HEIGHTSAFE®

Exclusive partner of XSPlatforms

PRACTICAL SAMPLES OF THE FALL FACTOR

The fall factor is the ratio between the height of the fall and the length of rope that is available to absorb that fall. The value of the fall factor varies between 0 and 2 and is calculated by the following equation:

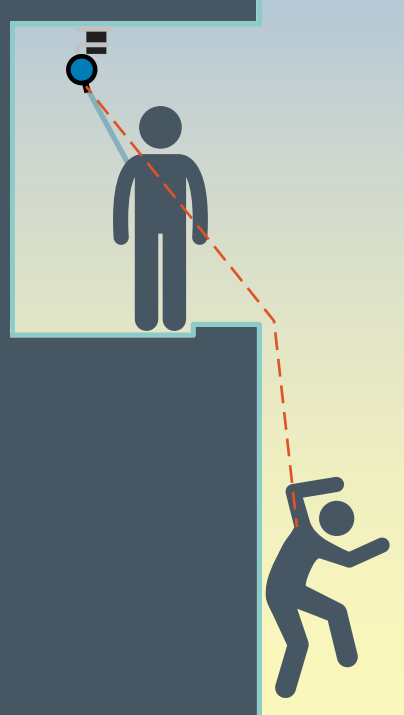
$$\textit{Fall factor} = \frac{\textit{Height of the fall}}{\textit{Length of the Rope}}$$

FALL FACTOR 0 - EXAMPLE WITH AN OVERHEAD FALL PROTECTION SYSTEM

For this example the anchor point is located above the worker. The image shows that the fall distance is very minimal. Only the extension of the energy absorber(to minimize the forces that are released in a fall) will add to the fall height. The lanyard will be the length of the distance between the attachment point on the harness and the overhead anchor point.

If we do a basic calculation with the anchor point 1 meter above the attachment point of the harness, the fall factor would be:

$$\frac{\textit{0,75 meters fall height}}{\textit{1 meter of rope}} = \textit{Fall factor 0,75}$$

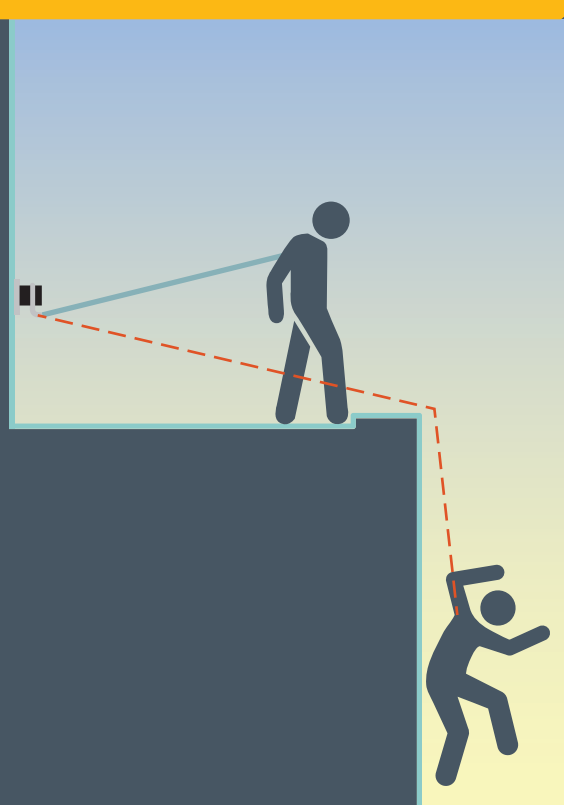


FALL FACTOR 1 – EXAMPLE WITH A WALL-MOUNTED LIFELINE SYSTEM

If the anchor point is located at waist height and the attachment point of the lanyard is located at the back of the worker, the fall factor will be around 1. In this situation, the lanyard is 2 meters. When a fall occurs, the user will fall approximately 2 meters as well.
The protruding working area will somewhat decrease the fall distance, but the deflection of the lifeline will add to that again.

$$\frac{\textit{2 meters fall height}}{\textit{2 meters of rope}} = \textit{Fall factor 1}$$

The impact forces will be quite high in this situation, which is why a personal energy absorber (PEA) needs to be used. This helps decrease the forces and the chance of (serious) injuries caused by the forces released in a fall.



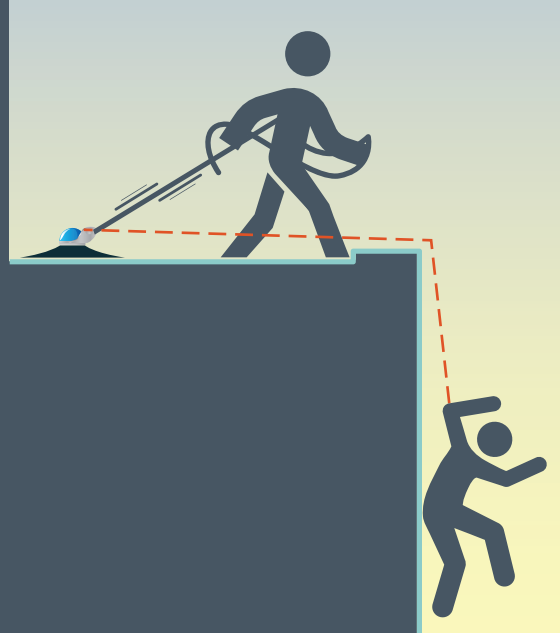
FALL FACTOR 2 – EXAMPLE WITH AN ANCHOR POINT AT FOOT LEVEL

Horizontal lifeline systems and other systems where the anchor point is located at foot level are generally installed on roofs. When a user falls, they fall the distance of the attachment point to the height of the anchor point 2 meters and the distance of the lanyard below the anchor point (2 meters).

In this example, the fall distance is approximately 4 meter.
When putting this into the equation, we get a fall factor of 2:

$$\frac{\textit{4 meters fall height}}{\textit{2 meters of rope}} = \textit{Fall factor 2}$$

The impact forces that are released on the body will be very high. That's why a personal energy absorber has to be used in these systems. This will add to the fall height by 0,75 meter, but it will significantly reduce the impact forces and decrease the risk of serious injuries.



From Zero to Safety is a collaboration with XSPlatforms

HEIGHTSAFE® HEIGHTSAFESYSTEMS.COM