



Vertex

at the heart of adventure

Issue 4
February 2018



Safety First Part 2

“Every step that we take towards creating a safer operation takes us a step away from a potential accident”

In our last news bulletin we talked about the changes that were occurring across our industry and the importance of creating and maintaining a good safety culture within your organisation and operation.

Get in touch:

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The emphasis was on human factors and to ensure that your people have the right skills, attitudes and behaviours.

Neatly following on we will concentrate, in this news bulletin, on some of the topics that were raised at our industry day in November 2017 at Challenge 4 Change in Manchester.

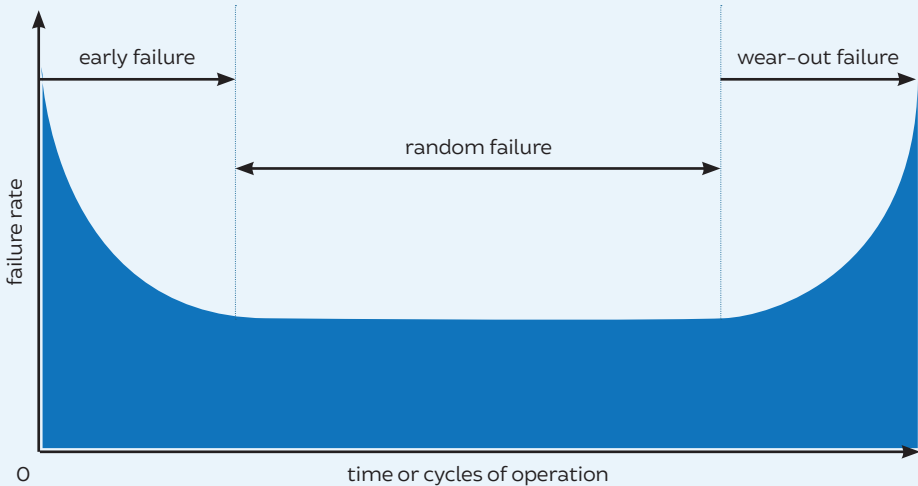
Stephen Flanagan worked for the HSE as a principal investigator and now works as a consultant in health & safety cases. As one of the expert witnesses in the Alton Towers Smiler incident – he used some of the learning from this and other fairground/ amusement ride accidents to better inform our industry.

The main focus of his presentation was around the principles of reliability that are used within the fairground attraction industry and whether these can be applied to the ropes course and adventure park industry.

With the continued growth in “pay and play” type activities, operators and owners are more and more reliant upon the hardware (the physical course, PPE etc) and the software (your staff and customers) being totally reliable and not subject to failure – whether this is fair and right isn’t something to be answered here, but it is an expectation and one that we need to look to see if there are ways to mitigate against such “failures”.

Those of you that attended the day in November may recall Stephen referring to the “bath-tub” curve (see over).

“bath-tub” curve

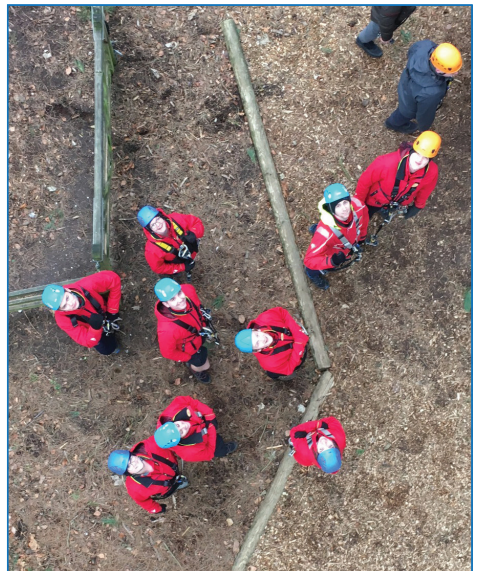


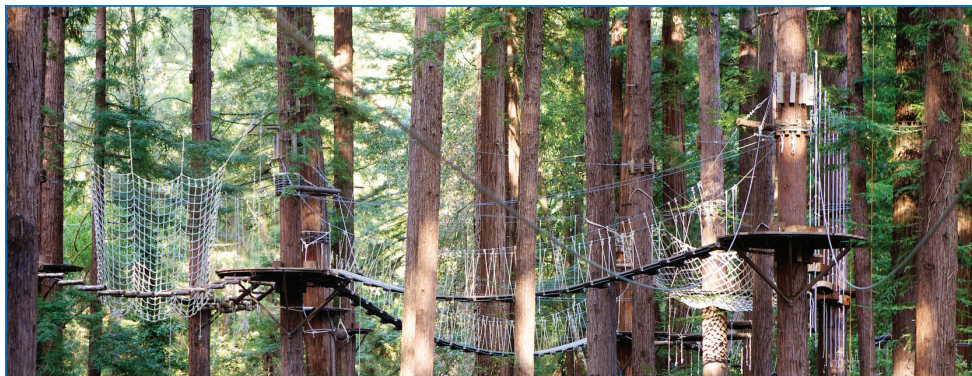
This refers to the degree of reliability of a device over time. It's usually characterised by a high failure rate at the start, random failure mid-life and then wearing-out failures.

If you take this model into our industry it may go something like this....

- You've just had a new course built or you've just opened up for the new season and you're finding that accidents and near misses are happening more frequently than you'd like. This could be because the course itself has some design issues that weren't obvious until customers started using it which now means you've got to make some changes and adaptations. You'll probably have new staff who need to "bed in" and you may be using new/different PPE than they are used to – all of these factors can contribute to the early failures.
- So things have settled down and you're now in that period where everything is working well and there are the occasional random accident, incident and near miss. More often than not these can be put down to parts wearing unexpectedly, an instructor forgetting to do something or customers behaving in ways you were not expecting

- Finally, you enter the "wearing – out" phase (don't we all!) where larger components of your course need replacing due to extensive use, your staff are getting tired, demotivated and bored and your PPE is being asked to extend its life just a little bit longer to save you some cash.





We believe that this cycle can happen over the whole life of your course or within a season and this is particularly true in relation to your staff.

So the question to answer is how as an operator, manager and owner you can mitigate against these potential failures and we'd suggest that the following are some of the things that you can do...

- **make sure that you use a well-regarded and professional builder who can provide you with references. Visit other ropes courses and adventure parks that they've built to get a feel for their design and quality and always ask questions!**
- **For a new build or major re-vamp we'd always recommend you get your course inaugurally inspected by a qualified and competent inspector and the details of what this will cover can be found in EN 15567-2016 Part 1**
- **It's crucial that you have your course periodically inspected by a qualified, current and competent inspector who is well versed in inspecting ropes courses – this should not just be a tick box exercise to get your course signed off for another year.**
- **Ensure that you have systems in place that ensure daily checks of your course are carried out and where necessary it can be taken out of service**
- **Ensure that there is suitable redundancy. "In a high hazard situation, the aim should be never to be in a situation where a single human step with a potential for error would directly lead to a disaster" ... Wherever possible design systems that if there is a failure of either the hardware (the ropes course) or the software (your staff) then it's to safety rather than danger.**
 - a second and independent rope and back up device in your rescue system, or nets under the start of a zip wire, or using more than one connector and/or knot when attaching a climber to a climbing rope.
- **Create diversity**
 - move your staff around your course to lessen the chance of boredom and repetitive tasks or have 2 people check and test an action
- **Correctly apply the AND/OR principle**
 - Or – if we hear thunder or see lightning we stop
 - And – before sending down the zip wire I need to see the signal and hear the radio call
- **Ensure you have well written systems of work**
- **Provide suitable training (in-house or external) and monitoring of your staff ensuring that it is well documented and your staff understand the importance of this monitoring and that it's not seen as the management "checking up on me"**
- **Keeping your staff engaged, motivated and valued will all help to create a safer system of work where errors and accidents are less likely.**



- Buy appropriate PPE for your staff and customers from a knowledgeable (do they know enough about your activities, your staff and your clients to be able to provide you with the correct advice and therefore the correct PPE for the job) and reputable re-seller such as Vertex.

There are many other ideas that you could employ but hopefully those mentioned above will get you thinking...

As we think about hardware in the context of ropes courses we are drawn to the big area of PPE and this is where Mark Davies from Lyon Equipment focussed our attention on aspects of legislation, European Directives and European Norms that relate to the selection & use of PPE linking in to some of Stephen Flanagan's presentation in terms of "fit-for-purpose".

We're all aware that PPE is:

“Any device or appliance designed to be worn or held by an individual for protection against one or more health & safety hazards either at home, at work or whilst engaging in leisure activities”

What we should remember about PPE is that within the hierarchy of controls it's the least effective control measure – so before you start selecting and buying PPE make sure that you've looked at:

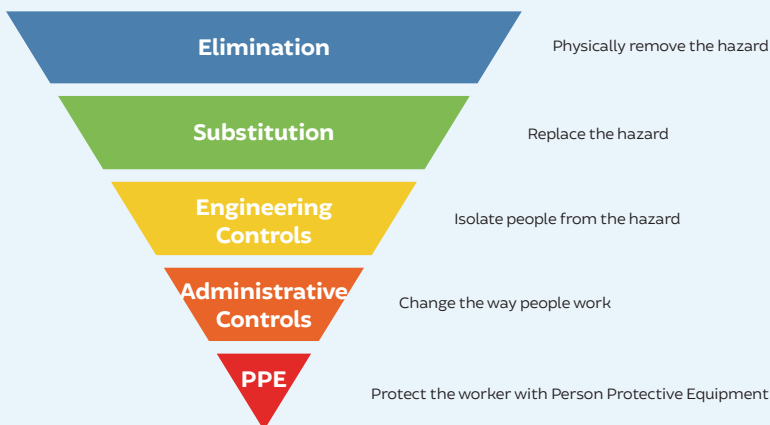
- ways to completely eliminate the risk
- you've replaced the potential hazard that's been identified with something safe
- you've isolated people from the potential hazard and
- ensured that you've employed administrative controls that can change the way people work.

Hierarchy of Controls

Most effective



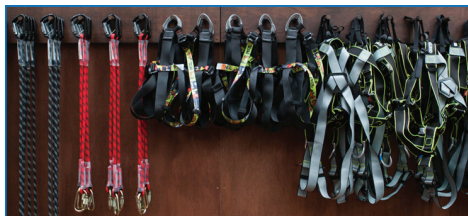
Least effective



Some of the ways that you could potentially reduce risks without the requirement of purchasing PPE could include:

- rather than wearing helmets, the design of the course could be such that the risk of a head injury is substantially reduced or even eliminated. Even if there is still part(s) of the course where a bump on the head could happen then padding could be used to protect against this
- when participants arrive at a platform to begin an adventure park activity, take flight on a zip wire or descend on a Powerfan or Quick Jump, the use of fencing to create a safe "holding pen" and collectively prevent them from falling is preferable to the use of an individual cows tail or lanyards attached to each person
- rather than sending staff on an advanced Working at Height training courses where they will only employ those specialist skills and use specialist PPE occasionally, it may prove more time and cost effective to hire in expertise or to arrange for a safer work method such as a MEWP or scaffolding to complete the inspection or maintenance. This approach would not only be safer but would also ensure compliance with the Working at Height Regulations Schedule 5, Part 1
- If after doing all of this you still need to use and purchase PPE for your staff and/or customers you will have the confidence of knowing that you've done everything that you can to limit the amount being purchased but also taken the time to consider alternative control measures.

So in summing up, predominately in the world of ropes courses and adventure parks we use admin controls and PPE to keep our staff and customers safe. If we were to put them into a model such as Reasons Swiss Cheese these 2 would represent the slices of cheese with



the most holes in them! So when writing your safe systems of work you should consider incorporating design principles as introduced by Stephen Flanagan and selecting PPE as described and explained by Mark Davies. But these 2 in and of themselves are not going to keep our staff and customers safe we need to make sure that the right people with the right attitudes and behaviours work for us and that we are fostering the best safety culture possible which can only come from great leadership across an organisation. We need both pieces of the puzzle, human factors and engineering and design to ensure that

- These people...
- With this training...
- And this equipment...
- Can do these tasks...
- Safely, effectively, satisfyingly...
- Under these conditions...

Next time we will take a more detailed look at regulations, top tips and how they relate to our industry.

Date for your Diary:

**Ropes Course & Adventure Park
Industry Day**

Wednesday 21st November, 2018

Your Staff: The Heart of Your Business

Where: Zip World, North Wales



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