



# HEALTH AND SAFETY ADVICE FOR STEEL ERECTORS

Where there are unsafe acts illustrated in the photographs - the scenarios were re-created for illustration purposes and no one was put at risk at any time.

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## INTRODUCTION

This booklet is part of a range that have been produced by CITB-ConstructionSkills NI to provide advice and guidance on Health and Safety & training issues relating to persons working in the Construction Industry such as Bricklayers, Joiners, Roofers, Plasterers, Painters & Decorators, Construction Operatives, Plant Operators, Scaffolders, Wall & Floor Tilers, Cavity Wall and Loft Insulation Installers and Steel Erectors with the aim of helping to eliminate and reduce the risk of, accidents, injury and ill-health.

The booklets are in an easy to use pocket-size format and will be a good reference point to both existing and new entrants working in the industry and will also provide advice to supervisors, managers and directors to help improve health and safety performance on site.

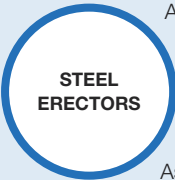
### **Some health and safety risks you may face on site include:**

- Exposure to electricity. Overhead cables,
- Falls from height,
- Proximity to flammable or combustible materials,
- Climbing steps and working platforms,
- Risk of eye injury from flying particles and dust,
- Cancer risk from Exposure to asbestos,
- Slips trips and falls due to untidy work area,
- Manual handling activities,
- Using various types of equipment and tools,
- Moulds, fungi and bacteria,
- Cuts and abrasions,
- Struck my machinery,
- Loss of fingers/limbs,
- Risk of pain or injury from performing repetitive tasks,
- Exposure to noise,
- Struck by falling objects,
- Hand and foot injury,
- Sun exposure.

Working in the construction industry is both rewarding and satisfying but as the above list shows you could be exposed to various risks if the correct safe methods of work as described in this booklet are not followed.

Think about the various Health & Safety risks that could be found on your site, speak to your supervisor or person/s in charge about ways of eliminating or reducing those risks and stay healthy and safe.





## **STEEL ERECTORS**

As a Steel Erector, you provide a valuable service to the construction and engineering industries, installing and fixing together the steel girders, pipework and beams that make up the framework of buildings and structures.

As a steel erector you might work on projects of all sizes, including office developments, factory units, housing, sports stadiums and bridges. Your duties would include:

- Working out how to fit the steelwork together following engineers' instructions,
- Lifting and guiding components into position with tower cranes,
- Lining up and levelling steelwork before bolting or welding it in place,
- Working from mobile elevated work platforms (MEWPs) to gain safe access to sections off the ground,
- Working on the structure itself, at heights beyond the reach of MEWPs,
- Laying down metal decking, and fixing safety netting and edge rails as you build up the structure,
- Prepare site area,
- Working to plans and drawings,
- Following manufacturers guidance,
- Moving equipment and materials manually,
- Erecting working platforms,
- Working in close proximity to members of the public and other buildings,
- Transporting equipment,
- The ability to follow engineering instructions and plans accurately,
- A good head for heights,
- A sense of balance,
- The ability to work in a team,
- Good fitness levels,
- A high level of practical skill,
- An awareness of health and safety practices,
- Slings loads,

- Accessing work at height,
- Using hand and power tools,
- Supervising other activities,
- Cleaning and storing equipment,
- Using harnesses and lanyards,
- Inspecting equipment and work for defects,
- Following method statements and risk assessments.

Health and safety is very important and you would be expected to follow safe working practices at all times. Your work would also involve dismantling steel on demolition jobs. With training, you might also carry out steel fabrication and fixing work on site.

As stated your role provides a valuable service but in order to sustain this valuable service you will need to have received adequate training specific to your work to ensure that you work safely and without risk to yourself and others, training also keeps you up to date with current Health & Safety to ensure you follow proper procedures on site.





## **HEALTH AND SAFETY LAW**

Your health, safety and welfare at work are protected by law, your employer has a duty to protect you and keep you informed about health and safety and provide adequate information, instruction, training and supervision to enable you to carry out your work in a safe manner.

You also have legal duties too as follows.

- Take reasonable care for your own health and safety and of others who may be affected by your work such as other workers or members of the public
- Comply with instructions or control measures such as the wearing of personal protective equipment.
- Co-operate with your employer on health and safety and training requirements.
- Correctly use and report any defects on work equipment provided by your employer this could be machinery, tools or personal protective equipment
- Do not interfere with or misuse anything provided for your health, safety or welfare.

Self-employed persons also have duties under the law in relation to their own Health and Safety and ensure that their work does not put others at risk.

If you think there is a health and safety problem on your site you should first discuss it with your supervisor, Health and Safety adviser or person in charge.



**WORKING AT  
HEIGHT  
REGULATIONS**

### **Duties of persons at work**

Every person shall, where working under the control of another person, report to that person any activity or defect relating to work at height which he knows is likely to endanger the safety of himself or another person.

Every person shall use any work equipment or safety device provided to him for work at height by his employer, or by a person under whose control he works, in accordance with any training in the use of the work equipment or device concerned which have been received by him; and the instructions respecting that use which have been provided to him by that employer or person in compliance with the requirements and prohibitions imposed upon that employer or person by or under the relevant statutory provisions.

### **The Construction (Design and Management) Regulations (Northern Ireland) CDM**

The updated CDM regulations place a responsibility on everyone involved in the construction process, everyone needs to know about these regulations and that includes you.

### **Workers: roles and responsibilities**

All those who work in the construction industry have their part to play looking after their own health and safety and in improving the industry's health and safety record.

Those with legal duties are commonly known as 'duty-holders'.  
Duty-holders under CDM are:

Clients, CDM Co-Ordinators, Designers, Principal (main) Contractor, Contractors and Workers.

- Ensure you only carry out construction work if you are competent
- Report any defect that you think may endanger the health and safety of yourself, other persons or members of the public.

- Co-operate with others and co-ordinate work so as to ensure your own health and safety and others who may be affected by the work.
- Follow site health and safety rules and procedures.

### **Contractors: roles and responsibilities**

On all projects contractors will need to:

- Plan, manage and monitor their work and that of workers.
- Check the competence of all their appointees and workers.
- Train their own employees.
- Provide information to their workers.
- Ensure all workers have site inductions and any further information and training needed for the work.
- Ensure that there are adequate welfare facilities for their workers.

The CDM regs are supported by an Approved Code of Practice (ACoP)



## HEALTH AND SAFETY ON SITE

A number of initiatives have been launched to promote and improve good practice and by reducing accidents and ill health such as BuildHealth.

BuildHealth was launched to improve the health of construction workers in Northern Ireland by:

preventing work related ill health: supporting and rehabilitating ill workers and using the workplace as a setting in which to improve health.

You have a part to play in this process by working safely, staying healthy, preventing injury to yourself and others and not being complacent.

Always inspect equipment that you have been given and report any defects, if you see any defects in scaffolding, ladders and mobile towers this could cause serious injury or death, report immediately, only repair if authorized to do so by your employer or person in charge, and only if trained and competent.

If an accident should happen it must be reported to your supervisor, manager or a responsible person and a record should be kept, most employers have a no-blame-culture, and encourage reporting of any problems that you see that could prevent an accident from happening in the first place or its reoccurrence.



Information gained from reported accidents can be used to improve Health and Safety on site. Remember accidents are preventable, by following safe systems of work you can help to improve the standards of Health and Safety on your site.



## **HEALTH AND SAFETY TRAINING**

The following is a list of possible training that you may need depending on your specific area of work. The list is not exhaustive or definitive.

- Induction training,
- Tool box talks,
- Scaffolding safety awareness,
- Specific system product training,
- Working at Heights,
- Ladders,
- Fall Arrest,
- Power & Hand Tools,
- Confined Spaces,
- Goods hoist,
- Aluminium Mobile Towers,
- Using Harnesses and Lanyards,
- Health and Hygiene,
- Manual Handling - lifting and handling manual loads,
- Slinger/banks person,
- Crane awareness,
- Fire prevention,
- Site security,
- Working with the public,
- First aid,
- Fire extinguishers,
- Defensive driving,
- Refresher training,
- Conversion training,
- Familiarization training.

CITB-ConstructionSkills NI encourages the adequate training of all those working in the Northern Ireland construction industry and support the industry to qualify their workforce to national standards and to enrol with appropriate Industry Registration Schemes. Training is not a one off event that is refreshed every 4 or 5 years, but it is a requirement that all persons receive training where necessary in order to do their job safely and to a continuing competent standard.

As more and more construction contracts demand a qualified workforce you should look at gaining an NVQ qualification or equivalent as this will show that you have been assessed as competent.

Having a recognised registration card is a good **starting point** in showing proof of health and safety training but as stated more specific training will be required.

Adequate training can help prevent accidents and ill-health and make for a more motivated and productive workforce, ensure that you have received adequate training required to do your job safely and efficiently. It is a misconception by some companies to assume that all experienced steel erectors are fully qualified. Some were trained a number of years ago, even then very little or no training was provided. Refresher training, tool box talks and other manufacturer type instruction on the different systems and products is a must to ensure an adequate standard is maintained.

All construction personnel should adopt the principles and practices stated in this document, where reasonably practicable. This booklet is intended as a good practice health and safety guide and should be supported by relevant training and the HSENI publications.

CITB-ConstructionSkills NI provides an on-site Mobile Training Unit that visits sites on a daily basis and provides Health and Safety and other training courses such as abrasive wheels, cartridge tools and slinging courses.

CITB-ConstructionSkills NI also publish a Training Directory of grant assisted courses delivered by a network of external training providers, you can view the Training Directory on the CITB-ConstructionSkills NI website [www.citbsni.org.uk](http://www.citbsni.org.uk).



A yellow circular graphic with a thick border, containing the text 'TRAINING AND QUALIFICATIONS FOR STEEL ERECTORS' in bold, black, uppercase letters.

## **TRAINING AND QUALIFICATIONS FOR STEEL ERECTORS**

It is becoming the norm now that only persons with a recognised national competence qualification will meet the requirements of the industry as most contracts now require persons to be competent. To be assessed as competent you should be working towards your Level 2 Diploma in Steel Erecting (QCF) or advanced Level 3 Diploma in Steel Erecting (QCF)

The aim of these qualifications is to validate the competence of site-based individuals working in the engineering construction industry against national standards. The qualification focuses on the skills craftsperson's need in their daily working life, giving employer's confidence in the level of competence of their employers.

Mandatory Units cover:

- Contribute to effective working relationships.
- Work safely, minimize risk and comply with emergency procedures.
- Identify and deal with hazards in the work environment.
- Prepare structural steel loads for moving.
- Move structural steel loads.
- Position and erect steel structures.
- Erect structural steel sections.
- Dismantle structural steel sections.
- Reinstate the work area after completing structural steel activities.
- Store structural steel related resources for further use.

Optional Units:

- Determine resource requirements to achieve steel erecting.
- Prepare work areas for steel erecting activities.
- Prepare materials required for steel erecting activities.
- Prepare equipment required for steel erecting activities.
- Check that the steel structure is installed to specification.
- Determine technical requirements to achieve steel erecting objectives.

This is the qualification recognised by your industry and the qualification is based on industry developed and approved National Occupational Standards (NOS).

Many construction firms and their clients already insist that workers hold this qualification so now is the time for you to get qualified.

### **Registration Scheme Cards**

As well as the qualification many construction firms and their clients already insist that workers hold a relevant registration card to work on site such as the CSR (Construction Skills Register or an affiliated scheme such as the CSCS (Construction Skills Certification Scheme. To receive a card, you must hold an NVQ/SVQ or acceptable equivalent and pass a health and safety assessment or training.



## WORKING AT HEIGHTS

Think before you work, can working at height be avoided? If not then the next consideration must be preventing falls.

Falls from height is the main cause of death in construction, you need to follow proper procedures before any work at height starts, don't take chances on this issue, 'think' before you start working at height and confirm with your employer that all proper procedures have been followed, don't use a MEWP or working platform unless you have received adequate training and keep a look out for overhead cables.

**Do not** start any work at height if cables are near until you have reported and received further instruction, you also have a duty to warn others about the dangers on site and that includes overhead cables. You should only use adequate work platforms with suitable guardrails or other collective measures, before resorting to fall arrest equipment.

Steel Erectors must take action to prevent or protect against a fall from height, you are no longer permitted to work at height and be exposed to risk of a fall without using Personal Fall Protection Equipment as a minimum (Safety Harness).

Proper risk assessments and method statements prior to any work starting are essential to prevent or control this type of activity. Ensure that persons are not working underneath you or if this is not possible ensure that all precautions have been taken to prevent materials falling onto them.



**Example of an advanced guard rail system**

## **FALLING OBJECTS**

Falling objects can kill or seriously injure someone either working below or passing members of the public. You need to ensure that any tools are secured in pouches or some other safe means. If using scaffolding it should be secured to avoid items falling by having the scaffolding wrapped or using some other means.

Be extra cautious in windy conditions and ensure a chin strap is worn with your head protection.



## SLIPS TRIP AND FALLS

You or others could suffer sprains or fractures if you trip over waste and debris. Slips at height could result in a serious fall.

- Make sure your work area is clean and as even a surface as possible.
- Wear suitable approved footwear with non slip soles.
- Clear up after you at intervals, and at the end of

the day.

- Waste should be disposed of in skip.
- Clear up spillages that you see, don't walk past, clean it up.
- Safely store cables to help prevent tripping.
- Ensure you have adequate lighting
- Report any defects that you see to equipment or work surfaces
- Keep an eye out for visitors to your work area.
- Access and egress steps to plant and equipment should be kept clean and any damage reported.
- Safe route to workplace agreed and maintained at all times.
- Supervisor to ensure that workers wear safety footwear whenever on site.



**Tripping hazards should not be common on site – report them immediately.**

**ACCESS  
EQUIPMENT  
& WORKING  
PLATFORMS**

## SCAFFOLDING

Scaffolding should be inspected after substantial alternation or repair, after any event likely to affect stability like strong winds and at regular intervals not exceeding seven days.

Any faults found must be put right, scaffolding should be tagged to warn others if faults have been found.

- Ensure scaffolding requirements, including appropriate load rating and provision of loading bays with your employer or supervisor.
- Scaffolding could collapse and crush may incur, or worse, if the scaffolding collapses on top of you.
- Only competent persons can erect and inspect scaffolding.
- If you think that a scaffold has been interfered with or could be unsafe, report this to your supervisor or other person in charge immediately.
- If a harness is required then make sure you wear it correctly, use a suitable lanyard and inspect before and during use, you must also be trained in its safe use.
- Ensure any safety equipment provided to prevent injury from falls is in place and secure.



## LADDERS

The Working at Height Regulations reinforce the hierarchy of fall prevention which means ladders should only be used if it is not reasonably practicable to use other safer forms of access: and it is reasonable to use ladders having regard to:

- The nature and duration of the work task and;
- The risks to the H & S of the users of the ladders.
- The ladder should be angled to minimise the risk of slipping outwards and as a rule of thumb needs to be one metre out for every four up.
- Access ladders should extend about 1m above the working platform. This provides a handhold for people getting on and off.
- Ensure that ladders are tied on both stiles to prevent slipping.
- Ladders should be in good condition and examined regularly to make sure they are free from defects.
- Ladders should not be painted as this can hide defects.
- Ladders used must be in good condition, adequately secured (lashed) and placed on firm surface.
- Do not overreach; if you are working from a ladder, make sure it is long enough and positioned to reach the work safely.
- Do not climb or work off a ladder unless you can maintain 3 points of contact.
- Minimise openings in scaffolds that have been created for ladder access
- Use anti-slip devices or stabilizing units, fixed to the top or bottom of the ladder, but only if considered suitable for the application.



**Microlite and ladder belt restraint in use.**

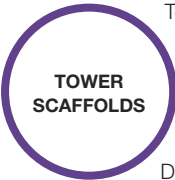
**Ladders should be correctly angled; one out for every four up.**



**Fix a ladder guard to prevent unauthorised access.**



**Use anti slip devises or stabilizing units.**



## TOWER SCAFFOLDS

Tower scaffolds are used widely in the construction industry and a number of accidents happen each year mainly due to the tower not being properly erected or used.

### Before Use

Do not erect or inspect tower scaffolds unless you are trained and competent to do so.

Make sure the tower is resting on firm level ground with the wheels or feet properly supported.

Do not use crushable material such as bricks or building blocks to take the weight of any part of the tower.

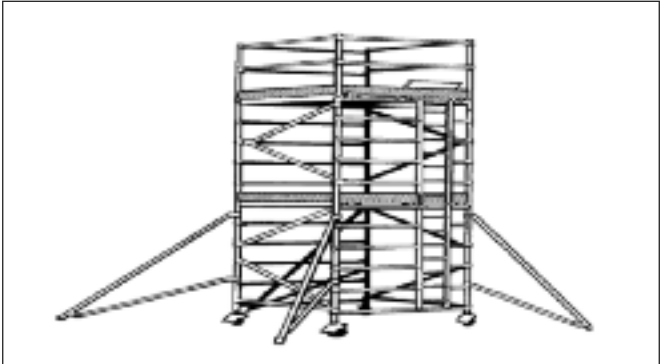
Some guidance suggests if using steel towers in exposed conditions or outside, the height of the working platform should be no more than three times the minimum base dimension or three and a half times the dimension if used inside, if using alloy towers you should follow the manufacturer's instructions.

Our recommendation is before using any tower scaffold that you first check with the manufacturer about the recommended working height of the platform.

### Remember the following as a guide

- Do not sheet as this could act like a sail and overturn the tower.
- Ensure the tower is on firm level ground.
- Do not load with heavy equipment or materials.
- Do not use to hoist heavy materials or support rubbish chute
- Always use ladder for access, do not climb on the tower.
- Always climb from the inside of the tower
- Use a brick guard where necessary
- Tower should not be moved with anyone remaining in the structure

- Close platform access door to prevent falling through.
- Watch out for overhead power lines before moving.
- Do not use vehicles to push or pull the tower.
- Ensure brakes are applied.
- If fitted, check that outriggers are set correctly and secured.



A yellow circular graphic with a thick border, containing the text 'MOBILE ELEVATED WORKING PLATFORMS (MEWP)' in bold black capital letters.

**MOBILE  
ELEVATED  
WORKING  
PLATFORMS  
(MEWP)**

(Also referred to as cherry pickers)

More people die from falls at work than from any other cause. The use of mobile elevating work platforms/powered access equipment has been a major factor in the reduction in falls accidents. For temporary work at height this kind of equipment is often the safest solution. However there are currently under investigation a number of fatal and serious accidents where operators have become trapped between the guardrails or other equipment on the platform and adjacent obstructions.

“It should not be assumed that qualified staff, new staff etc, are competent in the use of such equipment, therefore it is a legal requirement that no one should be allowed to work at any equipment or machinery unless they have received adequate training where necessary and have demonstrated competence”.

You could be killed if you work near overhead power lines, treat every power line as live until further controlled information is received, working near overhead power lines refer to H & S document GS6, it states that you keep away 9m from wooden poles and 15m from steel pylons.

- Always inspect machine before use.
- log and report faults to your supervisor.
- Make sure you are trained and authorised to use the machine.
- Wear a harness when using the machine (see reference ‘working over water’).
- Make sure you have received instruction on wearing a harness.
- Read your operators manual for safe use.
- Stay clear of overhead power lines.
- Do not use in windy conditions use a hand-held anemometer for measuring wind speed (Beaufort scale).
- In windy conditions roof sheets can act like a sail and can seriously affect the stability of the platform resulting in overturning.
- Beware of a wind funneling effect between buildings.

## Beaufort Scale

| Description of wind | Specifications for use on land                                                               | mph     | m/s         |
|---------------------|----------------------------------------------------------------------------------------------|---------|-------------|
| D Calm              | Calm: smoke rises vertically                                                                 | 0 – 1   | 0 – 0.2     |
| 1 Light air         | Direction of wind shown by smoke                                                             | 1 – 3   | 0.3 – 1.5   |
| 2 Light breeze      | Wind felt on face; leaves rustle; ordinary vanes moved by wind                               | 4 – 7   | 1.6 – 3.3   |
| 3 Gentle breeze     | Leaves and small twigs inconstant motion; wind extends light flag                            | 8 – 12  | 3.4 – 5.4   |
| 4 Moderate breeze   | Raises dust and loose paper; small branches are moved                                        | 13 – 18 | 5.5 – 7.9   |
| 5 Fresh breeze      | Small trees in leaf begin to sway; crested wavelets form on inland waterways                 | 19 – 24 | 8.0 – 10.7  |
| 6 Strong breeze     | Large branches in motion; whistling heard in telephone wires; umbrellas used with difficulty | 25 – 31 | 10.8 – 13.8 |
| 7 Near gale         | Whole trees in motion, inconvenience felt when walking against wind                          | 32 – 38 | 13.9 – 17.1 |
| 8 Gale              | Breaks twigs off trees; generally impedes progress                                           | 39 – 46 | 17.2 – 20.7 |
| 9 Strong gale       | Slight structural damage occurs (chimney pots and slates removed)                            | 47 – 54 | 20.8 – 24.4 |

**Users of scissor lifts are being urged to make daily safety checks on their machines after five people were killed in three separate incidents when they overturned.**

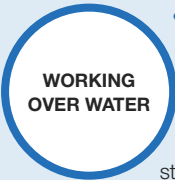
A safety alert was issued by the Health and Safety Executive to warn construction companies who use, or lease out, specific types of scissor lifts, to ensure that safety critical components are working correctly. In all three fatal overturn incidents in Europe over the past four years: the oscillating axle which allows the machine to be driven on uneven ground with the platform in the transport position failed to lock when the platform was raised.

the lift/drive interlock system did not work allowing the platform to be elevated above 6.7m without the stabilisers being deployed.

Owners of specific types of scissor lifts are being advised to ensure that the oscillating axle lockout system and the lift/drive cut out switches are checked before the machine is next used and that users complete daily inspections and function testing of both elements.



**MEWP (Cherry Picker)**



## **WORKING OVER WATER**

- When any works are being carried out which necessitates personnel working at heights above water the following precautions are to be taken.
  - Any works over water are to be subject to the company “Permit to Work” system.
  - A fence or barrier must be provided to any structure or scaffold where there is a risk of persons falling from such structures into water.
- Where an independent electrically or mechanically operated hoist or cradle is used a competent operator must be provided, or sufficient training be given in its use. Some means of communication is to be provided for use in an emergency, a harness should in most cases not be used in a MEWP as this could lead to drowning, a life jacket should be provided.
- Any hoist/cradle is to be checked, maintained and inspected/examined as per manufacturers or statutory requirements.
- Warning signs/notices are to be displayed.
- There is to be adequate lighting for the whole of the period of work. Lighting must be adequate for night work and must illuminate the immediate surrounding water surface.
- A buoyancy aid, of a tested and approved pattern, is to be worn by all personnel working over water.
- Suitable rescue equipment, for example a boat, boathook, lifebelt or lifeline is to be in position and checked as serviceable before works are permitted to commence.
- The use of any electrical equipment is to be strictly controlled and steps are to be taken to ensure that leads are not long enough to touch the water. All equipment should be connected to lines to prevent their accidental dropping into water causing possible electric shocks etc.
- All personnel are to be instructed as to means of raising alarm and rescue drills.
- The Site Supervisor, or a nominated person, is to make regular and frequent checks on numbers of personnel working.
- Any works over water are to be carried out by a minimum of two persons, no lone workers are permitted.
- Special care must be taken in fog, snow or rain, when extra checks are to be made by the site supervisor.



## MANUAL HANDLING

Make sure you have been trained correctly as you could suffer from back injury and long term pain if you regularly lift or carry loads.

- All loads if possible to be transported and lifted to scaffold or work area using lifting equipment such as a telescopic Handler etc.
- Provision of lifting/loading bay agreed.
- Materials to be covered with tarpaulin when stored on site to prevent taking up water.
- Trolley to be used if possible for moving loads around the scaffold or work area.
- Check for any loads over 20kg and make lifting arrangements.
- Any loads over 20kg, should be positioned using suitable lifting equipment used by trained persons.
- Avoid awkward postures or repetitive tasks, or take frequent breaks
- Learn safe lifting techniques as it is not just the weight of a load that can cause injury, light loads if not lifted correctly can also cause problems.
- Keep work areas clear of clutter and equipment.
- Use and maintain PPE correctly.
- There is a risk of pain or injury from working in awkward positions, performing repetitive tasks, or lifting.

Apply the following to help prevent injury

- Avoid lifting manually where possible; use a lifting aid or device where practical to do so.
- Bend your knees; use the strong leg muscles instead of your back.
- One foot slightly in front of the other use a good stance for stability
- Keep the load close to your body.
- Check the load for stability and look out for sharp edges.
- Assess the weight of the load and if satisfied lift smoothly.
- Don't twist your body, use your feet to change direction.
- Look out for tripping hazards prior to lifting or carrying a load, plan your route.
- If in doubt don't lift get help or speak to your supervisor.



**The wrong way**  
**Don't lift this way you are risking permanent injury.**



**The right way.**



**Or use mechanical lifting aids whenever possible.**

## **ELECTRICITY**

Electric shock is a major hazard on a building site, a 240 volt supply is often enough to kill a person, which is why 110 volt supplies are used. If 110 volt supply cannot be used always use a Residual Current Device.

Don't take chances with electricity cables, treat all cables as live until you know otherwise.

If using powered hand tools make sure that the supply voltage is correct for the equipment.

If using MEWP (cherry pickers), Telescopic Handlers, cranes, excavators and other equipment beware of the danger of death, treat every cable as live until informed officially otherwise, do not work near overhead power lines with these machines.

Ensure all plugs and leads are in good condition and free from defect.

Ensure only correct fuses are used 'no nails'.

Don't make any temporary repairs, have those that are trained repair all equipment.

Keep cables off the ground whenever possible; do not let them run through water, wet areas or mud.

If cables have to be on the ground ensure that they are protected from damage and not a trip hazard.

Keep extension leads as short as possible.

Do not use extension leads that are still wound on a reel as the cable can melt due to heat build up.

Do not use insulating tape to cover breaks on a cable, have it repaired, all electrical equipment must be inspected and tested before use.

(RCD) connection, but make sure it is tested.





**HEALTH,  
HYGIENE AND  
WELFARE  
FACILITIES**

Your employer or the person in control of any site has a legal obligation to ensure that sufficient welfare facilities are provided. These include washing, toilet and rest facilities.

There is also a requirement for facilities to be made available for the storage of clothes that are not worn during working hours, the storage of clothes that are not taken home and for changing clothes when specialist clothing is required to be worn at the work place.

Washing facilities on site should include hot and cold water, soap and basins large enough to wash forearms.

Do not abuse these facilities ensure you keep them clean and tidy, and report any vandalism.

If you are working with hazardous substances such as asbestos or lead, specialist welfare facilities must be provided.

## HAND HYGIENE

Hand hygiene is essential. The hands are the most likely part of the body to come into contact with harmful substances. Failure to take basic precautions can lead to skin complaints.

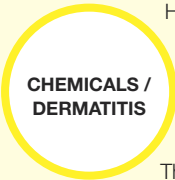
Dirty hands should be cleaned using proper supplied skin cleansing products. **Do not** clean hands with white spirit, thinners, petrol, turpentine etc.

Always ensure that you wash your hands after a visit to the toilet  
Always ensure that your hands are clean before handling food.

Anyone who prepares food for others must have been trained in food hygiene procedures.

Failure to observe basic hygiene precautions could lead to food poisoning, which at worst can be fatal.





## **CHEMICALS / DERMATITIS**

Health problems can occur through inhalation of certain chemicals and ingestion, some areas of the construction industry can expose workers to skin conditions such as dermatitis, work-induced skin irritation of the hands, arms, face, and lower extremities are the most common affected areas.

The symptoms of Dermatitis are:

- affected skin gets red, sore, itchy, scaly and blisters.
- if it gets worse, the skin can crack and bleed and the dermatitis can spread all over the body (it often starts on the hands).

It is a very painful condition but it is not infectious. If left untreated the condition can cause workers to lose their jobs, but it is preventable, and if spotted early it can be cured.

Occupational dermatitis is caused when the skin comes into contact with certain substances at work. Some cause dermatitis by irritating the skin, others cause an allergic reaction. The length of time it takes to develop depends on the substance, its strength and potency, and how long or how often it touches the skin. Once someone has developed an allergic reaction, even the tiniest amount might bring on the dermatitis. The most common substances that cause building workers to contract dermatitis include:

- cement products.
- latex rubber.
- nickel and chromium.
- epoxy and other resins.
- oils, soaps and detergents.
- some paints and wood preservatives.

## Employers

- employers must assess the risks of work which could cause dermatitis.
- ensure washing facilities are provided.
- prevent employees coming into contact with them as far as reasonably practicable.
- provide those workers with regular health checks.



## What you should do:

- ask for health checks to be carried out by the employer under COSHH and ask to see general information about the results.
- check all substances you come into contact with for labels identifying potential skin irritation.
- insist on substitute products wherever possible.
- if substitution is not possible insist on limited exposure.
- ensure you receive the necessary training to reduce the risk.
- ensure you are provided with proper washing facilities.
- insist on free protective clothing from your employer, such as gloves
- ensure all hazardous chemicals are stored safely.

## Work-related Asthma

Asthma is a distressing and potentially life-threatening disease that can be caused by breathing in chemicals called sensitisers. These are substances that can trigger an irreversible allergic reaction.

Things to watch for in yourself and the people you work with can include:

- coughing,
- wheezing,
- tightness of the chest,
- constantly runny nose,
- watery, prickly eyes.

Substances known to cause asthma:

- wood dusts,
- epoxy resins in some glues and resins,
- isocyanates in some paints,
- formaldehyde in some MDF,
- some paints and wood preservatives

Other problems caused by dusts

The relationship between asbestos and cancer is well known as is the link between hardwood dust and nasal cancer. It is common sense that breathing in dust of any type is likely to be harmful and can cause diseases such as bronchitis and emphysema.

Damping surfaces can help to reduce dust as can working with hand tools rather than power tools. Also if you can 'wet-sand down' that is preferred to dry sanding.

Always wear the respiratory protective equipment provided.

Training on how to treat exposure should be given by your employer, you must tell your supervisor if you see any early signs of dermatitis.



## **DUST AND FLYING PARTICLES**

Too much dust of any kind can adversely affect your health.

As stated earlier in this booklet breathing in dusts has been known to cause development of respiratory ill health, in particular damage to the lung tissue which can result in serious breathing difficulties, depending on the extent of exposure.

Working with certain materials can cause fragments and dust to enter the eye and cause severe eye injuries. Goggles should be worn at all times to prevent dust particles entering the eye, and the correct type of dust mask to prevent dust entering the body.

Proper dust extraction equipment should be used, hire companies can provide details on the latest equipment such as wet systems or methods available to prevent dust exposure.



## **ASBESTOS**

Breathing asbestos dust can cause serious damage to the lungs and cause cancer. There is no known cure for asbestos related diseases.

Many buildings built or refurbished before the mid 1980's contain asbestos. Asbestos containing materials should be indemnified before work commences to prevent inadvertent exposure to asbestos. Asbestos insulation board, asbestos coatings and asbestos insulation should only be removed by a licensed contractor.

If you suspect you have been exposed to asbestos or you have identified it on site tell your supervisor or person in charge immediately.



## POWER AND HAND TOOLS

All hand tools and equipment should be visually checked for faults before use, if using electrical powered equipment a Residual Current Device (RCD) connection should be used or equipment should be 110 volt or battery operated;

Don't use a chisel with a mushroom head as particles can fly off and enter the eye or other parts of the body, always use a hand protection grip and gloves, ensure the mushroomed head is ground off safely by using eye protection and grinding in a safe area.

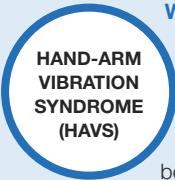
Ensure tools are used correctly and as intended by the manufacture, don't get involved in horseplay.

Do not use power tools unless you have been trained and authorised to do so.

Ensure you report any defects and that all equipment is inspected before and after use.

Your employer should ensure that a maintenance record is available and kept up to date, power tools should be pat tested.





## **HAND-ARM VIBRATION SYNDROME (HAVS)**

### **What is Hand-Arm Vibration?**

Hand-arm vibration is vibration transmitted onto your hands and arms when you use hand-held powered work equipment such as concrete saws. Prolonged vibration is known to affect blood vessels, nerves, muscles, tendons and other body parts.

The main complaint arising from continued vibration from hand tools is Vibration White Finger (VWF), in which surface blood vessels become damaged, resulting in circulatory problems, pain and in the worse cases gangrene.

### **When Are You at Risk?**

You are at risk if you regularly use hand-held or hand guided power tools and machines such as:

- Drills.
- Sanders, grinders.
- Chainsaws.
- Hammers.
- Saws.

### **How You Can Help Reduce the Risks**

It is your employer's responsibility to protect your welfare, but you should help by asking your employer if your job could be done in a different way without using vibrating tools and machines. If this cannot happen:

- Ask to use suitable low-vibration tools.
- Always use the right tool for each job (to do the job more quickly and expose you to less hand-arm vibration).
- Check tools before using them to make sure they have been properly maintained and repaired to avoid increased vibration caused by faults or general wear.
- Make sure cutting tools are kept sharp so that they remain efficient.

- Reduce the amount of time you use a tool in one go, by doing other jobs in between.
- Avoid gripping or forcing a tool or work piece more than you have to.
- Store tools so that they do not have very cold handles when next used.

**Encourage good blood circulation by:**

- Keeping warm and dry (when necessary, wear gloves, a hat, waterproofs and use heating pads if available).
- Giving up or cutting down on smoking because smoking reduces blood flow.
- Massaging and exercising your fingers during work breaks.



## NOISE

From use of equipment e.g. concrete saws, chain saws, planers, machinery etc. if using this type of equipment or working near others doing so you could suffer hearing loss.

- Machines should be inspected for noise to ensure all panels and guards are correctly fitted and not rattling or vibrating, machines can be sited on noise absorbing materials to reduce noise.
- Other machines should be sited far enough away from each other so as to reduce noise and provide more work space.
- Tell your supervisor if you think that noise is a problem on your site or machine shop.
- Noise assessment to be implemented if noise is a problem.

Hearing protection if required should be worn and maintained, noise induced hearing problems, including deafness, are all too common in the construction industry. Very often the attitude has been that it is all part of the job. Report defective machinery, bearings that are not properly greased can increase noise levels; loose panels can also increase noise levels.



**STRUCK OR  
CRUSHED BY  
MOVING  
VEHICLES  
ON SITE**

You could suffer serious or even fatal injuries from vehicles and machines on site – particularly when they are reversing.

- Make sure that you only walk to your work area on a safe agreed route.
- Report to your supervisor if this route becomes blocked.
- Wear your High visibility vests at all times.
- Never use your mobile phone on or near a route provided for vehicles or plant as you could be struck or run over.



Never approach a machine operator from behind his/her vehicle as you could be crushed. And as a plant operator you need to ensure all round checks before moving or slewing.



Never except a lift or give a lift to someone on an item of plant unless a proper passenger seat has been fitted by the machine manufacture for this purpose.



## **SUN EXPOSURE**

Too much sunlight is harmful to your skin.

In the short term, even mild reddening of the skin from sun exposure is a sign of damage. Sunburn can blister the skin and make it peel.

Longer term problems can arise. Too much sun speeds up ageing of the skin, making it leathery, mottled and wrinkled. The most serious effect is an increased chance of developing skin cancer.

### **What can you do to protect yourself?**

- Keep your shirt or top on.
- Wear a hat with a brim or a flap that covers the ears and the back of the neck.
- Stay in the shade whenever possible, during your breaks and especially at lunch time.
- Use a high factor sunscreen of at least SPF15 on any exposed skin.
- Drink plenty of water to avoid dehydration.
- Check your skin regularly for any unusual moles or spots. See a doctor promptly if you find anything that is changing in shape, size or color, itching or bleeding.

## SLINGING AND LOAD HANDLING

Slinging and load handling is perhaps the most vital part of any lifting operation.

Do not get involved in any slinging or elevator operations unless you have been adequately trained and authorised to do so.

Failure to follow this advice could lead to death or injury.

A proper risk assessment must be completed, all slings and equipment must be inspected before use, any faults reported and if damaged removed from service.

Duties include:

- Attaching and detaching the load to and from the base machine,
- Using the correct lifting accessories in accordance with the lifting plan or procedure,
- Visually checking the lifting accessories for damage before use,
- Initiating and directing the movement of the load by giving the appropriate Signals to place the load safely.





## **SAFETY CRITICAL WORK**

Some jobs in the construction industry involve activities that can place workers at risk, unless the person has full, unimpaired control of their physical and mental capabilities. These jobs are called 'safety critical' and the people who do them are 'safety-critical workers'.

- In particular, your employer will need to focus on health conditions that may involve:
  - sudden loss of consciousness (e.g. epilepsy, some heart conditions, diabetes (particularly insulin-dependent diabetes));
  - impaired awareness or concentration;
  - sudden incapacity;
  - impaired balance or coordination;
  - restricted mobility; and
  - impaired vision or hearing.

Before someone starts safety-critical work, it is good practice for the employer to agree what health checks and/or medical examination are required, and record the agreement.

It is important to be clear which aspects of fitness are relevant to the safety-critical work, and to specify the required level. The employer or self employed need to have clear agreed company policies in place to deal with these issues.

### **Example: Working at Height**

Your employer needs to be sure that you:

- can climb the ladder or platform
- can see well enough (this might mean making sure you use prescription lenses); and
- that you do not suffer from a condition which might cause you to lose consciousness or reduce your ability to concentrate

## Medical assessment

Workers who carry out safety-critical tasks need a full medical assessment. Decisions on fitness for work can only be taken by a competent occupational health doctor.

Detailed medical assessments are confidential to the worker and the occupational health practitioner or general practitioner. However, an employer can reasonably expect the occupational health practitioner to provide a general report about individual fitness in terms of:

- fit for work;
- fit for work with restrictions;
- temporarily does not meet the fitness standard; or
- unable to meet the fitness for work to carry out specific jobs.

This is the only information that an employer needs to ensure an appropriate match of worker to job.

## Ongoing fitness

Someone's fitness for work will probably change over time. Your employer will need to decide how to check that safety-critical workers are fit enough to continue with their work, e.g. introduce a simple system to recall workers who need ongoing health checks.

Tell your employer about any health changes that occur between checks which may affect your ability to do your job safely. Sickness absence certificates or observations by supervisors and managers may also indicate that a safety-critical worker's health has deteriorated. This might trigger a need to check health.

## **Medication**

Some medication can cause drowsiness and affect concentration. All safety critical workers should be encouraged to ask their general practitioner or pharmacist about the possible side effects of medication. In some cases, it may be necessary for a worker to do other tasks until the nature and extent of side effects have been established, and are properly controlled.

## **Drugs and alcohol**

You should not do construction work if you are under the influence of drugs or alcohol as you or someone else could suffer serious injury or death, but drug and alcohol testing is a complex area and if your employer decides to carry out testing, they will need to consult with health and safety representatives and employees about the companies policy, position and procedures.

## **Disability discrimination**

If health conditions are properly controlled a worker could be able to do many construction jobs safely.

Disability Discrimination Law protects workers who have a disability. However, the law allows an employer to prevent a person doing a specific task if the discrimination is for reasons that relate to compliance with health and safety legislation, e.g. it would be justifiable to transfer a Roof worker to other duties if he/she could no longer see well enough, even with glasses.



## **WORK-RELATED STRESS**

### **What is stress?**

HSE defines stress as ‘an adverse reaction to excessive pressure’. Pressure is often part and parcel of work and helps to keep us motivated. Excess, badly-managed exposure to pressure can lead to stress. Workers who experience stress, anxiety or depression are unlikely to perform

effectively and if stress levels are not corrected it can lead to serious problems. In safety-critical industries such as construction it could have serious consequences.

### **What causes stress?**

HSE has identified six aspects of work that can lead to stress. These are:

1. demands: such as workload and pattern, adequacy of the management team, build programme, and the effects of client expectation and contract penalties;
2. control: how much say someone has about the way that they work;
3. support: whether employees receive adequate information and support from managers and colleagues.
4. relationships: the nature of work relationships, including mechanisms to deal with unacceptable behavior such as bullying;
5. role: whether people understand their jobs and have the skills, experience and support to deliver, and whether there is any conflict of responsibilities; and
6. change: how change is managed and communicated in the company, and whether work is secure.

The 'top five' most stressful aspects of work in construction are:

1. having too much work to do in the time available;
2. travelling or commuting;
3. being responsible for the safety of others at work;
4. working long hours; and
5. having a dangerous job.

Remember that factors such as personal relationships, financial concerns, domestic issues and bereavement will affect someone's ability to cope with pressure at work. The importance of these factors is likely to vary over time.

### **What you should do**

Regardless of where your work is safety critical or not, if you think that you are suffering from any of the health & safety issues mentioned above or in this book speak to your supervisor, manager or a suitable person that you can relate your problems to, don't suffer in silence.



## **SAFETY IN CONFINED SPACES**

Confined spaces include: -

- Lofts
- tunnels
- sewers
- cellars and basements
- ceiling voids
- boilers
- deep excavations
- attics

Confined spaces can be a high risk activity and cause death and serious injury if proper control methods are not followed.

Entry into a confined space to carry out work that could be done on the outside should never be allowed.

You should never enter a confined space unless it is absolutely necessary to do so and never unless you have received adequate training.

Never enter a confined space unless a risk assessment has been carried out, emergency procedures are in place and a permit to work has been issued.

If no provision has been put in place to rescue you should anything go wrong do not enter.

Those that could be killed include not only people working in confined spaces but those who try to rescue them without proper training and equipment.

Dangers can arise in confined spaces because of a lack of oxygen. This can occur due to a build up of gases in the space.

As with excavations, do not site petrol or diesel-engined equipment such as generators or compressors in, or near the edge of, a confined space unless fumes can be ducted away or the area can be ventilated.

Confined spaces should only be entered if a permit to work or enter has been issued, ask questions if in doubt, ask about the emergency procedures, has the equipment been inspected have all persons been trained, was the training adequate and provided by a competent person.

Remember an excavation can also be a confined space.

Working in lofts would be a confined space but would not be the same as working in other areas as described above, however before entering you need to establish that the space is safe, that it can take your weight and that should something go wrong such as spillage or fire that you have a means of escape. You need to let others know you are in the space before entering and have regular communication.

A risk assessment and method statement must be in place prior to any work taking place and you must ensure that it is followed.





**SAFETY IN  
AND WORKING  
AROUND  
EXCAVATIONS**

As a Steel Erector you will more than likely not be involved in excavation work but we want you to be aware so you can warn others of the dangerous of excavations and stay alert as you could fall into excavations and/or overturn mowp's and other machinery in to them.

Every year, people are killed or seriously injured when working in excavations. Excavation work has to be properly planned, managed, supervised and carried out to prevent accidents. This guide provides advice for those involved in excavation work.

**Before anyone enters an excavation they should ask.**

- Are the sides protected from collapse, or have they been battered back, do not go into unsupported trenches.
- Remember that even work in shallow trenches can be dangerous. You may be bent down or kneeling in the trench.
- Could materials fall into the excavation or on top of you?
- Could people and/or vehicles fall into the excavation?
- Will you be a safe distance from excavators or other machinery?
- Have walls been undermined, could they collapse.
- How are you going to get in and out safely, has a ladder been provided and secured, do not climb over the sides of the excavation.
- Ask about underground services, has a risk assessment been done.
- Exhaust fumes from machinery can settle in excavations as the fumes are heavier than air, you could be overcome by fumes and collapse
- Do not site petrol or diesel-engined equipment such as generators or compressors in, or near the edge of, an excavation unless fumes can be ducted away or the area can be ventilated.

- Weil's disease from rat's urine can cause health problems and in extreme cases death, always use the correct type of gloves to protect your hands including wet suits and boots.
- Always wear a hard hat just in case.
- Remember an excavation can be classed as working at height as you could fall into the trench
- Ask if the excavation has been inspected, look for evidence as follows.
- Has a competent person inspected the excavation:
- At the start of each shift before work begins.
- After any event likely to have affected the strength or stability of the excavation.
- After any accidental fall of rock, earth or other material.

Remember that a cubic metre of soil weighs over a tonne; A person buried under this amount in a trench would quickly suffocate & die.



## PERSONAL PROTECTIVE EQUIPMENT

Make sure you are provided with PPE if it is required, PPE should always be the last resort in preventing accidents as it is always better to remove the risk completely, but where this is not possible PPE should be worn.

PPE could be hard hats for head protection, high visibility vests or jackets, ear protection such as full ear muffs or if suitable plugs, safety boots or shoes, overalls etc.

Always ensure that PPE is cleaned, maintained and replaced when necessary, speak to your supervisor or supplier for further guidance on the replacement of certain PPE such as ear muffs and hard hats.

### Stepping on nails and sharp objects

To help prevent foot injuries the following should be implemented

- Safety boots with steel toe caps and mid soles should be provided to all those working on site.
- Waste disposed of in skips.
- Nails clinched or removed from waste or stored timber.
- Supervisor to explain the need to wear safety boots and dispose of waste in skips.



## **FIRE**

Every year there are reports of fires and explosions which severely damage or destroy premises or plant.

If involved in hot works make sure that a risk assessment has been completed and that all approved methods are followed, ensure the correct fire extinguishers are available and that adequate training has been provided where necessary.

Do not put yourself or others at risk, ensure that you or someone calls the fire service and only fight fires if you have been trained to do so, all persons evacuated should make their way to a designated muster point.

There have been numerous fires started due either to badly maintained motors, electric sparks, or due to open wood burning stoves and cigarettes.

Make sure that all equipment is cleaned and that dust is not allowed to accumulate, report any defects you see on equipment.



## **FIRST AID**

First aid provision is all about treating an injured person immediately and contacting the emergency services if need be. In extreme cases it saves lives.

All sites should have a sufficient number of trained first aid persons in keeping with the risks and the numbers employed.

The name of the nominated first aider(s) should be posted in the canteen and other prominent position. Remember the name. The first aider should be the first person contacted in the event of an injury or health problem on site.



## CITB-ConstructionSkills NI

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The purpose of CITB-ConstructionSkills NI is to encourage the adequate training of those employed in, or intending to be employed in, the construction industry in NI, by establishing the training needs of the industry, encouraging and advising the industry to train and ensuring the adequate provision and standard of training in the industry.

Through Legislation CITB-ConstructionSkills NI is authorised to raise a levy from the N.I. construction industry to fund its activities and services that aim to encourage adequate training.

The levy is redistributed through grants, and other activities including training advice & support from the regional advisory team, recruitment & education, research, standards & training provision.

ConstructionSkills is the Sector Skills Council for the industry from professional consultancies to major contractors and SMEs. Established as a Sector Skills Council in 2003, ConstructionSkills is a partnership between CIC, CITB-ConstructionSkills Northern Ireland and CITB -ConstructionSkills. All three partners are committed to working together to deliver industry-led skills and training solutions through the Sector Skills Agreement for construction. We work to negotiate the best partnership and funding deals for the construction industry to help raise standards and we develop the skills products and services employers need.

## **CITB-ConstructionSkills NI**

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This booklet is supported by the Health & Safety Executive N.I. (HSENI).

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