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INTRODUCTION

This manual has been produced to replace the sometimes-traumatic time spent giving Toolbox Talks to on-site personnel. There are varied selections of topics to choose from, most of which will apply at some stage of your project.

Read the "**How To**" section carefully and liaise with your safety consultant if necessary; he has had experience in carrying out the talks and can offer relevant guidance both technically and on the correct method of passing the information on. Remember to obtain and record the names of all persons present at your talks and the date carried out in the Site Register.

Carried out correctly and regularly, the talks will be of benefit to both yourself and your workforce. If time is at a premium, as it quite often is these days, then pass the job onto your foremen if possible but try to do them yourself as often as you can.

HOW TO CONDUCT A TOOLBOX TALK

l. TOPIC OR SUBJECT

Choose a topic or subject that is relevant to most your potential audience, remember the toolbox process is a two-way situation and should involve discussion from both sides.

2. LOCATION

Obviously, the canteen is the first choice, use the 15 minutes after break so the personnel are already assembled, relaxed and warm. If the canteen is not a practical option then a finished or partially finished part of the property would suffice, but ensure that your audience can remain comfortable for the 15 minutes or so, you will encounter difficulties retaining the attention of your audience if they are cold, uncomfortable or have to stand for the length of the talk.

3. AUDIENCE

While it is not necessary to include the total workforce on every occasion, it is obviously beneficial to have a mix of trades. Remember they generally have a wealth of experience and items discussed during the talk can be used by you at a later date as examples. Try to maintain your numbers between 10 and 15 if possible, this is not rigid and do not worry about having more or less. As long as your workforce is benefiting over a period of time by your talks then the system is working.

4. TIME

Try not to let the discussion roll on for more than about 15 minutes, it is easy to become side tracked and loose the main purpose of the talk. If one of your audience persists in putting his point across then ask him to speak to you after the talk. He now has legal rights to do this and he could be solving a long-term problem that has existed on site without your knowledge.

5. **APPROACH**

Speak to your workforce not at them, remember the idea is to prompt a discussion not lecture them. You will notice early in the talk that attention is starting to slip if you only relate orders on how things should be carried out.

Put yourself in their position, they have work to do and money to earn and probably the last thing they need to hear is a list of orders and possible consequences. Try to bring some humour into the discussion and if possible material things such as pictures, scaffold fittings, protective equipment and evidence of hazards you have encountered around the site. The end result is that your personnel leave the **discussion** with a better understanding of the health and safety issue that you have discussed and your site safety standards improve.

Read through your topic before the talk and if necessary highlight sections you feel happy talking about. Use the trades to assist you. The plant operator can offer advice on personnel working near machines; the scaffolder can help with problems on scaffold, carpenters and roof tilers for work at heights.

Your safety consultant can arrange for certain documentation and advise you on the "letter of the law" on all subjects. If you do not feel happy with a particular subject or topic then leave it, speak to other site managers, your management and of course your safety consultant, eventually you should end up with enough knowledge to maintain interest for the 15 minutes.

Last of all do not feel embarrassed, public speaking is a talent that can be learnt as long as your talks are short, interesting and you remain in control, it will get easier. Try not to concern yourself if the first few do not go exactly to plan even Heads of State had to start somewhere and they can still fumble during discussions.

TOOLBOX TALK 1

GOOD HOUSEKEEPING

Q1; Whose responsibility is good housekeeping?
Q2; Why is good housekeeping beneficial

The following points are presented to assist Supervisors when giving Safety Toolbox Talks. The particular points made here are in the interest of good housekeeping throughout work areas, in or out of work hours, whether at home, visiting friends or at a place of amusement, we expect our surroundings to be comfortable, neat and tidy. When at work the same applies.

We should regard good housekeeping at work with the same importance as at home. Do not always rely on others to clear things up, it is just as easy to put tools away tidily as it is to leave them lying around benches, on the floor, on scaffolding, resting on pipes or other positions where they can create a tripping hazard, fall onto a person or be damaged in a fall. A place for everything and everything in its place.

If dismantling anything, stack parts away neatly and tidily. Do not leave materials in gangways, they could cut off someone's escape route or cause a tripping hazard. If dismantling anything constructed of wood, make sure all nails are removed. If this is not possible hammer nails flat, making sure that no parts are left protruding that could cause injury to fellow employees. Damaged lengths or parts of wood should be guarded as these also present hazards.

All rubbish should be placed in skips to be removed. In this way, should a fire occur, it can be confined to a small area and dealt with quickly and efficiently, thus preventing the fire spreading, especially in high winds.

If tools get damaged, get them repaired or replaced. Do not leave them lying around to cause hazards.

When finishing work, put personal overalls and other gear away, do not just leave things lying about hoping they will be there when you return.

If you notice rubbish piling up which you cannot remove, bring this to the attention of your supervisor who will make arrangements to have it removed.

Should you be working at height and notice loose objects on boards or walkways, put them somewhere where they cannot be dislodged. They could fall and hurt someone.

Keep stairways and access routes free of materials and debris, hoists, ladders and floor openings must also be kept clear. Keep your tools in a bag or box not strewn about waiting to cause a trip or other hazard. They are expensive and attractive, don't expect them to be there if you have left them lying around the work area.
Keep your work area clean: it is quicker to do this than to be told to clean up at the end of the week or contra charged. Remember the toilets and canteen is for your convenience and comfort.

It is hard enough on site without having to eat in mud coated conditions, do your bit and help to keep the welfare as clean as possible.

Remember all rubbish in the canteen is generated by you; it takes exactly the same time to drop it in the bin as it does to leave it on the tables or floors.

TOOLBOX TALK 2

GENERAL DUTIES OF EMPLOYEES AT WORK

Note: Have the Health and Safety Law Poster to hand for this talk. Point out the section relating to employees (Right Hand Side); also, discuss the employer's section (Left Hand Side).

GENERAL DUTIES OF EMPLOYEES AT WORK

Q1. What duties do employees have?
Q2. Who is responsible for Health and Safety at work?
Q3. Who benefits from compliance with Health and Safety Regulation?

It shall be the duty of every employee while at work to:

To take reasonable care of your own health and safety and that of others who may be affected by what you do:

1. Generation of dust (during disc cutting);
2. Generation of debris (trip hazard);
3. Generation of noise (jackhammers);
4. Plant movements (dumpers, excavators);
5. Storage of materials at height;
6. Removal of guard-rails;
7. Removal of ladders;
8. Use of fume generating materials (glues etc.);
9. "Bombing" debris to skips.

Or do not do

l. Replace guard-rails;
2. Replace and secure ladders;
3. Stack materials without brick guards;
4. Work over other persons without protection;
5. Leave excavations without fencing;
6. Warn others of your operations;
7. Remove debris to skips.

Co-operate with your employer on matters relating to health and safety.

I. Replace guard-rails;
2. Secure ladders prior to use;
3. Wear protective equipment as required;
4. Comply with the site rules;
5. Act on his advice.

Not to interfere or misuse anything provided for your health, safety and welfare.

1. Canteen and toilets;
2. Issued protective equipment;
3. Guard-rails;
4. Ladders;
5. Fences;
6. Extinguishers;
7. Protective equipment.

Note: Impress on the audience that these things are for their benefit; the Act was passed in 1974 to help protect the workforce from unscrupulous employers. For the self-employed it can mean financial hardship should an accident occur and the injured person is incapacitated for say 3 months (broken leg, arm, ribs or foot).

RESPONSIBILITIES

The Health and Safety at Work Act and the Associated Regulations give everyone responsibilities.

Where these responsibilities are not carried out people like you can be injured or killed, others could be prosecuted. Over 100 people are killed every year, several thousands are seriously injured. Fines can be thousands of pounds for Companies who break the Regulations.

Employers: Your Boss must supply you with a safe place of work, safe equipment and the necessary instruction and training to enable you to carry out your work safely.

You must help your employer to carry out his responsibilities by:

1. Not interfering with items provided for your safety;

2. By using equipment given to you for your protection and by not abusing it, for examples helmets, goggles and hearing protection;

3. By telling your supervisor of any hazards that you notice which could affect you or others safety.

Some Examples

1. If you work on scaffold provided by another company your supervisor must ensure that it is safe for your use. Therefore, if you notice anything which you consider unsafe point this out;

2. If you need a ladder or a pair of steps, do not remove from elsewhere without ensuring that you are not putting someone else at risk;

3. If you strike shuttering which leaves an opening make sure it is covered or guarded before you leave it. The same applies if you are permitted to remove a guardrail or cover for the passage of materials or services, make sure it goes back;

4. Do not leave tools and equipment where others can trip over them, remember some trades have to carry materials that obstruct normal vision and might not see the things you have left.

DO NOT LEAVE A TRAP FOR OTHERS

TOOLBOX TALK N0.3

DO'S AND DON'TS ON SCAFFOLD

Q1 Who can modify scaffold?
Q2 What should happen if deficiencies are noted on working platforms?
Q3 What happens if scaffolds are to be undermined with trenches?

Do not climb scaffold unless you are a trained scaffolder.

Do use the ladder access or the stairs.

Do not remove any scaffold tie yourself, unless you are a scaffolder.

Do get a scaffolder to do it so that he can position the alternative tie.

Do not make working platforms (however low) out of planks placed on blocks, bricks.

Do not leave a section of scaffold platform without a guardrail or toe-board if you have to move a ladder access point.

Do make sure that the gap is closed with a short guardrail and toe-board. If in doubt, ask your supervisor to get a scaffolder to do it.

Do not remove cross braces from scaffolding.

Do see your supervisor if cross braces are in your way.

Do not dig trenches under scaffolds.

Do ensure that strengthening works are carried out by scaffolders if trenches are permitted. Do not remove boards from the platform for any purpose.

Do report any gaps or traps in the scaffold to your supervisor.

Do not stack material in centres of bays or above guardrail height.

Do stack adjacent to the standards or uprights and consider the weights.

Do not stack above toe board height without brick guards in position.

Ensure that your working platform has:

- A continuous wall of brick guards, or;
- An additional intermediate guardrail (not for material storage);
- Double end stops if working from a gable end `hop up';
- Do ensure that all ladders are secured at both stiles

TOOLBOX TALK 4

EQUIPMENT DAMAGE – SCAFFOLDING

Q1 What are the normal causes of damage to working platforms?
Q2 What should be the first action on noting a damaged scaffold?
Q3 Who should carry out remedial actions to damaged scaffold?

An HSE safety bulletin featured an article about an incident in which a scaffold had been struck and seriously damaged by an unknown vehicle, the driver failed to report the incident.

Similar incidents occur on a daily basis where the contact has not been reported and this could have dire consequences for subsequent scaffold users.

It is essential that all accidents (injuries, equipment damage, or near misses) are reported.

PLEASE BE ALERT TO THE FOLLOWING POINTS

- Keep vehicles clear of scaffolding whenever possible.
- Always be vigilant when manoeuvring vehicles.
- Do not reverse near working platforms.
- In confined areas get assistance to guide you if in doubt.
- Consider the possible consequences to subsequent users of damaged scaffolding.
- Report damage to scaffold or protection systems for scaffold.
- All accidents (injuries, equipment damage, or near misses) must be reported.

WHAT ACTION SHOULD BE TAKEN WHEN SUCH INCIDENTS OCCUR

1. Notify scaffold users/erectors, if present.

2. Restrict access to the damaged structure.

3. Report incident to Site Management.

4. Display "Scaffold Incomplete" sign and remove ladder access.

Note: Impress on the audience the importance on reporting any accidents to scaffold to the Site Manager.

Accidents do happen and it is probably easier to endure a few minutes of shouting from the Site Manager than explain to a Coroner's Inquest why the defect was not reported and lives were lost.

TOOLBOX TALK 5

TOWER SCAFFOLDS

Q1 What is the correct base to width ratio for alloy towers?
Q2 Who can erect alloy tower systems?
Q3 How is safe access achieved on alloy towers?

1. Prefabricated access towers are to be erected in accordance with the manufacturer's instructions by competent operatives; Erection instruction must be available on site. They must be erected and dismantled in a careful manner to avoid damage to the components;

2. Towers must only be used on firm surfaces, where ground is soft or sloping adequate support must be provided;

3. The platform height should be no more than 3 times the length of the shortest side of the tower (Example - shortest side of tower is 1.5 metres multiplied by 3 giving a maximum platform height of 4.5 metres). This height can be increased by the use of outriggers;

4. Manufacturer's instruction on safe loading levels must not be exceeded;

5. Care must be taken when working from the platform that pulling or pushing actions do not overturn the tower;

6. Do not pull heavy items up the side of the tower, use lifting devices;

7. Do not use ladders from the platforms of towers, this causes high overturning forces;

8. Do not move the tower whilst persons or materials are still on the tower;

9. Any wheels fitted to towers must have suitable brakes, these must be applied before the tower is used;

10. Do not block access routes with towers unless site management have been made aware;

11. Edge protection arrangements for alloy towers are the same as normal scaffold; double guardrails and toe boards must be fitted.

ACCESS

Proprietary steel or aluminium alloy towers have a variety of means of access, these being:

a) Integral diagonal stairway. As well as providing access this will form part of the bracing of the tower;

b) Ladder units which slip onto the end frame or inclined ladders, securely fixed, inside the scaffold frame;

c) Climbing a ladder section which is incorporated within the end frame. Such a ladder section will have rungs no more than 300mm apart with stiles no more than 480mm apart. Climbing horizontal members of other types of end frame is not to be accepted as a safe means of access.

Note:

Access is from the inside of the tower frame to avoid eccentric loading of the tower. Working platforms are to be provided with trap doors to facilitate access. Where the vertical distance between the ground and working platform exceeds 9.144mm (30') an intermediate platform with guardrails must be provided. Minimum platform width 600mm or 3 boards.

Note:

Impress on your audience that if it doesn't look safe, don't use it for any reason. Report to the Site Management and warn others of the hazard.

TOOLBOX TALK 6

MOBILE ELEVATING WORK PLATFORMS

Q1 What must be checked prior to use on MEWPs?

Q2 Where must your harness be attached to?

Q3 Why would a MEWP overturn?

The term Mobile Elevating Work Platform (MEWP) covers pedestrian controlled, self-propelled and tower operated mobile elevating work and access platforms.

The MEWP is designed to provide a temporary working platform which can be easily moved from one location to another. It is particularly suitable for short duration work where the use of a ladder would be unsafe and the erection of scaffolding would be time consuming and impracticable.

The main hazards associated with the use of mobile elevating work platforms include:

- Collision with another vehicle;
- Parts of the machine encroaching onto a traffic lane;
- Proximity of overhead cables;
- Falls of persons or materials;
- Persons being caught or trapped in moving parts or "nip" points;
- Overturning;
- Incorrect use;
- Ejection from the machine.

When using an MEWP, it is important that you adopt the following precautions:

- Ensure that you have seen and understand the manufacturer's records regarding inspection, maintenance and servicing;
- Ensure regular inspection, maintenance and servicing are carried out to the manufacturer's recommendations;
- Check that all the relevant Test Certificates and servicing schedules are available;

- Ensure that you have familiarised yourself with the manufacturer's operating manual;
- Ensure that before you operate the machine you are trained and deemed competent. You must receive proof of this training; Hire Company training is for type only and MUST NOT be considered as an operators formal training course;
- Ensure the safe working load (SWL), the safe wind speed and the safe gradient are displayed on the machine;
- Ensure the ground is level, firm and the machine is not over any drain, basement etc. Where rough terrain equipment is used, the manufacturer's requirements on ground conditions must be followed;
- Ensure you fully display the outriggers/stabilisers;
- Never travel with the platform occupied or boom extended, unless specified by the manufacturers;
- Ensure when you are working adjacent to roadways, railways or other operations/obstructions that you erect barriers, cones, lights etc.;
- Ensure if working adjacent to overhead power lines that you follow the permit to work provided;
- Ensure that you wear a safety harness and it is attached to the security point. This is required because most incidents involve people being tipped out;
- You should also be trained on the safe use, inspection and adjustment of your harness;
- Ensure you wear other protective clothing i.e. safety helmet, safety shoes etc. as required;
- Check that all moving parts are properly guarded;
- Only use the platform and boom for the work for which it was intended;
- When not in use, machines should be at ground level and immobilised.

Watch out for others working at height from MEWPs and ladders when extending the boom, rotating or moving the platform.

TOOLBOX TALK 7

THE SAFE USE OF LADDERS

Q1. How must ladders be secured prior to use?
Q2. When would a ladder be considered unfit for use?
Q3. What angle must a ladder be fixed at?
Q4. What type of work can be carried out from ladders?

A recent study of **483** falls from fixed and portable ladders disclosed: -

- 277 cases where the ladder slipped;
- 180 cases where the ladder remained stable;
- 24 cases where there was a structural defect in the ladder or its anchorage;
- 2 cases where the ladder was struck by a vehicle.

The dominating factors where a ladder remained stable were:

• Foot slipped on rung	81
• Carrying tools or materials	36
• Missed footing	18
• Overbalanced	14
• Over reached.	12
• Jumped off to avoid hazards	07
• Lost footing	05
• Obstruction part way up a ladder	05
• Struck by falling materials	02

WHAT CAN BE DONE TO REDUCE RISK?

1. See that the ladder cannot slip;

2. Ensure ladders are tied near the top at both stiles;

3. Keep rungs and footwear clean;

4. Use both hands when climbing or descending;

5. Always carry tools and equipment on a belt/ bag leaving your hands free;

6. Set ladders at the correct angle 300mm out to every 1200mm up (I in 4);

7. Always check ladders before and after use, report any defects immediately;

8. Never use a makeshift ladder;

9. Do not use ladders with cracked or broken rungs or other defects;

10. Do not over reach from a ladder - always move it;

11. Do not stand a ladder on a drum, box, or other unsteady object;

12. Never overload a ladder, or support it on its bottom rung on a plank;

13. Do not use ladders that are too short;

14. Never use access boards resting on rungs;

15. Don't paint ladders, this will cover defects;

16. Remove ladders to compound at cease work;

17. Only carry out light work of a short duration from ladders.

Note:

Impress on the audience that it is not the next person up the ladder, the Site Manager/Foreman or the Safety Consultant's job to secure the ladder. It is the first person that uses it that must ensure it is fit for use and tied at both stiles.

Falls from height are one of the most common causes of death and severe injury at work (and at home). Incorrectly used ladders feature highly in the cause of these falls.

TOOLBOX TALK 8

STEP LADDERS

Q1 What elements must be checked prior to use?
Q2 How far up the steps is it safe to work?

Before use check condition of:

1. Treads;

2. Stiles;

3. Hinge arrangements;

4. Restraining system between legs;

5. Height requirements for the task (suitability).

Damaged stepladders must be taken out of use and either destroyed or returned to the supplier.

WORK FROM STEP LADDERS

Firm level base;

1. Type of operation - should a mobile platform be used instead;

2. Work from no further than two thirds up step ladders (handhold required);

3. Boards not to be slung between treads on steps to provide working platform. (Treads not designed for this loading, a one board wide platform is not a safe working platform);

4. DO NOT block access routes or doorways with stepladders without prior instruction from site management.

Note:
All working platforms must be 600mm minimum. As of September 1996, this made working from narrow Youngman Boards and other narrow platforms illegal.

TOOLBOX TALK 9

WORKING ON ROOFS

QI What systems of fall protection are available?
Q2 What is the difference between fall protection and fall prevention?

Working on rooms carries a high risk of accidents unless proper procedures are followed and precautions taken. Before working on any type of roof you should know the rules set out below and follow them: -

- For work on a roof at a height from which men or materials can fall, double guardrails and toe-boards must be provided along the roof edge;
- For work on a sloping roof with a pitch of more than 30 degrees (or less than 30 degrees, if it is slippery) crawling ladders or crawling boards must be provided and used;
- Internal fall protection systems must be installed if the risk of fall exists. You must not work in any areas without a safe system of fall protection;
- There may be circumstances where the use of a safety harness is the only safe way of working. Such a decision will be made by management, and you must use the safety harness in the conditions specified. This should only be selected as a system of work as a last resort; all other methods of protection at open edges should be eliminated previously;
- All openings in roofs must be securely covered or suitably guarded by guardrails and toe-boards. Any cover provided should either be securely fixed in position or clearly marked to indicate its purpose, for example: "Do Not Remove Cover - Hole Below". Every year accidents occur when someone lifts a board and then walks down the hole it was covering;
- Access provided to the roof must be checked before use to see that it is safe and sufficient;
- Do not `Bomb' materials or equipment from roof level;
- When clearing debris and waste at roof level be aware of those working below you;
- All materials required for roof works must be placed on the working platform by mechanical means and not carried up the access ladders;
- Beware of fragile roofs. If in doubt, see your supervisor.

TOOLBOX TALK 10

TRESTLE SCAFFOLD

Q1 What should be checked prior to use on fixed trestles?
Q2 What is the support spacing distance for safe trestle operation

Two types of trestle scaffold are used on construction sites.

1. Folding wooden or metal trestles;
2. Fixed metal trestles or Bandstands.

Trestles must only be used on firm level surfaces. Both types are frequently misused and several accidents have occurred - Observe the rules and prevent a fall.

FOLDING TRESTLES

1. Use for work of a light nature and short duration only;

2. Examine for damaged cross bearers, broken or damaged hinges or damaged stiles;

3. Use lightweight staging's for the platform. If normal scaffold boards are used support at 1.2 metre centres;

5. Do not use top 1/3 of trestle;

6. Do not attempt to increase the height of the platform by the use of hop-ups;

7. Must not be used if it is possible to fall more than 2 metres;

8. Platform must be at least 600mm wide.

FIXED TRESTLES

1. Ensure correct pins are used when height is raised (not reinforcement bar or nails);

2. If used with normal scaffold boards, space stands 1.2 metres apart (4ft);

3. If used with lightweight staging's - check allowable loads;

4. Where it is possible to fall 2 metres or more, guardrails and toe-boards must be fitted - This is generally difficult and will require a scaffolder;

5. Safe access - a tied ladder must always be provided.

TOOLBOX TALK 11

WORKING AT HEIGHT (Mechanical Systems)

Q1 Where should harness lines be secured to and why?
Q2 What factors will cause accidents when using mechanical access systems?

1. Falls when working at height in mechanical systems will result in fatal injuries unless basic rules are adhered to.

2. Accidents at height are caused by:

a)	Lack of training and experience	e)	Failure to check equipment
b)	Carelessness or over-confidence	f)	Improper use of equipment
c)	Fooling around, horseplay	g)	Poor access arrangements
d)	Working when tired or angry		

3. When working from a cherry picker, scissor lift or cradle etc., a safety harness must be worn by all personnel in the cage. The lanyard must be fixed to a suitable anchor point. Ensure that you are trained to use the harness and also inspect it before use. If in a basket or cradle suspended from a crane, the lanyard must be fixed back to the hook;

4. Always work within the guarded area. Do not lean through barriers or rails to attempt to reach for something;

5. Always assess the situation from ground level before ascending;

A. Always check controls of a mechanical lift before leaving ground;

B. Check area where work is to take place;

C. Are there any obstructions?

D. Are we using the correct platform for the work involved?

6. No personnel will operate any mechanical lift without correct training and certification;

7. Ensure that all relevant certificates and servicing information has been seen prior to use.

TOOLBOX TALK 12

WORK ON ROOFS

Q1 What measures must be in place prior to roof works taking place?
Q2 How can safe access be achieved on steep incline roofs?

Working on roofs gives rise to a substantial number of fatal and serious accidents every year.

STATISTICS

In a typical year

- 20 men are killed in roof accidents;
- 250 are injured falling through fragile materials;
- 170 by falling from roofs.

STICK TO THE RULES

1. Only properly trained operatives may be used for roofing work;

2. A safe method of working must be agreed before work starts;

3. Suitable crawling boards or roof ladders must be used on fragile materials or sloping roofs (other than suitably battened roofs);

4. Where crawling boards are used for access over fragile material or near roof edges, suitable edge protection is required;

5. Roof edge barriers (or scaffolds) must be erected to prevent men and materials falling;

6. Openings in the roof must be securely covered or guarded;

7. Covering or guarding may be removed by qualified persons to allow the passage of men or materials but must be replaced immediately after that operation;

8. Access ladders must rise above the stepping off point and must be secured at both stiles;

9. Where access ladders rise above 9 metres, an intermediate platform with guardrails and toe-boards must be provided;

10. Wet, windy or icy weather can seriously affect your safety during roofing works, ask if in doubt.

DO NOT END UP ANOTHER STATISTIC!

TOOLBOX TALK 13

OPENINGS & EDGES

Q1 What is the safe height to fall from?
Q2 What measures must be in place prior to working at roof edges?

Hundreds of people are killed or injured when they fall from an unprotected area or are struck by materials or tools from above.

The Work at Height Regulation 2005 require that all falls be prevented also that measures are taken to prevent materials falling.

Over half of all accidents reported under RIDDOR are of either falls of persons or falls of materials. Materials falling onto other trades can in certain instances be fatal. Take care of your waste and loose materials.

The law requires that if you work where it is possible for you to fall then prevention measures must be provided.

The following list gives an idea of the required protection: -

1. **Scaffolds** - Double guardrails and toe-boards must be provided to all working levels, also secured ladders are required.

2. **Floors** - Protection must be provided to all floor edges, lift openings, stairways and service openings.

3. **Roofs** - Edge protection must be given at the eaves and gable.

4. **Excavations** - All excavations require warning barriers or guardrails. Where the sides are sloping, barriers may be sufficient, but if sides are vertical then more than adequate guarding is needed.

5. **Working Alongside Water** - Guardrails and lifebelts are required where work is carried out alongside rivers, docks etc.

6. **Manholes, Road Gullies etc.** - Strong secure covers are required as vehicles damage covers and leave traps. At times protection, will need to be moved to allow work to progress, but this must be done in a controlled manner so that protection is reinstated once the work is done.

Several serious accidents have occurred on projects where covers have been removed from openings in floors or guarding has been removed from service ducts.

REMEMBER, from 2005 ALL falls must be prevented. Even falls of less than 2 metres have resulted in fatal injuries. You must consider what you will land on after you have fallen, if this is Re-bar or blocks then the anticipated injuries will be far greater.

TOOLBOX TALK 14

ACCESS AND WORKING PLACES

Q1 Who is responsible for waste control on site?
Q2 What are the benefits of waste removal?
Q3 What actions should be taken prior to working in a main access route?

The places at which you work, and the access to these places, should always be free from unnecessary equipment, materials and substances which arc liable to cause people to trip or slip. Waste materials and substances should be cleared away regularly and tools kept together in a box or bag when not in use.

Holes or openings in floors must be filled in, or fitted with protective covers, securely fixed in place and labelled "**DANGEROUS OPENING BELOW**", or protected by guardrails and toe-boards. Every year someone lifts an unmarked, loose cover and then walks down the hole being "protected".

Edges of floors, roofs and other working places from which people can fall more than two metres, or from which people can fall into water and drown, must be protected by suitable double guard-rails and toe-boards. If work is to be undertaken adjacent to water, suitable rescue equipment must be available.

If you work at a height, take care of the people working below. Let them know you are there and take steps to prevent things from falling. Precautions might include cover for floor openings, toe-boards, brick guards, barriers or safety nets and the use of tool belts.

Ensure that trailing power cables arc kept to one side of access routes and l l0v lighting festoon cables are kept above head height.

Do not obstruct main access routes with stored materials, this action could cost lives in the event of an emergency such as fire or serious first aid requirements.

If you have to carry out building work on a main or secondary access route, ensure that site management are aware and have made alternative arrangements.

Do not rely on site assistants or labour to clear your waste, allow a few minutes each day to remove waste to the provided skips, if this is a problem speak to site management.

Where lighting is provided for safe access report any failures or damages to site management.

TOOLBOX TALK 15

MANUAL HANDLING (KINETIC LIFTING TECHNIQUES) - **1**

Q1 What factors must be considered prior to moving loads by hand?

Q2 What personal protection is required prior to lifting?

1. Where possible gloves should be worn to protect against cuts, scratches or punctures;

2. Wear safety boots or shoes to protect toes from falling loads;

3. Assess the load, find out the contents and weight if possible, check the centre of gravity;

4. Do not attempt to lift alone any load that is too heavy, too large or awkward. In general, 20 Kg is accepted as the maximum a person should lift without mechanical assistance;

5. Ensure that there are no obstructions such as steps and closed doors in the direction you will be going. Check the drop off point. Is it clear and safe to move in?

6. Take up position, feet hip breadth apart, one slightly advanced pointing in the direction it is intended to move;

7. Bend knees; back muscles should be relaxed;

8. Get a secure grip of the load;

9. Lift, keeping the back straight, arms close to body, leg muscles taking the strain;

10. Step off in the direction advanced foot is pointing, load held closely to body;

11. Do not carry a load which obscures the vision;

12. When lifting to a height from the floor do it in two stages;

13. Think about what you are about to do:

a) Do you need help? If so get it;
b) Is there a mechanical handler to take care of the lift for you?
c) Does it really need to be moved by hand?

14. Liaise with the site manager over delivery `drop off' points and pre-location of materials. Also, speak to the forklift operator so that repetitive material movements are kept to a minimum;

15. Outside temperature, physical fitness and repeat lifting operations can all be a contributory feature towards a successful lift or an injury to your back;

Note: Impress on audience that "any back problems will more than likely stay with you for life. It takes 2 minutes to ask for assistance and about the same time to injure your back (refer to loss of earnings as a result of injury, generally severe back injuries will require at least 2 weeks' bed rest and then 3 weeks' light movement before even simple work can be resumed).

TOOLBOX TALK 16

MANUAL HANDLING – 2

Almost a quarter of all injuries at work are caused by accidents during manual handling. Most of the injuries are to hands, feet, legs and back. Some of the back injuries result in permanent disability. Although the Manual Handling Operations Regulations do not specify what weight a person can lift, it is now recognised that one person should not lift any load exceeding 20kg (441b).

Take care of yourself by following the guidance notes given below:

- If mechanical handling equipment is available and you are authorised and trained to use it, do so;
- Wear the right protective equipment for the job;
- Know your physical capabilities and only tackle jobs you can reasonably handle.

Think the job through:

- Can you handle the load by yourself?
- Is there a clear, properly lit, walkway to the work or stacking area'?
- Is there a safe stacking area`?
- Will timber packing be required between the articles when stacked?
- Seek advice on height restrictions for stacks. Remember, it is often more dangerous de-stacking than stacking.
- Always check that the weight of the load is known before lifting.

Know the correct way of lifting before attempting a lift:

- Stand reasonably close to the load, be sure footing is firm and feet are about 300mm apart.
- Squat down by bending the knees, keeping the back as straight as you can.
- Place hands where they will not slip, and grip firmly.
- Breathe in before lifting - inflating the lungs helps support the spine.
- Straighten up with the legs, keeping the back as straight as you can.

Know the correct way of lifting before attempting a lift:

- Hold the load firmly and close to the body.
- Ensure your view is not impeded by the load whilst working with it.
- Lift slowly and smoothly. Avoid jerking motions.
- When two or more persons lift a load, one of the team must be nominated to give instructions to ensure that each person lifts an equal share and the team work together.

TOOLBOX TALK 17

TAKE CARE OF YOUR SKIN

Q1 What measures can be taken to prevent skin sensitivity occurring?
Q2 State four materials that could cause dermatitis?

The Employment Medical Advisory Service in conjunction with the Health and Safety Executive has issued information on skin care as this is the most common occupational health problems.

The following advice may help prevent you becoming affected: -

SAVE YOUR SKIN

Occupational contact dermatitis is a rash caused by substances used at work It can look like some common rashes not connected with work. Some people are more likely to get it than others, but it is not catching. In certain instances, the results of extreme sensitivity can result in long-term skin damage or even removal of the affected limb.

It most commonly affects the hands, forearms and legs.

When it is caused by dust, mist or fumes, you may get it on the face, neck or chest.

SOME COMMON CAUSES

Pitch, tar, bitumen.

Brick, stone, plaster, dust.

Cement. (dust and mixed)

Paints, varnishes, lacquers, stains.

Certain hard woods.

Certain epoxy resins.

Acrylic and formaldehyde resins.

Chromates (in primer paints cement).

Organic solvents.

Petrol, white spirit, thinners.

Acids.

Alkalis.

Mineral Oils.

Some substances take weeks, months or even years to cause dermatitis. This is because skin becomes allergic or sensitised to them. This type of dermatitis may also cause swelling of the eyes and lips.

If PPE is required by your supervisor or under the COSHH Regulations, then it must be worn.

Always ensure that exposed skin is washed with soap and water. This applies prior to eating and use of the toilet.

Report any signs of skin inflammation or damage to your supervisor and site management.

This type of skin damage can restrict your ability to work and even in mild forms is very painful, take care of your personal hygiene and wear suitable PPE if required.

TOOLBOX TALK 18

EYE PROTECTION

Q1 What operations on site require the use of eye protection?
Q2 What different types of eye protection are available?

You must wear eye protection where there is a risk of injury to the eyes.

Examples of work activities requiring eye protection are as follows: -

- Cutting bricks or blocks with anything other than a trowel i.e. when using bolster hammer and cold chisel or cutting-off wheel.
- The use of a cartridge-fixing tool (Nail Guns etc.).
- The use of an abrasive wheel or cutting disc.
- Striking of masonry nails.
- The use of compressed air to blow swarf, dust or dirt from an area (formwork would come into this category).
- Drilling, cutting or breaking metal or concrete.
- Welding or cutting steelwork.
- Handling, spraying or brushing any substance, which, if splashed into the eyes, will cause serious burn injuries.
- Use of powered sanders or grinders
- Use of high speed wood working equipment

In your own interest, make sure you wear protective goggles or glasses when instructed to do so.

The eye protection that is provided must be suitable for you and must be replaced immediately if lost or damaged. You must take care of the eye protectors given to you.

REMEMBER YOU ARE ON YOUR LAST PAIR OF EYES!

1. A tiny fragment in your eye can cause disaster.
2. Trained first-aider for attention to eyes - not a dirty handkerchief.
3. You have a legal obligation to wear or use the eye protection provided in accordance with the Personal Protective Equipment Regulations.
4. Even if you are not carrying out one of the specified processes you may even be at risk if working adjacent to these operations, so wear or use the eye protection provided.
5. Do not watch welding processes unless your eyes are properly protected.
6. Do not go into areas where eye protection is required unless you are wearing protective equipment.
7. Take care of any protective equipment issued to you.
8. Have any damaged, lost or unserviceable protective equipment replaced immediately.
9. Make sure your eye protectors are suitable for you and for the work being done.
10. Ensure that eye protectors are comfortable to wear and keep them clean.
11. The place for eye protection is over the eyes - not on your head or round your neck.
12. Remember - eye protectors are replaceable; your eyes are not.
13. Report all eye injuries to the site management.

A SENSIBLE WORKER VALUES HIS SIGHT

TOOLBOX TALK 19

HANDS AND FINGERS

Q1 What machine operations on site could result in hand injuries?
Q2 What can be done to eliminate the potential for hand injuries?

Injuries are occurring to hands and fingers during the moving of objects by mechanical means, be aware of potential traps for hands and fingers. Always stand clear of mechanical operations so that the operator can see you.

QUESTIONS

1. Are you using the correct method for moving objects?
2. Will you be able to release the object easily after it has been lifted?
3. Will it be stable when the supports are removed, are more supporters required?
4. Are you sure it will not present a hazard to someone else in the future?
5. Are your hands the best tool to use or should some other equipment be made available?
6. Do you need to be involved in this movement or can it be done remotely?
7. Do you need assistance?

REMEMBER

Hands and fingers are the means by which we grip, hold or move things, they require ruggedness and strength and at other times they must be dextrous and delicate and used with an artist's touch.

Whether a man is a technician, craftsman, operator or labourer, his hands are often near the danger zone and certain preparations must be made in advance if the work is to be carried out free from hand injuries.

Even the best quality gloves will not prevent severe injuries occurring during mechanical movements, these injuries could range from painful nips to serious amputations.

Check what happens to the machinery prior to placing yourself in danger, know the crush and cut areas.

Always stay in visual contact with the machine operator.

BE AWARE OF THE DANGER ZONE

TOOLBOX TALK 20

PROTECT YOUR HANDS

Q1 List the different types of gloves that are available for your use.
Q2 What substances or materials require the use of gloves?
Q3 What operations on site require the use of gloves?

Your hands are the most important tools you will ever own. They tell you the difference between: -

- Hot and Cold;
- Wet and Dry;
- Rough and Smooth.

You use them to thread a needle, lift objects, button a shirt, cut a steak, dial a telephone, write a letter and for many, many more operations.

The sad facts are that 7% of disabling injuries involve hands (about 150,000 disabling injuries each year), AND MOST OF THESE COULD HAVE BEEN PREVENTED.

Every year thousands leave the industry as a direct result of long-term skin conditions that could have been prevented by protecting the skin on the hands.

FORMS OF PROTECTION

1. Gloves

There's a glove to fit every job, be sure they fit. Be sure that the glove type is suitable for the work you are tasked with (waterproof, armoured, oil resistant etc.)

Too large - unsure handling and tendency to catch on obstructions.
Too small - excessive wear and can lead to hand fatigue.

2. Skin Care

- Barrier creams are available and should be used regularly.
- Good personal hygiene will reduce the effects of sensitizers.
- Covering cuts and abrasions will also reduce exposure.

Read and understand the information on substances that you use, some will have adverse effects on your skin and some can he absorbed through your skin causing further damage.

TOOLBOX TALK 21

VIBRATION

Q1 What three things can be done to reduce the effects of vibration?
Q2 What are the symptoms of Vibration White Finger?

Vibration White Finger (VWF.) can result from the transmission of vibration from a vibrating implement (i.e. road-breakers, chainsaws, riveting guns, etc.) to the hands, occurring as a result of continual exposure.

Primarily, it results in damage to the blood vessels and nerves of the hand resulting in skin blanching (white finger) on exposure to cold, together with pain, pins and needles, numbness and loss of manual dexterity. If you are affected, you will suffer symptoms on exposure to cold conditions with the time taken for recovery increasing as the condition develops. The condition may become permanent if early symptoms are not identified and action taken. It is important to recognise that these symptoms do not necessarily occur during or immediately after exposure to vibration but usually occur early in the morning when the weather is cold. Therefore, cold is the primary trigger for the symptoms.

If you smoke, you are at increased risk since smoking reduces the supply of oxygenated blood to your hands and fingers.

The main way to prevent Vibration White Finger, is to reduce levels of vibration by careful selection of equipment, the introduction of damping techniques on existing equipment if practicable, the use of alternative work procedures if possible, and to minimise the time working with vibrating machinery by job rotation.

You should also follow these simple precautions:

- Wear adequate clothing to keep dry and maintain hand and body temperature at an acceptable level, wear suitable gloves to keep your hands warm. Heavily padded gloves are of no practicable benefit and may increase vibration levels.
- Let the machine do the work and grip the handle as lightly as possible, providing that this is consistent with safe working practice.
- Do not use blunt tools. Keep steels sharp and use the appropriate tool for the job.
- If you smoke and use vibrating equipment you are at increased risk of vibration related disease, since nicotine reduces the blood supply to the hands and fingers.
- Should attacks of white or blue finger or long periods of tingling and/or numbness occur, report this to your Supervisor.
- Inform your Supervisor if abnormal vibration occurs when using your machine.

TOOLBOX TALK 22

PERSONAL PROTECTIVE EQUIPMENT

QI What is the basic standard on this site for P.P.E.
Q2 What operations require specialist P.P.E.

Personal Protective Equipment is issued for your protection; it is one of site rules that you must wear your Personal Protective Equipment as required. Failure to comply with this condition can lead to dismissal.

1. **Safety Helmets.**
All work areas are hardhat areas. You must wear your safety helmet.

2. **Eye Protection.**
Safety glasses must be worn in all areas where possibility of particle or dust ingress exists and also during operations that generate dust.

3. **Body.**
The body should be kept covered at all times at work. When cutting, grinding or burning then suitable flame proof clothing should be worn.

4. **Hearing.**
Ear protection must be worn in specified areas. Ear defenders must be worn during all operations where normal speech is not possible.

5. **Hands.**
Gloves are provided to protect your hands, wear them when there is a risk to your hands.

6. **Footwear.**
Safety footwear must be worn by all persons on site; the footwear should be in good condition and not split.

7. **Knees.**
Kneepads and/or rubber mats should be utilised when employees are habitually kneeling to undertake whatever work activity on hard surfaces. By the use of such equipment the risk of "Beat Knee" is reduced.

8. **Dust Masks.**
Respiratory protection is available and must be worn by all personnel involved with dust generating operations (cutting, grinding and chasing out). Remember even when working near operations of this nature you could well need adequate protection.

9. **Fluorescent Clothing**
High visibility clothing can be required for many different reasons:

a) Low light conditions
b) Plant movements
c) Crane operations
d) Vehicle movements
e) Site or Company rules

Whatever the reason it must be clean, in good condition and most of all visible

DO NO WEAR HIGH VISIBILITY CLOTHING UNDER FOUL WEATHER CLOTHING

TOOLBOX TALK 23

PROTECTIVE CLOTHING

Q1 Where are stocks of protective equipment held?
Q2 Where should your protective equipment be kept?

Many accidents occur because people on site do not pay sufficient attention to their own health and safety. You can do a great deal to protect yourself simply by knowing what is available, wearing the correct clothing and using the protective equipment appropriate to your job.

Your employer is obliged by law to provide you, without charge, the following items of personal protection, when circumstances demand their use:

- Suitable protective clothing for persons working out of doors in rain, snow, sleet or hail;
- Suitable protective clothing for persons working with materials such as asbestos or asbestos-based materials, lead, cement, or concrete. Check Your COSHH assessment;
- Eye protectors or shields where work activities/processes being carried out arc likely to cause eye injuries;
- Respirators or breathing apparatus as protection against dust or fumes or lack of oxygen. Have you got a copy of the COSHH assessment for the substances you use?
- Safety nets, harnesses, lines etc. to prevent falls where it is not practicable to provide working platforms. Remember use of these items is a last resort;
- Ear protectors where it is not practicable to reduce noise below an exposure level of 85 decibels (85 dB (A);
- Safety Helmets, replace if damaged or dropped;
- Steel toe capped footwear is now mandatory on building/construction sites and for some jobs more specialist footwear will be required.

You are required by law to co-operate and wear such clothing and equipment where the circumstances demand it.

TOOLBOX TALK 24

HEAD PROTECTION

Q1 When should your helmet be replaced?
Q2 What key points should be checked on a helmet prior to use?

By wearing the correct head and footwear you can help prevent, much discomfort, many injuries and even DEATH.

SAFETY HELMETS

Every year in the construction industry, 140 head injuries are reported to the Factory Inspectorate. These are only the most serious cases, 50% arc fractures of the head, many more are never reported yet still cause much pain and suffering.

In the last few years' records can show that safety helmets have saved at least 10 men's lives.

YOURS MAY BE NEXT.

Wearing a safety helmet can prevent most head injuries.

Safety helmets are designed to a British Standard to be strong enough to prevent most falling materials damaging your brain. If your brain is damaged, it is unlikely that you will be able to work as well as now.

Helmets can also prevent many of the minor head injuries from bumps to scrapes that occur on building sites.

Do not customise your helmets by sticking labels or go faster stripes on them.

Do not modify the shell or harness by cutting or drilling as this weakens the overall effect.

Some spray paints also weaken the shell, so unless you are certain do not use spray or cellulose paint.

Induction stickers are designed not to adversely affect the integrity of the helmet.

REMEMBER YOUR LIFE MAY DEPEND ON IT.

We do not want you to be injured on this project - BECAUSE WE NEED YOU - so it is a condition of you working here that you wear a helmet.

Certain areas may have some relaxation but unless you are told otherwise you must wear your helmet at all times whilst on site.

Bump caps have not been manufactured to the same high specification as hard hats and do not carry the same standard marking. Remember they are not suitable for construction activities and will not offer suitable head protection for you.

HEAD PROTECTION

The head is particularly vulnerable to injury and accidents to the head are often fatal, or involve very serious injuries, such as brain damage or fractured skull.

Over the years, it has been proved beyond doubt that many deaths and head injuries could have been prevented, or their severity reduced, by wearing safety helmets.

Under the Construction (Head Protection) Regulations 1989 hard hats must be worn by all persons on building and construction sites except for turban wearing Sikhs.

When wearing a hard hat always check the following points:

- Adjust the headband to suit your head size.
- Check that the outer shell and harness is in good condition, without indentation or cracks.
- Never paint the shell as some paints weaken the plastics used.
- Use a chinstrap where necessary to avoid the possibility of the safety helmet falling off. This applies particularly to those working at height.
- Do not punch holes into the shell for attaching unauthorised equipment or for ventilation. Attachments for ear defenders or eye protection are available and should only be used in accordance with the manufacturer's instructions.
- Replace any helmet if it sustains a heavy impact or is dropped, as the shell may be weakened.
- Helmets must be in good condition and replaced according to the manufacturer's guidelines. This is usually every two years.

TOOLBOX TALK 25

FOOT PROTECTION

Q1 Who is responsible for providing safety footwear?
Q2 Who is exempt from wearing safety footwear on this project?

Two main causes of foot injuries are:

- Treading on sharp objects, such as nails, which pierce the sole of the foot;
- Objects dropping causing crush injuries.

Both types of injury can be minimised by the use of proper safety footwear.

Under the Personal Protective Equipment at Work Regulations 1992, your employer must provide you with safety footwear, where you are exposed to the risk of foot injury.

Self-employed and agency persons are responsible for providing their own safety footwear.

Safety boots, shoes and trainers are available which have steel toecaps. Some also have spring steel plates in their soles. Safety footwear of this type, made of leather or rubber, should always be worn on construction sites.

Totally unsuitable footwear, such as trainers, or sandals, which offer no protection are not permitted on construction sites

Your safety footwear must also remain in good condition to be of any benefit, splits and severe wear can lead to foot contamination and reduced effectiveness.

The wearing of safety footwear is a site rule on this project and breaches will not be tolerated.

Note:

Impress on your audience the amounts of money that can be lost as a result of a foot injury. Typical "do time" three to six weeks without earnings.

TOOLBOX TALK 26

NOISE

QI What practical measures can be taken to reduce excessive plant noise exposure?
Q2 Why are ear defenders preferred to earplugs in some situations?

Excessive noise from plant and tools on site can cause, over a period of time, progressive and irreversible loss of he before this permanent loss, rushing or ringing noises in the ear can be a constant source of annoyance. This is called **TINNITUS**.

If you work in areas where you need to shout to be heard, then you require hearing protection. This can be either e or ear defenders. These give good protection if some simple rules are observed.

1. Wear ear protection at all times if exposed to a noise hazard;
2. Do not use cotton wool for ear protection: It is not effective;
3. Make sure that ear plugs are a good fit in each ear and are properly inserted;
4. Regularly cleanse re-usable earplugs to the manufacturer's instructions;
5. Use disposable earplugs once only;
6. Hands should be clean when handling all types of earplugs;
7. Ear defenders should be a good fit to the head all around the seal;
8. Ensure that ear defenders are worn the correct way around;
9. See that ear defender seals are always clean and in a serviceable condition;
10. Do not alter the pressure of ear defenders by bending the headband.

If you work with compressed tools, ensure that:

- Mufflers are fitted, where possible, to tool;
- Airlines do not leak - this can cause unnecessary noise;
- Compressor access covers are kept shut.

TOOLBOX TALK 27

HEARING PROTECTION

The Noise at Work Regulations 2005 impose legal requirements on both employer and employee.

Three `Action Levels' of noise are specified in the regulations.

1. A first action level of 88 dB (A)
2. A second action level of 85 dB (A)
3. A peak action level of 149 dB (A)

Where employees are likely to be exposed to noise between the first action

- level 85dB (A) and the second action;
- level 90dB (A) employers must provide suitable and efficient ear protectors to employees who ask for them.

Where exposure reaches the second or peak action levels employees must be provided with ear protection and the area in question must be designated an `Ear Protection Zone' and as far as is reasonably practicable these zones must be marked with signs and employers must ensure that anyone who enters these zones must wear ear protection.

The operatives most at risk are those using portable grinding machines. Equally at risk are operatives assisting the working in close proximity to the grinding operation.

As a guideline if you are stood next to a well-used dual carriageway, the noise generated by the passing traffic will exceed 85 dB (A) and possibly 90 dB (A).

DON'T TAKE RISKS

DON'T DAMAGE YOUR HEARING

WEAR EAR PROTECTION DURING NOISEY WORKS

TOOLBOX TALK 28

WORKING WITH CEMENT

Q1 What are the main problems to health arising from contact with cement products?
Q2 What precautions can be taken to prevent these problems from arising?

INTRODUCTION

Cement is one of the most widely used construction materials. Anyone who uses cement (or mixtures containing it e.g. mortar and concrete) should be aware that it is hazardous to health and that safe working practices must be used to minimise the risk.

The most commonly used cements, i.e. Portland cements contain mainly calcium silicate with aluminium and iron compounds together with a small amount of gypsum. High-alumina cement contains calcium aluminates. A variety of additives are used to produce special-purpose cements.

HEALTH EFFECTS

Cement can cause ill health mainly by: -

Skin Contact: contact with wet cement can cause both burns and dermatitis.

- Cement burns; if freshly mixed concrete or mortar gets trapped against the skin e.g. by falling inside your boots or gloves, serious skin burns or ulcers can result which can take several months to heal and may need skin grafting;

- Dermatitis; skin affected with dermatitis feels itchy and sore and looks red, scaly and cracked. Two sorts of dermatitis can occur;

Irritant dermatitis

Results from direct damage to the skin caused by the combination of wetness, chemical corrosiveness and abrasiveness of cement in concrete and mortar;

Allergic dermatitis

Results when you become sensitised to chromium salts present in the raw materials used to make cement. Sensitisation to additives such as pigments, epoxy resins and hardeners can also occur.

Eye contact:

Contact with cement powder or wet cement can cause irritation and inflammation.
Inhalation of dust

High levels of dust can be produced when cement is handled, for example when emptying bags of cement or during their disposal. In the short term, exposure to high levels of cement dust irritates the nose and throat and causes difficulty with breathing. There is uncertainty about the long-term effects of breathing in cement dust; chronic chest trouble is possible.

Abrading hardened concrete e.g. in scabbling or concrete cutting, can give rise to large amounts of inhalable dust which could contain high levels of silica, depending on the aggregate that has been used. By breathing in silica dust, you are at an increased risk of developing chest complaints.

Controlling Exposure

Work in a way, which minimises the amount of dust produced. So, open bags of cement with care: mix carefully etc. Handle dry material in a well-ventilated area.

Personal Protection

You must wear clothing to protect your skin from cement and cement mixtures, e.g.

- Gloves;
- Overalls with long sleeves and full-length trousers;
- Waterproof boots;

Clothing should be worn to avoid "traps" for fresh mortar or concrete to fall in i.e. with sleeves over the gloves and trouser legs over the boots - not tucked inside. If "trapping" does happen, steps should be taken immediately to clean the contaminated skin and protective clothing.

- Suitable respiratory protective equipment should be worn if dusty conditions cannot be avoided.

Eye protection must be worn when conditions give rise to a risk of eye injury (e.g. opening cement sacks, during mixing where splashing might occur).

Hygiene

Personal hygiene is important. Adequate welfare facilities are available on site and you should wash your hands and face at the end of a job and before eating, drinking or smoking, and wash your hands before using the toilet.

First Aid

Contaminated skin should be washed with cold running water as soon as possible. Particular attention should be paid to any wound which should be covered with a suitable dressing. Eye contamination should be washed with eyewash or cold tap water for at least 10 minutes before proceeding to hospital.

TOOLBOX TALK 29

RESPIRATORY PROTECTION

QI Why is it important that only trained persons use RPE
Q2 What special arrangements should be made for RPE not in use?

It is sometimes necessary to work in atmospheres in which hazardous dust or fumes are present. Ideally, the contaminant should be controlled at source to minimise the hazard, but this is not always possible so safety equipment will be provided by your employer for your protection.

Respiratory protective equipment (respirators or breathing apparatus) should be selected to prevent the wearer from breathing dangerous levels of dust, gas or vapour or to give him oxygen.

A respirator suitable for use in one set of circumstances may be useless in another, so proper selection is essential if wearers are to receive adequate protection.

A respirator which gives perfect protection against a dangerous fume will be useless if there is a lack of oxygen.

All equipment, except for disposable types, requires cleaning, disinfecting and inspection after use and before wearing by another person. Cartridges and filters have a limited life, which can vary depending upon the environment in which they are used.

Manufacturer's recommendations should be closely followed. Equipment must be properly stored when not in use.

Training in the use and application of respiratory protective equipment is essential for all types of equipment, and it should only be worn by persons who are thoroughly familiar with it and know the procedures to adopt in case of emergency.

As with all types of protective equipment, respiratory equipment should only be used as a last resort.

TOOLBOX TALK 30

STORAGE OF FLAMMABLE MATERIALS

Q1 Where are flammable liquids stored on this project?
Q2 Where are the closest extinguishers to the flammable store?
Q3 What type of extinguisher should be used on flammable liquid fires?

Many of the materials, liquids and substances which we use on sites are highly flammable e.g. solvents, petrol, cellulose based paints and thinners etc.

These types of materials must be kept in secure containers. Containers used for petrol should be clearly marked "PETROLEUM SPIRIT - HIGHLY FLAMMABLE".

Any empty containers should be marked "EMPTY" and stored apart from the full containers.

Do not throw part empty flammable containers into the skips, dispose of them in a safe manner. Small containers carrying highly flammable liquids should be stored in fire resistant cabinets or bins.

Consider how much flammable material you are keeping on site; do you need this much or can it be reduced to a more manageable amount to ease storage?

Gas cylinders should be stored in the open air, out of direct sunlight and away from any sources of ignition. The cylinders should be stored in the upright position at all times.

Signs marked "HIGHLY FLAMMABLE - LPG" should be displayed.

Any empty cylinders should be marked "EMPTY" and stored apart from the full cylinders, empty containers are in fact more dangerous than full ones.

A sufficient number of dry powder extinguishers should be placed around the storage area.

Where the cylinder cannot be stored in the open air, they should be kept in a storeroom, which is constructed of non-combustible materials and is adequately ventilated. This storeroom should not be used for any other purpose than for the storage of LPG Gas or acetylene cylinders.

Smoking is **NOT** permitted in storage areas where flammable liquids and materials are kept. Flammable or explosive liquids must not be discharged into drains or directly onto the ground.

TOOLBOX TALK 31

WORKING WITH CHEMICALS AND HAZARDOUS SUBSTANCES

Q1 On finding an unidentified container what must be your first action?
Q2 What information should you have prior to using a hazardous substance?
Q3 What can be done to minimise the potential for harm when using hazardous substances?

Many hazardous substances are used on construction sites. Chemicals are contained in adhesives, admixtures, brick and stone cleaners, decorative/protective treatments for timber and metals, floor treatment/finishes, formwork and mould treatments, fumigants, cements and grouts, insulants, sealants, solvents and weed killers

Accidents can be prevented if you know what the chemicals are, the hazards they pose, and the precautions to be taken in handling them. If there are any doubts, seek information and instruction from your supervisor. Avoid hazards by following the guidelines listed below: -

- Your employer has a legal duty to assess the risk involved in working with a hazardous substance, decide what precautions should be taken to deal with the risk and instruct you on how to deal with the matter. Make sure you have this instruction before you work with any hazardous substance, get the COSHH assessment.

- Always read the label on the container and make sure you understand the information. If there is no label, do not use the contents.

- Do not assume that because two containers look the same, they contain the same material.

- Chemicals in construction may be: explosive, flammable, poisonous, irritant or corrosive. A chemical may have more than one of these hazards. Check for danger symbols on the label before opening the container.

- When opening containers, hold a rag over the cap, as some volatile liquids tend to spurt up when the cap is released.

- Always check that you are wearing the correct protection before handling chemicals. Gloves, eye protection, protective clothing, rubber boots or respirators may be required. All these must be kept in good order. Check the COSHH assessment.

- Explosive chemicals must be treated with great care. Some chemicals become unstable when old, and explosions can result if these are mishandled. Check the condition of all chemical containers for indications of leakage or age.

- All flammable liquids give off vapours, which travel unseen into the air, and are easily ignited by flames, sparks or just heat alone. Never smoke if there are flammable chemicals in the area and

know what action to take in the case of fire.

- All chemicals should be regarded as toxic. Poisoning can occur by accidentally swallowing the chemical when eating, drinking or smoking with contaminated hands. Always wash hands carefully after handling chemicals, and do not eat, drink or smoke in the same area as the chemicals.

- Some chemicals can be absorbed through the skin and cause a wide range of diseases. Always use the right protective equipment and clothing and apply barrier creams if solvents are being handled.

- Some chemicals are poisonous if inhaled. Provide good ventilation, or work in the open air. Leave the area immediately if you feel dizzy or unwell. Report to your Supervisor.

- Corrosive chemicals, like acids and alkalis, destroy the skin. The eyes are particularly vulnerable, even to fumes. Always wear eye protection, gloves and protective clothing when handling these chemicals.

- Use the smallest quantity of chemicals that is necessary for the particular job.

- Eye protection should be worn when chemicals are being moved or transferred on site.

- Don't mix or decant chemicals.

- If the skin is splashed with a chemical, it should be washed off immediately with clean running water. Eye injuries should be flushed copiously with water and receive immediate medical attention.

- If you are burned by a chemical or feel unwell after using a chemical, tell your Supervisor and seek medical attention without delay.

- If there is a spillage of chemicals on the ground or floor, report the matter at once to your Supervisor so that the right action can be taken.

- Do not dispose of dangerous chemicals in the provided skips; special arrangements for the removal of these items m be made.

TOOLBOX TALK 32

COSHH REGULATIONS

Our health is probably the most important part of our life. Without good health, work and quality of life would be seriously affected.

The Control of Substances Hazardous to Health Regulations 2002

The basic principle of these regulations is to safeguard the health of all of us who have to work with substances that can be hazardous to health. A substance can be a liquid, solid or gas and include microorganisms and dust. These regulations apply to all places of work.

The main requirements of the regulations are for your employer to:

- Assess the risk to health arising from the work and what precautions are needed;
- Introduce appropriate measures to prevent or control the risk - use alternative safer substances if possible;
- Ensure by good supervision that control measures are used and that equipment is properly maintained and procedures observed;
- Where necessary, monitor the exposure of the workers and carry out an appropriate form of surveillance of their health;
- Inform, instruct and train employees about the risks and the precautions to be taken. Make sure you are given a COSHH assessment for your work activities;
- You must co-operate with your employer and wear protective equipment, when instructed to do so.

The equipment you are given must be in good condition and your employer cannot charge you for the cost of personal protective equipment that is provided to comply with the requirements of the assessment.

Remember exposure limits change (Reduce) from year to year so DO NOT assume that the information you have is still current and no harm is coming to you, this might not he the case.

Equipment provided for your personal protection as required under these regulations DOES NOT have an infinite life, replace the equipment as detailed in the assessment and store it correctly when not in use.

TOOLBOX TALK 33

HAND TOOLS

Q1 Why is it important to maintain cutting faces on certain tools?
Q2 What should be done with damaged tools?

l. Use the right size spanner for the task. Where adjustable spanners are used take extra care as these slips more easily.

2. Files must be fitted with handles to prevent hand injuries and files must not be used as punches or for levering as they break easily.

3. Chisel and punches with mushroomed shaped heads must be ground down to prevent splinters or metal flying.

4. Keep hammerheads tightly wedged on their shafts.

5. Replace split or damaged wooden handles, do not wire or tape up.

6. Keep edges of cutting tools sharp.

7. Keep hands behind the cutting edge when working.

8. Do not use screwdrivers as chisels - handles fracture.

9. Keep tools in racks or boxes when not in use.

10. Protect sharp edges of tools that are to be stored or covered - Stanley Knives kept in pockets uncovered will result in an severe injury.

11. Scrap tools when they become worn or damaged beyond repair.

12. Always use the correct tool for the job. Do not improvise i.e. by using tubes to extend spanners, as the extra leverage may open jaws and allow it to slip.

GOOD TOOLS MEAN FASTER AND SAFER WORK

TOOLBOX TALK 34

WORKING SAFELY WITH ELECTRICITY

Q1 What inspections should be carried out prior to using electrical tools?
Q2 Who can carry out remedial work on electrical equipment?
Q3 What conditions will increase the risk of electrocution when working with electricity?

There is a very tragic way to learn about the dangers of misusing electrical tools and equipment - it is electrocution.

Electricity is so much part of our modem way of life, pushing in a plug second nature, and all items of electrical equipment are produced to strict safety standards, so to all intents and purposes, used correctly, they ARE safe. Why then do so many people suffer shocks?

Everyone knows electricity can and does KILL - and still people continue to take stupid risks with it - or they take it for granted where safety is concerned - both of which can lead to shock, burns, serious injury or even, death!

The dangers are particularly increased at work where electrical equipment is used in adverse conditions, on site in wet or damp areas for instance - or where voltages are necessarily more lethal.

Follow these simple rules in your working situation - and if in doubt about the safety of any electrical equipment - report it, get an electrician or proper maintenance people for the job IMMEDIATELY! Do not let a live tool take a life - yours, or anyone else.

Always check for defective plugs, cables and sockets before using any electrical equipment!

Be sure that cables are long enough to reach your working place without straining or pulling!

Have all the EMERGENCY STOP switches on all machinery tested regularly!

Installation of all electrical wiring requires the attention of a qualified contractor!

Joined lengths of cable should always be attached by the proper connectors and NEVER with insulating tape!

Do not ever attempt repairs yourself these must be made by competent electrical staff only.

Ensure that Portable Appliance Testing (PAT) is carried out on a regular basis for all your equipment documented proof of these regular tests will be required by site management

IF IN DOUBT - SWITCH IT OUT, ELECTRICITY KILLS

TOOLBOX TALK 35

PORTABLE ELECTRICAL TOOLS

The following practices should be second nature to all who work with portable hand tools:

- Before you use a portable electrical tool, make sure that it is properly earthed;
- Before using an electrical tool, make sure that the casing is undamaged. If it is damaged do not use the tool;
- Make sure that all cables and plugs are in good condition and adequately insulated;
- Use tools only on the correct power supply as instructed on the maker's label;
- Make sure that the power cable is long enough to reach your working place without straining it;
- Keep power cables off the floor where possible. They may get damaged or cause a trip hazard;
- Never stand on a damp or wet surface when using electrical equipment and keep the equipment clean. Never use a portable tool for work which it is not intended;
- Never connect a portable electrical tool to a lighting socket;
- Never use worn, blunt or damaged bits or other accessories;
- Disconnect when not in use;
- Electric power tools should be regularly inspected and subjected to planned maintenance.

REPORT ALL DEFECTS IMMEDIATELY

TOOLBOX TALK 36

WELDING AND BURNING

Q1 How often should hoses and leads be inspected?

Q2 Where should gas cylinders be stored when not in use?

Q3 How should gas cylinders be stored when in use?

l. Always check permit to work/ hot work permit before starting work;

2. Clear and screen the area to prevent ignition of combustibles, protect process equipment, passers-by and others working in vicinity;

3. Make sure fire extinguisher is in close proximity;

4. Use correct eye protection and clothing;

5. Ensure gas cylinders are upright and secured in bottle trolley. When not in use or empty all gas, bottles should be stored in bottle rack in secure compound;

6. Hoses and welding leads should be as short as possible and maintained in good condition;

7. Do not obstruct access or egress routes with hoses or cables;

8. Carry out regular inspections and pre-use inspections of hoses and cables. Do not use damaged equipment. **Jubilee clips are prohibited;**

9. Ensure adequate ventilation; use appropriate equipment to remove fumes if in confined spaces;

10. Leave cylinder keys with cylinders;

11. Ensure equipment is properly earthed and welding return lead is clamped as close as possible to the work piece;

12. Cylinders fitted with flash back arrestors and regulator must be in good condition;

13. Be aware of others who could be affected by your actions.

TOOLBOX TALK 37

WELDING SAFETY

Q1 What precautions can be taken to prevent injuries when welding
Q2 What problems can occur if exposed to welding fume?

There are several potential hazards when undertaking welding and cutting operations, by your actions you can prevent hazards, protect yourself and protect others.

The general hazards and their solutions are as follows:

1. Light Rays

(Infra-Red, Visible Light and Ultra Violet Radiation) Hot Metal and Sparks cause eye damage and can burn the skin.

EYE PROTECTION
For most welding and cutting operatives, filter lenses are required but for all operations where sparks and hot metal splash is possible eye protection must be worn.

CLOTHING
Flame resistant materials are required for body, hand and foot protection; leather being the favourite for heavy works. Clothing should not retain sparks and synthetic fabrics should not be used. This melts when contacted by sparks. Note frayed clothing will ignite when exposed to hot metal, sparks etc.

2. Fumes and Gases

Welding and cutting of all metals produces fumes, which can harm the respiratory system whilst fumes from galvanised, lead or toxic coated materials can also affect the rest of the body.

PROTECTION
Wear correctly fitted respirators for low volume works, use an exhaust ventilation system for large concentrations of welders or where working in confined spaces (additional precautions may be necessary - see your supervisor).

3. Compressed Gases

Can cause fires or explosions due to their being either highly flammable or under pressure.

Precautions: Only have the required number of cylinders at work positions (1-day supply). Store spares correctly in compound.

Use a bottle trolley to secure cylinders upright.

Flash back arrestors must be fitted at cylinder gauge ends and non-return valves at the inlets to the blowpipe.

Close valves before and after use.

Don't allow cylinders to become heated. Keep oil away from oxygen cylinders, valves etc. If you suspect a leak, move the cylinder into the open air and notify suppliers.

Suitable fire extinguishers must be available at the work location.

TOOLBOX TALK 38

ABRASIVE WHEELS

QI Who is allowed to operate abrasive wheel machines?
Q2 What protection should be worn when using abrasive wheel machines?

1. Hazards

- Bursting of wheel or disc;
- Injuries from flying particles;
- Cuts to hand and legs;
- Inhalation of dust generated during cutting;
- Loose clothing becoming entangled;
- Noise;
- Fire and explosion;
- Vibration.

PPE REQUIREMENTS

Ear protection, eye protection and respiratory protection are required as a minimum standard. Suitable footwear and gloves must also be worn.

a. Only qualified personnel are to change any disc/wheel fitted to a bench grinder or disc cutter.

b. When refuelling ensures all spillage is dried off and fuel container is replaced in correct storage area. (Away from heat or sunlight)

c. Ensure fuel contaminated clothing is either dried or removed prior to grinding or cutting.

d. Ensure working platform is secure, debris free and has no substance likely to affect footing i.e. oils and grease.

e. Ensure all others who could be affected by your actions are aware of what you are about to do and if necessary, they must also wear PPE/RPE.

f. Discs must be stored in a dry, clean area. Other equipment must not be stored on top of discs.

NOTE: Frayed clothing will ignite if exposed to sparks generated during grinding operations.

g. Before fitment of replacement disc check:

- correct type of disc i.e. steel or stone;
- speed of disc matches machine;
- all switches are in working order;
- disc guard is in position and is operational;
- you are trained to operate the particular machine.

During use ensure that;

- Excessive pressure is not placed on the grinding/cutting surface;
- The disc is replaced in sufficient time to avoid overpressure;
- That the disc does not become contaminated (Balance problems);
- Your footing does not become affected by the generation of material being cut.

TOOLBOX TALK 39

HOSE AND CABLE DISCIPLINE

Q1 What pre-use checks should be carried out on supply hoses?
Q2 How can trip hazards be reduced when using trailing hoses or leads?

HOSE/CABLE HINTS

1. Check the location of utility points suitably located they should minimise the length of trailing hose or cable needed for the job;

2. Check that the service of the hose/cable matches the specification on the hose/check identification tab;

3. Hoses/cables in general service (steam, air, water, nitrogen) are connected by means of suitable couplings; the coupling has provision for safety lock pins, which must be used to prevent accidental release;

4. Wherever possible, the hose/cable should be laid along the ground without obstructing access, passageway or roadways.

If hoses/cables have to be laid across roadway, it must be:

1. Protected by hose/cable ramps;

2. Have warning signs - to advise approaching traffic;

3. As constant movement at the job end of the hose/cable is inevitable, constant checking and tidying of the hose/cable during usage is essential;

4. When the job is finished, coil up the hose/cables and return it to a designated storage area.

TOOLBOX TALK 40

WORKING WITH CARTRIDGE TOOLS

Q1 Who can use cartridge-operated tools?
Q2 What should be taken into consideration prior to using a cartridge gun?

No one may use a cartridge gun unless he has been trained to do so and given a Certificate of Competence. This can be carried out by the cartridge tool manufacturers, free of charge.

There are two types of cartridge-operated tool; the high velocity type and the captive piston or low velocity type.

Only low velocity, captive piston tools may be used on our sites. They must be approved to **BS 4078** and must carry the **CE** Kite Mark.

Guns and cartridges must never be left lying around the site. They must always be under the control of the persons entitled to use them. All cartridges should be kept under lock and key in a cool, dry place.

Operators should always wear eye, ear, foot and hand protection when using cartridge operated tools.

Be aware of others working near you, they can be affected by the high noise levels and could also sustain injuries if working near the impact area.

Ensure that you always wear eye and ear protection when using cartridge tools, eye injuries are rarely operable you could lose your sight.

Your working platform must always be clear of debris and not be slippery. If working at height, ensure that suitable guardrails are in place prior to commencing.

TOOLBOX TALK 41

TRENCHES KILL PEOPLE

Almost all serious trench accidents occur not in bad ground, but in so called "Good" ground.

Look at the myths and then at the real facts relating to trench excavations:

MYTH	FACT
Trenches in clay are safe	79% of fatal trench accidents have occurred in clay
You do not need trench sheets if an experienced man is in charge of the trench excavation	75% of fatal trench accidents have occurred when an experienced man has been in charge.
You do not need trench sheets when you dig, lay and back fill all in one day.	74% of fatal trench accidents have occurred in trenches which have been open for only a few hours or even minutes
The clear majority of trench fatalities occur where there is no timbering whatsoever. The use of just a few pairs of trench sheets would save nearly all the lives lost in trenches every year.	

REMEMBER THE BASIC RULES:

- The sides of all excavations must be supported or battered;
- Do not enter any excavation unless instructed to do so by persons that are suitably trained;
- After periods of adverse weather always have excavations inspected by a competent person;
- Before working in an excavation ensure that you have a safe means of access and egress;
- DO NOT work in excavations if a machine is working in the excavation.

TOOLBOX TALK 42

EXCAVATIONS

Do not dig your own grave dig the rules.

1. Before digging make sure that the electric, water, gas and other services have been located and clearly marked;

2. All excavations deeper than 1.2 metres (4 feet) must be either supported or the sides must be sloped to a safe angle. In some ground conditions, this depth could be less. **IF IN DOUBT ASK**;

3. Ladders must be used for access and egress from excavations, do not climb on the supports;

4. Warning barriers must be placed around all shallow excavations and scaffold or adequate barriers must be provided around deep excavations i.e. deeper than 2 metres;

5. All reinforcement starter bars in excavations (any depth) must be protected to prevent the possibility of puncture injuries;

6. Keep soil heaps, materials, tools and vehicles away from edges of excavations;

7. Ensure that helmets are worn at all times;

8. When tipping into excavations, secured stop blocks are required to prevent vehicle running into the excavation;

9. Do not jump across excavations, provide bridge access ways with guardrails;

10. Do not alter or remove any supporting members unless you are qualified to do so.

11. Supported excavations must be inspected prior to initial use and at least every seven days by a competent person (engineer).

A CUBIC YARD OF EARTH WEIGHS AT LEAST A TON

THE ONLY BODY THAT CAN SUPPORT THAT IS A DEAD BODY

EXCAVATION ACCIDENTS

It is commonly thought that deaths associated with excavation collapse are due to the workers being suffocated because they are completely buried, but this is not entirely true. Many of the deaths and most the injuries involve workers being partially buried. The injuries sustained are usually crushing injuries caused by the sheer weight of the collapsing soil. (Asphyxia)

The accidents associated with excavation happen for many reasons, some of which are: -

- Shoring was not installed where required;
- Shoring failed because it was not frequently inspected or maintained;
- Employees worked beyond the shoring protection;
- Excavation walls and shoring were not inspected frequently for signs of movement of deterioration;
- Workers re-entered excavations without inspecting the walls or shoring after rainstorms.

There are other contributory reasons for excavation accidents beside soil and shoring failures, such as:

- Dirt, sheet piles and construction materials being stored too close to the edge of the excavations;
- Equipment operating too close to the edge of the excavation;
- Improper access, damaged or missing ladder or no ramps;
- Workers trying to jump over the excavations.

REMEMBER A CUBIC METRE OF EARTH WEIGHS OVER 1.5 TONNE

TOOLBOX TALK 43

WORKING IN CONFINED SPACES

Q1 Why is good hygiene important with respect to confined spaces?
Q2 What emergency procedures must be in place prior to entering a confined space?

Every year there are several fatal and serious accidents caused by persons being allowed to enter live sewers, manholes, bored piles, trenches, tanks and so on without the necessary tests being carried out or the correct safety rescue equipment being provided. Many of these accidents would have been avoided if supervising staff and operatives had been properly trained and the work carried out on a Permit-to-Work system.

The definition of a confined space has now changed; anywhere that is difficult to enter or exit is now covered by confined space control measures. People engaged on such operations must be physically and mentally suitable and properly trained for the job.

- Dangerous atmospheres can arise when there is a lack of oxygen or when toxic or flammable gases are present.

- In no circumstances, should you enter a confined space (trench, manhole, tank, bored pile, foul sewer) without instructions from the supervisor.

- Equipment for testing the atmosphere before you enter and at regular intervals must be provided and used by a competent person. You must not enter the confined space until he is satisfied that entry is safe. Testing must continue while you are working inside, and you must leave immediately if told to do so;

- Adequate fresh air ventilation must be provided in appropriate circumstances;

- All necessary safety and rescue equipment must be available on site at the actual location;

- Make sure that you have been trained in the use of the safety and rescue equipment by a competent person;

- Wear the protective clothing provided;

- Do not eat, drink or smoke;

- Wash your hands at the end of each shift and before eating, drinking or smoking;

- If you are entering a sewer make sure you are given a Weils Disease card.

Note:

Anyone involved in this type of work must be conversant with emergency procedures, exit routes and the consequences of not adhering to the permit to work.

CONFINED SPACES

- Confined spaces are normally associated with tanks, vessels, sewers etc., and are not normally difficult to recognise. Others are not so easily recognised, such as sumps, basements, excavations, thrust bore and reception pits, even windowless rooms, cells etc.
- Size and configuration, although considered are not the only criteria.
- Ventilation, atmospheric monitoring, access and egress, safety harness, lifeline, and standby man are some of the requirements needed in confined space work.
- Would force ventilation be sufficient or is extraction required as well?
- Atmospheric monitoring must be continually carried out during confined space working.
- Once the assessment is completed, a confined space entry permit detailing the precautions and actions to be observed must be read and understood by all participants.

CONFINED SPACES CAN KILL

TOOLBOX TALK 44

GASES COMMONLY ENCOUNTERED IN CONFINED SPACES

You should always be aware of the potential hazards of fumes and gases in confined spaces. Listed below are gases commonly encountered in confined spaces: -

Gas	**Characteristic**
Acetylene	Colourless, Garlic like odour, highly flammable, easily ignited by sparks, simple asphyxiant.
Butane	Colourless, faint disagreeable odour. Flammable and explosive. Simple asphyxiant.
Carbon Dioxide	Colourless, odourless, denser than air. A common hazard asphyxiant with some toxic properties.
Carbon Monoxide	Colourless, odourless. Very toxic. Lethal at high levels. Low doses cause headache, nausea, dizziness.
Chlorine	Greenish yellow gas, pungent irritating odour. Highly toxic, causes pulmonary and burning of eyes, nose and throat.
Hydrogen	Colourless and odourless. Highly flammable and explosive. Simple asphyxiant.
Hydrogen Sulphide	Rotten egg smell. Highly toxic, flammable. Irritates eyes, nose, and throat in low doses. Rapidly fatal in high concentrations. Remember the gas destroys your sense of smell first.
Methane (Firedamp)	Colourless, odourless, half the density of air, highly flammable and explosive. Simple asphyxiant.
Nitrogen Dioxide	Colourless, highly toxic welding hazard. Fire hazard reacts violently with organic materials. Causes irritation of throat and chest. Long-term exposure can cause pulmonary impairment.
Oxygen	Colourless, odourless. Asphyxiant risks below normal concentration in air (2 1 %) increased flammability risks at higher concentrations.

Note:

This list is by no means comprehensive and many other toxic gases and substances could affect how you carry out work in confined spaces. Tests should be carried out prior to work starting so that the correct system of work can be adopted.

TOOLBOX TALK 45

PERMIT TO WORK

A permit to work is normally issued because someone has carried out an assessment of the work to be undertaken and they consider that a hazard exists unless the method of carrying out that work is controlled and carried out in a proper sequence of events.

Examples of Permits to Work processes are:

a) Confined space work;

b) Electrical work - working on or near live apparatus or power lines (inclusive of overhead lines);

c) Excavations (Permit to dig);

d) Radiography;

e) Hot work operations - live petrochemicals installations.

A permit to work is only a document, which sets out the work to be carried out and the precautions that must be taken; it is a record of all foreseeable hazards, including those to third parties such as service loss etc.

which have been considered in advance. It does not in itself, make the job safe, but it is dependent for its effectiveness on all persons involved adhering strictly to and systematically carrying out the proper laid down sequence of events. In effect, it is a safe system of work.

All permit work must be controlled and monitored.

Make sure that you are aware of the details on the permit, also constraints that have been placed on the method of work to be carried out.

ANY changes you make to the permit will invalidate it, should changes be required then ONLY the originator can authorise the amendments. During periods of alteration ALL work in the permit area must cease.

TOOLBOX TALK 46

WORKING NEAR UNDERGROUND CABLES

QI What action should be carried out prior to excavating by hand or machine?
Q2 Who should carry out cable detection checks with a CAT device?

Damage to underground electric cables is a frequent occurrence, which can result in fatal or serious injuries. In addition, the interruption to supplies may have both damaging and expensive consequences.

Before commencing any excavation, check with your supervisor that enquiries have been made to see if any cables are in the area (electricity, telephone, cable, fibre optics etc.).

If so, remember that the location shown on a plan may not necessarily be accurate. You should, for your own safety, always follow the rules given below:

- Ask for a cable locating device, in good working order, to be available to locate all underground cables in the working area, you must be trained to use the device;
- Assume all cables are "Live", unless told by your Supervisor that they are dead;
- Hand dig trial holes carefully wherever possible along any indicated line and look for marker tapes or tiles above the cable. Continue to use the cable locator. Finally, establish exact location;
- Once exposed, protect cables from damage, supporting effectively where necessary;
- In the event of accidental damage - even if only apparently superficial - all persons should be kept clear until the service provider has made an examination;
- When backfilling, make sure you have been instructed as to the service provider's requirements. Replace marker tapes or tiles in their original positions;
- [f you must use hand-held power tools to break up concrete areas or other paved surfaces, avoid over-penetration. This is a common source of accident when cables are buried underneath;
- If services are moved in any way ensure that site management is made aware.

TOOLBOX TALK 47

WORKING NEAR GAS MAINS

Q1 What procedure must be adopted prior to excavating near gas mains?
Q2 Who must be contacted in the event of a gas leak?

Care needs to be taken when working near gas mains. Your supervisor should have checked with the Gas provider where the service should approximately run on the site.

The following points should be followed when excavating near a gas main:

- Remember that Gas Mains have a flammable and explosive content;
- Before digging, check the Gas provider's plans;
- Dig carefully by hand;
- Establish the location of the pipes;
- Work with care and do not create a situation where joints may be strained;
- If the pipe has to be supported, ask to be briefed on the Gas provider's requirements before starting work;
- At the slightest hint of gas escape, leave the excavation and prevent anyone going near it. No lights must be allowed. Have the Gas Leak Emergency Service called at once;
- Never use a gas main as a hand or foot hold;
- Do not drop tools or other weights onto mains, as many old mains are of cast iron and may crack if they are in poor condition;
- Modern, smaller diameter house mains are often plastic - do not confuse them with electric cables;
- Gas providers have precise specification in relation to back-filling round mains. Make sure you have been properly instructed in this respect.

TOOLBOX TALK 48

WORKING NEAR SEWERS

QI Why should the sighting of rats be passed to site management?
Q2 What are the main problems associated with working alongside sewers?

All sewers should be located by tracing manhole covers and confirming that the sewer does, in fact, run between any two of them.

The main risk to health will be if you are working in a trench and you break into a foul sewer. You should leave the trench immediately to avoid the possibility of asphyxiation. Do not return until adequate ventilation has been provided and the area declared safe for work.

Always wear protective clothing (Impervious) if there is a risk of contamination from sewage, and wash your hands before eating, drinking or smoking.

Report any damage to your Supervisor immediately.

If you break a storm water sewer and rain is falling, vacate the excavation as it may flood from the sewer at any time.

WELLS DISEASE

A danger involved in working in or around sewers is Leptospirosis (Wells Disease). The disease comes from rats' urine. You will be given a card about Wells Disease by Your Supervisor, please read what it and this will provide you with adequate information on this disease.

If you feel unwell, with flu like symptoms, you should take the card with you to your doctor and tell him you may have been infected with raw sewage.

TOOLBOX TALK 49

WORKING NEAR WATER MAINS

Q1 What dangers arise from striking water mains?

People do not associate dangers with water, like they do with gas and electricity services. Remember water at high pressure can cause a fatality and, if working in an excavation, a burst could fill the excavation quickly.

If the line of a main has been properly established by trial holes, stopcock locations, etc., and you have to carry out excavations in the vicinity, you should:

- Have been made aware of any supporting of the main which is necessary and briefed on how to carry it out;
- Work adjacent to and around the pipe with care, using hand tools;
- Not leave a length of pipe unsupported, which is more than the supported span specified, even temporarily;
- Not confuse smaller plastic pipes with plastic sheathed electric cables;
- Follow the Water provider's backfilling specification with care;
- If the main is accidentally damaged in any way, however superficially, have the Water provider called at once and explain what has happened;
- Ladder access should be provided in the excavation.

REMEMBER - WATER CAN CAUSE FATALITIES

TOOLBOX TALK 50

LIFTING EQUIPMENT

The Lifting Operations and Lifting Equipment Regulations 1998 cover all aspects of the legal requirements concerned with any piece of lifting equipment from cranes to eyebolts.

1. It refers to the material used in their construction (sound material of adequate strength etc.)

2. It states that the safe working load and identification number must be clearly marked on the equipment.

3. All equipment must be thoroughly examined every 12 or less months by a competent person and a written report made out. (equipment used for carrying persons must be examined every **6 months**)

4. All equipment must have a **Test Certificate.**

5. This means that lifting equipment must not be prefabricated, made up or altered in a make shift or make do fashion i.e. a bolt replacing a shackle pin, wire lashing used in place of a sling, reinforcing bar made up to act as a hook, scrap metal welded on to act as a lifting lug, using a Spanish windlass, elongating holes in existing lifting lugs, shortening slings or chains by tying knots in them.

6. Use only proprietary recognised and recorded equipment.

7. All equipment must be stored correctly and without risk of damage.

TOOLBOX TALK 51

WORKING WITH MOBILE PLANT, CRANES AND OTHER LIFTING MACHINES

Q1 Who are the only persons that can assist with lifting operations?
Q2 What basic checks should be carried out prior to use of mobile plant?

Never attempt to operate mobile plant, a crane, excavator, dragline, forklift or other type of lifting machine unless you possess a certificate of training.

Walk around your machine before starting it, to check for defects and obstructions. Report any defects in your machinery to your supervisor and record items in the inspection document.
Carry out daily checks on the machine i.e. brakes, oil, tyres etc.

Make sure that you know the Safe Working Load of your machine and the weight of any load you are required to lift.

Try the load by lifting it slightly and halting, to see if the machine can take the load. Never leave the cab whilst the load is suspended.

Make sure the duties for the machine and the manufacturer's operating manual is with the machine.

- Only persons trained in slinging practice and signalling systems may act as a slinger or a banksman;
- Get a copy of the Slinger's Handbook from Management and read the contents carefully if you are a crane driver, slinger or banksman;
- Never stand under a load whilst it is suspended (this includes buckets);
- Check for potential hazards e.g. overhead cables, other employees, reversing plant, etc.;
- Wear Scatbelt's if provided;
- Never carry passengers in the cab, unless seating is provided;
- Keep to the speed limits;
- Never allow persons to ride in any unauthorised position on the machine;
- Never leave the machine unattended;
- Never travel with booms, blades or the body raised;
- At the end of the day park on firm, level ground, remove the ignition key; lock the cab, windows and any covers.

TOOLBOX TALK 52

KEEP CLEAR OF CRANES

CRANES WITH OUTRIGGERS

Where cranes are used without-riggers, coloured tape is to be placed around the out-rigger posts, to form a continuous warning barrier. No person should enter this area.

CRAWLER CRANES

Crawler or track driven cranes are as their name implies, mobile items of equipment and must be treated with respect when working on construction, maintenance and demolition sites.

They are principally used where cranes without-riggers stabilisers are not suitable for example on demolition site work.

In an incident, a contractor's employee was hit by the counterweight of a crawler crane as it skewed round. The man sustained abrasions with heavy bruising of his left hip and side, but this incident could have resulted in a much more serious injury.

ACTION TO PREVENT A RECURRENCE OF SUCH INCIDENTS

a) A clear passageway of at least 0.75m minimum must be left and maintained to allow for sufficient clearance when a crane is stewing round;

b) If this is not possible, then a suitable barrier should be erected, with notices to prevent access;

c) Personnel should be instructed to always keep clear of cranes turning circles;

d) No work will be allowed on any adjacent equipment or plant when track driven vehicles are in operations;

e) Warning signs must be painted on the back of a crane's counter-weight;

f) All cranes that have restricted rear vision must have convex mirrors or other means of verifying clearance to the rear of the machine.

TOOLBOX TALK 53

SLINGING

Q1 What legislation applies to slinging operations?
Q2 What procedure must be adopted on finding a damaged sling?

All aspects of slinging are specifically governed by the Lifting Operations and Lifting Equipment Regulations 1998 in conjunction with the general duty imposed by the Health & Safety at Work Act 1974.

I. All lifting equipment must be examined for defects before use;

2. Wire slings must be checked for damage and severe kinks. A wire sling is unserviceable if at any length over ten times the diameter, the total number of broken wires exceeds 5% of the total number of wires;

3. Nylon Webb and round slings require a similar examination, and if any webbed sling has sustained damage to the outer edges, it must be returned to the stores. The outer cover of a round sling is only a sleeve and can generally be repaired, but if damage is sustained to the internal fibres, then that sling is unserviceable. In all cases return damaged slings to the stores;

4. All lifting equipment must have the safe working load and an identification number clearly marked on each item;

5. Only lifting equipment issued from the Company stores must be used. Do not use any equipment found on site, even if it does appear to be in good condition. The only exception is special delivery items which arrive with lifting equipment attached;

6. Chains, wire or nylon slings must never be knotted to shorten the lengths, or eyes reeved together to extend the length;

7. All slings must have edge protection;

8. Great care must be taken when using wire or chain brothers or multiple slings, that the included angle is not exceeded. This can impose strains greater than the load being lifted on each leg;

9. Wire lashing must never be used for any lifting operation;

10. There must be no improvised slinging. Use only recognised and registered lifting equipment;

11. Always ascertain the weight of the load to be lifted. Do not guess;

12. Give clear and concise hand signals to crane driver or winch operator (Qualified slinger/ signaller only).

SLINGING

Be certain that you know the weight of every load to be lifted and always allow for the additional weight of slings or any special lifting attachment, container or cradle. If you are in any doubt seek advice from your Supervisor.

Only select correct and suitable lifting gear, which is properly marked with its safe working load. Always ensure that crane and sling hooks arc of an approved type.

Examine the gear that you have selected and report any defects immediately to your Supervisor. Return any rejected gear to the stores immediately and advise the store man /site manager of the defects noted.

Properly secure the load or any part of the load which might slip and fall during lifting. Ensure that there is no danger of the contents falling out when skips or containers are used for lifting purposes.

Where necessary, use soft timber or other packing to protect the sling from any sharp edges on the load.

See that the crane hook is placed centrally over the load to prevent the load swinging when it is raised.

Remember that it is part of your job to look after the lifting equipment that you use and chains and slings must not be left lying around. When you have finished with them they must be returned to the store and hung correctly ready for examination and further use.

By protecting your lifting gear, you protect both yourself and your work mates against the risk of serious injury. Please play your part in the prevention of site accidents.

Lastly, and the most important point is that only trained and competent persons are allowed to carry out any slinging operations.

Note:

It is advisable for banksman/slingers to wear an item of clothing to make them easily visible such as high visibility vest, also good quality gloves and of course a hard hat must always be worn.

TOOLBOX TALK 54

SAFE STACKING

QI What constraints should be considered when stacking materials?
Q2 How can the risk of material falls be minimised?

Many accidents occur when materials have to be taken from stacks. In particular, when this is done by hand. Care taken when material is stacked initially can help prevent many of these.

SAFE STACKS SAVE INJURIES

- When handling materials wear protective clothing i.e. Helmet, Gloves and steel-toed boots;
- Only stack material in authorised areas, never near doorways, access ways or on fire routes;
- Stack on a level surface and provide packing;
- Never make stacks higher than 3 times minimum base width;
- Materials stacked by machine may have to be removed by hand, consider this in the method of placing;
- When handling materials by hand, check weight, if in doubt ask.

DO NOT ATTEMPT TO LIFT MORE THAN YOU FEEL ABLE TO

- If material is being lowered by machine, keep hands clear of load and/or slings.

SHEET MATERIAL

Stack flat where possible. If corners are sharp, protect (Examples - reinforcement mesh, steel sheets).

If stacked vertically, use suitable racks to prevent collapse - material stacked vertically against walls can collapse whilst Being removed or may overload walls etc.

Always secure sheets to prevent wind movement.

Note:

During this talk ask your forklift operator to briefly explain any problems he has with stacking or trade requirements.

TOOLBOX TALK 55

INSPECTION OF PLANT AND EQUIPMENT

Ql Who is responsible for the daily maintenance of plant?
Q2 What does the daily maintenance entail?

Before you use any plant or equipment, it is vital that it is inspected and any faults found reported to your supervisor and recorded in the inspection document. Operators of plant should have access to the machine's Manual/Handbook for information on how to maintain the vehicle. Inspections must consist of the following: -

- The condition of the vehicle must be satisfactory, doors, guards, windows, mirrors etc.
- Scatbelts must now be worn on mobile plant, they must also be in good condition
- The wheels must be inspected to ensure that they are secured to the machine and the tyres are inflated to the correct pressure and are not damaged i.e. bad cuts or nailed.
- The electrical equipment that has been fitted should all work i.e. lights, indicators, wipers, horns, reversing warning bleeper etc., (A flashing amber light must be fitted to any vehicle that is to travel on a dual carriageway if its speed is less than 28mph).
- The brakes must be in good working order; a daily test must be carried out to the manufacturer's recommendations. The hand brake must work and can be tested by trying to pull away or on an incline. Should brakes fail in any way the machine must be taken out of service until repairs have been carried out.
- Hydraulics must be tested to ensure that they are working correctly, first check for oil leaks by inspection of the system and pipes. (NB: no steel braid should show on any pipe). If check valves are fitted to the machine they must be tested regularly. This must be carried out in a safe area away from the works. The machine should be extended to the maximum and the engine cut off, the machine must not then move. Should there be any movement, the valves are not operating correctly, and the machine must be taken out of service.
- It is the responsibility of an operator to lubricate and oil the machine as recommended by the manufacturers.

TOOLBOX TALK 56

TOWING AND HANDLING MOBILE PLANT AND EQUIPMENT

Q1 What is the correct sequence for attaching plant to a tow hitch?
Q2 What control measures ensure safe towing on site?

Mobile plant and equipment is widely used on site. This equipment gives rise to many hazards whether it is being loaded/unloaded, towed or handled. The resulting incidents that arise can vary from an incident, when a forklift vehicle was towing a compressor along a site road; the compressor became detached from the towing vehicle and collided with an employee working on the road site. Another incident occurred when a contractor trapped his arm/hand whilst attaching the mobile plant to the tow bar on a vehicle.

HAZARDS

- Trapped limbs and/or fingers
- Runaway plant and insecure loads.
- Damage to plant, buildings or services.
- Damage to equipment being towed.
- When towing, always use a properly constructed towing hitch, which should be securely and permanently attached to the towing vehicle.
- When attaching plant to a tow hitch ensure that the tow ball is fully enclosed or that the pin has dropped far enough to fit the retaining clip, which should be chained to the drop pin.
- The jockey wheel, when fitted, must not be raised until the plant is securely attached and must be lowered again before removing plant from the tow hitch.
- The unladen towing vehicle must be hand-braked before the plant is lifted on to the tow hitch. Move the towing vehicle towards the plant to minimise the need to manhandle the mobile plant.
- Care should be taken when locating equipment on the tow hitch not to trap fingers between the plant and tow hitch - always wear gloves.
- Where mobile plant has stabilisers, they should be part lowered before removing the plant from the tow hitch to prevent the towing frame from rising quickly on detachment.
- Always tow within the manufacturers speed recommendations, do not exceed the site speed limits.

- Do not carry unsecured equipment or materials on towed plant

***Note:** Explain that pieces of rebar do not satisfy the requirements of a tow bar pin. Also, thermos-light, concrete blocks and pieces of timber do not replace the jockey wheel. They could collapse at inopportune moments and cause serious injuries.

- Responsibility for towing any plant safely is that of the driver of the towing vehicle. The driver is responsible for ensuring that the system of towing, as laid down by his employer, is properly implemented and followed. This should always be in a straight line and never at an angle.

- Winches should be used if possible to draw the equipment up vehicle ramps. Mobile plant should be tied down and the wheels chocked before moving off.

- When using lorry loaders, always extend the outriggers prior to loading or unloading operations and also do not exceed the safe working load of the loader or lifting gear.

- Do not use lorry loaders for any other purposes than to place equipment on or off the bed of the lorry.

TOOLBOX TALK 57

SAFE OPERATION AND MOVEMENT OF PLANT

1. Main Hazards

- Unskilled operator;
- Incorrect use;
- Poor maintenance;
- Reversing unsupervised;
- Defects remaining unchecked;
- Noise;
- Contact with pedestrians.

Only qualified operators (FCEC & CITB) are permitted to operate plant on site.

Only use the plant for tasks that it has been designed for.

Ensure that ground conditions are suitable for the stability of plant movements.

Ensure that Banksman (suitably qualified) are available for movements of plant. They must be easily recognised and in constant contact with plant operator.

No person under the age of 18 is to operate plant or act as Banksman unless under training and being supervised.

Plant operators must ensure that all relevant documentation is kept current.

Be aware of sudden movements by plant and stay well clear of `blind' areas.

Always attract the operator's attention prior to approaching any plant.

TOOLBOX TALK 58

SAFETY AT ROADWORKS

Q1 What must be considered about personal safety when working on roads?
Q2 In the event of a traffic emergency what should be your first action?

1. High visibility clothing must be worn when working on all roadworks. The standard will be dictated by individual site rules dependant on the current road speed;

2. High visibility clothing must be in good condition with the retro reflective material clean giving its maximum reflection;

3. All signs, cones, barriers etc., used must be in good condition and clean;

4. All signs, cones, barriers etc., must be used to "Chapter 8" specifications;

5. When working do not stray outside working - coned off areas into live traffic;

6. Alert your supervisor if you see any signs etc., have been displaced. Do not attempt to rectify problems yourself;

7. Be aware of the traffic ignoring or misreading signs and encroaching into work or access areas;

8. Be aware of "blast and suction" from heavy vehicles passing at speed;

9. Ensure that the general pedestrian public are also protected - keep footpaths tidy, cover or barrier all excavations - No matter how small;

10. Plant operations in roadworks: - Ensure machines are positioned so as not to slew out into live traffic lanes;

11. When loading, ensure material does not spill out into live traffic;

12. Be prepared to assist in controlling traffic and recovery of broken down vehicles in emergency situations. You must ensure however that your personal safety is paramount;

13. Ensure signs, when located, are properly secured;

14. Ensure that underground services are located and marked before any excavation work. Do not guess!

15. Stay away from live traffic: - you will only come off second best!

TOOLBOX TALK 59

T**RAFFIC CONTROL**

Before any works are commenced on a "**live**" carriageway, specific precautions must be taken. The precautions require protection of both the public using the road and those involved in the roadworks.

Signs and safety barriers must be erected as specified in Chapter 8 for any works that relate to "**live**" carriageways. These must be secured in position using sandbags and not any other form of heavy materials such as kerbs or concrete blocks.

A minimum of eight signs are required for a simple roadwork job.

- Surplus signs must be removed as soon as operation is completed;
- High visibility clothing must be worn by all involved in the operation;
- Safety zones must be created with the speed of the traffic taken into account.

Note;

Only those trained in Chapter 8 procedures must lay out traffic control systems

Speed of Traffic	Minimum Longways Clearance	Minimum Sideways Clearance
30 m.p.h.	12 metres	0.5 metres
40 m.p.h.	15 metres	0.5 metres
50 m.p.h.	30 metres	1.2 metres
60 m.p.h.	60 metres	1.2 metres
70 m.p.h.	100 metres	1.2 metres

TOOLBOX TALK 60

REVERSING VEHICLES

Q1 How can the risk of contact with reversing vehicles be minimised?
Q2 What documented system is in place to explain how traffic will be managed on site?

An HSE report shows that 25% of plant and vehicle related accidents involved reversing vehicles, so clearly this is one of the greatest risks that you are exposed to on or near a construction site.

- Pedestrians, must be kept separate from moving vehicles and plant;
- Never enter fenced turning areas or areas that have been prohibited to you;
- Take additional care when crossing blind areas. if there is a choice take a safer route;
- You must stay alert at all times, using all your senses. Keep a lookout and listen for vehicles that are moving;
- Reversing vehicles should be fitted with both audible and visible warning alarms;
- Never cross at the rear of a reversing vehicle as the driver may not have seen you and will not be expecting you to be there;
- Systems must be in place to reduce the number of reversing vehicles, such as one-way traffic, drivers given instructions as they arrive on site and told where to deliver and who is the "Banksman";
- Only reverse vehicles if you have been trained;
- If you are not a Banksman do not give signals to a driver, unless in an emergency. The emergency stop signal is done by raising both hands with the palms facing forward (like a policeman would).
- Always wear the high visibility clothing provided;

Be aware of the traffic management plan, do not assume that it will remain as it was on your induction. It will change.

REMEMBER - STAY ALERT AND BE SEEN

TOOLBOX TALK 61

WORKING NEAR OVERHEAD LINES

Q1 When can work be commenced under live cables?
Q2 What documents will need to be in place prior to work below cables?

Accidental contact with live overhead power lines causes many serious injuries and fatalities. These accidents are particularly related to cranes and excavators, but tipping wagons, scaffold tubes and metal ladders have all been in contact with overhead cables, with fatal results.

While your employer must provide a safe place of work - by having power lines re-routed, switched off or protected by `goal posts' and barriers - you have a part to play as well.

If you must work near overhead power lines, observe the following rules:

- Treat all overhead lines as `live' unless you have been specifically instructed otherwise. **Do not** assume they are only telephone wires;
- Get to know any maximum clearance requirements specified by the Electricity provider;
- Do not try to bypass "goal posts" or barriers or other warnings;
- If you are a Banksman, always keep the overhead lines in view when giving directions. Only direct plant under power lines where "goal posts" are provided;
- If scaffolding is being erected adjacent to power lines, make sure that poles are handled a safe distance away;
- Never stack materials or tip under overhead lines. This could reduce the safe clearance and, in wet weather, result in a "flash over" to earth. Equally, a tipper body may come dangerously near to the cables - or accidentally touch them - with disastrous results;
- If work has to be carried out under overhead cables, special precautions will be laid down by the Electricity provider or your employer. Make sure you have been instructed as to what they are. As a general rule, an exclusion zone of at least six metres should be maintained around `live' cables. Additional fencing at ground level positioned to prevent reaching inside the exclusion zone will also be required;
- During work of this nature you will probably be required to work under the constraints of a permit, ensure that you understand the implications of this document and how it will affect the task.

TOOLBOX TALK 62

DEMOLITION

Demolition operations can be very hazardous, both to yourself and to members of the public. They can also be very annoying to adjoining owners.

By your actions, you can prevent accidents and improve the image of your company.
The following points must apply: -

Personal protection - To protect yourself you need; a helmet at all times, strong boots with ankle support, gloves to prevent cuts and goggles to save your eyes. Respirators are also required in dusty conditions.

Protection from falls - a safe place of work is required - use;

- Protected areas of the structure, for example, floors;
- Correctly erected scaffold platforms or towers and hydraulic or crane handled man cages.

Where it is not practical to provide fall protection, safety harnesses may be used. (last resort)

Working from a wall is not permitted.

All work places must have safe means of access.

Protection from falling materials - make sure you follow the agreed method of demolition so that:

- Walls and floors are not demolished adjacent to other workers - Fence area off;
- Chute openings are well protected.;
- Access ways are clear of demolition operations or are covered;
- Floors are not overloaded with materials to the point of collapse;

Fire precautions:

- Generally burning of rubbish on site may be permitted - check first;
- When cutting steel, secure gas bottles, use flash back arrestor equipment, store spare bottles in compound, take care with hoses and provide means of putting out fires.

TOOLBOX TALK 63

ALCOHOL

Do you enjoy a drink? Most people do and alcohol gives pleasure to millions of men and women, but there are times when drink leads to danger. In a high-risk industry like ours, alcohol and work are not compatible.

Alcohol is a depressing drug, which depresses parts of the brain function. When you work at heights or with machinery or are involved in moving large items you require all your brain functions to save you from injury.

It is therefore policy and a condition of employment on site that if it is suspected that anyone is intoxicated by drink, or is under the influence of drugs then they will not be permitted on site.

- Any alcohol you drink will affect your actions and it takes time for alcohol to work out of your system;
- I unit of alcohol will take 1 hour to leave your body;
- After a heavy session at night you could still be unfit to drive or work the following morning;
- A few facts may alert you to the hazards of drink;
- 50% of all drivers killed are over the legal limit (very roughly equivalent to 5 units, dependent on your weight, sex or recent food intake);

Don't rely on this approximation. If you drink, don't drive.

Keep your head clear, leave your drinking sessions to sociable occasions where you cannot cause injury to yourself or others.

IF YOU BUILD, DON'T DRINK

TOOLBOX TALK 64

HEALTH RISKS FROM WORKING IN THE SUN

A sunny day makes most of us feel good, but too much strong sunlight can be hard on the skin.

The problem is caused by the ultraviolet - UV - rays in strong sunlight. People whose job keeps them outdoors for a long time, such as building site workers, may get more sun on their skin than is healthy for them, and should read this leaflet.

What are the dangers?

In the short term

We all know that sunburn can blister your skin and makes it peel. In summer, even on cloudy days, enough UV can filter through to cause burning.

In the long term

The most serious effect is an increased chance of skin cancer later in life. It is almost always easy to cure but it should be caught early. Too much sun will also speed up the ageing of your skin, making it leathery, mottled and wrinkled.

In England and Wales around 35,000 new cases of skin cancer are registered every year. There are 1,600 deaths.

Some medicines, and contact with some chemicals used at work (such as dyes, wood preservatives, coal-tar and pitch products), can make your skin more sensitive to sunlight. Your family doctor should be able to advise you further.

Who is at risk of skin cancer?

Some people are more liable to skin cancers than others.

- Fair of freckled skin that doesn't tan, or burns before it tans;
- Red or fair hair and light-coloured eyes;
- A large number of moles - over 100 in young people, or over 50 in older people.

Workers of Asian or Afro-Caribbean origin are at almost no risk of skin cancer from sunlight.

Can I Protect Myself?

Yes, but you may need to make a few changes now. You should be particularly careful while you are working out of doors in the summer in the three or four hours around the middle of the day. The sun is most intense at these times. Don't get burned.

Get to know how your skin reacts to sunlight. This will help you decide what precautions to take. Getting burned now may increase your chances of skin cancer many years later. Try to avoid the reddening that is the first sign of burning.

The best protection is to shade your skin from the direct sunlight.

A suntan may give some protection against burning but does not eliminate the long-term cancer risk; nor will it protect against premature ageing.

When you go on holiday take care not to get burned - your skin remembers every exposure.

Clothing

Ordinary clothing made from close-woven fabric, such as long-sleeved work shirt and jeans, will stop most of the UV

Get a hard hat. A hard hat will shade your face and head, the areas which suffer most from sunlight. A hanging flap can protect the back of your neck if you work leaning forward.

Keep your shirt on, especially while you are working around the middle of the day. Don't be tempted to leave off your shirt - skin that hasn't seen the sun for months burns easily.

Sunscreens

Hard hats and other clothing are the best form of protection, but sunscreen creams and lotions can add useful protection for parts of your body that are not easy to shade from the sun. Look for a sun protection factor (SPF) rating of 10 or more.

Read the supplier's instructions on how it should be applied. Don't forget the backs of your hands.

Check Your Skin

The first warning sign is often a small scabby spot which does not clear after a few weeks. Look for changed or newly formed moles or any skin discoloration. It is normal for moles to grow until you are about 18 years old, but as an adult you should show your doctor any moles which grow or change.

If you notice any of these signs consult your own doctor. Explain that you have an outdoor job.

Fortunately, most of these signs will be harmless, but medical checks may be needed to be sure. Even if a spot is cancerous, simple modern treatments can usually cure it and most don't spread to other parts of the body. The smaller the spot the easier it is to cure. So, don't put off going to the doctor when you know you should.

If you have any kind of medical check-up tell the doctor that you have an outdoor job and ask if there are any suspicious signs on your skin.

TOOLBOX TALK 65

PROTECTION OF CHILDREN

Each year some twenty children are killed on site.

If practicable, a 2m high fence should be placed around the site with access via lockable gates and suitable signs displayed.

Do not stack materials too close to the fence, as this would provide easily climbed access over the fence.

Where a fence cannot be erected, the following precautions must be taken:

- All excavations, holes or openings should be filled or securely covered immediately work in them is complete;
- If left open overnight, then 'Heras' type fencing must be erected around the hole;
- All vehicles and plant must be locked with keys removed. (Where possible isolators should be fitted);
- All materials must be stacked in such a way to prevent them being easily displaced;
- All electrical supplies should be properly locked off at the end of each shift; all live conductors should be enclosed in a locked box;
- Any chemicals etc. should be kept in a secure enclosure;
- All ladders giving access to elevated areas shall be removed or a board secured against the rung to prevent access. Loose ladders should be returned to the compound or secured to prevent them being used;
- Make sure signs are posted around the site warning of the dangers.

TOOLBOX TALK 66

POLLUTION TO WATERCOURSES

Work near to rivers, lakes or ponds must be treated with care, due to the potential pollution threat it poses.

Over the past few years the Environmental Agency has prosecuted several construction companies successfully for such actions.

Contamination into watercourses has an immediate effect on the water, so can be seen readily. It comes from several sources:

- **Pollution** - oil and chemical spills;
- **Silting** - suspended solids;
- **Erosion** - erosion of soil.

To prevent this from occurring, a few rules must be followed: -

General Precautions

Any activities that may have a potential to pollute water should be carried out away from the watercourse or drain, thus reducing the chance of contaminating it. This includes maintenance and refuelling by hand. Use a funnel or a container with a spout to prevent spillage.

Fuel and Chemicals

All fuel and chemical storage must be adequately bunded and situated 30 metres away from the watercourse. Care should be taken when refuelling machinery and any leaks or spills should be reported immediately. Leaking or empty drums must be disposed of in the correct place.

Silt and Cement

The washout from any concrete mixing plant, any wash water or pumped water with large amounts of silt in must not be allowed to flow into any drain or watercourse. The placing of concrete mixers or wet concrete near to a watercourse must be avoided to prevent any leakage into the watercourse.

Erosion

Where possible, water should be pumped directly into the watercourse and not over exposed soil. If this is not possible, then pumping onto grassy areas before allowing run off into the water will reduce potential erosion that may take place.

By taking notice of these precautions, the chances of pollution occurring are minimised, thus decreasing the likelihood of any prosecution. Should any pollution occur, the Site Agent/Manager should be informed immediately so that they can contact the Environmental Agency.

TOOLBOX TALK 67

GROUND CONTAMINATION

Another area of environmental concern is the potential contamination of the ground in areas of construction. Unlike the pollution of surface water, this has a potentially longer-term impact and can be a problem after construction is complete.

Small spills over a long period can accumulate to become major problems with far reaching effects. Health problems can be traced to contaminated sites and could lead ultimately to prosecution and the clean-up of the affected land.

Ground contamination originates from poor storage, handling and disposal of chemicals and fuel. Even the smallest spill can have an impact on the local area and it is these small spills, which can accumulate to become major environmental problems.

All these problems can be overcome by good control techniques, including:

- Good site housekeeping;
- Proper disposal of all waste types;
- Making everyone aware of the problem;
- Immediate reporting and clean-up of any spills;
- Adequate bunding around storage areas and tanks;
- The return of containers, particularly of hazardous materials, to the proper storage areas at the end of the day, or the covering of any open containers to avoid potential spills, leaks or vandalism.

By keeping to these guidelines, material loss can be minimised and the workplace kept cleaner. It is the individual's responsibility to take care when using these materials, for safety, health and environmental reasons.

Your actions not only have repercussions on yourself, but also the environment around you and, more importantly, on other people.

TOOLBOX TALK 68

FUEL MANAGEMENT

Fuel is dangerous not only to health and safety of workers but also to the environment.

Most people realise its potential to injure, but few know the impact it can have on the environment.

- It can instantly kill wildlife, including fish, mice, insects and plant life;
- It can pollute drinking water sources;
- Over time, it can accumulate in plants and animals, being passed onto humans via the food chain;
- Small-scale spills can accumulate over long periods of time in the ground causing a major pollution problem.

With ever increasing legislation, the polluter can be made to pay for the clean-up and for damages caused.

To prevent this from happening, work activities involving the use of fuel must obey the following to avoid leaks or spills:

- Care must be taken when moving or using any containers holding fuel;
- Immediately report any leak to your supervisor;
- Drip trays must be placed under plant equipment and must be emptied on a regular basis into the correct containers;
- The fuelling of plant should take place 30 metres away, if possible, from any water to prevent contamination;
- Maintenance of plant should take place 30 metres away, if possible, from any water, again to prevent contamination;
- Spills should be cleaned up immediately with the proper equipment available on site and any wastes from this, disposed of in the correct containers;
- When refuelling by hand, use a funnel or container with a spout to prevent spillage.

If all these precautions are adhered to and you all take responsibility for your actions, then the risk of contamination is reduced.

TOOLBOX TALK NO. 69

FIRE

Bring extinguishers with you, a copy of the emergency plan and make sure you know the evacuation procedure and assembly point before you start.

The first priority is yourself, get away from the fire and attract attention. Do not waste time assembling your possessions or tools. They can be replaced. Your skin could take a great deal longer to sort out.

Make sure that wherever you are working that you:

- Know your escape route;
- The location of the nearest extinguishers;
- Know the procedure in the event of a fire (who to tell, where to go, and what you do when you get there).

Do not obstruct access to any fire extinguishers, learn how they work and what they are capable of, your life could depend on yow- new found knowledge.

The site manager or safety consultant will be happy to explain the ins and outs of extinguishers.

- Do not force-dry clothing on heaters; you could end up with a pile of ashes instead of dry clothing;
- Handle flammable liquids away from sources of ignition (petrol for disc cutters and generators);
- Do not smoke in forbidden areas, this is for your own safety and the safety of others;
- Use proper containers for flammable liquids not open tins and buckets, always secure any caps that you have removed;
- Check before and after using blowlamps welding or cutting equipment. Many fires have gone unnoticed for up to an hour after hot work has ceased;
- Asphalt pots, soldering irons and gas rings must be on non-combustible stands;
- Switch off any electrical equipment before you leave the work area for any reason.

NOTE:

Impress on audience that access routes must be kept clear, this applies to scaffold platforms, ladder access and corridors etc. Try not to leave accumulations of timber offcuts, saw dust, shavings or paper and oily rags that could be ignited by sparks or a dropped cigarette.

TOOLBOX TALK 70

ACCIDENT REPORTING

Each site uses an Accident Book for recording all accidents. You will find the book with the Site Manager.

If you are injured at work, you must report the accident to your employer as soon as you can. The report must be entered in the Accident Book.

The prompt reporting of an accident may well result in saving a life.

Your co-operation is therefore very important. If there is an accident at your work place, help by:

- Making sure that, where necessary, first aid assistance is called immediately;
- Seeing that it is reported without delay to your supervisor, even when no person has been injured or plant damaged;
- Ensuring, in the case of serious personal injury, that the accident site is left undisturbed until clearance is given by your supervisor;
- Ensuring that any items which may assist in the accident investigation (e.g. damaged slings, broken abrasive wheels) are retained and passed to your supervisor.

Minor accidents can lead to death, as one case study of a person treading on a nail.

This explanation occurred because the person suffered from diabetes and did not report it. By the time, injured person went to hospital, the problem was so serious that they had to amputate his leg.

Whilst undergoing the operation the injured person died.

TOOLBOX TALK 71

NEAR MISS REPORTING

What is a Near Miss?

A Near Miss is an unplanned event that did not result in injury, illness, damage or product loss - but had the potential to do so.

The difference between a near miss and a full-blown incident is often a fraction of a second or a fraction of an inch that may not be there the next time.

Near misses are warnings of accidents in the making. By accepting these warnings and looking for their causes, we can prevent these situations recurring.

Why Should They Be Reported?

The prevention and elimination of accidents can only be progressed by reporting the near misses as they occur. If the near misses are not reported, then no incident investigations will be carried out and none of the problems and warnings will be spotted.

As a result, any learning points found cannot be communicated to others, who will therefore still be "at risk". A near miss can be considered as an indication that something is wrong, maybe with the system of work and it is important that everyone is "warned" by each near miss that occurs so that standards can be improved.

Ignoring the near misses and the conditions that lead to them is an open invitation for an accident to occur. Do not shrug off the near misses because nothing happened, let's find out why they happened and propose improvements to ensure that they do not happen again. This can only be done with your help, by you reporting them as they occur.

If you can, give examples from your own experience or from site.

NEAR MISS

Is by definition an accident and should be regarded as a warning that a problem exists and that some action is required.

l. It is your duty to report any near-miss incidents;

2. Any near-miss incidents should be reported to your Supervisor and Safety Officer;

3. Opportunities to report or discuss a near miss will be given at toolbox talks;

4. The problem will be investigated in order to establish why a near-miss situation occurred and actions will then be implemented to ensure that this type of situation does not occur again as the next time could be a serious accident;

5. All employees will be informed of the actual near-miss situation and the actions necessary to prevent a recurrence.

TOOLBOX TALK 71

LUNG HEALTH AND DUST AWARENESS

What is the issue?

- Many construction activities can create airborne dust, especially from materials such as wood, stone, concrete, fillers and plasterboards.
- The widespread use of portable power tools has resulted in an increase in the health risks from dust in construction. The tasks themselves may be brief but multiple short exposures can result in ill health.
- Dust is not always an obvious hazard because the particles that do the most damage are not visible to the human eye and the health effects can take years to develop.
- The long-term effects of exposure to dust can be permanent and do disabling damage to the lungs and severely affect your quality of life.

What should you be concerned about?

- Although most dusts can cause irritation of the skin, eyes and throat if you are exposed to them, the major concerns are regarding the effects of dusts once they enter the lungs.
- Chronic Obstructive Pulmonary Disease (COPD) is an overall term for lung diseases that inflame the airways and obstruct breathing. It includes chronic bronchitis and emphysema and is the 5th biggest killer in UK.
- If your work exposes you to dust on a regular basis then you may be at risk of developing COPD. This is especially true if you are also a smoker.
- It is possible to become sensitised to certain dusts, such as wood dust. This is an allergic reaction to a substance. This can lead to occupational asthma. Once you become sensitised to a material, every time you are exposed to the material again, even at very low levels, the symptoms will appear.
- Silicosis is caused by the inhalation of respirable crystalline silica, which can be found in concrete and other construction materials.
- Many of these ill health effects take a long period of time to develop, so it may not be immediately obvious that the dust is causing harm. Although it is possible to see larger dust particles in the air, these are usually too big to get into the lungs. Very fine particles are required to get into the deep lung, and as these are typically invisible to the naked eye it may not be obvious that there is a problem.

What should you look out for?

- The health effects vary dependent on the type of dust present, although there are some common symptoms that you can look out for.
- The short-term effects on the lungs include coughing, wheezing, difficulty in breathing and general irritation of the nasal and respiratory tract. There may also be an increased production of mucus and mucus may become discoloured.
- All of these short-term symptoms may not occur directly after exposure – it could be many hours before they start to appear.

- Long-term symptoms may include a persistent hoarse cough, regular chest infections and an increased shortness of breath, even when performing simple tasks, e.g. walking upstairs, carrying light loads. These symptoms could indicate COPD or other diseases such as silicosis.

What can you do about it?

- Use dust extraction on tools, especially if cutting is involved. This could be as simple as attaching a vacuum cleaner (suitable for the purpose) to the tool or using tools fitted with integrated extraction. Ensure that the extraction equipment has suitable filters to remove the contaminant from the air. For most of the dusts you could be exposed to this should be an 'M Class' filter, a HEPA filter isn't good enough.
- Make sure you have good ventilation in the area of work.
- If possible, use water suppression techniques when using cutting materials.
- Ensure the correct fitting, wearing and maintenance of PPE – wear any PPE as instructed, clean and check it regularly and change it for a new piece as and when necessary.
- Wear dust masks fitted with a particulate (P) filter. Make sure you have been shown how to fit it correctly and have undertaken face-fit testing.
- Make sure the housekeeping in your work area is good – regular vacuuming and wet sweeping of the floor and machinery will remove any settled dust that could be raised again if disturbed.
- Under no circumstances should dry sweeping take place in areas where dust is present – always damp down first.