Fall Protection - Connecting Devices and Anchoring

What is a connecting device?
A connecting device is used to connect a fall-protection harness to an anchoring point.

Connecting lines come in three types:

**Self-Retracting Lifeline**: widely used in construction to provide fall protection, especially where workers must move about to handle or install materials. The devices let the user move the full length of the line but stop and lock at any sudden pull. This action is designed for fall arrest - not for travel restraint.

**Shock Absorbing Lanyard**: used to reduce the impact forces during a fall.

**Positioning and Restraint Lanyards**: used to limit the position of user while working to limit the distance or amount of movement from a particular anchoring point.

The connecting lines are attached to an anchoring point or harness via a carabiner. A carabiner is a metal loop with a sprung or screwed gate that is used to quickly connect components in safety-critical systems.

**Select the Proper Fall Protection Equipment**

<table>
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<tr>
<th>Shock-Absorbing Lanyard or Self-Retracting Lifeline?</th>
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<td>Always know your fall distance and select proper equipment to meet the fall clearance.</td>
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- **Length of Anchorage Connector**
- **Length of Connecting Device**
  - (Lanyard or Self-Retracting Lifeline)
- **Maximum Elongation/Deceleration Distance**
- **Harness Stretch/Sliding Back D-ring Movement**
- **Height Measured to Worker’s Harness Back D-ring**
- **Safety Factor**

**Remember**

UNDER 18 1/2 ft.* always use a Self-Retracting Lifeline

OVER 18 1/2 ft. use a Shock-Absorbing Lanyard or Self-Retracting Lifeline

* Always use a Self-Retracting Lifeline when:
  - When working on a roof
  - When working on a ladder
  - When working on a structure
  - When working on an overhead conveyor
  - When working on a machinery
  - When working on a construction site
  - When working on a bridge
  - When working on a scaffold

Example of a restraint lanyard in use

Example of a self-retracting lifeline

Example of a shock-absorbing lanyard

Example of a restraint lanyard
Fall Protection - Connecting Devices, Anchoring (cont.)

Anchorage/Anchorage Connectors
Anchorage Connectors are designed as the intermediary for securing a connecting device to an anchorage. Careful consideration should be given to selecting a proper anchorage for ultimate safety. The anchorage should be easily accessible, located a safe distance above any lower obstacles and support 5,000 lbs. (22kN) per worker.

The Importance of Anchorages
Carefully planned and selected anchorages are crucial factors in worker protection and safety. Should a fall occur, the worker will be suspended from the selected anchorage, his life depending on its strength.

In addition to defining an anchorage, it is also important to make a distinction between the anchorage itself and an anchorage connector. An anchorage, for example, could be an I-beam, while a cross-arm strap, or choker, wrapped around this beam and permitting attachment is the anchorage connector.

Swing Fall Hazard
If involved in a fall while using a shock-absorbing lanyard or self-retracting lifeline, and with an anchorage point that is not positioned directly overhead, a swing fall or pendulum effect will occur. Striking an object while swinging can lead to serious injury. Since selfretracting lifelines allow for greater horizontal and vertical mobility than standard six-foot shock-absorbing lanyards, extra care should be taken to reduce swing falls.

Whether using shock-absorbing lanyards or self-retracting lifelines, it is very important to position your anchorage point directly overhead whenever possible to minimize swing falls.