



# Fall Protection

100 % Tie-off

# Fall Protection Policies

How many have a Fall Protection Policy or Procedures?

How many work from heights that require Fall Protection?

What are you currently using for equipment?

- Harness?
- single lanyard?

***Failure is not an option!***



# Fall Protection Fail



# Fall Protection Fail



**Even the cool ones Die!!**



# Rule #6



## Protect yourself against a fall when working at height

**Use fall protection equipment when working outside a protective environment where you can fall over 1.8 meters (6 feet) to keep you safe.**

A protective environment includes approved scaffolds, stairs with handrails, and man lifts.

### You should

- ✓ Have authorisation to work at height outside a protective environment
- ✓ Be aware of what fall protection equipment to use and how to use it
- ✓ Check equipment before using it
- ✓ Always tie off when at height outside of a protective environment

**If you are the Supervisor or the Person in Charge of the work you should**

- ✓ Confirm that it is safe to start work at height.

# Twin Leg SRL



# Twin Leg SRL



## Using the 100% tie-off SRL:

When connected to the SRL the worker is free to move about within the recommended working area. The lifeline should extend and retract without hesitation or creating a slack line condition as the worker moves at normal speeds. If a fall occurs the SRL will lock and arrest the fall. When disconnecting from the SRL keep the lifeline under control as it recoils back into the device.

## 100% Tie-off SRL Considerations:

Commonly known as 100% tie-off, “Y” type, twin leg SRL, these energy absorbing devices can be used to provide continuous fall protection while ascending, descending, or moving laterally. With one leg attached to the anchor structure, the worker can move to a new location, attach the second unused leg, and disconnect original attached leg. This procedure is repeated until the work location is reached. Other practices that must be followed in order to use a 100% tie-off type SRL safely include:

1. Connection of both lanyard legs to separate anchorage points is acceptable See Figure 8.
2. Never connect more than one person to a “Y” type SRL at a time See Figure 9.
3. Do not allow the lifelines to become tangled or twisted together as this may prevent them from retracting.
4. Do not allow any lanyard to pass under arms or between legs during use.

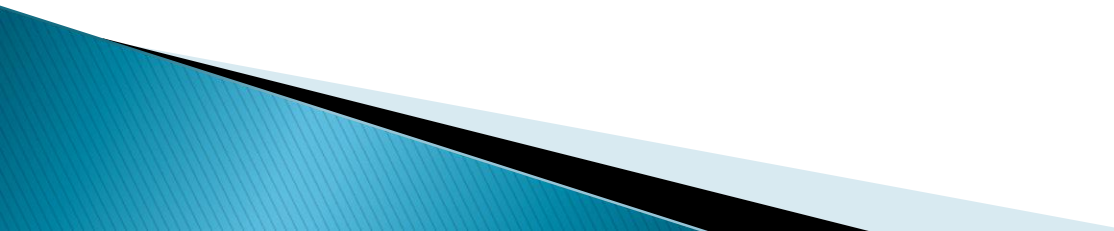
## 100% Tie-off Lanyard Considerations:

Commonly known as 100% tie-off, “Y” type, twin leg, or double lanyards; these energy absorbing lanyards can be used to provide continuous fall protection while ascending, descending, or moving laterally. With one lanyard leg attached, the worker can move to a new location, attach unused lanyard leg, and disconnect attached leg. This procedure is repeated until a new location is reached. With the a 100% tie-off type lanyard, only one leg of the lanyard shall be attached to the anchorage or anchorage connector once a working location is reached. Other practices that must be followed in order to use a 100% tie-off type lanyard safely include:

1. The energy absorber portion of the lanyard must be connected to the dorsal D-ring only. Use only the snap hook (or other connector provided) to attach the energy absorber portion directly to the harness dorsal D-ring.
2. Do not connect the energy absorber to the anchorage.
3. Do not attach the unused leg of the lanyard back to the harness at any location unless a specially designed lanyard retainer is provided for this purpose.
4. Connection of both lanyard legs to separate anchorage points is acceptable
5. When leapfrogging from one anchorage point to the next (such as traversing a horizontal or vertical structure) do not connect to anchorage points that are further apart than the lanyard length (as marked on the lanyard label).
6. Never connect more than one person to a “Y” type lanyard at a time.
7. Do not allow any lanyard to pass under arms or legs during use.

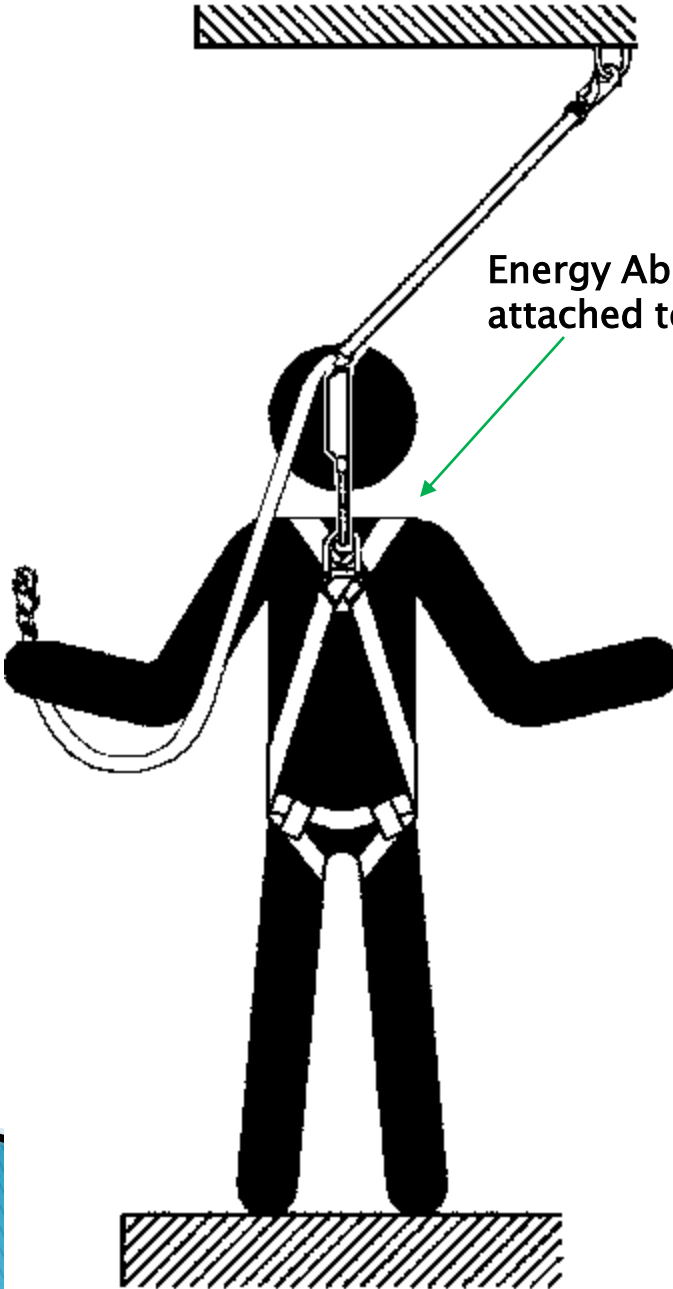


# Why Consider Twin Leg or 'Y' Type lanyard as opposed to two separate lanyards?

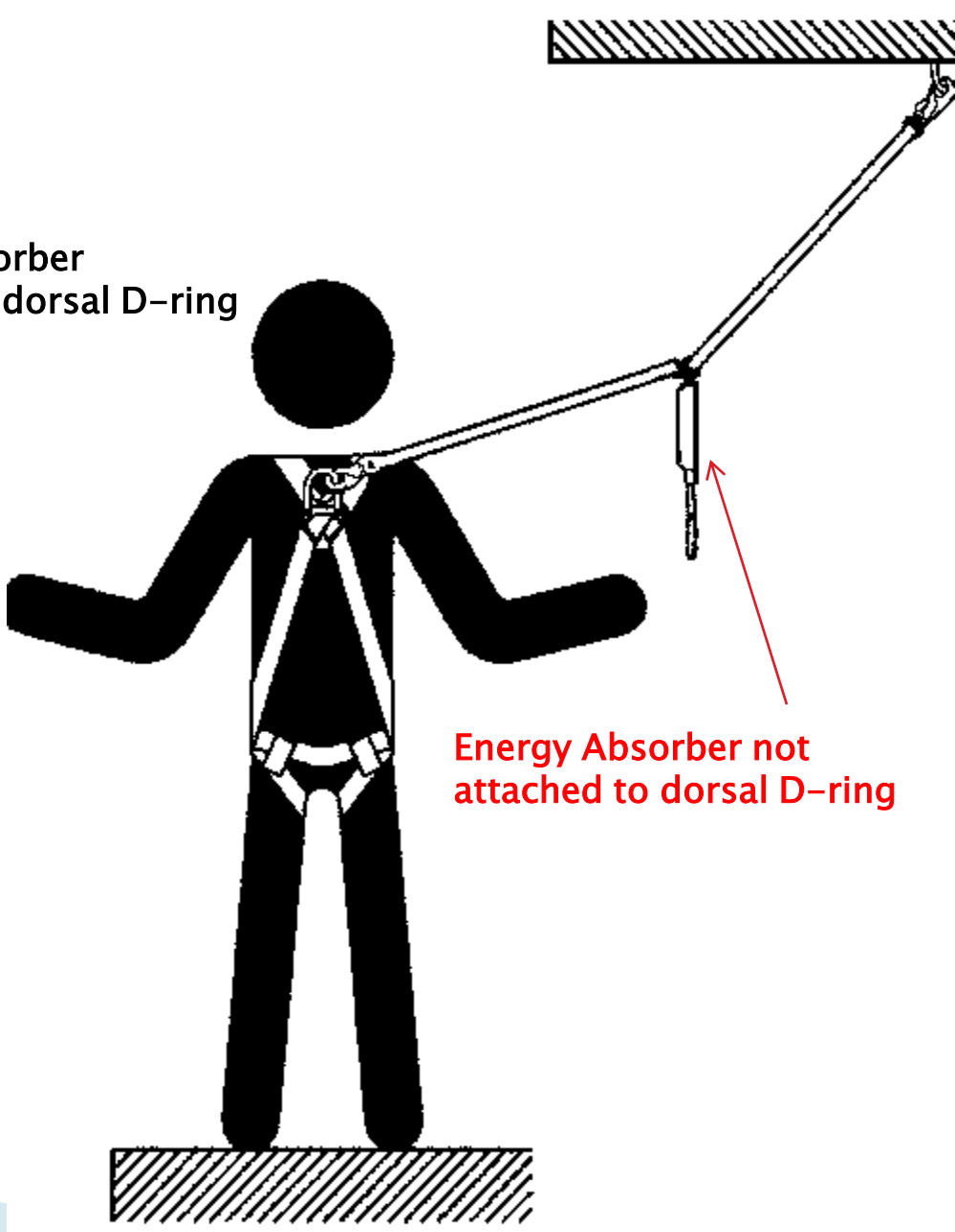
1. Cost – depending on manufacturer – costs less
  2. Inventory – possible significant reduction in inventory and time when recertifying.
  3. User Friendly easier for worker
  4. Better system – engineered for application
- 

CORRECT ATTACHMENT

INCORRECT



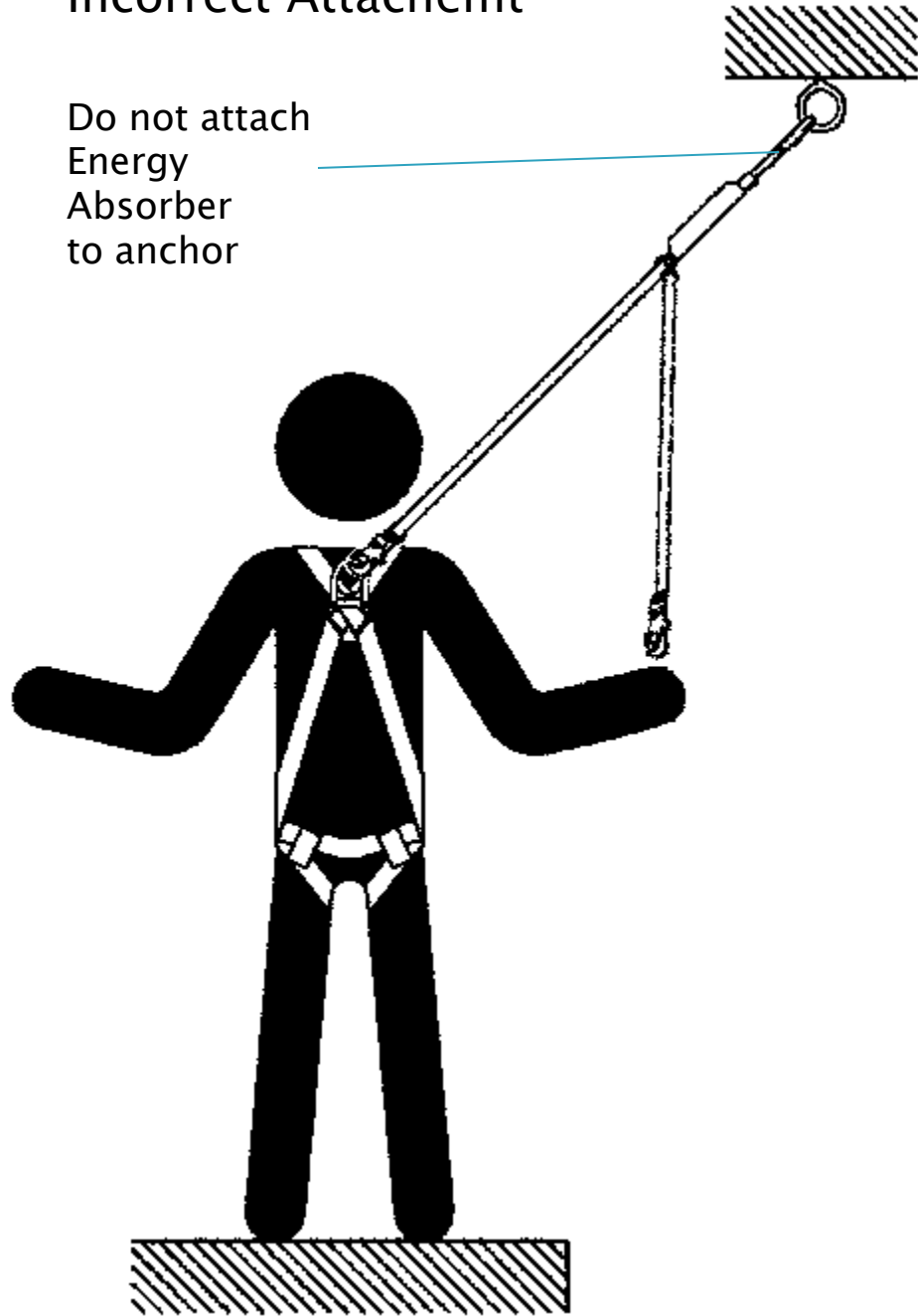
Energy Absorber attached to dorsal D-ring



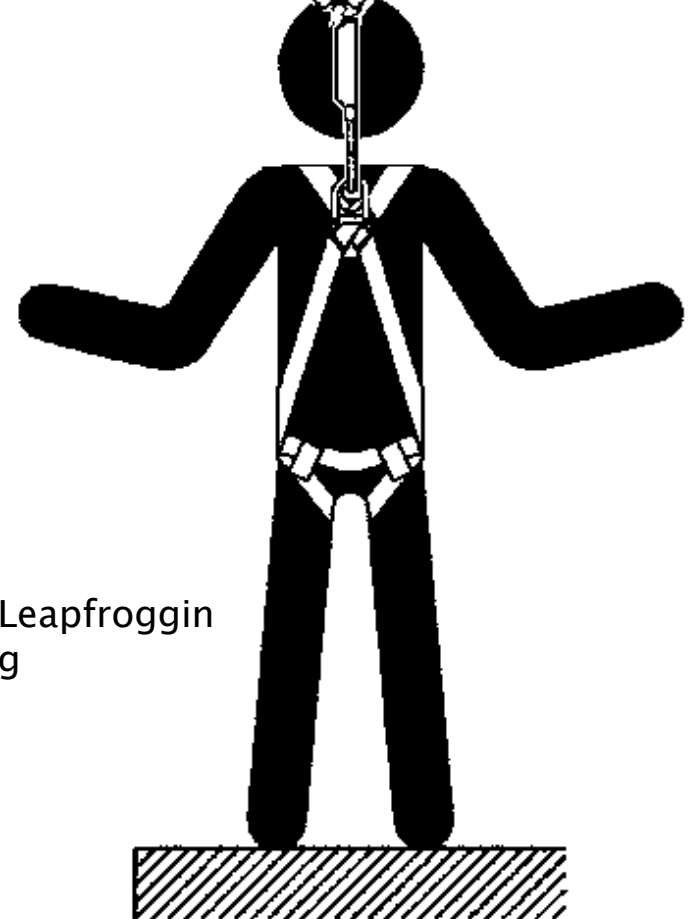
Energy Absorber not attached to dorsal D-ring

# Incorrect Attachement

Do not attach  
Energy  
Absorber  
to anchor



Leapfrogging



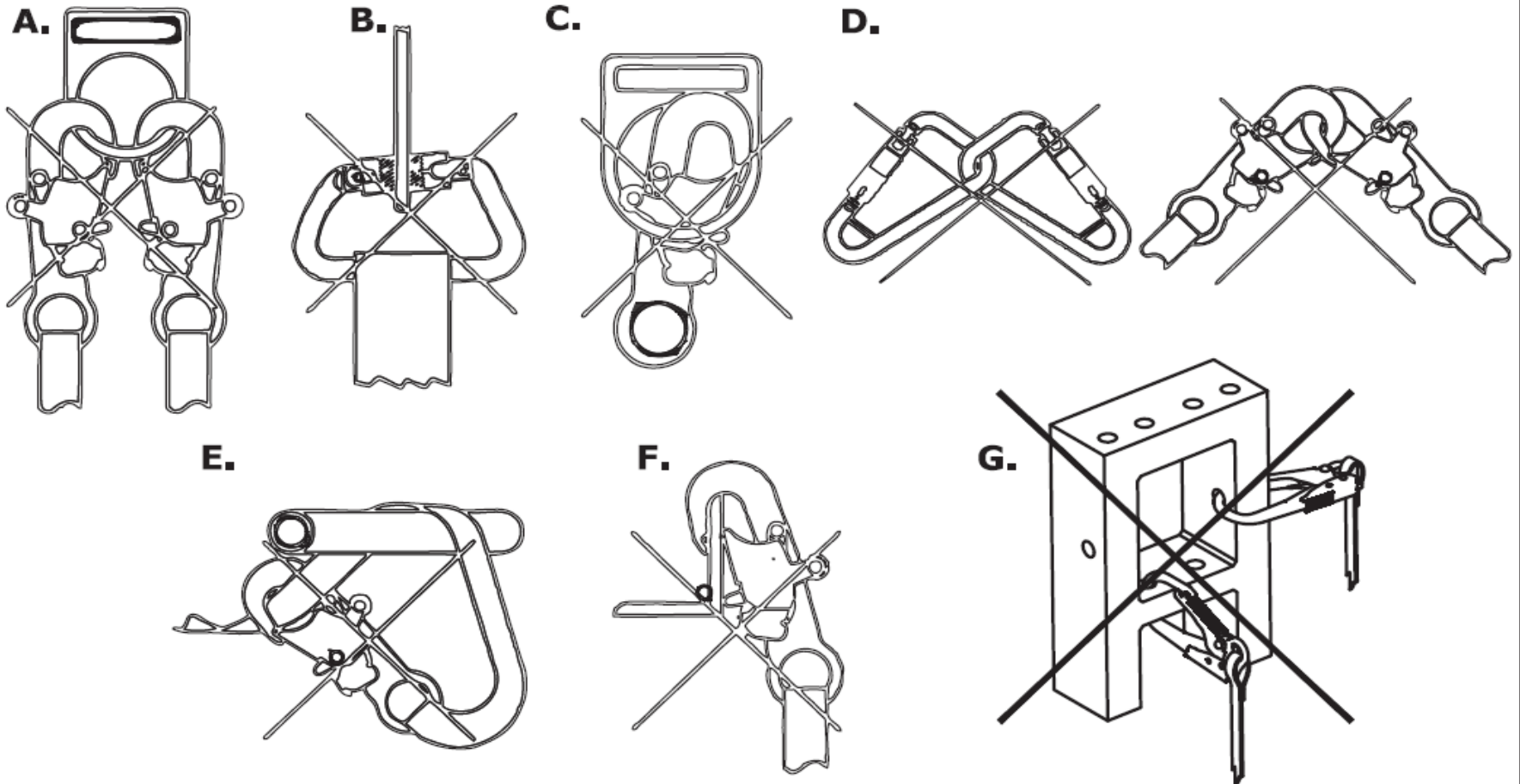
DBI-SALA connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user instructions. See Figure 3 for inappropriate connections. DBI-SALA snap hooks and carabiners should not be connected:

- A. To a D-ring to which another connector is attached.
- B. In a manner that would result in a load on the gate.
- C. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor, and without visual confirmation seems to be fully engaged to the anchor point.
- D. To each other.
- E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).
- F. To any object which is shaped or dimensioned such that the snap hook or carabiners will not close and lock, or that roll-out could occur.
- G. In a manner that does not allow the connector to align with the fall arrest device (i.e., lanyard) while under load.

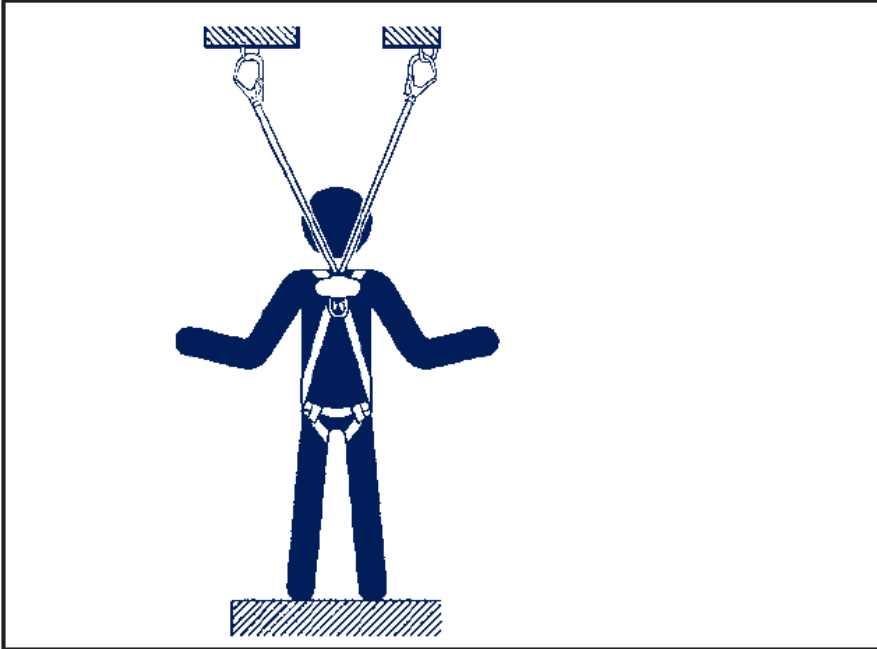


Making Connections: Only use self-locking snap hooks and carabiners with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

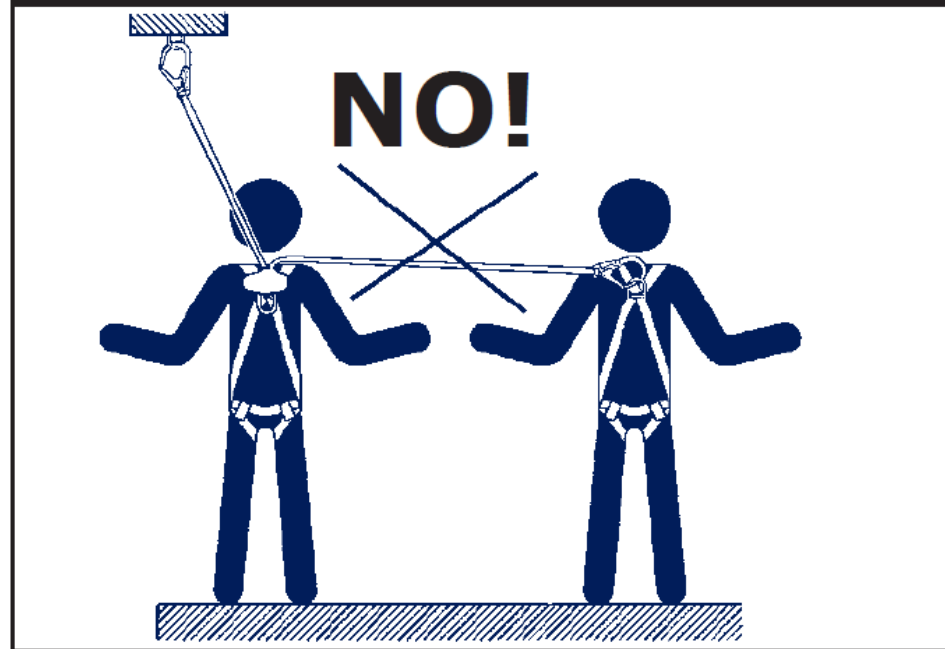
**Figure 3 - Inappropriate Connections**



**Figure 8 - Attachment Allowed**



**Figure 9 - Incorrect Attachment**



BEFORE EACH USE of this equipment, carefully inspect it to assure that it is in good working condition.

PLAN your fall protection system before starting your work. Take into consideration factors that affect your safety before, during, and after a fall.

**A. ANCHORAGE:** Select a rigid anchorage point that is capable of supporting the required loads. The anchorage location must be carefully selected to reduce possible free fall and swing fall hazards and to avoid striking an object during a fall. The anchorage should be generally level (horizontal) to prevent the anchorage connector from sliding down an incline when in use, which could cause serious injury to the user.

## QUIZ QUESTION:

*1. The Potential Free fall must never be greater than how much???*

**B. FREE FALL:** Personal fall arrest systems must be rigged such that the potential free fall is never greater than **6 ft. (1.8 m)**. Avoid working above your anchorage level to avoid an increased free fall distance.

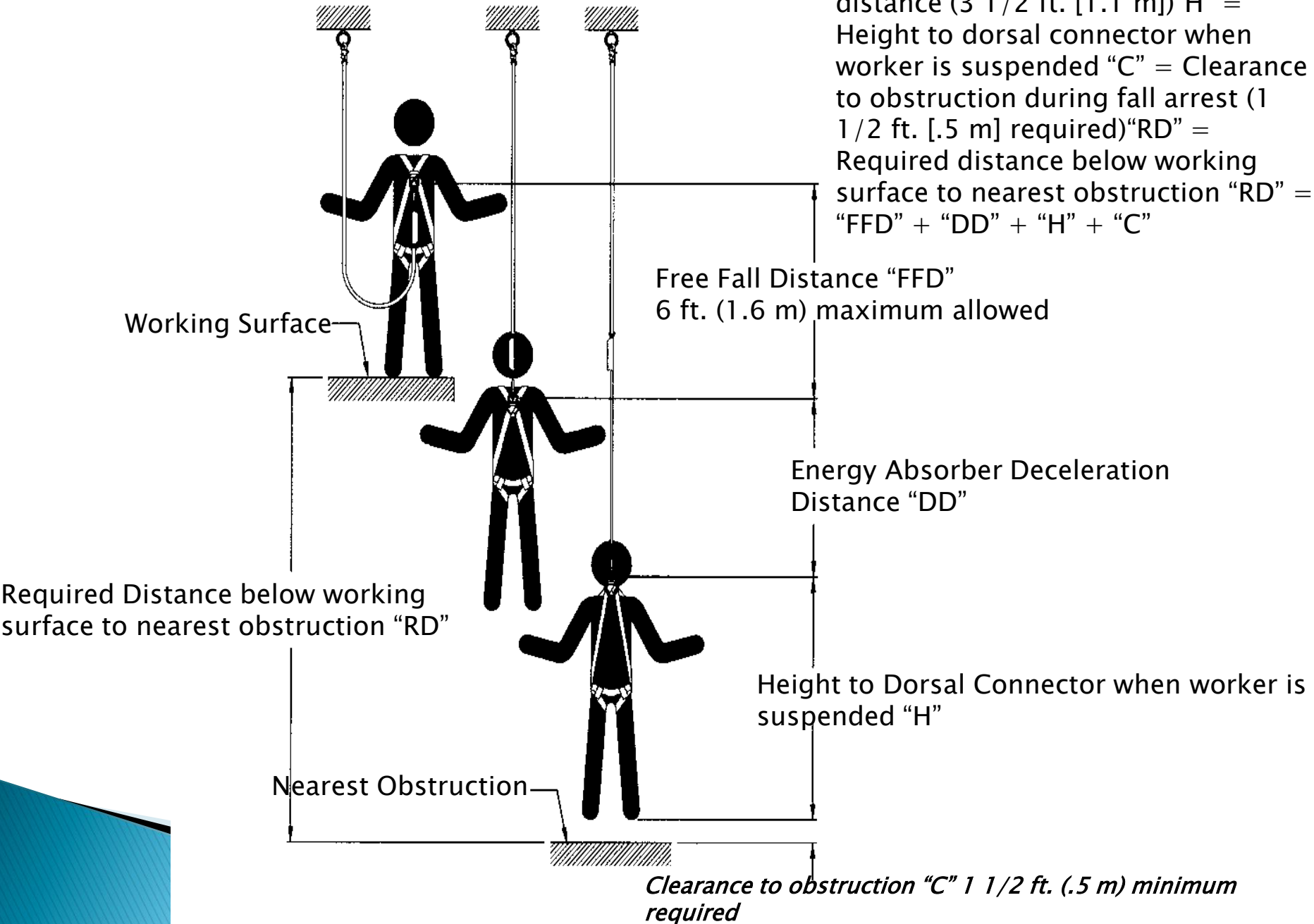
**C. FALL ARREST FORCES:** The assembled fall arrest system must keep fall arrest forces below **1,800 lbs. (8.0 kN)** when used with a full body harness.


**D. FALL CLEARANCE:** Should a fall occur, there must be sufficient clearance in the fall area to arrest the fall before striking the ground or other object. Energy absorbers can extend the fall arrest distance by up to **42 inches (106.7 cm)**. Figure 4 shows how to estimate fall clearance distance when using an energy absorbing lanyard or energy absorber subsystem. Other factors may influence the required clearance distances. For example, using an energy absorbing lanyard or energy absorber with a rope grab (fall arrestor) may require additional clearance due to stretch in the lifeline or sliding of the rope grab on the lifeline during fall arrest. Some full body harness models incorporate a sliding (positional) D-ring in the back as the fall arrest attachment, movement of this D-ring during fall arrest can increase the fall clearance distance required. Use caution when assembling system components that could act to extend the fall arrest distance (and therefore fall clearance required). Refer to manufacturer's instructions for each part of the system for more information on fall clearance.

## **QUIZ QUESTION:**

***2. What is the Minimum Clearance to Obstruction/Ground after a fall, using Fall Protection???***

"FFD" = Free Fall Distance  
 "DD" = Energy Absorber Deceleration distance (3 1/2 ft. [1.1 m])  
 "H" = Height to dorsal connector when worker is suspended  
 "C" = Clearance to obstruction during fall arrest (1 1/2 ft. [.5 m] required)  
 "RD" = Required distance below working surface to nearest obstruction  
 $RD = FFD + DD + H + C$

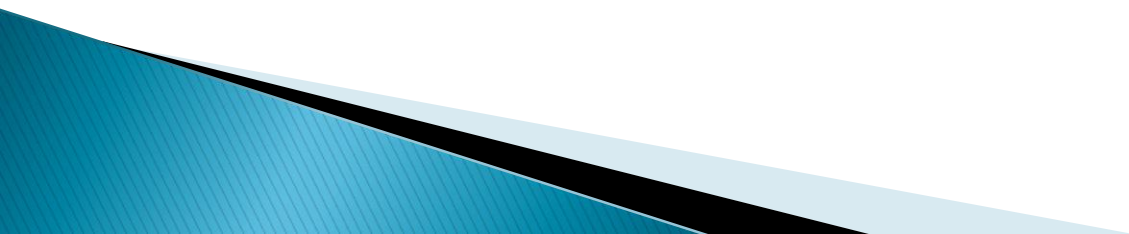
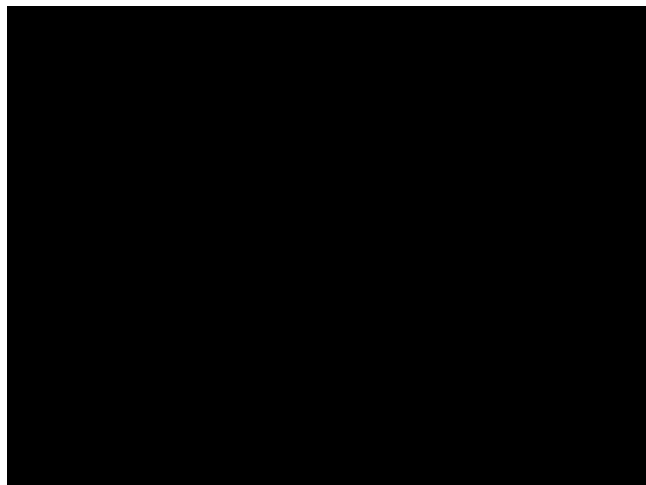




**SWING FALLS:** Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object while swinging (horizontal speed of the user due to the pendulum effect) can be great and may cause serious injury. In a swing fall situation, the total vertical fall distance of the user will be greater than if the user had fallen vertically directly below the anchorage point. The user must therefore account for an increase in the total free fall distance and the area needed to safely arrest the fall. Swing falls can be minimized by working as directly below the anchorage point as possible. Never permit a swing fall if injury could occur. If a swing fall situation exists in your application contact fall protection supplier before proceeding.

**SHARP EDGES:** Avoid working where the lanyard, subsystem, or other system components will be in contact with, or abrade against, unprotected sharp edges. Do not loop lanyard around small diameter structural members. If working with this equipment near sharp edges is unavoidable, protection against cutting must be provided by using a heavy pad or other means over the exposed sharp edge.

**RESCUE:** The user (employer) must have a rescue plan and the ability to implement it when using this equipment



# Questions??

