# THE ABC'S OF FALL PROTECTION: HOW TO SELECT THE RIGHT TECHNOLOGY AND KEEP ON TOP OF COMPLIANCE

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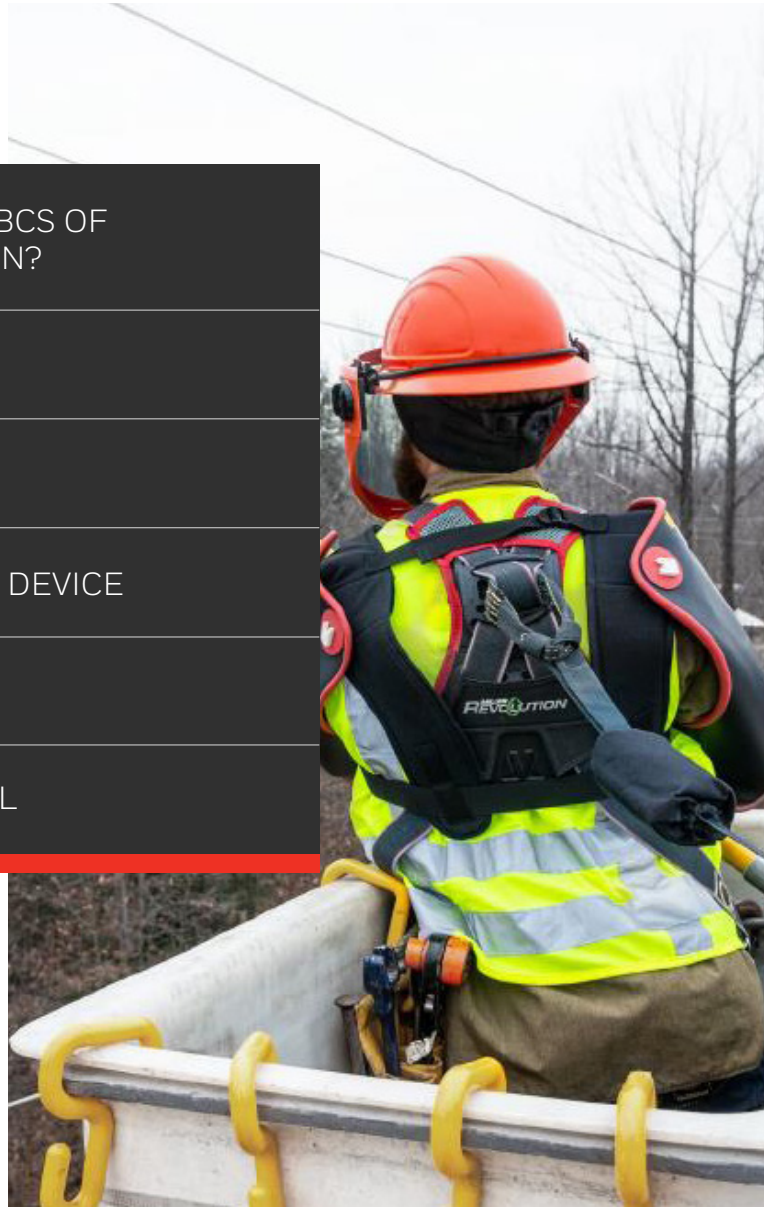
# INTRODUCTION

**The 'ABC's of fall protection' is a common way of referring to the three key components of a personal fall arrest solution (PFAS) - Anchorage, Body wear and Connecting device – and is now relatively well known in the safety industry. Falls from height remain, one of the leading causes of injury and death across Europe[1] and North America[2], especially in the construction industry. The most commonly violated safety standards are those relating to fall protection[3]. This evidence suggests that there is still some confusion around correct selection/ use of PFASs and compliance with the latest legislation, which is where this e-Guide comes in. Preventing falls is not only key to protecting workers, but also a company's reputation and profitability.**

Besides the emotional and physical cost to employees and their families, there is also a financial cost associated with falls from height. The Liberty Mutual index for 2018 shows that falls constitute **more than 29% of workplace injuries and result in direct costs to the companies affected of more than €15.5 billion**[4].





# 1. WHAT ARE THE ABC'S OF FALL PROTECTION?

Safety professionals often use the acronym ABC to define a comprehensive PFAS. The acronym serves a dual purpose. It highlights that there are basic steps that must be followed to protect workers from falls and, as mentioned above, it also refers to the three components of a PFAS:

- **A** stands for the anchorage connector, which is piece of equipment that attaches directly to an anchor point on a structure.
- **B** represents the body wear item, which takes the form of a full body harness in the case of fall protection.
- **C** stands for the connecting device. This is a shock-absorbing link from the anchorage connector to the full body harness, which is designed to arrest a fall before a worker hits the structure or ground below.

Each element is vitally important and a PFAS only works when all three are in place and working as designed. It is important to understand each element and how they work together to provide the best fall protection solution for your application.

# 2. A – ANCHORAGE

Before choosing an anchorage connector, one must first decide on the anchor point itself. This will carry the weight of a falling worker as well as the forces required to arrest the fall. It must therefore be securely fastened to the building and strong enough to carry the load. A typical example is an I-beam. While construction is still in progress, it may even be necessary to work with project engineers to install an anchor point specifically for fall protection or utilise a temporary fall protection solution, such as a webbing sling or webbing mobile lifeline. A thorough risk assessment will identify anchor points for tasks that can put workers at risk of falling.

The best anchor points are directly above a worker as they reduce fall arrest time and minimise the so-called 'pendulum effect'. This occurs when a worker swings back and forth while falling, which can cause them to collide with the structure and suffer injuries. The general rule here is: the wider the angle between worker and anchor point, the higher the risk. So, even when having an overhead anchor point is simply not an option (e.g. while working on flat roof structures), ensure that the angle between the worker and the anchorage point does not exceed 30 degrees.

To use and position an anchor correctly also remember to read the manufacturer's instructions. These should always include "the characteristics required for the reliable external anchorage point and the necessary minimum clearance below the user[5]."

Anchorage connectors should also allow a worker to move freely without getting their connecting device entangled. This can be achieved by using anchorage connectors that swivel to 360 degrees or self-retracting lifelines (SRLs), which usually incorporate swivels. Workers who keep getting tripped up or entangled in their fall protection are more likely to take it off leaving themselves vulnerable to a fall.

In an incident reported by the Workplace Safety and Health Council, for example, a worker died by falling from a sloping roof[6]. Although full body harnesses were standard protective equipment on site, it had become common practice for workers to detach their lanyards from their harness to facilitate ease of movement on the roof.

# 3. B – BODY WEAR

Only a full body harness offers the complete protection needed in the case of a fall. It distributes the forces of arresting a fall to the strongest parts of the body (chest, shoulders, upper thighs and pelvis). It also offers multiple points of restraint including a back D-ring for fall protection. Some harnesses also offer a front D-ring for climbing and to facilitate raising and lowering when working in a confined space. Side D-rings may also be available for additional restraint.

Sizing a safety harness is essential: if it is too loose, a worker may slip out making the fall protection useless. A size and weight chart[7] can help you select the right safety harness for your workers.

Using a harness correctly is just as important and, once again, the manufacturer's instructions are a must-read. Remember: all harnesses should now come with detailed instructions on "the proper way of putting on the body harness and of attaching the connection system to the reliable external anchorage point[8]".

Inspecting and maintaining harnesses on a regular basis is also paramount[9]. In the EU, PPE Regulation (EU) 2016/425[10] set a five-year limit on compliance certificates meaning that products must be retested every five years to ensure compliance with the latest EN or ISO standards.

Keeping on top of compliance can be cumbersome and time consuming, but digitalisation can now make the life of safety managers easier. Some of the latest harnesses, for example, feature radio-frequency identification (RFID) tags, which can be scanned to import all relevant information into a Safety Information Management System (SIMS). The SIMS highlights when inspections are due, captures photos and inspection results and ensures non-compliant equipment is removed from service.

# 4. C – CONNECTING DEVICE

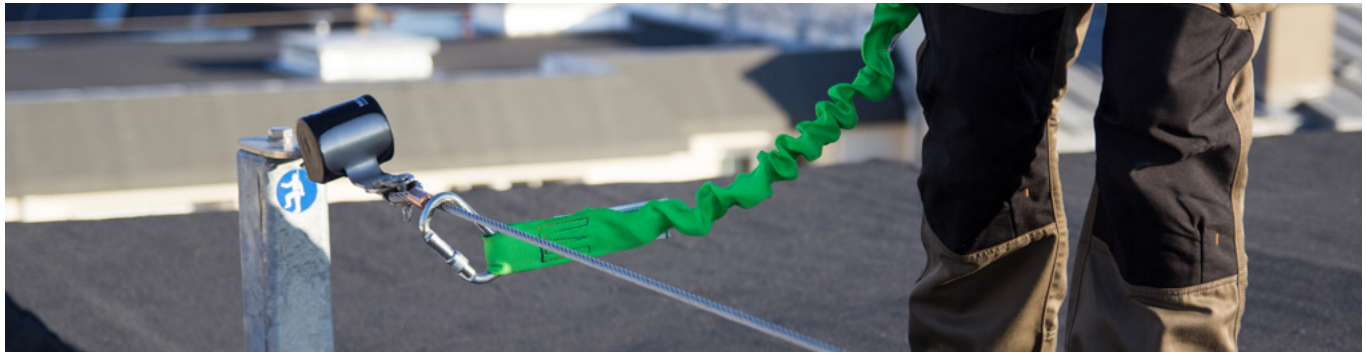
There are two main types of connecting device that provide the shock absorption and fall arrest features of a PFAS.

Traditional shock-absorbing lanyards (SAL) have a 1.8 m (6 feet) free-fall distance and require a further 1.1 m (3.5 feet) to arrest a fall completely. By contrast, SRLs can arrest a fall in 60 cm (2 feet)[11]. Their short activation and arresting distances make them very effective when fall clearances are low. Site and task risk assessments are the safest way to determine which type of fall arrester is right for a specific application.

Calculating fall clearance and swing fall is particularly critical. Honeywell Miller provides a **fall clearance calculator online**[12] or via a mobile device app[13]. Currently only available in the USA, the calculator leads you step by step through the process of entering details about the height of the work, anchor point and of the SAL or SRL. An animation gives a visual representation of the potential fall and highlights warnings.

One of the risks associated with connecting devices, especially when the anchorage point is horizontal (at ground or shoulder level), is that they can come into contact with edges during a fall. The abrasive or cutting effect on the material can cause fraying and even breakage. New legislation now takes this risk into account requiring connecting devices to be edge tested. In Canada, for example, standard Z259.11-17[14], which specifies edge-testing requirements for SRLs, has already been adopted into law in many Canadian provinces. Although it is yet to be translated into law, a similar standard, ANSI/ASSP Z359.14-2014, already exists in the USA[15] and Europe may follow suit in years to come[16]. No matter if it's a legal requirement in your country, choosing connecting devices that are already fully edge tested will give your workers extra protection.

Inspection and maintenance compliance intervals apply to connection devices too. Implementing RFID tags and SIMS for these devices can help safety managers maintain control of their compliance as well as the condition of their equipment.



# CONCLUSION

Ensuring a high level of protection is possible by choosing and using the ABC's of fall protection correctly. A thorough site and task risk assessment can help identify the specific challenges your workers may face and help guide the selection of anchorage points, full body harnesses and connection devices.

Trusted suppliers are not only aware of potential changes to legislation around PFASs; they are ahead of the curve. They provide equipment that already complies with future requirements. To keep up with compliance, Honeywell Miller has developed a range of edge-tested SALs and SRLs for their customers. In addition, technology solutions like Honeywell Safety Suite make compliance management simpler and more effective for safety managers. With over 75 years of experience in fall protection, Honeywell Miller is the ideal partner to help you keep your workers safe at heights.

For more resources and information visit - https://hwll.co/Miller75_EN

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Honeywell
Edison Rd
Basingstoke,
RG21 6QD,
United Kingdom

Phone: +44 (0) 1256 693 200
Fax: +44 (0) 1256 693 300

Email: info-uk.hsp@honeywell.com

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