



Safety & Health

by Safety & Health
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Personal Fall Arrest Systems: Anchorages

A personal fall arrest (PFA) system is designed to catch a worker who has fallen and hold the worker safely until rescued. This article is the fourth in a series of articles about personal fall arrest systems. In past articles, we've provided an overview of personal fall arrest systems, talked about the full body harness and described the different types of lanyards and their proper setup, use and maintenance.

In this article we provide some information on anchorages, including types of anchorages and selection considerations, and training requirements.

What is an Anchorage? OSHA defines an anchorage as “a secure means and point of attachment for lifelines, lanyards and deceleration devices.” Anchorages are usually part of the building or structure. Anchors or anchorage connectors are devices that provide secure attachment points for the lanyard or lifeline of your personal fall arrest system. Examples include eyebolts, tie-off adapters, hook anchors, even horizontal lifelines.

What is a Secure Anchorage? According to OSHA, “Anchorages used for attachment of personal fall arrest equipment shall be...capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used ...as part of a complete personal fall arrest system which maintains a safety factor of two.” In practical terms, this means strong enough to support the weight of your pickup truck.

SECURE ANCHORAGES MAY INCLUDE:

- Roof trusses
- Roof joists
- Large HVAC unit bases
- Mechanical rooms
- Other structural members such as beams, girders or columns

Clearly, anchorages have to be strong and reliable. The following are examples of what **NOT** to use for anchorage:

- No guardrail systems
- No roof vent pipes
- No hatches
- No balcony rails
- No gutters
- No roof antennas
- No scaffolding
- No roof sheathing

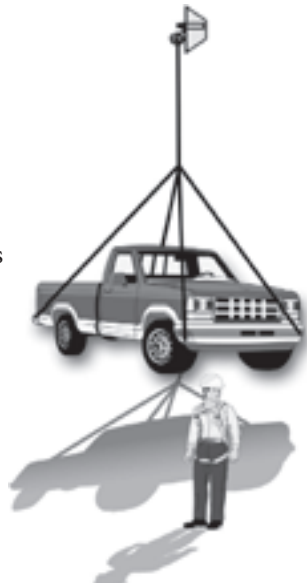


Fig. 1 Anchorages should be strong enough to support the weight of a pickup truck. Would you be willing to hang your truck from an anchor and stand below it? If not, pick a new anchor.

What about the location of the anchorage? Anchors must withstand 5000 pounds of force, but the fall forces on a person must be limited to 1800 pounds. This means anchors must be located in a manner that limits free falls to less than 6 feet. To achieve this, anchorages should be at least waist high and preferably above the worker's head. The objective is to keep free-fall distance to a minimum, which reduces impact forces on the body and on the anchorage, and ease self-recovery. This is not usually feasible on most low sloped commercial roofing jobs. On these roofing jobs, where the anchorage will likely be below waist level, the system should be designed for restraint, allowing worker to reach the fall hazard but prevent a free fall from occurring.

Who's Responsible for Designing or Selecting Anchorage Points? This responsibility falls squarely on the employer. The employer can designate this responsibility to the *Qualified Person*. OSHA defines a Qualified Person as “One who, by possession of a recognized degree, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems related to the subject matter, the work or the project.” So, depending on the situation, the *Qualified Person* may not necessarily have to be a licensed engineer but must have extensive and verifiable qualifications.

What kind of training is necessary? We can't over emphasize the importance of worker training. Workers must be able to recognize fall hazards, know how to minimize their exposure and demonstrate their ability to properly setup, use and operate fall protection systems.

OSHA requires that all workers exposed to fall hazards receive training about the types of fall hazards, how to protect themselves, how to inspect, use, set up and maintain fall protection equipment and limitations in using fall protection equipment. Training must also include information about the employer's rescue plan – the plan for promptly reaching workers suspended in a harness after a fall has been arrested – and procedures fallen workers can follow to slow the onset of suspension trauma. ■

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