Training Solutions, Delivered!

SURVIVING THE FALL:
The Proper Use of Your Personal Fall Arrest System
(Concise)

Leader's Guide, Fact Sheet & Quiz

Item Number: 4242

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.

b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.

c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.

d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes *before* the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.

b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.

c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.

d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

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FACT SHEET

LENGTH: 10 MINUTES

PROGRAM SYNOPSIS:
You know what they say: "It's not the fall that gets you, it's the sudden stop," and of course, the farther we fall, the more forceful and damaging that sudden stop becomes. The proper use of a personal fall arrest system allows a worker to survive a fall, with minimal injury by not only preventing the falling worker from hitting the ground, but also by limiting the amount of force imparted onto the worker when the fall is arrested. In this program, viewers will see fall protection equipment deployed in actual fall events and learn the proper selection and use of these devices. In addition to safe work practices, such as 100 percent tie-off techniques, emphasis is placed on having a rescue plan in place should a fall occur.

Topics include selection of an approved anchor point, use and inspection of connecting devices, body harnesses, preventing sudden-stop injuries, calculating total fall distance and use of fall-limiting devices.

PROGRAM OBJECTIVES:
Upon completion of the program, program participants should be able to explain the following:
- How to select an approved anchor point;
- How to use and inspect connecting devices;
- How to inspect and put on a body harness properly;
- How to prevent sudden-stop injuries;
- How to calculate total fall distance.

PROGRAM OUTLINE:

SELECTION OF AN APPROVED ANCHOR POINT
- The personal fall arrest system consists of three main components: an anchor point, a connecting device and a full-body harness. Each of these components is critical to the successful operation of the system as a whole.
- The Occupational Safety and Health Administration's general industry regulations require an anchor point be able to support 5,000 pounds or 22.2 kilonewtons of "dead weight" per person connected to it.
- OSHA requires that the capacity of any anchor point used as part of a fall arrest system be verified by a qualified person.
- As a worker who must use a fall arrest system, you must understand which structures in your facility have been verified as approved anchor points.

USE OF CONNECTING DEVICES
- The connecting device is used to provide a connection between the body harness and the anchor point. There are several types of connecting devices, including single lanyards of various lengths and styles, Y-shaped lanyards designed for moving between anchor points and retractable lanyards, also called fall-limiting devices or retractable lifelines.
- Connecting devices which are part of a fall arrest system must be rated to support 5,000 pounds or 22.2 kilonewtons and must be labeled as such.
- Of course, a lanyard's strength-rating depends on its proper use. A common mistake is using the lanyard to cross over a beam or other object and then connecting back to itself.
- This is very dangerous because connecting a lanyard to itself reduces the strength of the lanyard by half. In addition, this exposes the lanyard to the sharp edge of a beam which may cut or damage the stitching.
- Fall arrest equipment must always be protected from cuts, abrasion and other damage. Protect your lanyard by using a beam strap or other device specially designed for this application instead.

DOUBLE-LOCKING SNAP HOOKS

- Connecting devices must also feature a double-locking snap hook. A double-locking snap hook requires two separate movements to release the keeper gate of the hook.
- A double locking snap hook is designed to prevent an inadvertent opening of the keeper gate. Operating this type of hook takes a bit of practice so make sure you are proficient using it before needing to do so above ground.
- To ensure hooks are oriented for maximum strength during a fall and to prevent accidental disengagement, only connect a snap hook to a compatible device intended for this use.
- Do not connect snap hooks to rope or webbing and do not connect it to wire rope or directly to a horizontal life line. Also, do not connect a snap hook to other snap hooks.
- In addition, do not connect two snap hooks into one D-ring. D-rings are only designed to accommodate one snap hook.

INSPECTION OF THE CONNECTING DEVICE

- Like any other piece of safety equipment, you should always inspect your connecting device prior to use. Look for any torn stitching, cuts, tears, frayed materials, burns or chemical damage.
- Inspect the hook and keeper gate for any cracks, bending or distortion.
- Look for any indications that the lanyard has been subjected to the force of a fall. Look at any energy-absorbing devices for signs of torn stitching or elongation. Lanyards and fall limiting devices may also display a red alert tag or provide an indicator when it has been exposed to the force of a fall.

THE BODY HARNESS

- During a fall, the body harness is designed to distribute the shock load of a fall to multiple points on the body, reducing the likelihood of injury. In addition, the harness provides a support platform which allows the worker to remain upright and supported after a fall.
- Before putting on a harness, you must first perform an inspection. Check for damaged webbing, torn stitching or distorted buckles and D-rings.
- Also inspect for any burns or chemical damage. Inspect the harness for any indication it has been exposed to a fall.
- Once your inspection is complete, it's time to put the harness on; however, sometimes it's hard to tell one part from another in order to get started. One way to sort it out is to find the back D-ring and gently shake out the harness so that it falls into shape.
- Once the harness is hanging, you can slip your arms through the shoulder straps using the same techniques as putting on a jacket.
- Next, place the chest strap about mid-chest and tighten and finally, pull the leg straps around your legs and snugly secure the straps.
- Here's an important point to remember, harnesses are designed to have a snug, secure fit while working above ground. A common mistake is to work with the straps too loose.
- This is especially true with leg straps. Falling with loose leg straps can be very painful and cause injury as the straps are driven violently upwards into the groin area.

PREVENTING SUDDEN-STOP INJURIES

- When we mentioned earlier that "it wasn't the fall that gets you, but the sudden stop," we weren't just having fun with an old expression; it's literally true.
- A worker weighing 225 pounds who is exposed to the full force of a six-foot fall will generate around 2,500 pounds of force when stopped suddenly. Even when wearing a full body harness, workers can be severely injured by this level of force, even without hitting the ground.
- To prevent these "sudden-stop injuries" the Occupational Safety and Health Administration, OSHA, requires that a fall arrest system reduce the amount of force imparted onto a worker wearing a body harness to not exceed 1,800 pounds or 8 kilonewtons.
- One common method used to reduce the force during a fall event is to use an energy-absorbing lanyard. This type of connecting device features a section of material sewn together in such a way that it tears and elongates when exposed to excessive forces during a fall; as the material elongates, it absorbs the energy of the fall, slows the rate of decent and brings the worker to a controlled stop.

LIMITING FALL DISTANCE

- Another method used to limit the forces generated during a fall is to limit the fall distance. This is commonly done by the use of a fall limiting device, sometimes called a self-retracting lifeline. These popular devices allow a worker to move freely away from the anchor point and then quickly deploy a braking system in the event of a fall.
- In general, the smaller units have a rapid breaking system which stops a worker's fall within two feet or less, while some of the larger units are designed to withstand a full six-foot fall and utilize a gradual braking system to reduce the force of the fall over an additional three and a half feet.

CALCULATING TOTAL FALL DISTANCE

- To prevent hitting the ground during a fall, workers must be able to calculate their total fall distance. The total fall distance is the maximum distance a worker will fall from the anchor point.
- To calculate this distance, you must add the worker's height, plus the lanyard length, plus the elongation length of any energy-absorbing device or braking mechanism.
- OSHA mandates that the maximum elongation or braking distance of energy-absorbing devices be 42 inches which is three and half feet.
- The total fall distance for this six-foot worker wearing a six-foot energy-absorbing lanyard with a designated elongation of three and half feet is 15 ½ feet.
- After adding an additional three-foot safety factor to our calculation, we see that our anchor point must be a minimum of 18 ½ feet high for a six-foot worker to safely use this type of six-foot energy-absorbing lanyard.
- Eighteen and a half feet is pretty high. It's also a distance that is hard to estimate visually; so, if you are unsure, measure it.
- Of course, there are many situations where a worker is exposed to a fall hazard at heights less than 18 ½ feet. In these situations, workers can use a shorter lanyard, but a more common solution is to use a fall-limiting device.
- As we mentioned earlier, many fall-limiting devices will stop a falling worker in two feet or less. This greatly reduces the amount of force placed onto the falling worker.
- When using one of these devices, it is extremely critical that the anchor point be at or above the level of your back D-ring.
- Connecting these devices below the D-ring not only adds to your free-fall distance, but will allow you to free-fall farther than two feet and may exert a force onto the device which exceeds its design limits.
- Another common mistake when using a self-retracting lifeline is moving too far away from the anchor point. It's possible to extend the length of the retracting life line beyond the height of the anchor point. When this is the case, you will hit the ground should a fall occur.
- In addition, even if you don't hit the ground, moving too far from the anchor point causes a large swing arc during a fall. A large swing arc can cause you to strike objects with great force during a fall event.
- To prevent these types of incidents, a good rule of thumb is to keep your lifeline within a 15-degree angle to the vertical at the anchor point.

SUMMARY

- Remember the purpose of your fall arrest system is for you to survive a fall, with minimal injury, should one occur.
- Unfortunately, the most common mistake workers make concerning their fall arrest system is failing to connect to the anchor point when above ground. Far too many workers have fallen to their deaths while wearing a perfectly good body harness because they simply failed to connect it to the anchor point.
- Surviving a fall means being prepared to fall 100 percent of the time that you are working above ground. This not only requires properly using your fall arrest equipment each and every time you work at height, it also requires an elevated commitment to your own personal safety.
- After all, having a sky-high commitment to personal safety and fall prevention is the only way to make sure that you safely return to solid ground.

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ANSWERS TO THE REVIEW QUIZ

1. a
2. c
3. a
4. b
5. b
6. c
7. b

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REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name_____Date_____

1. The components of a fall arrest system include the anchor point, the connecting device and the body harness.

a. True
b. False

2. OSHA's general industry regulations require an anchor point be able to support _____ pounds per person connected to it.

a. 500
b. 1,000
c. 5,000

3. OSHA requires that the capacity of any anchor point used as part of a fall arrest system be verified by a qualified person.

a. True
b. False

4. Snap hooks may be connected to any object of suitable strength provided the hook is able to close properly.

a. True
b. False

5. The body harness is not considered part of the fall arrest system and does not require an inspection prior to use.

a. True
b. False

6. Before working above ground, the harness leg straps should be _____.

a. Adjusted for a loose fit
b. Disconnected
c. Adjusted for a snug fit

7. OSHA requires that a fall arrest system reduce the amount of force imparted onto a worker wearing a body harness to not exceed _____.

a. 5,000 lbs
b. 1,800 lbs
c. 3,000 lbs