and Infrequent tasks may include annual equipment maintenance or servicing of equipment, monthly or quarterly replacement of batteries or HVAC filters, and



responding to occasional equipment breakdowns. These tasks are regulated under OSHA's General Industry standards (CFR 1910). Maintenance activities that are longer in duration (>2 hours) do not qualify as "Temporary" and those that are conducted more frequently (daily or weekly) do not qualify as "Infrequent".

Construction, on the other hand, is often longer in duration and more complicated in scope. Construction activities automatically do not qualify as "Temporary" and are regulated by OSHA's Construction standards (CFR 1926) which have similar, but more restrictive Fall Protection requirements. These tasks may include replacement of equipment, renovation of building systems, or any repairs that are > 2 hours in duration.

Tasks that are both "Temporary and Infrequent" may employ a *Designated Area* as a Fall Protection measure instead of wearing traditional PPE on flat or low slope surfaces. A Designated Area consists of an OSHA compliant Warning Line ≥ 6 feet or ≥ 15 feet from the fall hazard, depending on the work tasks.

Fall Protection options are as follows:

0 ←-----→ 6ft	6 ft ←-----→ 15 ft	15 ft ←-----→ +
Maintenance – CFR 1910.28 Temporary (< 2 hours) and Infrequent (monthly, quarterly, annually, or emergency repairs) and Flat or Low Slope roof / working surface		
Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point 	Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point or • Designated Area 	No Fall Protection Required
Maintenance – CFR 1910.28 Temporary (< 2 hours) and Frequent / Routine (daily or weekly) and Flat or Low Slope roof / working surface		
Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point 	Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point 	Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point or • Designated Area
Construction – CFR 1926.502 Construction activities or any work on a sloped roof / working surface		
Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point 	Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point 	Fall Protection Required: <ul style="list-style-type: none"> • Guardrail or • Safety Harness + SRL + Anchor Point or • Designated Area



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Safety and Risk Management

If workers must access a Designated Area from an extension ladder at the edge of the roof / work surface, workers must:

- Secure the ladder anywhere (top, bottom or middle) on the ladder to keep it from tipping left, right, or over backward
- When on the working surface, proceed directly from the ladder to the Designated Area in a straight line.
- Perform all work tasks within the Designated Area

Under no circumstances are workers allowed to spend any extra time or perform work tasks in the area between the Warning Line and the leading edge for any reason.

Closing:

FMD maintains control of VCU rooftops and restricts access to individuals authorized and properly trained and equipped in appropriate fall protection

Only those workers who are authorized, properly trained, and equipped with appropriate fall protection are allowed to access areas with significant fall risk. At the University, VCU Facilities Management Department controls access to all VCU owned rooftops. Designated department representatives maintain access control over other area specific fall hazards, such as theater grids.

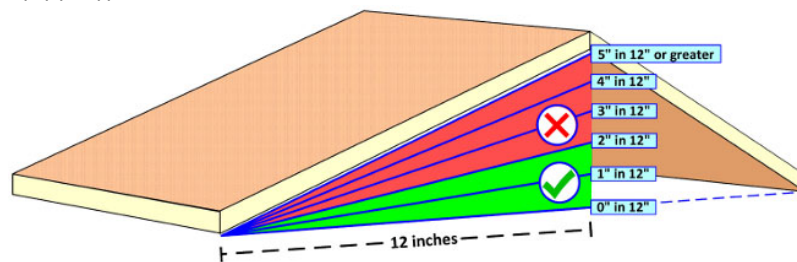
If workers are unclear on fall protection requirements or if a project's specific conditions are not covered in this guidance, more information may be found on the Safety and Risk Management website (srm.vcu.edu) or a consultation requested via email (occsafety@vcu.edu).

It is SRM's goal that VCU have permanent fall protection solutions for every roof and elevated work surface on all VCU properties.



Definitions:

1. Anchor Point - A secure point of attachment for equipment such as lifelines, lanyards, or deceleration devices. (CFR 1910.21(b))
2. Controlled Access Zone – Controlled access zones are similar to Designated Areas, but have specific requirements related to construction activities.
3. Designated Area - A Designated Area is an administrative Fall Protection measure that may be used under specific circumstances in place of or in combination with Fall Protection PPE. It is defined as “a distinct portion of a walking-working surface delineated by a warning line in which employees may work without additional fall protection when performing work on low-slope roofs.” (CFR 1910.21(b))
4. Engineered Anchor Point - Designed by a qualified person and installed specifically for fall protection (5,000 lbs. for each employee connected) and meets the requirement for a safety factor of two (10,000 lbs.). They may be permanent or temporary. (CFR 1910.140(b))
5. Fall Arrest System - a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. (CFR 1910.21(b))
6. Infrequent - Infrequent tasks include work activities such as annual maintenance or servicing of equipment, monthly or quarterly replacement of batteries or HVAC filters, and responding to equipment outage or breakdown. Daily or weekly routine/scheduled tasks do not qualify as Infrequent.
7. Leading Edge - Any unprotected edge of a platform, floor, or other construction point where the elevation between the next level or the ground is greater than four feet (CFR 1926.751)
8. Lifeline - A fall protection safety device in the form of an open fence composed of wire and stanchions secured around the perimeter of an area to prevent accidental falls. (CFR 1915.151(b))
9. Low Slope Roof – A roof that has a slope $\leq 2''$ in $12''$ (vertical to horizontal). (CFR 1910.28(b)(13))





10. Safety Harness - A form of personal protective equipment (PPE) that is designed to catch a person in case of falling while working at height. (CFR 1910.140(b))
11. Self-Retracting Lanyard (SRL) - A specific kind of lanyard used with a safety harness that utilizes inertia to activate a breaking mechanism that is part of a block unit housed inside the body of the lanyard. (CFR 1910.140(b))
12. Temporary - The duration of the task the worker performs is brief or short. Temporary and brief or short tasks generally include those that a worker is able to perform in less time than it takes to install or set up conventional fall protection. VCU interprets this as a task that takes >2 hours and is not complicated. Temporary tasks can be completed in a single visit and do not require multiple trips up and down the ladder.
13. Unprotected sides and edges - mean any side or edge of a walking-working surface (except at entrances and other points of access) where there is no wall, guardrail system, or stair rail system to protect an employee from falling to a lower level. (CFR 1910.21(b))
14. Warning Line – A warning line is a cable, rope, wire, tape or chain that warns employees they are approaching a Leading Edge and meets *all* of the following requirements (CFR 1910.21(b) 1926.501):
 - a. Have a minimum breaking strength of 200 pounds
 - b. Be installed so that its lowest point, including sag, is not less than 34 inches and not more than 39 inches above the walking-working surface
 - c. Be supported so that pulling on one section of the line will not result in slack being taken up in adjacent sections causing the line to fall below 34 inches
 - d. Be clearly visible from a distance of 25 feet and anywhere within the designated area
 - e. Be erected as close to the work area as the task permits
 - f. Be erected not less than six feet from the roof edge for work that is infrequent and temporary – or not less than 15 feet for any other work