GUILDFORD Ergonomics

Human factors for SMEs

why employees do things you don't expect them to

Checklist and guidance

Chartered Institute of Ergonomics & Human Factors
REGISTERED CONSULTANCY

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Introduction

Human factors deals with the things that shape how we behave – we call them ***performance shaping factors (also sometimes call performance influencing factors)***. When people act in unsafe ways at work, or if there is a risk that they might do unsafe things, human factors looks at the performance shaping factors that could be causing that.

Errors, mistakes, rule breaking, should be seen as inevitable.

Our two main aims should be to reduce how likely they are to happen, and to take steps that will limit their effects when they do happen, because more likely than not they will happen, sooner or later.

During my previous life as an HSE Specialist Inspector, a lot of my time was spent trying to unpick the reasons why people (to put it simply) did things they weren't meant to at work, and as a result ended up either being badly hurt – in some cases killed, or causing others to be injured.

Most of the time investigations hinged around how 'foreseeable' those 'odd' or unexpected behaviours were. Companies would often say that people had been trained to do the job safely, so they couldn't understand why they did x y or z in an unsafe way or failed to take the safety measures they had been told to.

In many cases, the reasons why people do unsafe things they aren't expected to comes down to performance shaping factors. We, people, are not machines or robots, and even simple behaviours often rely on a lot of conditions being met if we want them to happen in a certain way. If you've ever poured cold water out of a kettle onto a tea bag, or forgotten to call someone back urgently, or driven over the speed limit to get to an important meeting etc., then you have experienced this.

These wide ranging conditions or factors that affect our behaviour include things like whether people are supervised suitably, whether they are comfortable or stressed / under time pressure, whether the machinery or tools they use are fit for purpose and ergonomic. There are many performance shaping factors and this guidance looks at the key ones.

Human factors is especially important to SMEs. Partly because if someone hurts themselves by doing something 'the wrong way' at work, a greater proportion of the workforce will possibly be away from work. Compared to larger companies, SME's are also often more vulnerable financially if incidents caused by human error / failure lead civil claims or prosecutions due to incidents and injuries. Despite this, the main guidance available on human factors has been designed toward the high-hazard sector and larger industries. This guidance and checklist has been developed to address that by being designed for SMEs.

Foreseeing the huge number of unusual or unexpected unsafe things that people might do at work is beyond the scope of even very large organisations. This is why we focus on the general conditions that could help lead to various unsafe acts (the performance shaping factors), with an expectation that we will 'head-off' or pre-empt unexpected unsafe acts.

The guidance in this document is concise and kept to a minimum. It focuses on issues that are recurrent themes during incident and accident investigations. The document includes an active fillable checklist and record sheet that can be saved, revised and printed.

It helps to think of managing human factors like fixing a fishing net. You can't be sure which fish (unsafe act) you'll catch (prevent), or whether you'll even catch one, but if there's one in the lake – if your net is fixed at least you stand a better chance.

Contents

What is Human Factors and why is it important?

HSEs definition of Human Factors is that it covers '***the environmental, organisational and job factors, and human and individual characteristics which influence behaviour at work in a way which can affect health and safety***'.

People behave in certain ways when they do their work - sometimes they make mistakes or do things differently from normal. That can affect their safety and the safety of people around them or reliant on them. This is true across all workplaces, from shops and offices, through to factories and warehouses.

An electrical fitter arrived back from his lunch break to find his ladder was missing from where he had left it. He only had a small job left to do so he stood on a chair instead. Being preoccupied with his work he leaned too far, the chair toppled and he fell, breaking his wrists. He had been trained to always use a ladder.

Human Factors is about looking at the reasons why people might behave in more risky ways, and how to reduce the likelihood of that happening. We call the reasons behind behaviour '***performance shaping factors'***.

Human Factors is a very broad topic area. This document provides a straightforward functional guide that has been designed specifically for small to medium sized enterprises (SMEs).

This checklist and guidance covers a range of key areas that are important in shaping how people behave at work. Each key area lists prompts or questions - and each of these links to guidance at the back of the document that provides you with helpful information.

How do I know if this assessment is useful for me?

If you rely on your staff to 'do things the right way' to avoid them getting injured, or injuring others, then you need to be aware of factors that might result in them 'not doing things the right way'.

You might be able to identify straight away some tasks with stages that need to be done a certain way to stay safe. But in reality, there are so many things, often seemingly minor, that can go wrong, that it's more effective (and less frustrating) to focus broadly on WHY people might do things the 'wrong way'. These WHYs are what we call ***performance shaping factors***.

Put simply, if we get the performance shaping factors right, then we can prevent incidents and accidents that we might not ever have even foreseen (which can save a lot of effort and problems!)

Figure 1. Nearly all workplaces involve some risks and performance shaping factors will always be present – this is true from retail, catering and offices, to industrial production sites and factories. Our checklist and guidance is designed specifically to supporting SMEs in dealing with this.

How to use this checklist and guidance

You should use this checklist and guidance as a risk filter. This means that if you identify any issues and you're still unsure how best to deal with them, you should probably seek further advice – either in more detailed guidance (like HSEs publication on human error HSG48) or on the HSE Human Factors webpages. If these don't give you satisfactory answers you should seek advice from a qualified health and safety or Human Factors professional.

Figure 2. Even skilled staff need some level of supervision when it comes to safe working methods.

Design of this checklist and guidance

You can enter and save information directly into this pdf, using the checklist.

Check/radio buttons let you quickly record information. The buttons also change colour to indicate whether there may be an issue to consider in more detail by referring to the guidance. Green indicates 'good', red indicates 'requires further consideration', black indicates n/a or 'other'. For red and black you should record additional details – it could indicate a range of things for example, if the issue is not relevant to work being carried out.

To the right of the check buttons is an area for you to type notes and additional details – we recommend a short description of the issues identified and a brief description of remedial actions.

If you click on the information buttons ( ) on the right hand side of the checklist they take you to short concise guidance on that particular factor, at the back of the document. Once you have looked at the guidance, just click on the nearest back up arrow ( ) to go back to where you were in the checklist.

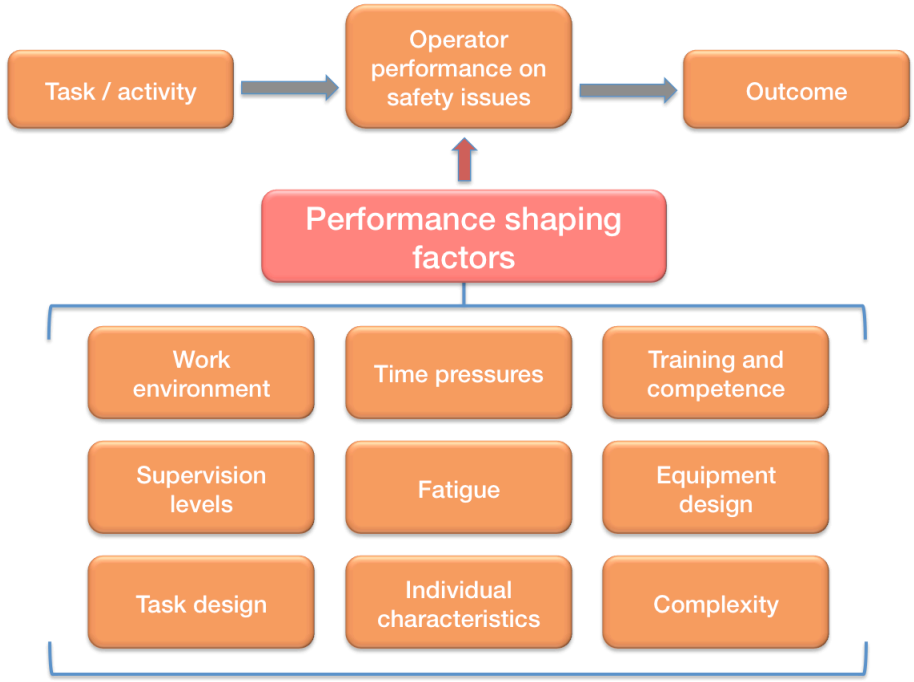

Figure 3. Negative performance shaping factors increase the likelihood of mistakes, rule breaking etc. They undermine the systems you have put in place to contain risks.

Human Factors checklist for SMEs

version 1.9

	Company	**Assessor name**	
	Site	**Assessor role / job title**	
	Date 1 Jan 2016		

	Key area	Yes	No	Alt. n/a	Notes – record in here any details, issues identified and possible remedial action	Guidance
1	**Do you need to assess Human Factors risks in your workplace?**	○	○	○		A task is safety critical when, if it's not done or done correctly, there is a risk of injury or accident. You may be able to group some safety critical tasks that have common safety critical steps, or you may need to look at each task individually. The aim of the rest of this checklist is to help you identify things that could cause people to act incorrectly (and unsafely) in those safety critical tasks.
1.1	Are there safety critical tasks in your workplace? Confirm yes / no, list them.	○	○	○		
1.2	Is there a history or record of incidents / accidents where people haven't 'followed the rules'?	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details or specifics, issues identified and possible remedial action	Link to guidance
2	**Procedures**					
2.1	Are procedures that involve safety critical steps / elements clearly documented?	○	○	○		
2.2	Are operators involved in writing, establishing and reviewing procedures that involve safety stages / elements?	○	○	○		
2.3	Are staff trained in all up-to-date safety critical procedures that they have to carry out?	○	○	○		
2.4	What happens to staff if it's found they are not following procedures (regardless of whether it leads to an incident)?	☐ Consulted with to find out problems with procedure ☐ Disciplined before procedure is investigated				
3	**Supervision and monitoring**					
3.1	Do employees consider themselves under supervision - at any time?	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details or specifics, issues identified and possible remedial action	Link to guidance
3.2	Are new workers fully or partly supervised?	○	○	○		
3.3	Are more experienced workers ever supervised?	○	○	○		
3.4	Can employees activities during unsupervised periods be checked / audited for safety?	○	○	○		
4	**Training and instruction**					
4.1	Are staff given training in how to carry out their roles safely?	○	○	○		
4.2	Are employees competent and qualified for the roles they are undertaking?	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details, issues identified and possible remedial action	Link to guidance
4.3	Are the safety reasons behind doing things a certain way explained (where applicable)?	○	○	○		
4.4	Are people who are <u>not meant</u> to perform certain tasks specifically told not to carry them out?	○	○	○		
5	**Design of machinery / environment**					
5.1	Is physical design of equipment, machinery and environment safe and ergonomic?	○	○	○		
5.2	Are there suitable alarms? Are they well positioned, loud / conspicuous enough? Presented to everyone who needs them?	○	○	○		
5.3	Is the machinery / equipment fit for purpose? Signs it might not be: • breaking down a lot / maint. needed • excessive effort reqd. to use it • unsafe actions needed to use it • staff making modifications to it	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details, issues identified and possible remedial action	Link to guidance
6	**Stress**					
6.1	Is the pace of work high or is it set by machines?	○	○	○		
6.2	Are there production penalties / maintenance penalties etc.?	○	○	○		
6.3	Are staff given enough breaks and suitable safe / clean areas to take breaks in?	○	○	○		
6.4	Are any tasks monotonous / repetitive or potentially boring?	○	○	○		
6.5	Do any tasks put especially high mental demands on people?	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details, issues identified and possible remedial action	Link to guidance
7	**Organisation and Culture**					
7.1	Do senior managers / directors visibly support health and safety? e.g. wearing correct PPE on-site, listening to any staff concerns, having it as a fixed agenda item at meetings?	○	○	○		
7.2	Is there a forum or sysytem for employees to make recommendations on health and safety issues?	○	○	○		
7.3	What is the general view on health and safety? Is it seen as a necessary chore or something valued and respected?	☐ A necessary chore - tolerated ☐ Hard to say - varies ☐ Valued and respected				
8	**Incidents and near misses**					
8.1	Is there near-miss reporting / recording system?	○	○	○		
8.2	Is there a clear incident report / record and investigation system?	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details, issues identified and possible remedial action	Link to guidance
9	**Staffing**					
9.1	Does your staff recruitment process look for particular characteristics based on job demands?	○	○	○		
9.2	Are there enough staff to carry out the work while making sure at the same time there are enough people to cover all safety roles / activities?	○	○	○		
10	**Shift work and fatigue**					
10.1	Are there shift / night-workers in your company / site?	○	○	○		
10.2	Do staff ever work back-to-back shifts or extended overtime?	○	○	○		
10.3	Do any staff drive long distances home from work at the end of a lengthy shift or night shift?	○	○	○		

	Key area	Yes	No	Alt.	Notes – record in here any details, issues identified and possible remedial action	Link to guidance
10.4	Are there effective handover procedures and are they documented and followed?	○	○	○		
11	**Additional Performance Shaping Factors**					
11.1	What is the scope for people to be distracted while they are carrying out tasks that have a safety critical aspect?	☐ Distractions present - e.g. phones, colleagues ☐ Possible distractions present ☐ Limited or no distractions present in work env.				
11.2	Are there environmental stressors (e.g. heat, cold, noise, humidity)	○	○	○		
11.3	Do staff have to deal with unusual or novel sets of circumstances?	○	○	○		
11.4	Do you have any young people (aged under 18) in your workplace?	○	○	○		
11.5	Is lighting suitable for the tasks being carried out?	○	○	○		

Additional notes and comments - is further more detailed assessment required for any of the key areas?

This checklist is designed to be used for recording an overview of the status of key performance shaping factors in your site or organisation. It should be used as a risk filter and if you identify any issues, it is recommended that you look at them in more detail.

1 Safety Critical Tasks

In most workplaces or business there are likely to be tasks that in the broader sense are safety critical.

The idea of 'safety critical' originates from the high-hazard industry sector where it means tasks that – if they went wrong – had potential for multiple fatalities, widespread environmental damage etc.; think in terms of 'oil refinery blowing up'! But, the idea of whether something is safety critical can be applied just as easily to tasks where the bigger-picture severity of possible outcomes is not as high, but where the effects on individuals or organisations could be just as devastating. For example an excessively fatigued delivery driver having a severe traffic accident, or shop worker falling off a chair trying to reach a high shelf.

Throughout the rest of this guidance, ***a safety critical task simply means a task that, if it goes wrong, has potential to harm someone (anyone)***. It's a simple definition and it covers a huge range of activities, which is why it is so important to think about human factors so we can 'fix the net'.

A coffee shop barista, distracted and dealing with a long queue, looked away just before purging the steam wand. Unknown to her, a colleague was reaching across it at the same time and was badly scalded. Both had been trained to not look away when purging, and not to reach across the steam wand.

Humans are all naturally prone to failure and we have strongly established behaviours / ways of thinking which make us vulnerable to failures.

The main starting point of this guidance is to prompt thoughts and ideas about what would happen if one of your staff failed to carry out a task as expected, or their attention failed, or they were taken ill mid-process etc.?

The safety critical element may often be a small step in a much bigger task.

Where human failures (errors, mistakes and violations) could have safety implications you need to consider:

1. what could cause those human failures? (i.e. what are the possible performance shaping factors),
2. how to prevent the failures happening (as far as you can), and/or
3. how you might be able to minimise the negative effects if they do occur.

The purpose of this checklist is to guide you through the main causes of human failures that happen at work - to help you think about ways to minimise risks to your staff and protect your company from incidents.

One of the main aims of this checklist and guidance is to help you identify reasons why your staff might stray outside safe procedures - either accidentally or deliberately, because this is a cause of many accidents even when people are trained and well aware of how things should be done safely.

2 Procedures

People not following procedures is one of the main reasons behind many workplace incidents. ***Procedures should be clearly written, easily accessed, and steps or stages included for safety should not be excessively demanding in time or effort*** (if they are, that is often when corners are cut).

2.1 ***It's important to keep a record of safety critical procedures*** - or how tasks that involve a key safety element should be carried out.

Copies of those procedures should be available to the people doing the tasks ***at any time***.

Staff training should cover all procedures they need to carry out, but especially any that are safety critical.

2.2 Combine the expertise of experienced staff with the knowledge of someone who has a good understanding of health and safety to design optimal procedures i.e. procedures that minimise the cost (time / effort) of essential safety elements, reducing the likelihood of those elements being ignored or misunderstood.

2.3 If conditions, tasks or equipment change, it is important that procedures are reviewed to check that they still offer the necessary protections. If changes are made, there should be a formal refresher / roll-out program.

Figure 4. Procedures should be clear and designed for easy use. Procedures should also be optimised to avoid unnecessary effort and delay when complying with safety steps.

2.4 If people think there won't be negative consequences if they don't follow safety steps properly in procedures, that makes it more likely they will violate those procedures if it gives them a 'short-cut'.

Three key recommendations for procedures:

1. ***Make sure staff are aware of any penalties for failing to follow procedures,***
2. Make sure that penalties are applied when appropriate - visibly enforce the rules. ***Take a firm, fair and consistent approach.***
3. If staff make a good case that a procedure is 'unworkable' and presents difficulties, address those issues first and foremost, rather than blaming the operator(s).

3 Supervision and monitoring

Supervision and its effects on behaviour is a key factor in keeping a safe workplace.

Where people have a lot of autonomy in making decisions, if they also know that their decisions are unlikely to be held to account that can remove a vital barrier to cutting corners and violating safe procedures. In other words people feel free to do things 'their own way', which might not always be the safest way.

3.1 It is important that new workers doing safety critical tasks are closely supervised until you are confident they understand how to do the tasks safely.

Supervision is key to preventing people cutting corners and not following procedures. If people think it is unlikely their violations etc. will be noticed (and penalised) then they will be more likely to cut-corners and do their own thing. This situation is made even more dangerous if staff believed supervisors are actively turning a blind-eye to violations of safety steps in procedures.

A highly experienced construction worker got into the habit of not wearing a safety harness when working at height for short periods. This wasn't identified by his supervisors, who left him to work autonomously because of his high level of skill. He slipped and fell, suffering fatal injuries. He had received work at height refresher training only two months

It's rarely practical to supervise people all of the time - so we recommend aiming for a situation where staff understand they could come under supervision or have their safety performance audited at any time. This applies to experienced staff as well as newer ones.

This can only be achieved by putting a supervision plan into action and carrying out supervision. Staff seeing others being supervised or having actions noted will mean it develops it into an accepted part of the workplace culture

Any changes to the supervisory regime must be carefully managed - the intention should be made clear to staff; supervision is there to assist staff, not to catch them out.

3.2 ***Newer staff may not understand the safety 'value' of certain steps in a task.***

Newer staff will tend to copy experienced staff - it is a natural part of joining a company or team. ***Newer staff copy what they think other people are doing***. However, without seeing all the details of what more experienced people are doing, when they do this they can miss out important safety steps.

3.3 ***Even experienced workers can sometimes cut-corners*** and when they do they can get it wrong, with serious consequences.

Experienced workers can tend to underestimate the risks of their work, which can lead them to cut corners – in simple terms this is summed up by the phrase "familiarity breeds contempt".

Experienced workers may also be more likely to stray outside their usual role into maintenance etc. if things go wrong - they may feel more 'in control' and have more overall 'ownership' of machinery and processes.

3.4 If there are periods when ***people know their work cannot be supervised directly*** you should consider if there are still any ways you could sometimes audit work to make sure safety steps in procedures are being correctly followed.

Knowing that there is potential for random / unannounced audits on safety issues, the likelihood of violations can be reduced.

4 Training and Instruction

Training and Instruction is a key control measure that many businesses use to reduce the risk of people doing things 'the wrong / unsafe way".

If it's done well, training can be effective up to a point, but it can sometimes be focused strongly on issues like production and quality with safety having a noticeably lower priority. This can immediately erode the importance staff see in safety elements in procedures.

Figure 5. Just telling someone to not do something unsafe is often not enough on its own, to guarantee safe behaviour. Training needs to be supported by effective and visible supervision, underpinned by a positive company attitude to health and safety.

Bear in mind these two key points below:

1. ***Just not training someone to do something doesn't mean they won't still 'give it a go' anyway.***
2. ***Training someone is no guarantee they someone will do things that way - especially if they think they can find an easier way.***

Where safety critical tasks are involved, ideally these should be reduced or eliminated in importance by automation / interlocks etc. If this is not possible then well designed information systems / alarms and alerts should support the staff. A strong reliance on training for safety critical tasks should be seen as a last resort. This is called the ***Hierarchy of Risk Control***.

A new machine operator had been told in training, not to try to clear any blockages themselves. The operator, having seen unblocking undertaken, decided to do it anyway. He did not know that the reason he had been told this, was that the machine guard was known to be malfunctioning and was due for replacement. He reached in and suffered severe injuries.

4.1 ***Many people will want to know WHY they are expected to do things a certain way***. Just saying - 'because it's how we do it' won't be enough for a lot of people. ***Without knowing all the relevant details, people may 'fill in the gaps' and assume safety when there is none, or they may decide safety elements are unnecessary.***

4.2 Check that all staff carrying out safety critical activities are properly qualified (e.g. lift truck certified, electrical or gas registered if specific qualifications are necessary to show competence and a certified understanding of safety issues in their role).

4.3 Explaining the reasons for safety elements is important where there's a possibility that a ***task could seem unnecessarily awkward because of safety elements that need to be carried out***.

4.4 If you tell someone what to do if something abnormal occurs, you should also specifically tell them not to do the other foreseeable unsafe things that they could decide to do. For example specifically telling machine operators not to carry out ad-hoc maintenance that they are not trained to do and do not have the correct tools for.

5 Design of machinery and work environments

The issues discussed here do not look at all aspects of machinery. For example electrical safety, guarding, etc. should be assessed separately.

5.1 Has machinery been designed with the operator and/or maintenance personnel in-mind? For example is it physically suitable - controls easily reached without awkward postures, low control activation forces?

Older equipment or machinery bought from abroad may be designed to different standards and may need modifying.

Is equipment / tools intuitive to use? Mistakes often happen when 'normal' ways of doing things are not designed into the equipment - for example if a knob has to be turned anticlockwise to increase a value. Poor design ergonomics is counterintuitive and can cause staff to accidentally act in the wrong way, with all good intentions - especially in an emergency or if they are in a hurry.

Do all controls and displays provide key safety information clearly and in an easily seen / heard format? Is safety information provided in all necessary languages?

Would anything in the machine design prompt anyone to do something unsafe (for example stand at height on something unstable to get a better look at a part? It's hard to try and predict what people might do - spend some time looking at how people use equipment and discuss it with them.

A food-production process operator left his control screen temporarily. Shortly afterwards an on-screen high-pressure alert popped up. Meanwhile, a maintenance engineer kept on working in a position where he was in danger from the over-pressure. There was no visible or audible alarm for the maintenance engineer and a pipe rupture occurred. He was reliant on the process operator radioing him to warn of the danger.

5.2 Think about the positions of alarms on or for machines and any environmental alarms.

Can the staff always be alerted by the alarm (is it loud or distinctive enough)?

Does anyone else need to be alerted; people who might not be near the alarm or the control / display?

Visual alarms need to be within line of sight to be effective. If you can't guarantee that they will be in line of sight, they are likely to need backing up with audible alarms.

5.3 ***Machines that break down or need maintaining a lot lead to frustration.*** Staff may by tempted to undertake maintenance work that they are not trained in.

Staff may also find ways to override / disable safety devices and guards - if it makes it easier and quicker to get the machine working again.

Figure 6. Access to maintain machinery should be straightforward, but kept locked off to anyone not qualified to carry out the work.

6 Stress and work-pace

Stress has negative health effects - but it ***can also cause people to make poor decisions when they are in a hurry***.

Stress can lead people to prioritise production / meeting targets etc. over doing things safely - to get the work done quickly.

6.1 Lack of control over work pace is well known to cause stress. ***Where work pace is set by machinery, make sure the pace is acceptable for all workers and that they can pause and re-start it if necessary (and if it is safe / practical to do so)***.

If there are bottlenecks where work is fed by many staff to fewer staff then steps should be taken to ensure that the rate of work is acceptable to all.

6.2 Fast paced work environments and penalties for stoppages can lead people to try and fix problems themselves - but that can be dangerous and they may not understand the risks.

Penalties for stoppages and hold-ups can be quite subtle - for example it may be as simple as feeling bad about not keeping up with colleagues - feeling that you have 'let the team down' etc. Penalties come in many forms and it is not just company-imposed penalties that can lead people to take actions they shouldn't

6.3 Concentration and our ability to cope with stress and still make good decisions, is affected by fatigue. ***Make sure that people are allowed enough time to recover in between work periods***, and that break timings are suitable.

6.4 Repetitive monotonous tasks can lead to two key problems:

1. ***People focusing their attention elsewhere*** – away from the task - and if there are safety aspects in their tasks, this inattention can lead to their failure to be carried out. Unfortunately ***it is not enough to just tell people to be more attentive***.
2. ***Boredom leads people to look for additional things to do***. A prime example is taking on maintenance that they are not trained to do safely.
3. ***People can forget if they have done a particular step in a sequence of tasks if they are distracted*** - and the forgotten step may be safety related.

6.5 The opposite of boredom is being overloaded with information or tasks - causing stress and failure to do tasks properly and safely. Make sure that peoples' abilities are well matched to the job they are expected to do. Consider whether screening and supervision would help with this.

Also make sure that people have the support they need when doing high-demand tasks.

7 Organisation and Culture

7.1 There is considerable evidence that for safety initiatives and safety related training to work - and to be followed by staff, they have to see that senior management are supportive of the safety aspects.

Senior management taking part in safety audits provides a fresh pair of eyes. It can generate new ideas and encourages staff to engage with the company's safety program.

Some companies also get staff from other areas of the business to take part – e.g. office staff helping with audits of production or warehouse areas.

One of the best ways of achieving this is for ***senior managers to be involved in safety audits alongside staff.***

7.2 People are more likely to follow safety related procedures if they feel involved in the overall setting of safety standards.

Staff often have great suggestions to make on how to do things more efficiently AND more safely - do you have a formal and easy way for them to get their views.

Staff views and recommendations should be visibly acted on and supported by senior managers - this will reinforce their commitment to working safely across the range of work they do.

7.3 Safety culture is a broad and complex area but it can be summed up simply by ***the way we do things around here?'***

Consider whether people treat health and safety as a box ticking exercise and a bolt-on to production activities (poor safety culture)? Or is it part of everyone's goals and objectives because it is valued and seen as important (good safety culture)? A short anonymous survey can be a good way to gauge this.
A good safety culture is key to making many of the suggestions in this checklist actually work - without it a lot of changes will have only a limited impact.

More information on safety culture can be found on HSE's web pages.

http://www.hse.gov.uk/humanfactors/topics/culture.htm

Figure 7. It's important that management visibly demonstrate compliance with company safety procedures. Not doing this undermines safety culture and can remove psychological barriers to violations of procedures by staff.

8 Incidents and near misses

Near misses shouldn't be ignored. The psychological effect of ignoring near misses, is that it gives an impression that failures, errors and possibly that cutting corners in safety is tolerated. It is effectively turning a blind eye to potential human failures, and that can seriously undermine the culture of safety in a business.

8.1 You should have a straightforward - and where applicable anonymous - near-miss reporting system.

Near-miss recording is only useful if staff believe that the information is used to improve things. If information disappears and nothing changes they may be less likely to report incidents and near misses in the future.

A shop assistant had to bring stock downstairs to the shop floor. As he was the only person in the shop and did not want to leave it unattended, he carried a double load which needed both hands. He tripped on the stairs and because he was unable to grip the rail to stop himself, he fell and was seriously injured. He had been trained to not carry a double load and to use the handrail.

You should consider carefully how reported information about near misses will be used.

8.2 Staff should know how to report incidents quickly and a record should be kept.

It should be made clear who is investigating incidents. Any outcomes / lessons learned should be made clear to staff. ***The emphasis should be on learning lessons, not allocating blame to staff.***

Staff should know how incident investigation processes will work – it should be transparent and open otherwise concerns about fairness can prevent reporting, which means learning opportunities are lost.

9 Staffing levels

9.1 Many people have preferences and are suitable for particular types of work - some can cope with repetition better than others, whilst others thrive on new challenges and may quickly become bored.

Consider the type of task being done - is it suited to the people doing it?

What should the selection and ongoing filtering process be to make sure you get the right people for each job?

9.2 Not having enough people doing a job, or available to carry out the safety elements of tasks, can have immediate safety consequences. Not having enough people 'on the job' can mean safety measures are dropped in preference for production and quality.

If there aren't enough people to do a job, that can also cause longer term stress - with the knock-on consequences already described above.

10 Fatigue and shiftwork

Fatigue is a key cause of loss of concentration, poor decision making and corner cutting.

Shift workers are vulnerable to fatigue because of having to adjust themselves to unnatural waking and sleeping times, which affects sleep quality.

A night-shift worker who had completed a 14 hour shift – including overtime – drove himself and a colleague home. On the way he fell asleep at the wheel and drove off the road. Both men were seriously injured. An investigation found that the employee had not done any fatigue training, and the company had recently stopped a shuttle bus service for employees.

10.1 Review your shift rotas – check them against recommended best practice and HSE guidance. Shift design includes a wide range of considerations and the guidance linked to below sets these out clearly.

http://www.hse.gov.uk/humanfactors/topics/10fatigue.pdf

http://www.hse.gov.uk/humanfactors/topics/specific2.pdf

http://www.hse.gov.uk/pubns/books/hsg256.htm

If possible try to avoid putting high-risk demands and tasks on night shift workers, and/or at the ends of shifts when accident rates increase.

Figure 8. Fatigue increases the risks of errors and the likelihood of injury. This holds true in any work sector.

10.2 Long work hours are strongly linked with increased injuries. Working in jobs with overtime schedules increases the risk of injury. Working at least 12 hours per day or at least 60 hours per week is also associated with increased injury risk.

Keep a log of who does overtime and how often. With voluntary overtime systems this is still important and you should have a clear policy on denying overtime if people have used up their 'quota'.

10.3 Bear in mind how long people spend traveling to and from site, when you are looking at fatigue issues. A long journey either end of a long shift can severely reduce available sleeping time, and result in high levels of fatigue.

10.4 If shifts have to pass on information which is important to continuing safe operation, there should be time put aside at the end and start of shifts to do this – in a suitable environment and as thoroughly as necessary, without staff experiencing penalties like 'lost' non-work time, or effectively unpaid work time.

11 Additional performance shaping factors

When people don't follow safe procedures which they have been trained in it is typically because they have taken a decision that it is easier / more cost effective / takes less time etc. - to violate. That decision is influenced by performance shaping factors.

The checklist covers many performance shaping factors that can make peoples' decisions on how to act, fall in favour of error and violations. This section briefly notes some additional factors.

11.1 ***If someone is interrupted mid-task they may forget to start where they left off or they may do things out of sequence.***

This can lead to problems if a safety-related stage of a task is skipped as a result.

Some typical workplace distractions include mobile phones, other people talking, alarms sounding. But distractions can also be due to peoples' own thoughts (being 'pre-occupied'), or due to physical discomfort.

Distractions are very difficult to eliminate entirely. This is why tasks and equipment should be designed assuming that distractions will occur - and limiting negative effects of those / providing prompts and opportunities for recovery.

11.2 If people are uncomfortable they will often try to complete tasks more quickly to get out of the environment they are in - haste can lead to errors and mistakes.

Uncomfortable environments and work can distract attention through physical discomfort or pain. They can cause mental as well as physical stress and impair decision making.

11.3 Many incidents occur because a unique set of circumstances coincide and people are unfamiliar with how to deal with them or even how to recognise them

In your training - think about how to address this, where possible give people simple catch-all rules to revert to help decision making - include in these a policy of 'failing to safety' e.g. if in any doubt stop the process, isolate machinery, walk away, seek help etc.

Unusual circumstances may include changes in supervision levels, newly introduced processes or new staff, changes in deadlines, new or modified machinery

11.4 Young people (under 18) are particularly vulnerable to performance shaping factors at work, and they may not have fully developed their ability to perceive and understand risk.

Young people may not appreciate the importance of doing things a particular way

Some young people may also be keen to 'prove themselves' and try to match the actions of more experienced people - when they are not able to do so safely

You should consider any young people in your workplace and look for ways to help them act safely - making sure they are led by good examples is an excellent and powerful first step

Figure 9. Young workers need careful supervision and training. You should review your risk assessments to make sure you take their different ability levels into account.

11.5 Inadequate light levels can lead to a range of incidents. Two of the more common examples are; vehicles colliding with people they haven't seen, and people tripping / falling on unseen obstacles.

Excessive light levels or glare can also cause problems – for example people may still try to 'get the job done' even though they can't see properly to make sure it is safe to do the work.

For further guidance on lighting look at:

HSG36 and BS EN 12464-1&2.

http://www.hse.gov.uk/pubns/books/hsg38.htm

http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030206727

References and additional information

Key reference text on human factors

HSG48 Reducing error and influencing behaviour
http://www.hse.gov.uk/pubns/priced/hsg48.pdf

Procedures

HSE Human Factors topic page on procedures
http://www.hse.gov.uk/humanfactors/topics/procedures.htm

HSE web pages on worker involvement
http://www.hse.gov.uk/involvement/index.htm

Consulting employees on health and safety
http://www.hse.gov.uk/pubns/indg232.pdf

Supervision and monitoring

HSE web page on supervision and monitoring
http://www.hse.gov.uk/humanfactors/topics/supervision.htm

Training and instruction

Health and safety training: A brief guide (HSE)
http://www.hse.gov.uk/pubns/indg345.pdf

HSE web pages on training and competence
http://www.hse.gov.uk/humanfactors/topics/competence.htm

Design of machinery

Ergonomics and human factors at work (HSE)
http://www.hse.gov.uk/pubns/indg90.pdf

Guidance on PUWER
http://www.hse.gov.uk/work-equipment-machinery/puwer.htm

Stress at work

HSE web pages on stress management standards.
http://www.hse.gov.uk/stress/standards/

TUC web pages on stress at work
https://www.tuc.org.uk/workplace-issues/health-and-safety/stress?mins=173&minors=124&majorsubjectid=2

Organisation and culture

Safety culture: What is it and how do we measure it? The Health Foundation
http://www.health.org.uk/sites/health/files/SafetyCultureWhatIsItAndHowDoWeMeasureIt.pdf

HSE web pages on culture
http://www.hse.gov.uk/humanfactors/topics/culture.htm

4 steps to a better safety culture – SHP online
http://www.shponline.co.uk/4-steps-to-a-better-safety-culture-safety-talks-with-tim-marsh/

Staffing levels

HSE guidance on staffing levels
http://www.hse.gov.uk/humanfactors/resources/staffing-levels-briefing-note.pdf

Fatigue and shiftwork

HSE Briefing note on fatigue
http://www.hse.gov.uk/humanfactors/topics/10fatigue.pdf

HSE topic sheet and question set on fatigue
http://www.hse.gov.uk/humanfactors/topics/specific2.pdf

Managing shift work – health and safety guidance HSG256 (HSE)
http://www.hse.gov.uk/pubns/books/hsg256.htm

Young people at work

Young people and work experience (HSE)
http://www.hse.gov.uk/pubns/indg364.pdf

Lighting

Lighting at work – HSG36
http://www.hse.gov.uk/pubns/books/hsg38.htm

BS EN 12464-1&2 – Light and lighting: Lighting of work places. BSI.
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030206727