



# FALL PROTECTION: EQUIPMENT

**Equipment Categories** Fall-protection equipment is divided, by function, into four categories: *Fall Arrest, Positioning, Suspension and Retrieval.*

**1. FALL ARREST** Fall-arrest systems must be used any time a working height of 6’ or more is reached and the fall hazard cannot be engineered out. Working height is defined as the distance from the walking/working surface to a grade or lower level. A fall-arrest system is designed to be passive, and will only come into service should a fall occur. The following equipment is recommended as part of a fall arrest system:

Personal protective gear: full-body harness (4” D-ring)

Connecting device: shock-absorbing lanyard (4-foot only)

Anchorage point: an anchorage point & anchorage connector must support 5,000 pounds

**2. POSITIONING** The second category is the **personal positioning system**, which holds a worker in place while allowing a hands-free work environment. Whenever a worker leans back, the system is activated, making this an active system. The following equipment is an example of a widely used positioning system:

Personal protective gear: full body harness (4” D-ring)

Connecting device: rebar chain assembly

Attachment point: vertical rods

Note that a fall-arrest system should be used in conjunction with this system. A combination system should be used whenever possible, since a personal positioning system is not specifically designed for fall arrest purposes. By using this combination system, the fall-arrest components will be activated should the worker accidentally fall.

**3. RETRIEVAL** Another category of the system is mostly used in confined space, and is known as a **personal retrieval system**. This system is primarily used where workers must be lowered into tanks, manholes, etc., and may require retrieval from above should an emergency occur. A typical retrieval system includes:

Personal protective gear: full body harness (4” D-ring)

Connecting device: retractable lifeline/rescue unit

Attachment point: tripod or unihoist

Each year, over 100,000 injuries and deaths are attributable to work-related falls. Regulatory agencies make it quite clear that it is the employer’s responsibility to develop a fall-protection plan/program that complies with regulations. Compliance is important, but even more important is a proper fall protection program *that can eliminate or seriously reduce on-the-job injuries.*

A comprehensive fall-protection program must be viewed as a “total” system, beginning with hazard identification. A personal fall-arrest system (PFAS) can be viewed as a “system within a system.” Three key components of the PFAS need to be in place—and properly used—to provide maximum worker protection.

### THREE-COMPONENT SYSTEM

- **Body Wear** The first component is the *personal protective gear* worn by workers while performing the job. Full-body harnesses are the only appropriate equipment to be worn in the event of a free fall. Harnesses should be selected to meet the needs of the work environment. In some cases, a customized harness may be required.

- **Connection Devices** The second system component is the *connecting device*. This device can be a lanyard, ladder climbing device or retractable lifeline.

- **Anchorage Point** The final component of the system is the *anchorage point* (often called the tie-off point). This point must be capable of supporting 5,000 pounds per worker.

Individually, none of these components will provide protection from a fall. Used properly with each other, however, they form a personal fall-arrest system, which becomes a critically important part of the total fall-protection system.

