



Quick Planning Guide

How to correctly position your fall arrest system

What must you be aware of?

The fall danger zone is defined as being 2 meters or less from the edge. The edge may be the edge of the roof, along the sides of a domed rooflight, a smoke and heat extraction system or strip lighting.

Number one priority: collective protection!

The lawmakers and employers' liability insurance associations have decreed that fall arrest systems should provide collective protection wherever possible, e.g. through the use of guard rails. However, in practice this often proves extremely difficult to realize - a good example being when the roof parapet needs to be worked on. In such cases, individual fall arrest systems using lifelines and anchorage points often provide a much better solution.

Lifeline or anchorage point system?

The decision whether to opt for a lifeline or an anchorage point system usually depends on the application and how often it is likely to be used: If it is rarely necessary to access the roof, single anchorage points often suffice. On the other hand, if regular roof access is required - or the roof surface is slippery (e.g. metal or foil rooves with a pitch of $\geq 4-5^\circ$), a lifeline is often the most sensible - or even an imperative - solution.

Planning Basics

Normally, anchorage points are arranged around the fall danger zone. However, a lifeline system allows the user to get nearer to the edge as it provides uninterrupted protection (please refer to Example 1).

Generally, the most dangerous spots are always the outer corners of the fall danger zone. This is where a fall results in the strongest swinging motion because the distance from the anchorage point to the corner is greater than the shortest stretch to the edge. The distance from the anchorage point to the outermost corners should, therefore, never exceed 5 meters - assuming that the potential fall distance is at least 8 meters. If it is less than this, we recommend observing a maximum span of around 2.50 meters to the each corner.

In straight sections, the length of the lanyard is what determines how far the anchorage points should be positioned from the edge. The lanyard can be accordingly adjusted and shortened to the required length. This means that the anchorage points do not necessarily always have to be positioned the same distance from the edge of the roof/precipitous edge (Example 2).

The first thing to do when planning a fall arrest system is, therefore, to ensure that the dangerous corners are equipped with suitable anchorage devices. Each of these corner areas is secured using a single anchorage point. The remaining stretch is then divided into sections of max. 7.5 meters.

Areas with a relatively small fall distance also pose a danger because anyone falling over the edge hits the ground fast. Example:

A person who is 1.80 meters tall falls over an edge attached to 2 meters of loose or suspended rope. The lanyard fall absorber stretches 1 meter - with the complete fall arrest system stretching yet another.

We are now talking about a total possible fall distance of 5.80 meters!

To avoid the risk of hitting the ground in cases where the fall distance is very short, a fall retention system needs to be installed where the distance to the ground is less than 6 meters. This implies installing the safety system parallel to the edge (Examples 3+4).

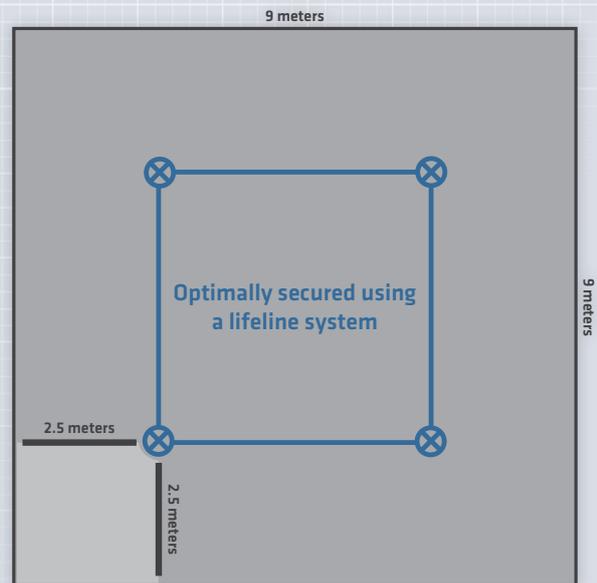
Easiest to secure are round (roof) surfaces. Normally, only one central anchorage point is required.

Example 3

Building height: 4 meters

In this case, installing a lifeline system is the best solution. The lifeline is installed in such a way as to actually prevent falls over the edge (assuming the lanyard has been accordingly shortened). This method is used to prevent falls and is described as a fall retention system.

Both temporary and permanent lifeline systems can be used to set up a fall retention system.



Example 4

The roof surface is the same as above but the building is 10 meters high

The distance from the center to the edge of the roof is 4.5 meters (most direct, shortest route). If a fall occurs at the corner, the maximum swing is 1.86 meters. Even when the length of the body and the additional 1 meter caused by lanyard fall absorber stretch is added to this total, the building is still high enough to allow for a sufficient free fall distance.

