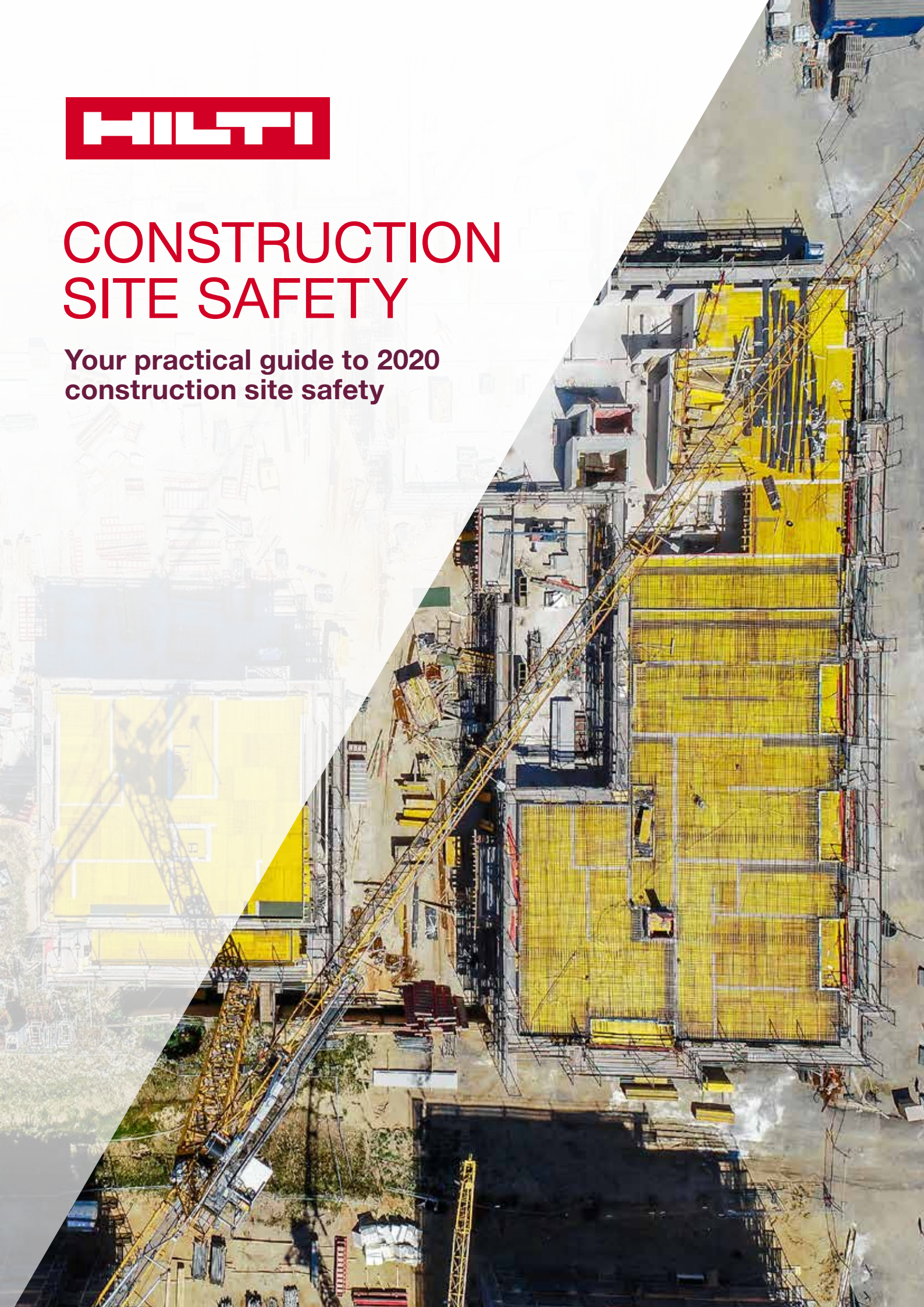




# CONSTRUCTION SITE SAFETY

**Your practical guide to 2020  
construction site safety**





# INTRODUCTION

Every year in the UK and across Northern Europe, construction site workers suffer from injuries, ill-health or fatal accidents as a result of their work. In the UK alone last year, the [Health and Safety Executive](#) revealed that there were over 550,000 non-fatal injuries, according to self-reports.

To ensure safety compliance on construction sites in 2020, compliance managers are required to undertake considerable due diligence and planning. This doesn't just include the company's legal responsibilities and obligations, but the practical issues associated with day-to-day construction work as well.

In this guide, we cover everything from the regulations you need to follow, to the tools and systems that can significantly improve site safety, providing all the information required to create a better, safer and more profitable construction business.

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# CONSTRUCTION SITE SAFETY AND THE LAW



**An essential part of any compliance manager's job is to understand their legal obligations and duties and ensure their business is fully compliant.**

Each country has their own specific regulations that construction companies need to be aware of, which put forward various obligations for employers to follow. These regulations cover all aspects of worker's health, safety and overall well being, including:

- General health and safety
- Safety and welfare of workers specifically on construction sites
- Working conditions and environment
- Handling, operating, and working with and / or around equipment

In the UK, construction site safety guidelines are controlled by the [Health and Safety Executive \(HSE\)](#) - the government agency responsible for the regulation and enforcement of workplace health, safety and welfare. For more information on HSE's guidelines on construction site safety, [visit their website](#).

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**ACCORDING TO EUROSTAT'S ACCIDENTS AT WORK STATISTICS, WITHIN THE EU, OVER 20% OF ALL FATAL ACCIDENTS AT WORK IN 2015 TOOK PLACE WITHIN THE CONSTRUCTION SECTOR.**

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# MOST COMMON ACCIDENTS AND SAFETY CONCERNS



There are various health and safety risks inherent within construction work. Unfortunately, this is part and parcel of the sector, and while governments have various regulations in place to protect the safety of workers, thousands of accidents still happen on construction sites every year.

When looking at Northern Europe, across the UK alone in 2018, there were over 550,000 non-fatal injuries reported on construction sites according to the [HSE's Kinds of Accident 2018 report](#), as well as 144 fatal accidents. These figures, however, are lower than the majority of EU member states, according to the [Health and Safety statistics in the United Kingdom 2019](#), with only Finland having had a lower rate of fatal injuries at work:

## KEY TAKEAWAYS

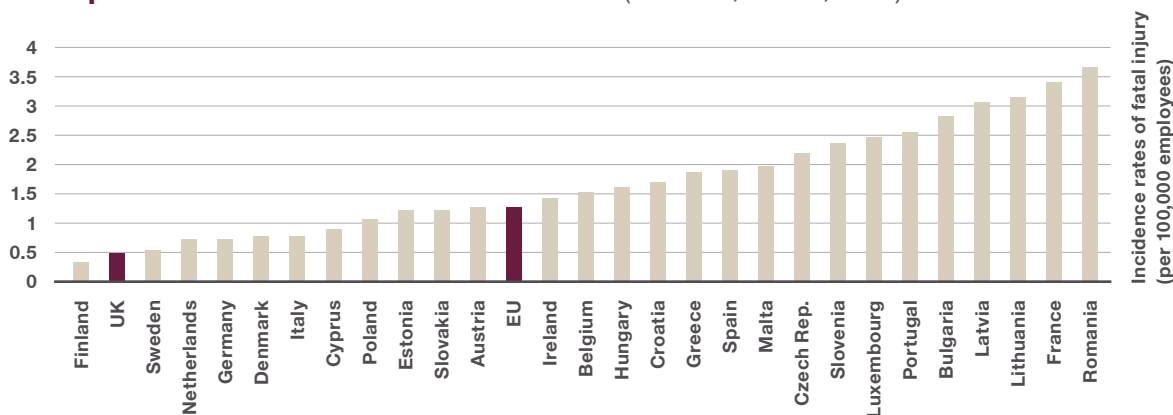
The construction sector is responsible for 20% of all fatal accidents at work across Europe

Slips and trips are the most common non-fatal accident on construction sites

Falls from height are the most common fatal accident on construction sites

The UK and Northern Europe has a good safety record compared to other EU member states

## Standardised incidence rates (per 100,000 employees) of fatal injury at work, excluding road traffic accidents and accidents on board transport in the course of work for 2015 (Eurostat, EASW, 2015)



# WHAT CAUSES THESE HEALTH AND SAFETY RISKS?



Construction sites are busy and untidy places to work, and even the most careful compliance manager cannot entirely stop accidents from taking place. While it's impossible to stop accidents from happening, it is possible to reduce the risk of accidents and other health hazards occurring by understanding the root causes of common health and safety issues and putting practical measures in place to manage the risk.

## FALLS FROM HEIGHT /

Falls from height can occur both in and outside of buildings, and often involve the use of moving platforms. While many working at height scenarios require a platform, other tasks can be completed by using longer tools instead, such as installing cables in ceilings. This can help increase productivity, by reducing the amount of set-up time required for platforms.

By using specifically-designed longer tools, workers can fasten cables into ceilings while standing on the ground, removing the risk of falling from a platform. The risk of accidents can be significantly reduced by exploring different solutions to jobs, and utilising specialist tools where possible.

Working from height tasks outdoors will require the use of harnesses, which need to be tested regularly to check they are safe and fit for purpose. It can be difficult to keep track of which harnesses have been tested and when - particularly if you are using a manual spreadsheet to track equipment testing. An automated asset management system is a great way to organise this information for you, allowing you to easily ensure harnesses are fully tested and safe to use, with alerts to warn you when new testing certificates are due.

## SLIPS AND TRIPS /

Slips and trips happen on construction sites for a number of reasons, but one of the main risks comes from the use of corded tools. Long cables running across construction sites are a huge trip hazard and a major contributor to non-fatal injuries. Tripping over cables can also cause cable breakages, leading to further electrical hazards, as well as potential downtime and unnecessary repair costs.

Corded tools also require cable reels, which are another potential tripping hazard - particularly when using curly cables, which often wrap themselves around workers' feet. Slips and trips from cables can also lead to other accidents such as workers falling from height and tools being dropped on to people.

Using cordless tools is the best way to mitigate this risk. Removing the need for cables helps to create a tidier site and reduces the time that workers are exposed to risks by increasing productivity. Despite the safety and productivity benefits associated with cordless tools, many construction companies still opt for corded tools because of the up-front cost of procurement and the belief that batteries will not last long enough to complete the job.

With the improvement in battery technology in recent years, however, high-quality cordless tools have the capability to match and even outperform corded tools, resulting in long-term cost savings as well as considerable health and safety benefits.



The up-front expense of cordless tools can also be mitigated through tool management services, such as Hilti's Fleet Management. This allows all tools to be managed by an external company for a monthly fee - drastically reducing the up-front cost while still having access to the safest and most efficient tools. Utilising a fleet management service can help improve safety, manage costs and reduce downtime without having to invest in a large toolpark of unnecessary equipment.

## DUST INHALATION /

As well as affecting the long-term health of construction workers, compliance managers will need to be concerned with how dust can affect other people in the vicinity of the construction site - particularly for work that is happening in crowded inner city or urban areas.

Intrusive jobs like drilling, breaking, slitting, sanding, sawing, or grinding carry a high risk of dust inhalation. Materials like brick and concrete are particularly hazardous, as both contain a high concentration of silica, which is extremely carcinogenic.

While more considerate construction companies plan for dust extraction, many people both inside and outside of the construction industry are not aware of the full implications associated with dust inhalation. Unfortunately, it's common for workers to not use any type of dust extraction or vacuum system when working, and many workers do not even wear dust masks because they are not aware of the damage dust inhalation can cause.

As a compliance manager, you can't force workers to wear dust masks, but it's absolutely essential that fitted dust masks are provided to everyone who enters the site. You must also make sure that site rules are visible which clearly state that dust masks must be worn, and provide information on exposure hours. Workers should take shifts so they are not exposed to dust for prolonged periods of time.

Utilising tools with built-in dust extraction will reduce exposure of the worker to the risks associated with dust inhalation, while also increasing the amount of time a worker can spend performing dust-heavy tasks. However, not all dust extraction systems are equally

efficient at removing inhalable dust, and it's important to think about the system solution you need for the specific task being undertaken. Dust extraction systems include different inserts and vacuums for different purposes, and [Fleet Management](#) services can help you identify the right tools and systems for your needs.

## HAND-ARM VIBRATION /

Health risks associated with hand-arm vibration include pain, distress and sleep disturbance, an inability to do intricate work or everyday tasks, and reduced grip strength. As with dust inhalation, it's essential to calculate exposure levels and set clear limits to reduce these long-term health risks.

Using equipment that creates less vibration is one way of reducing the risks associated with hand-arm vibration. It's important to note, however, that just because a tool has a higher vibration measurement, this doesn't necessarily mean it's the wrong choice to reduce hand-arm vibration exposure. Often a tool that vibrates more will perform the task much quicker, meaning the worker is exposed to vibration for a shorter period of time. It's important to look at the overall time it takes to complete a task and calculate exposure levels accordingly.

## KEY TAKEAWAYS

**Cables are a major risk on construction sites and should be managed carefully**

**Dust inhalation is a major health issue that many are not aware of**

**Exposure times to dust and vibration should be calculated and implemented before starting work**

**Using optimised tools and equipment can have a major impact on reducing these various health and safety risks**

# PROMOTING SAFETY ON-SITE



To create a safe working environment and ensure you are compliant with regulations, it's important to promote health and safety both on- and off-site. Using the HSE's Health and Safety in construction as a guideline, in the next two sections of this guide, we will look at how you can promote positive health and safety on your construction sites, starting with setting up the site.

## SETTING UP THE SITE

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Before starting work, it's important to set up the construction site to ensure that any health and safety risks have been addressed and prepared for. Every employer should also issue a risk assessment before opening a construction site to assess all the potential hazards before work commences.

When setting up any construction site, there are a number of things to consider.

### Site access

You need to provide safe access onto and around the site for both people and vehicles. This includes planning how vehicles will be kept clear of pedestrians, such as providing doors or gates at site entrances, and viewing panels at doors that open onto traffic routes.

### Site boundaries

Construction sites should be fenced off and suitably signed to protect the public from site dangers, and to protect the site from vandalism and theft. Where work is taking place in an occupied space (such as an operating factory or office), you will need to create an agreement as to who has control of what areas, and what fences, barriers, or permits are required to keep workers away from hazards created by others, and other people away from hazards created by the construction work.

### Welfare (including sanitary and washing, as well as rest and break facilities)

Everyone who works on any construction site must have access to adequate toilet and washing facilities, a place for preparing and consuming refreshments, and somewhere for storing and drying clothing and personal protective equipment. It is the responsibility of those who have control over construction sites to provide these welfare facilities, and to ensure that they are adequate and accessible for their employees.

### Housekeeping

It's important to plan how the site will be kept tidy, and how housekeeping will be managed. Factors to consider include: keeping walkways and stairways free of tripping hazards, building materials and waste, making sure inside floor areas are clean and dry, and outdoor footpaths are level and firm and are not used for storing materials.

### Lighting

As far as possible, every part of the site that is in use should be arranged so that natural light is available for people to do their work and move about the site safely. Where natural light is not available, artificial lighting should be provided.



## Emergency procedures

It's important to plan emergency procedures before work begins and put general precautions in place. Some emergencies may require evacuation of the site or part of the site, and you may need to consider how someone injured in a fall within a confined space or within a restricted plant room can be reached by either first aiders or emergency services.

## The STOP Principle

The STOP Principle provides practical strategies to minimise the impact of health and safety challenges such as dust, vibration, cutting and kickback. Here is how to manage health and safety through STOP:



**SUBSTITUTION** is eliminating risk by using alternatives so the root cause of hazards can be avoided.

**TECHNICAL** measures involve using the right machinery, tools or technologies to improve health and safety by reducing risk.

**ORGANISATIONAL** measures include providing training on safe working practices, or raising awareness of risk through processes.

**PERSONAL PROTECTION** is needed where any risks remain through wearing equipment such as dust masks, eye protection, hard hats and more.

## PREVENTING INJURIES ON-SITE

**Preventing injuries on-site requires more than just good housekeeping. It's also vital to have clearly delineated site rules and a fixed reporting protocol in place. Here are the factors you should consider to prevent injuries on your construction sites:**

### Keep the site in good order and ensure workers put tools away safely

As outlined already in this guide, keeping the construction site as tidy as possible helps to reduce the potential for slips and trips, as well as other accidents such as falls from height and electrical hazards.

In addition to cables and materials, tools should also be safely stored - particularly when leaving the site. In addition to creating a safer working environment on site, putting tools away also helps to prevent theft. If a tool is stolen, and the person committing the crime is injured, the compliance manager is responsible for that person's injury and would therefore be liable.

Hilti's ON!Track asset management system can help you enforce the safe storage of tools by creating increased accountability on the status of each tool. Using this system allows you to assign responsibility for a tool to the person who has possession of it, meaning they are held accountable should a tool be stolen on their watch.

### Mains and electricity

Electrical equipment is a large part of almost every site, and preventing injuries requires careful selection of systems and equipment. All electrical systems and equipment must be properly selected, installed, used and maintained, as many hazards can arise through faulty installations, lack of maintenance and abuse of equipment.





Before any work takes place, it's essential that any power supply requirements are established and arranged with a local electricity supplier. Electrical equipment can easily become damaged on-site and therefore become dangerous. To ensure electrical equipment is safe to use, it should be regularly checked and inspected before, during and after use.

To reduce the hazards associated with electric tools, use cordless tools or tools which operate from a 110V supply system, which is centre-tapped to earth so that the maximum voltage to earth should not exceed 55V. This will greatly reduce the risk of fatal and serious accidents occurring if an electrical fault were to take place.

### **Have proper site rules and a clear reporting protocol**

Site rules should include any important health and safety measures your workers need to know while on site. This can include the use of personal protective equipment, traffic management systems, pedestrian routes, site tidiness, fire prevention, emergency procedures or permit-to-work systems. You should also include any worker responsibilities, such as tool maintenance and storage.

These responsibilities should be clearly explained in your site rules and be visible to workers. For larger sites, it is a good idea to ask workers to undergo a site induction so that they understand the rules before starting work.

### **Maintenance of tools**

A programme of testing and inspection should be undertaken in order to keep tools in good working order, and identify any problems with equipment before it causes a safety concern.

As well as testing tools as part of the general maintenance programme, additional inspection and testing should also be carried out if there is reason to suspect the equipment may be faulty, damaged, or contaminated, as well as after any repair or modification.

[ON!Track](#) can help you and your workers keep track of tool maintenance, ensuring that all your equipment is compliant, safe and in full working order.



## **KEY TAKEAWAYS**

**As a compliance manager, you are responsible for injuries sustained to a person during tool theft**

**All electrical equipment should be regularly inspected and maintained**

**Proper site rules can help improve safety on-site and outline workers' responsibilities**

# PROMOTING SAFETY OFF-SITE



**Whatever the size and scale of a construction project, the key to achieving a safe working environment is to ensure that health and safety issues are planned, organised, controlled, monitored and reviewed away from the construction site itself.**

**Off-site activities are essential to ensuring on-site health and safety. Here's what you need to consider:**

## PREPARING FOR WORK

Before setting up a site, it's essential to gather as much health and safety information about the project and proposed site as possible. It's important to include a reasonable allowance for the time and resources you may need to deal with any problems. Information can be gathered from: the client, the design team, contract documents, the main contractors on the site, specialist contractors and consultants, trade and contractor organisations, equipment and material suppliers, HSE guidance, and British or European Standards.

Once information has been gathered, you need to organise experienced supervisors and workers for the project. When taking on workers, it's important to understand their health and safety experience. You can do this by asking what training they have received, and if they have any certificates or examples of safe working practice from their previous work.

If the work is expected to either last longer than 30 days, or involve more than 500 'person days' of construction work, you also need to notify the site to HSE in writing before construction starts.

## CERTIFICATION AND TRAINING

Before entering a construction site, workers must have appropriate training and certification for the site and any task-specific equipment being used. It's important that you safely store and maintain any compliance documentation should an inspection take place. In 2019, the HSE have been increasing the frequency of construction site inspections, making it even more important to retain documentation, which would need to be presented to an inspector. HSE have also recently launched their #Dustbuster campaign to help businesses and workers know the risk, plan their work and use the right controls when working with dust.

In addition to inspection, there are many instances of workers seeking litigation after retirement for work-related deteriorations in health. If a company is able to prove that they had all the right certifications, personal protective equipment and training in place, they will be safe from litigation.

By using a digital system, you can be assured that all records are safely stored for many years to come and are easily accessible if required.



## ASSET MANAGEMENT

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As well as keeping track of training and certification records, digital asset management systems can help you monitor and store all of your compliance documentation, including: employee certifications and training schedules, vehicle tax due dates, professional body membership details, rental equipment return dates and site cost allocations.

In an asset management system such as ON!Track, all of this documentation will have dates attached to it, which indicate when you need to take action. This can help you keep track of all upcoming deadlines, and avoid inspections and regular tool checks going by unnoticed. These systems not only collate documentation safely in one central location, but also vastly reduce the amount of time and effort you need to spend monitoring administrative renewals.

In addition to compliance, asset management systems also help you keep track of your tools, ensuring that workers have access to all the equipment they need to work safely and efficiently. You can also manage your assets through our Fleet Management service, which covers tool repairs, maintenance charges and replacing stolen tools. Fleet management helps you stay up-to-date with the latest equipment, and keep tools well-maintained and up to the job.

With ON!Track, we are starting to see the benefits of knowing where all our tools are across the business - it's a long-term solution and in time the benefits will be even greater as we will save time looking for lost tools and minimize the risk of plant going missing.

Steve, PPS Electrical

## KEY TAKEAWAYS

**Before setting up a site, you need to gather as much information as possible to prepare the site.**

**HSE has increased the frequency of inspections this year, meaning that documentation must be maintained and kept in an easily-accessible place.**

**Effective asset and documentation management off-site can have a huge impact on the safety and productivity of on-site work.**



# NEXT STEPS

In this guide we've considered everything you need to know regarding construction site safety in 2019 - from the various general and application-specific regulations you need to be aware of, to setting up a construction site.

## **So what are the key things to take away from this guide?**

For compliance managers, creating a safe and compliant working environment starts with good off-site organisation. It's important to put appropriate safety measures into place as a precaution rather than a reaction. By anticipating and planning for the various risks associated with your construction sites, you can put all the tools in place both to reduce the risk of accidents happening, and to effectively manage any incidents that do take place.

Having the right tools and systems in place is a vital part of risk prevention, with optimised equipment and digital asset management software helping you comply with regulations and create a safer construction site for your workers. Not only can this help you improve safety, but also save you money and improve productivity - helping you to get the job done faster, better, and more profitably.

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**Get in touch with a productivity expert to find out how Hilti can help improve construction site safety**



## Helpful reading

[Construction \(Design and Management\) Regulations 2015](#)  
[Construction dust](#)  
[Control of Substances Hazardous to Health Regulations 2002](#)  
[Control of Noise at Work Regulations 2005](#)  
[Control of Vibration at Work Regulations 2005](#)  
[Eurostat Accidents at work statistics](#)  
[Health and Safety at Work etc Act 1974](#)  
[Health and Safety in construction](#)  
[Health and Safety Offences and Corporate Manslaughter Guidelines](#)  
[HSE European comparisons](#)  
[Kinds of Accident 2018](#)  
[Lifting Operations and Lifting Equipment Regulations 1998](#)  
[Manual Handling Operations Regulations 1992](#)  
[Provision and Use of Work Equipment Regulations 1998](#)  
[Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013](#)  
[The SLAM Technique](#)  
[Work at Height Regulations 2005](#)

## About Hilti

With 75 years of industry knowledge at Hilti, we combine products, software and services to deliver tailored, value-adding solutions.

Our Service Consultants have helped thousands of Hilti customers identify opportunities to optimise and streamline their tool park and digitise the way their tools and other assets are managed in order to keep hidden costs to a minimum and boost overall productivity.



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