Determining Clearance in a Fall Situation while Using an Energy-Absorbing Lanyard

Just because you have properly selected, inspected, and put on your bodywear does not mean that the job is done. Nor are you there once you have selected a solid anchor point and attached your connecting device to it. One often neglected step is making sure that when you fall you will not hit anything before your system brings you safely to a stop. This is what we mean when we say, "fall clearance." And it includes calculating in such a way that you don't hit the ground or make contact with any objects during a fall.

The first step has always been to measure how much distance actually exists between the anchor point and the ground, next lower level, or closest object that you could strike. The number that you obtain spells out the distance that your system will have in which to bring you to a safe stop. Once this is done, you must compare this distance to what your chosen Personal Fall Arrest System (PFAS) actually requires. For example, following manufacturer instructions, you will find that the typical energy-absorbing lanyard is 6 feet in length. This is your first number. In the fall, your lanyard will often stretch a maximum of 3.5 feet, also known as the "deceleration distance." Then there is the height of the typical worker, where 6 feet is often used for the average person. Finally, on top of these numbers, an additional "safety factor," is added with somewhere around 3 feet being the norm. Add all of these together and you discover that you need at least 18.5 feet between your anchor and the next closest object below you so as not to strike anything in your fall (with most energy-absorbing lanyards). Be sure to check the manufacturer's specifications for your specific PFAS.

The numbers discussed above can change, which is why they are known as "variables." Not all energy-absorbing lanyards are 6 feet in length, the energy-absorber in some of them will stretch or rip a distance greater than 3.5 feet in certain circumstances, and the worker who is using the system may actually be taller than 6 feet. In each case, the numbers must be modified accordingly. In addition, often the lanyard itself is not connected at the level of the anchor point but, instead, is connected to a strap or other connector that hangs down from the anchor point. In this case, the length of the "anchorage connector" must be factored in as well, often turning into required fall clearances of greater than 20 feet.

Given that energy-absorbing lanyards are used in a variety of environments, the possibility of misuse must be clearly understood. For example, workers in aerial lifts often use them, but will this work to protect them in a fall from the basket? Not if they are not complying with that which was set out above. Until the basket is *at least* 18.5 feet above the ground or the appropriate calculated distance, they are not complying with the manufacturer and, as a result, may not be complying with OSHA, either. In any case, this will be an issue where the worker has not correctly selected an overhead anchorage point of adequate height.

The need for the worker to be properly trained on his or her own equipment and its limitations cannot be stressed enough. In every case, this will include instruction not only on the basic calculation laid out in this article, but also on familiarization with the operating characteristics of the particular equipment in use as

spelled out by its manufacturer. It should not come as a surprise that part of the required OSHA inspection of a Personal Fall Arrest System involves assuring that tags are legible and intact. This is to guarantee that the worker always has the necessary information available to him or her. It is the job of the employer to make sure that the worker can put everything together initially during their training phase and the job of both to make sure that it continually takes place in each job situation moving forward. When it is considered that the job of the PFAS is to stop contact with lower levels in a fall, it becomes clear that calculations need to be run to ensure that it can do its job.

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