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INDUSTRIAL SERVICES

QSHEToolbox Talk

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Enigma Industrial Services Ltd Toolbox Talk Manual



Enigma Industrial Services Ltd

Hawthorn House
Woodlands Park
Ashton Road
Newton – Le – Willows
WA12 0HF

www.enigma-is.com





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Toolbox Talks – Consultation & Participation with the Workforce

Toolbox talks are a popular way to strengthen the safety training efforts. Toolbox talks enhance one of the key principles of good safety practice: clear and concise communication practices. Unfortunately, excellent communication is a rare skill and many managers, supervisors and other employees / workers responsible for safety talks feel out of their depth when required to deliver toolbox talks. This is understandable, since despite the apparent simplicity of a toolbox talk that is delivered well, it requires good speaking skills, writing and planning.

How to Give a Toolbox Talk

Because these talks are shorter and less formal than classroom training, they can be delivered daily or weekly with less overall preparation time than formal training sessions require. Tips on how to give effective toolbox talks:

- Choose timely topics around reoccurring safety problems you encounter regularly or upcoming changes that workers need to be aware of.
- Give talks at regular intervals (daily, weekly, monthly) to establish and reinforce the importance of safety in the company's culture.
- Explain at the beginning of the talk why the subject is important and what you expect workers to learn.
- Use a written toolbox talk as a guide but keep the presentation informal and conversational.
- Encourage workers to participate by asking questions about the topic.
- Use visual examples and real equipment, if possible, to relay the information.
- Do a wrap-up at the end of the talk to reinforce important points.
- Check employee understanding of the talk by asking them specific questions regarding the site, the work activity and related hazards.
- Have participants print and sign their names on a written toolbox talk attendance sheet.

Toolbox talks can help employees/workers better understand how to stay safe while meeting their job duties. It also gives them the opportunity to engage in safety discussions and offer their suggestions on how the facility or company can improve safety.

Remember

- **Talk directly to the audience.** Ensure the topic is relevant to your industry and job site.
- **Keep it brief.** People have limited attention spans so make only the necessary points.
- **Stay positive!** Incident investigations are a reactive, safety talks can be the exact opposite. takes place.
- **Demonstrate the point.** Make the toolbox talk interactive.
- **Tell a story, not a statistic.** People believe stats but they remember stories.



Good Office Safety Practices

Unsafe conditions and procedures must be identified before they can be corrected. Consequently, every employee shall be responsible for immediately reporting unsafe conditions or procedures. Safety is an individual commitment to incorporate safe work practices into every area of their job operations.

General Safety Rules

- Never do anything that is unsafe in order to get a job done.
- Use the handrails on steps and other elevated areas.
- Obey warning signs and tags. They are posted to point out hazards.
- Never remove or disable any safety device
- Working under the influence of alcohol or illegal drugs or using them at work is prohibited.
- Firearms or explosives (Including fireworks) are prohibited at work.
- Horseplay, running and fighting are prohibited.

Office Safety.

- Keep desk and file drawers closed when not in use.
- Do not open file or desk drawers above or behind someone without warning them.
- Use only step stools and ladders (do not climb on counters or chairs).
- Push chairs up to desk or under counter when not in use.
- Do not carry loads, which obstruct your view, which are too heavy or without a prepared place to set them down.
- Get help to move heavy objects.
- Approach blind areas cautiously.
- Know location of emergency exits and keep aisles clear to them.

Housekeeping

Aside from the accident prevention benefits, good housekeeping contributes to efficient performance. When tools and materials are returned to the proper place after use, they are easier to find. The following suggestions are offered for good housekeeping.

- Wipe up spills and pick up all objects that should not be on floor.
- Keep work areas and storage facilities clean, neat and orderly.
- All aisles, stairways, exits and access ways should be kept clear.
- When piling materials for storage, make sure the base is level and firm.
- Lay extension cords and hoses in such a way as to minimize tripping
- All packaging material should be disposed of immediately.

Questions for Discussion

- I. What processes could be implemented to ensure safety in the office?



Safe Use of Display Screen Equipment (DSE)

What are the risks?

Individuals who use computers, laptops, keyboards and associated equipment for extended periods of time may experience pain or discomfort in the hands, wrists, arms, shoulders, neck or back. Eye fatigue and headaches are also common. This usually temporary but can lead to chronic soft tissue disorders. Symptoms can include:

- Discomfort
- Soreness/stiffness
- Pain
- Swelling
- Numbness/tingling
- Functional disability.

The term for this whole group of conditions is 'upper limb disorders'. These disorders are usually caused by poor work habits, poor workstation layout or improper use of workstation components. These symptoms can be avoided by making simple adjustments to either your workstation or your working patterns.

Reasons for potential health risks

- Concentration
- Close visual work
- Extended periods of sitting
- Prolonged use of hands, wrists & fingers
- Posture
- Poor working environment

What can I do as the user to reduce the risk?

- Complete the Display Screen Equipment (DSE) training.
- Analyse your workstation, assess and reduce the risks and complete the DSE Assessment.
- Ensure workstations meet minimum requirements.
- Plan work to ensure staff have breaks or changes in activity.
- Provide eye and eyesight tests for users if requested and provide spectacles if special ones are needed.
- Provide health and safety induction training and information.



Questions for Discussion

1. What does DSE equipment include?
2. On completion of DSE training, what must be carried out by the user?



Safety Signage

Safety Signs are crucial in any work environment. The primary importance of displaying safety signs is to remind people of potential hazards:

- They point people to the location of emergency equipment.
- They direct people what route to take in an emergency.
- They reinforce your safety training programs.
- They also Inform people of security and limited access policies.

Types of Safety Signs



Mandatory signs - specify an instruction that must be carried out.



Danger signs - provide warning when a hazardous condition is likely to be life-threatening.



Prohibiting signs - specify behaviour or actions which are not permitted.



Emergency signs - indicate the location of emergency facilities such as exits and first-aid equipment.



Warning signs - warn of hazards that are not likely to be life threatening.



Fire signs - indicate location of firefighting equipment, emergency phones, risers, valve shutoffs etc.

Six rules for protection.

- Always obey the safety signs - there's no excuse for negligence or disobedience.
- If you think an area in your workplace needs safety signs, tell your employer.
- Don't enter an area or start work unless you're wearing your Personal protective equipment (PPE).
- Always make sure you know where to find fire and first aid equipment.
- Never do anything that's prohibited. You could cause a disaster.
- When you see warning signs, make sure you don't do anything that could harm you.

KNOW THESE SIGNS AND UNDERSTAND WHAT THEY MEAN!

Questions for Discussion

1. What colour are mandatory signs?
2. What do GREEN signs inform you of?

Fire Safety

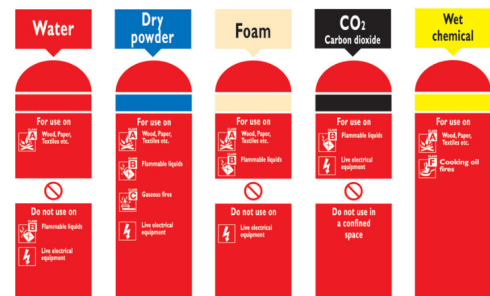
Fire is a major risk both to persons and to property. You can either help prevent fires, or you can help start/allow them.

Main points:

- Ensure you are aware of the fire drill including the means of raising the alarm, escape routes, and assembly point.
- Ensure you know where the nearest fire point is, what types of fire extinguisher are there, what types of fire they can be used on, and how they should be used (never put yourself at risk!)
- Never obstruct any fire points, fire doors or escape routes.

Five Types of Fire Extinguisher

- **Water.**
- **Foam.**
- **Dry Powder.**
- **CO₂** and
- **Wet Chemical.**



You should have the right types of fire extinguisher for your premises, or you may not meet current regulations.

Action on Hearing the Alarm

- Remain alert, evacuate via the nearest available exit - Follow the Fire Evacuation Signs.
- Report to the Assembly point.
- Keep Fire Doors Closed.
- Do not use passenger lifts.
- Remain at the assembly point until instructed otherwise.
- Listen to instructions from the person in charge.
- Do not attempt to collect personal items.
- Do not attempt to re-enter the building.

General Fire Safety

- Always maintain good housekeeping.
- Report defects that you see.
- Keep sources of ignition and potential fuels to a minimum.
- Ensure all flammable liquids are properly stored.
- Keep quantities in use to a minimum.

Questions for Discussion

1. On hearing a fire alarm, what are the immediate actions?
2. What colour / type of fire extinguisher would be used on electrical fires?



PPE and its Importance

Personal Protective Equipment (PPE) is clothing or equipment designed to reduce employee exposure to chemical, biological, and physical hazards when on a worksite. It is used to protect employees when engineering and administrative controls are not feasible to reduce the risks to acceptable levels.



The hierarchy of controls recommends PPE to be the last level of defence to prevent occupational injuries, illnesses, and fatalities, but some businesses combined it with other control measures to ensure a safe and healthy environment for their workers.

Types of PPE

- Safety helmets
- Safety footwear
- High visibility clothing
- Safety harnesses
- Ear defenders
- Protective gloves clothing
- Respirators
- Goggle



Additional PPE may be required, this will be specified in the risk assessment / method statement.

What Must I Do?

When issued with PPE, ensure you know why it has been issued, the correct method for using it, and where to store it to keep it clean and free from damage when not in use:

- Report any defects to your supervisor or manager immediately.
- Do not use PPE unless you have been given sufficient training and you feel competent to undertake the task.
- The wearing of PPE does not eliminate the hazard; the PPE places a barrier between you and the hazard.
- Always wear appropriate PPE when instructed to do so.

Some KEY points to remember:

- PPE is provided and it offers adequate protection for its intended use.
- Those using it are adequately trained / instructed in its safe use.
- It is properly maintained, and any defects are reported.
- It is returned to its proper storage after use.

PPE SAFE LIVES, USE IT PROPERLY & LOOK AFTER IT AND IT WILL LOOK AFTER YOU

Questions for Discussion

1. When inspecting PPE, you identify a defect, what action must be taken?
2. What is the common PPE worn in your place of work?



Respiratory Protective Equipment (RPE)

Respiratory protective equipment (RPE) is issued as a means of control to prevent the inhalation of hazardous substances at work. When worn and used correctly, RPE can prevent serious lung conditions caused by inhaling dust and other contaminants.

Fit Testing RPE

A face fit test should be carried out to ensure the respiratory protective equipment (RPE) is the right size and fit and can protect the wearer but must undergo a face fit test. Regardless of the type of respirator selected, a proper facial seal is critical to ensure protection from the hazards. Workers must be both physically fit to wear a respirator and clean shaven in the area where the mask meets the skin. Complete a fit test using an approved method.

- Qualitative method relies on a worker identifying a taste or smell of a specific material, or
- Quantitative method uses a PortaCount machine to measure particles both inside and outside the mask.
- Note that you must complete a fit test on each type, brand, or size of respirator a worker wears and repeat it if the RPE changes, or the shape of the worker's face changes (due to dental or facial surgery, significant weight loss or gain for example). It is recommended to complete a fit test annually but must complete tests every 2 years at a minimum.

Pre-Use Seal Check

- A user seal check should be carried out prior to use by placing the hands over the filter material and breathing in.
- The mask should suck down onto the face when breathed in sharply.
- The user should hold their breath for ten seconds and the disposable respirator should not loosen.
- If it does, readjust and repeat.

Wearing PPE correctly

- Ensure respiratory protective equipment is clean and in good working order before each use.
- Carry out a fit check of the mask before each use.
- Do not remove mask in the hazardous area.
- Replace disposable masks and replaceable filters as per manufacturer's instructions & training.
- Store masks in a clean area when not being used.
- **Dispose of masks marked NR (not reusable) after a single shift (8 hours)*(HSG53 RPE Guidance).**

Care and Maintenance

Always refer to the manufacturer's specifications on how to properly clean and care for your RPE.

- Do not clean with solvents, wash with mild soap; rinse well; lay flat to dry.
- Store respirator in a clean plastic or self-sealing bag separate from the cartridges.
- Store cartridges in a clean plastic self-sealing bag.

Questions for Discussion

1. Name the two types of face fit tests that can be carried out.
2. Can a disposable respirator marked with NR be used after a single shift of 8 hours?



Manual Handling

Manual handling - defined as any task or activity requiring the use of force exerted by a person to move, hold or restrain an object - is one of those subjects which we all understand, and yet aren't very 'good' at. Manual handling is second nature to us, which is part of the problem. As people, we have become desensitised to the act of lifting and moving objects, and it happens so frequently that we develop bad habits which result in short term and long-term injuries. In one year, almost 30% of all injuries at work including one fatal accident (HSE figures) were caused by manual handling.

What checks should be carried out before lifting?

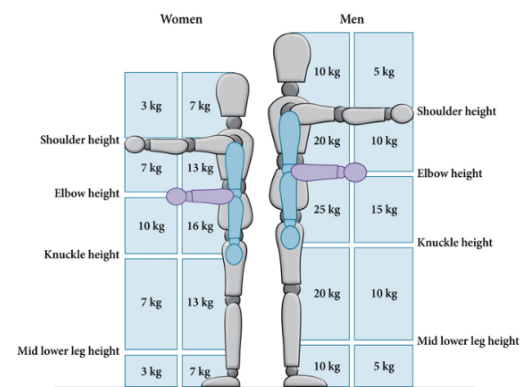
- Where possible, establish the weight of the load before starting to lift.
- Wear gloves to protect against cuts and punctures.
- Wear safety boots or shoes to protect from falling loads.
- Carry out a trial lift by rocking the load from side to side, then try lifting it a small way to get a 'feel' for it.

What does good handling techniques involve?

- Stand reasonably close to the load, feet hip-width apart, one foot slightly forward pointing in the direction.
- Bend your knees and keep your back straight.
- Get a secure grip on the load.
- Breathe in before lifting as this helps to support the spine.

How would an employee lift an object safely?

- Use a good lifting technique, keep your back straight and lift using your legs.
- Keep the load close to your body.
- Don't carry a load that obscures your vision.
- Lift slowly and smoothly.



What checks should you carry out before moving off with a load?

- Avoid jerky movements.
- Avoid twisting your body when lifting or carrying a load.
- When lifting to a height from the floor, do it in two stages.
- When two or more people lift a load, one person must take control to co-ordinate the lift.

Questions for Discussion

1. What checks should you carry out before lifting?
2. What should you do if you think a load is too heavy?



Control of Substances Hazardous to Health (COSHH)

COSHH stands for Control of Substances Hazardous to Health. Hazardous substances are found on many sites and can be used in or created by the construction process. Hazardous substances need to be treated with caution as they can have some nasty knock on effects.

What is a substance?

- Liquid
- Gas
- Solid

Your health could be affected by a hazardous substance through:

- Ingestion – eating contaminated food or smoking contaminated cigarettes.
- Inhalation – breathing in harmful dust, fumes or vapours.
- Injection – high-pressure fluids or contaminated sharp objects.
- Absorption – chemicals entering through cuts.



Control Measures

- To wear PPE that has been provided for your safety.
- Ensure the following COSHH information is displayed/ available in the Cleaning Stores & Plant Rooms:
 - Duplicate COSHH Assessment
 - Correct PPE to wear
- Ensure PPE remains in a good operational condition.
- Use substances according to COSHH assessments and manufacturing guidelines.
- All chemical stores and chemical containers must display the correct hazard warning signage.
- Under no circumstances should substances be stored in unlabelled containers
- Ensure incompatible substances are stored separately
- All chemical stores should be kept tidy and free from other risk such as slips and trips
- Ensure chemicals are stored appropriately, not above head height.
- Wash your hands after using a substance.

Questions for Discussion

1. On finding an unidentified container, what must be the first action?
2. What information should you have prior to using a hazardous substance?
3. What can be done to minimise the potential harm when using hazardous substances?



Chemical Safety – COSHH Symbols

The European Regulation on classification, labelling and packaging of substances (CLP Regulation) is a system of classifying and labelling chemicals through hazard pictograms. The hazards of chemicals are communicated through red-framed signal words and pictograms on labels and safety data sheets. The pictograms help us to know that the chemicals we are using might cause harm to people or the environment. One or more pictograms might appear on the labelling of a single chemical.

CLP hazard pictograms



Explosive (Symbol: exploding bomb)



Flammable (Symbol: flame)



Oxidising (Symbol: flame over circle)



Acute toxicity (Symbol: Skull and crossbones)



Hazardous to the environment (Symbol: Dead tree and fish)



Health hazard/Hazardous to the ozone layer (Symbol: Exclamation mark)



Gas under pressure (Symbol: Gas cylinder)



Serious health hazard (Symbol: health hazard)



Corrosive (Symbol: Corrosion)

Make sure your employees:

- Can read the different hazard pictograms and understand what they mean.
- Know how to assess risk on the spot.
- Understand dangers and control measures.
- Know if there is any asbestos on the premise and know how to work with it if needed.
- Understand the dos and don'ts of working safely with asbestos.

Questions for Discussion

1. What is the symbol for Serious Health Hazard?
2. What is the symbol for Hazardous to the Environment?



Chemical Safety – Decanting or transferring substances

It's best to keep hazardous substances in the containers they are bought in. However, many businesses purchase hazardous substances in drums or large containers and then decant or transfer smaller amounts of the substance into other containers or mix substances in process containers for their own use. While this may seem like a simple task, it needs to be done safely to avoid accidents.

NEVER store hazardous substances in food or drink containers – it's just too easy for someone else to get confused about what's in the container – even if it is labelled. Too often people are seriously harmed after accidentally drinking hazardous substances stored in drink containers.

When you are planning to decant a substance from one container to another:

- Read the SDS and note the hazards of the substance, particularly whether it is flammable, toxic or gives off fumes.
- Wear the recommended PPE (e.g. eye protection, breathing protection, gloves and overalls) ensure it fits properly.
- Eye wash stations and/or safety showers where transfers take place in case substances spill on workers.
- Ventilate work areas to prevent workers breathing in high concentrations of possibly poisonous vapours and gases and to prevent build-up of flammable vapours, which could ignite and cause a fire or explosion.
- Use only containers able to store the hazardous substance safely. Some substances can react dangerously with containers made out of different materials. Check the SDS.
- Make sure the new container is clean and doesn't contain any residues of other substances that may cause a violent reaction.
- Clearly label the new container with the product or chemical name of the substance, and a hazard pictogram and hazard statement consistent with its classification. All containers holding hazardous substances must be labelled, including containers of hazardous waste.
- Note that flammable liquids, like petrol, release flammable vapours, so you need to avoid sources of ignition when transferring flammable substances.
- Flammable liquids may also generate static electricity that may discharge and ignite the substance so make sure metal or conductive plastic containers are earthed or bonded correctly.
- Be prepared for any spill that might occur during transfer. Have your spill kit ready to clean up any spill.

Questions for Discussion

1. What document must be read prior to decanting or transferring substances?
2. Following decanting or transferring a substance, what must be clearly displayed?
3. What must we be prepared for if we are decanting or transferring substances?



Control of Dust and Fumes

The Control of Substances Hazardous to Health Regulations requires a risk assessment to be completed and updated at regular intervals by the employer. Hazardous substances include:



- Hardwood dust
- Silica dust
- Lead fumes

Some sources of harmful dust and fumes

- Cutting, sanding and grinding of some materials will create harmful dust.
- Welding and gas cutting of metals can create harmful fumes.
- Heating metals such as lead will create harmful fumes.
- Work with old lead can expose you to lead oxide dust (white, powdery deposits) which is also harmful.
- Burning off old lead-based paints can also create harmful fumes.
- Work involving fibrous insulation (such as asbestos or fibreglass insulation) can release harmful dust into the air.

Some health risks from breathing in dust or fumes

- Silica dust from cutting or scabbling concrete can cause lung disease.
- Dust from cutting or sanding hardwood can cause nasal cancer.
- Asbestos dust can cause cancer of the lungs or lining of the chest cavity.
- Welding fumes can result in 'metal fume fever' which has flu-like symptoms.
- Breathing in the fumes from solvents and paint can lead to nausea, drowsiness, headaches and, eventually, unconsciousness and death in extreme cases.
- Investigations are continuing into possible harmful effects of breathing in dust from synthetic insulation materials such as fibreglass matting.

Precautions

- Where it is possible, the job should be planned to eliminate harmful dust and fumes.
- If elimination is not possible, harmful dust and fumes must be controlled so that they are not breathed in.
- Some tools and plant are fitted with dust extraction and collection devices – if these are available, use them.
- If your employer has provided portable extraction equipment, use it.
- It may be necessary for you to wear RPE to protect yourself from the effects of dust or fumes – make sure you know how to use it properly.
- Consider the effects that your work may be having on other people.

Questions for Discussion

1. What examples of harmful dust and fumes are in your workplace?
2. Name some of the control measures to minimise / eliminate harmful dust and fumes?



Control of Lead Exposure

Lead (Pb) is a heavy metal that can threaten the health of workers in many occupations. Lead can be inhaled or swallowed and once inside the body tends to remain in tissue and organs. Eventually, after repeated exposures, lead build-up becomes toxic.



Sources of Exposure

- High temperature processes such as smelting, burning or welding.
- Demolition or restoration work involving old lead or lead-painted structures.
- Cutting of lead with disc cutters.
- Burning off old lead-based paints.
- Spray painting with lead-based paints.
- Work where lead is heated to lower temperature (such as plumbing and soldering) and work involving handling clean sheet lead are regarded as lower risk activities, but still may require control measures to be put into place.

The effects of lead

- Lead has long been known to be a poison (toxic).
- Uncontrolled exposure can cause headaches, tiredness, irritability, nausea, etc.
- Continued exposure could cause damage to kidneys, nerves and the brain.
- Female operatives of child-bearing age should be particularly protected from uncontrolled exposure to lead.
- Handling clean sheet lead is regarded at low risk; it is generally when lead is heated, cut or abraded or becomes old and powdery that the risks to health increase.

Control of exposure

- Employers have a duty to prevent or control exposure to lead of anyone who may be affected by their operations.
- Lead can enter the body by inhalation, ingestion or skin contact.
- If working with lead, your employer must inform you of the risk to your health and the control measures to be applied. Usually this in the form of a COSHH risk assessment.
- You may have to wear RPE to protect against lead fumes, vapour or dust.
- After working with lead, wash contaminated skin before eating or drinking.
- Never eat, drink or smoke in areas which work with lead is being carried out.
- If you work with lead, you may have to have your blood or urine tested periodically to determine your exposure.

Questions for Discussion

1. What examples of sources of lead exposure?
2. Name some of the effects of lead exposure?



Cleaning Colour Coded System

The visible effects of cleaning are obvious. Sparkling washrooms, clean kitchens and smart reception areas. But, unless you have a system to control the invisible contaminants such as germs, bacteria and other biological agents, your cleaning regime may well be doing more harm than good. Colour coding is a simple way to reduce risk, by using different coloured equipment for different areas. It means you cut the risk of cross contamination from one area to another.

The BICSc colour code guidelines

Colour coding systems generally make use of the basic colours, red, blue, green and yellow. Generally, these colours are sufficient to cover the most probable hazards, whilst creating an easily understood system.

What equipment should be colour coded?

The key cleaning essentials to keep colour coded are:

- Buckets and mop buckets.
- Mops – mop heads and handles can both be colour coded.
- Brooms and brushes – again, both heads and handles.
- Cleaning cloths – eco-friendly microfibre cleaning cloths.
- Dustpans and brushes

Benefits of Colour-Coded Equipment:

- Prevent Cross Contamination.
- Identify high risk, low-risk areas.
- Hygienic Waste Management.
- Safe Segregation of Cleaning Equipment.

Do I have to use colour coding?

There is no legal requirement to use a colour coding system. However, COSHH (Control of Substances Hazardous to Health) Legislation covers biological agents. COSHH holds you responsible for risk assessment and prevention or control of exposure to them in the workplace. Colour coding your cleaning equipment helps achieve this.

Questions for Discussion

1. What type of cleaning equipment should be colour coded?
2. What colour is used for cleaning sanitary / washrooms?





Chemical Safety – Spill Containment

Accidental releases of oils and chemicals from construction sites make up a large number of pollution incidents that occur each year. Many spillages can be prevented. It is important that everyone on site knows how to control a spill to minimise its impact. Would you know what to do?

Why?

- avoid environmental harm: spills spread very quickly and can cause damage to the environment
- avoid prosecution: fines and clean-up costs can be expensive
- public relations: avoid negative publicity for the company and clients to maintain workload.

Spillage Containment - **STOP WORK** and **ACT** immediately.

- Protect
 - i. Evacuate except essential personnel.
 - ii. Assess the spill and identify the substance (liquid/solid).
 - iii. Choose proper PPE and equipment to respond.
- Confine
 - i. Confine the spill with absorbent socks or booms.
 - ii. Overlap sock ends to prevent substance soaking through.
- Clean Up
 - i. Clean up spill with mats, booms, or loose absorbent.
 - ii. Place the spill kit from outside the spill working inwards.
- Dispose
 - i. Place contaminated spill kits in plastic bags provided, secure with cable tie, & label.
 - ii. Dispose of through correct waste stream.
- Report
 - i. Report incident to QSHET & Energy Business Partner (The 60 Minute Rule).
 - ii. Download a Sevcon365 incident report and complete with all information and photographs.
 - iii. Validate Sevcon365 incident report QSHET & Energy Business Partner.
 - iv. QSHET & Energy Business Partner upload incident to Sevcon365 and address and remedial action.
 - v. Replenish spill kits as appropriate.



Questions for Discussion

1. What are the spill control procedures on areas of the site?
2. Where is the nearest spill kit located?
3. Where and to who are spills reported to on site?



Body Spillages and Sharps

'Sharps' are needles, blades (such as scalpels) and other medical instruments that are necessary for carrying out healthcare work. These items / materials could cause injury and other associated issues if not handled and disposed of safely.

Examples of sharps injury

- Blood and body fluid exposure.
- Accidental inoculation of blood by a needle or other sharp*.
- Contamination of broken skin with blood.
- Splashes of blood/body fluids onto mucous membranes (e.g. mouth, eyes).
- Human scratches/bites (where blood is drawn).

Sharps* may include:

- Needles, Scalpels.
- Wires, Blades, Razors.
- Blood stained / contaminated glass.

What should you do if you find a 'Sharp' in the wrong place? Each situation will be unique and require you to consider the hazard presented to you but where possible:

- Stop what you are doing as soon as you notice the sharp if it is safe to do so.
- Ensure the area is safe to prevent anyone else inadvertently being injured or exposed.
- Apply the appropriate Personal Protective Equipment (PPE), for example, gloves.
- Use a mechanical aid (e.g. litter picker or similar device) and place it directly into the sharps container.
- Dispose of the sharp using appropriate equipment / sharps container.
- Report the incident to your manager and ensure it is reported.

Immediate action to be taken following sharps injury and/or blood and body fluid exposure.

- Encourage bleeding from the wound – Bleed It.
- Wash the wound in running water, do not scrub - Wash It.
- Cover the wound with a dressing – Cover it.
- Report incident immediately to line manager – Report It.

Questions for Discussion

1. Provide some examples of sharps in your workplace?
2. What is the immediate action following a sharps injury (Bleed It – Wash It – Cover It – Report It)?



Safe Use of Vacuum Cleaners

Because cleaning professionals use vacuum cleaners every day to perform their cleaning tasks, it is not uncommon for them to take their machines for granted from time to time. However, it is important to remember that vacuum cleaners are complicated machines that must be cared for properly. Knowing how to properly use a vacuum cleaner will help it last longer, improve worker productivity, and make vacuuming a lot safer.

Safe and Proper Handling of Vacuum Cleaners:

- When not in use, unplug the vacuum cleaner from the wall outlet and store vacuum cleaners in a cool, dry location. This protects the vacuum cleaner, cord and plug and helps prevent accidents.
- When using the vacuum cleaner, ensure the electric cable is kept behind the user to prevent trips.
- Most commercial vacuum cleaners are not intended for outdoor use. Store and use them only indoors.
- Never vacuum a wet surface. This can damage the motor(s) and puts the user at risk for electrical shock. If a machine has been exposed to moisture, have it checked by a certified technician before use.
- Never drop a vacuum cleaner. If a machine is accidentally dropped, have it checked by a certified technician before using it again.
- Never pull a vacuum cleaner by its cord and keep the cord away from sharp edges or corners.
- Keep fingers away from all powered moving vacuum cleaner parts.
- Do not clean up toxic or flammable materials with a vacuum cleaner; if you are unsure about what a substance is or if it looks unusual, investigate carefully before vacuuming the area.
- Do not pick up hard or sharp objects, including glass, nails, screws, coins, etc., with the machine.

Pre-Use Inspections

- Check vacuum cleaner thoroughly including cable, electric plug, casing, castors.
- Check vacuum cleaner hose and brushes.
- Check the vacuum cleaner is PAT Tested and inspection is in date.

Care of Equipment

- Empty vacuum cleaner and clean inside and out.
- Clean all brushes thoroughly.
- Clean / replace filters and bags as directed by manufacturer.
- Clean dustpan.

Questions for Discussion

1. What would be checked prior to use of a vacuum cleaner?
2. If defects are identified during the pre-use inspection, what immediate actions would be taken?



Safe and Proper Handling of Floor Buffing Machines:

- With the machine unplugged, tilt it backward until the operating handle rests on the floor.
- Check the scrub brush or pad to make sure they are clean to prevent damage to the floor.
- Plug the machine into a properly grounded outlet.
- Always keep a floor buffer in good operating condition.
- Always unplug the floor buffer from an electrical outlet when not in use.
- Always wear appropriate clothing when operating the floor buffer, particularly anti-slip soles or shoes.
- Never pull or carry the floor buffer by the cord.
- Never run the buffer over cord.
- Never place the cord around your shoulder.
- Never unplug the floor buffer by pulling the cord.
- Do not twist grip with the handle in the upright position.
- Do not use machine in areas where flammable liquids or vapours may be present.



Pre-Use Inspections

- Read the Manufacturer and Safety Instructions before using a buffer.
- Before use, check the electrical cords and plugs to ensure they are damage free and untangled.
- Check the scrub brush or pad to make sure they are clean to prevent damage to the floor.
- Check the buffer machines is PAT Tested and inspection is in date.

Care of Equipment

- Clean buffing machine.
- Clean all brushes / pads thoroughly.
- Clean / replace brushes / pads as directed by manufacturer.

Questions for Discussion

1. What would be checked prior to use of a vacuum cleaner?
2. If defects are identified during the pre-use inspection, what immediate actions would be taken?

Housekeeping

Keeping your workplace clean and orderly is important for several reasons that pertain to quality, safety & the environment. When workplaces are not clean and orderly there are an inordinate number of slips, trips and falls, many of which result in injury. Also, workplace's that aren't clean present fire hazards. Think about all the potential ignition sources in your workplace, which include paper, electrical items, welding, soldering, cutting and grinding sparks generated from work activities. When the workplace isn't clean it's just a matter of time before a fire gets started. The following are general housekeeping items that will help keep workplace clean and orderly.

Effective Housekeeping Controls

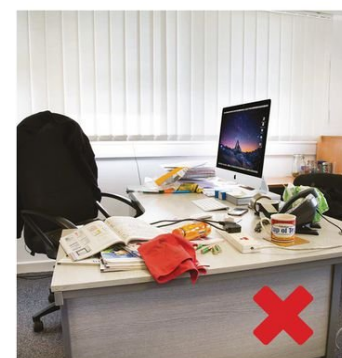
- Keep the walkways, aisles, and workstation floors completely clear of objects.
- When walkways, aisles, and workstation floors get wet, muddy or greasy put a barricade, such as caution tape, around them to keep others out of the area, and don't remove the barricade until the area is clean.
- Store pipe and other materials in designated staging areas in a neat and orderly fashion.
- Use pipe racks, shelves, pallets and similar materials storage devices to keep materials off the ground and arranged in an orderly fashion.
- Keep potential trip hazards, such as power cords, leads and cylinder hoses, out of walkways and aisles.
- Arrange cords, leads and hoses so that you can enter and exit your workstation without having to step over or around them.
- Remove scrap materials from all walking surfaces and workstation floors immediately after they are cut. Place them in a designated bin or cart for later removal.
- Dispose of all greasy, oily rags and other flammable materials in approved containers with self-closing lids.
- Sweep up and remove waste, metal shavings and other disposable materials from the floor as often as necessary to prevent slips, trips and falls.
- Empty waste bins before they start to overflow to keep waste off the floor.



**Keep your
work area tidy**



**Do not create
hazards with
mess**



Questions for Discussion

1. What types of injuries can be caused due to poor housekeeping?
2. Explain the process for cleaning spillages?



Fabrication Shop Safety

Working in fabrication shops safely isn't difficult if you know where to focus your attention. The industry already knows how most fabrication shop injuries occur and how to prevent them. The best way to work safely in the workshop is to learn how most shop injuries occur, take the necessary steps to prevent them, and stay conscious about them throughout each workday.

The safe work practices that follow will help you protect yourself from shop injuries.

- Put on all necessary protective equipment before entering the workshop. At a minimum coveralls, safety boots (not RIGGER style), safety glasses and cut resistant gloves. If there is excessive noise in the workshop hearing protection, and if there are overhead hazards, a hardhat.
- Check to determine whether the workshop is properly ventilated prior to commencing work. The local exhaust ventilation system should be turned on and functioning properly. If the shop utilises fans to move air, make sure they are turned on and functioning properly as well.
- Additional protective equipment is needed for welding or soldering. Make sure you have all of the necessary protective equipment and the proper shade of lens or lenses prior to commencing work.
- Avoid moving pipe and other materials by hand as much as possible. Use materials moving equipment such as gantry cranes, forklifts, pallet jacks, mobile pipe racks and wheeled carts whenever possible.
- When moving materials by hand, make sure muscles - especially back muscles are warm and flexible, and use proper lifting techniques.
- Before using any type of equipment or power tools, ensure that the guard or guards are present, located in the proper place, and properly adjusted and secured.
- Inspect power tools before plugging in to ensure that the electrical cords and plugs are in good condition. If you identify a tool with a damaged cord, missing ground prong or any other type of damage, take it out of service immediately and follow company's procedures for taking defective equipment out of service.
- Place screens between workstations where practicable.
- When fumes are a concern due to inadequate ventilation, use a point-of-operation ventilation system.

Questions for Discussion

1. What is the minimum PPE requirement in the workshop?
2. Explain the process when equipment is identified as unserviceable i.e. with faults?



Hand Tools

Hand and power tools are a common part of our everyday lives and are present in nearly every industry. However, these simple tools can be hazardous and have the potential for causing severe injuries when used or maintained improperly. The employer is responsible for the safe condition of tools and equipment used by employees, but the employees have the responsibility for properly using and maintaining tools.

General Requirements

- Use the right tool for the job and examined for damage before each use.
- Inspect power cords. If damage is found, take the tool out of service and report the condition to your supervisor.
- Read the tool's instruction manual and follow use and maintenance guidelines.
- Make sure all safety guards and devices are in place.
- Always wear the appropriate personal protective equipment.
- Avoid using power tools in wet or damp environments.
- Do not wear loose clothing, dangling objects or jewellery. Long hair must be restrained.
- Unplug tools before installing, adjusting and changing any accessory or attachment.
- Maintain solid footing and good balance when using tools and hold or brace the tool securely.
- Ensure power tool accessories are specific for the tool it's to be used with.

Specific Requirements

- Keep fingers away from saw blades and clamp materials down and keep all guards in place.
- Do not use compressed air to clean people.
- When performing electrical work, ensure the use of insulated, rated tools.
- Pneumatic tools must be fitted with a safety clip or retainer to prevent the equipment or hoses from coming apart.
- Never point pneumatic tools at anyone.
- All hand grinders must be used with the guards and handles in place.
- Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads.
- Before an abrasive wheel is mounted, it should be inspected closely to be sure that it is free from cracks or defects.
- Spark-resistant tools made from brass, plastic, aluminium, or wood will prevent ignition sources.
- All users of hand and power tools must receive initial training on how to safely operate the tool.

Questions for Discussion

1. Explain the process when equipment is identified as unserviceable i.e. with faults?
2. What must pneumatic tools be fitted with to mitigate potential injury?



Fabrication Shop – Grinders

Several types of grinders, such as angle grinders, straight grinders, tuck point grinders and bench grinders, are used in fabrication shops. Each type of grinder has its own unique function, but most of the characteristics that make grinders potentially hazardous are the same. The following are general safe work practices that will help you protect yourself from the most common hazards associated with grinders.

Grinder Control Measures

- Always wear safety glasses, a full-face shield and appropriate work gloves when using any type of grinder.
- Inspect the grinder before use, look for cuts or tears in the cord, cracks in the housing, chips in the grinding wheel and missing or broken guards.
- If any part of the grinder is not in good condition, don't use it. Immediately follow company procedures for taking defective equipment out of service.
- Carefully check the abrasive wheels you plan on using to ensure that they are the correct size. They must have the appropriate maximum safe operating speed in relation to the RPMs. Carefully follow the manufacturer's instructions with regard to RPMs and blade sizes.
- Ensure that the replacement wheel fits freely on the spindle and doesn't have to be forced on.
- Be sure not to over tighten the spindle nut but be sure that it is snug.
- Never use a grinder without a guard properly secured in place.
- The guard should cover the spindle end, nut and flange projections.
- Make sure the work is properly secured before you start work on it. Use a vice or clamps to hold the work in place.
- Floor and bench-mount grinders should have protection hoods over the grinding wheels and work rests should be attached not more than 1/8" from the grinding wheel.
- When installing or changing a grinding wheel, at a minimum the grinder must be unplugged, or the power must be disconnected but be sure to carefully follow your company's procedures for controlling stored energy.



Example Grinders

Questions for Discussion

1. Explain the process when equipment is identified as unserviceable i.e. with faults?
2. Where will we find the information regarding the RPM and blade sizes?



Band Saws

Band saws are used in the vast majority of fabrication shops because they're effective and efficient tools when used properly. However, they can be hazardous when they are not used properly. Severe lacerations and worse injuries do occur when band saws are not used correctly.

General safe work practices that will help you protect from the most common band saw hazards.

- Always wear safety glasses and snug fitting cut resistant gloves when using a band saw.
- Don't wear loose fitting gloves, clothing, jewellery, long hair, or anything else that could get caught up in the blade.
- Before using a band saw, make sure the blade is installed correctly with the teeth pointing down toward the table. Check the blade tension and tracking before you begin working.
- Close the wheel guard doors before starting the saw.
- Ensure that the blade guard and guide are in place and only 1/4" above the material.
- Make sure no one is standing within several feet of the saw in case a blade breaks while you're cutting.
- Never place your hands or fingers in the path of the blade.
- Use push sticks to control the material.
- Be sure to use a jig when the material you're cutting isn't flat on the bottom.
- Also, use a V block when cutting cylindrical shaped materials.
- When you're preparing to make a long cut or to cut a tight curve, make several relief cuts to take pressure off the blade.
- If you ever need to back out of a cut, make sure you shut the machine off first. Wait until the blade comes to a complete stop before backing out.
- When preparing to install or replace a blade be sure to follow your company's procedures for controlling stored energy. At a minimum, turn off the saw and unplug it or disconnect the power first. However, your company may require more elaborate lockout procedures.



Example Bandsaw

Questions for Discussion


1. Before moving material through a bandsaw, what accessory should be used to minimise potential of hand injury?
2. What distance should blade guard and guide be above the material?



Pillar Drill / Drill Presses

Drill presses don't usually conjure up images of horrific fabrication shop injuries, but they are much more powerful than most people realise. The hazards include hand and finger contact with the bit, flying particles, flying objects such as broken bits and objects getting caught up and pulled into the rotating bit or chuck. Most pillar drill / drill press manufacturers provide a guard to prevent contact with the bit/chuck and if not fitted aftermarket bit/chuck guards are available.

General safe work practices to help protect from the most common drill press hazards follow.

- Wear safety glasses and snug fitting cut resistant gloves when using a drill press, but don't wear loose fitting gloves, clothing, jewellery, long hair, or anything else that could get caught up in the rotating bit or chuck.
 - If bit/chuck guards are not fitted, the company must purchase a guard, make sure it is properly secured in place.
 - Follow company procedures with regard to controlling stored energy. You may be required to unplug the drill press or implement more elaborate procedures when preparing to change bits, make adjustments, etc.
 - Be sure to use wood backing so that the bit won't make contact with the drill press table, which could break the bit if enough pressure is applied to it and damage the table.
 - Make sure the bit being used is inserted correctly into the chuck and adequately tightened with the chuck key. And, be sure to remove the chuck key from the chuck before the drill is started.
 - Ensure the material being drilled is adequately secured to the drill press table. Use a suitable clamp or vice.
- 
- Example Pillar Drill**
- If drilling a cylindrical object such as a piece of pipe, use a V shaped block to keep it from rolling.
 - Ensure not to exceed the manufacturer's recommended speeds for the type and size of drill bit and the material being drilled. Check the operator's manual or check with your supervisor.
 - If the drill bit binds, don't force it, which will likely break the bit and send it flying. Turn the drill press off. Wait for the chuck to come to a complete stop. Then turn the chuck backwards with a gloved hand to free the bit.
 - Always turn the drill press off and wait for the chuck to come to a complete stop before reaching in to make adjustments to the material, or to grab the chuck.

Questions for Discussion

1. Explain the process when equipment is identified as unserviceable i.e. with faults?
2. If a bit/chuck guard is not fitted, what action must be taken?



Abrasive Cut-Off Saws

Abrasive cut-off saws can be just as hazardous as saws with steel blades, but when they are used properly they are safe, effective and useful tools in fabrication shops. The most common potential hazards include body part contact with the rotating disc, metal sparks, flying particles and burns from hot materials.

General safe work practices, which will help protect from the common abrasive cut-off saw hazards:

- Always wear safety glasses when using abrasive cut-off saws and at all times.
- Also, be sure to wear snug-fitting cut and heat resistant gloves.
- Be sure not to wear loose fitting gloves, clothing, jewellery, long hair, or anything else that could get caught up in the moving blade.
- Ensure that the saw is properly secured to the worktable.
- Carefully check the abrasive wheels you plan to use to ensure that they are the correct size. They need to have the proper size arbor hole, and the appropriate maximum safe operating speed based on the RPMs. Carefully follow the manufacturer's instructions with regard to RPMs and blade sizes.
- Inspect the cut-off wheels for chips and cracks. If they are damaged, don't use them. Follow company procedures for replacing defective blades.
- Make sure that all the guards are in good condition, securely in place and properly adjusted. Also, check the depth stop to be sure that it is properly adjusted.
- Clamp the work securely in the vice. Don't ever hold the material by the hand when cutting.
- Keep hands, fingers and the rest of your body out of the path of the rotating abrasive disc
- Make sure you allow the blade to reach full speed before you start to cut.
- After making the cut, release the trigger switch, continue to hold the saw arm down and allow the abrasive blade to come to a complete stop before you reach for the material.
- When installing or changing a blade, at a minimum, the saw must be unplugged, or the power must be disconnected but be sure to carefully follow company procedures for controlling stored energy.



Example Abrasive Saw

Questions for Discussion

1. When cutting material, what must we do to mitigate the potential of injury?
2. Where will we find the information regarding the RPM and blade sizes?



Chop Saws

Like any type of saw used in fabrication shops, chop saws are great tools when used properly, but they can be extremely hazardous when safe work practices are not observed. The biggest concern is, of course, being cut by the sharp, fast moving blade.

General safe work practices, which will help protect from the common chop saw hazards:

- Always wear safety glasses while in the shop, but when you're using a chop saw, wear a full-face shield over your safety glasses.
- Wear snug-fitting cut resistant gloves.
- Don't wear loose fitting gloves, clothing, jewellery, long hair, or anything else that could get caught up in the fast-moving blade.
- Ensure that all guards are in their proper positions and operating properly.
- Be sure to keep the guards clean and working properly.
- When necessary, follow company's procedures for controlling stored energy, such as unplugging or disconnecting the power to the saw, or perhaps implementing more elaborate lockout procedures to clean and/or repair the guards before using the saw. The same holds true for installing or changing a blade. At a minimum, the saw must be unplugged, or the power disconnected. But be sure to follow company's procedures for controlling stored energy.
- Carefully follow the manufacturer's instructions with regard to RPMs and blade sizes.
- Check and, when necessary, tighten the blade and blade attachment mechanism on a regular basis.
- Securely clamp the material in place before you start to cut.
- Make sure long material is supported at precisely the same height as the saw table.
- Never place your hands or fingers in the path of the blade.
- When you are finished cutting, release the trigger switch and allow the blade to come to a complete stop. Then raise the stopped blade before you reach for the material so that you won't inadvertently cut yourself on the teeth of the resting blade.



Example Chop Saw

Questions for Discussion

1. Before removing material from a chop saw, what must the operator ensure with the machine?
2. Prior to cutting, what must the operator ensure with the blade guards?



Roll Bending Machines

Roll bending machines roll sheet metal to form curves. When sheet metal is placed manually between the rollers, which must turn to secure the metal sheet, fixed or interlocked guards are impracticable. Sheet metal should be where practicable placed into the rollers in pairs to reduce the risk of manual handling injuries.

Hazards

- Trapping between rollers & metal.
- Trapping between turning rollers.
- Contact with sharp edges of metal.
- Noise.
- Slips, trips & falls.
- Entanglement from unexpected movement (during maintenance, cleaning & repairs).



Personal protective equipment (PPE)

- PPE as per the specific work activity risk assessment, including:
- Ear protection.
- Eye protection.
- Hand protection.



Inspection and maintenance

Regular inspection and maintenance of the safety devices and safety critical parts, including brakes, on the machine is essential. Detailed advice on this matter should be contained in the manufacturer's instruction manual. Cleaning, including cleaning of the rollers, should be carried out with the machine switched off and isolated.

Control Measures

- Ensure safety devices are in place, such as an emergency stop wire or kick plate.
- Ensure kick panels and emergency stop devices are fitted where applicable.
- Hold workpieces back from the edge of the metal, allowing metal to be fed into rollers without contact.
- Maintain a high standard of housekeeping to mitigate potential for slips & trips.
- Store material appropriately so as not to cause falling objects and struck by injuries.

Questions for Discussion

1. What are the hazards associated with operating roller bending machines?
2. What critical checks should be carried out as part of the pre-use checks?



Sheet or Profile Folding Machine

Folding a sheet consisting of modifying its shape to obtain one or more angles. In more simple terms, this operation centres around suddenly changing the direction of a flat sheet's fibres of a to obtain the desired angle. The success or failure of folding depends on the nature of the metal and the quality of the machines that are used.

Hazards

- Trapping between folding machine edges.
- Contact with sharp edges of metal.
- Noise.
- Slips, trips & falls.
- Entanglement from unexpected movement (during maintenance, cleaning & repairs).



Personal protective equipment (PPE)

- PPE as per the specific work activity risk assessment, including:
- Ear protection.
- Eye protection.
- Hand protection.



Inspection and maintenance

Regular inspection and maintenance of the safety devices and safety critical parts on the machine is essential. Detailed advice on this matter should be contained in the manufacturer's instruction manual. Cleaning, including cleaning of the machine, should be carried out with the machine switched off and isolated.

Safe Operation Control Measures

- You should never forget to wear safety gloves. They protect your hands from getting hurt by sharp equipment.
- Always use safety goggles to protect your eyes from fine particles that fly during the bending process.
- Make use of work boots. They prevent any scrap or pointed material from hurting your feet.
- Avoid running your hands over a sharp cut, even if you are wearing gloves.
- Always ensure that all the burrs are filed properly.
- Always keep the work surface clean. Clear all the scrap, as it can pose a risk of injury.
- You should always handle wet metal sheets with utmost care. The wet surfaces contain moisture, which when mixed with dirt and oil can make the surface of the sheet slippery, thus making it hard to hold.

Questions for Discussion

1. What are the hazards associated with operating sheet folding machines?
2. What critical checks should be carried out as part of the pre-use checks?



Compressed Gas Cylinders

Compressed gas cylinders can pose serious hazards. Their contents can present chemical hazards (flammable, toxic, corrosive) and the cylinders could present a physical hazard



Transportation

- Valve protection caps must be in place when compressed gas cylinders are transported.
- Secure compressed gas cylinders in an upright position on an approved carrier while being transported.
- Cylinders should never be stored horizontally in a vehicle.

Handling

- Use only approved spark igniters to light torches.
- If a leak develops in a cylinder and it cannot be immediately corrected, move the cylinder to a safe location outside the building if possible and contact emergency services.
- Keep oxygen and flammable gas regulators in proper working order and a wrench in position on the acetylene valve when in use.

Storage

- Valve protection caps must be in place when compressed gas cylinders are stored.
- Close cylinder valves and replace valve protection caps when work is complete and when cylinders are empty or moved.
- Keep cylinders at a safe distance or shielded from welding or cutting operations.
- Do not place cylinders where they can contact an electrical circuit.
- Cylinders must not be taken into or stored in confined spaces, including sheds, gang boxes and office/storage trailers.
- Do not store hoses and regulators in unventilated or closed containers or areas.
- CONTRACTORS: Do not leave behind partially filled or empty cylinders. Always remove them from the site.
- If not connected to a manifold for immediate use, separate oxygen and flammable gas cylinders by 20-feet or a 5-foot high 30-minute fire rated barrier.

Questions for Discussion

1. How are your gas cylinders stored? Are they properly secured at the end of each shift?
2. How are empty or unwanted cylinders in the facility controlled?
3. Discuss how you could be injured by cylinders in your workplace and how this could be prevented.

Forklift Truck Safety

Handling the Load Preparation

- Secure the load so it is safely arranged, stable and centred as nearly as possible.
- Do not carry damaged merchandise unless it has been secured by wrapping or banding.
- Use caution when handling off-centre loads that cannot be centred.
- Distribute the heaviest part of the load nearest the front wheels of the forklift.
- Do not overload. Know the stated capacity of your forklift and do not exceed it.
- A forklift's capacity is rated for a specified load centre. If the load is off-centre, improperly distributed, or oversized, it may exceed capacity and unbalance the forklift.
- Use the load extension backrest.

Approaching the Load

- Approach the load slowly and carefully, stopping 8 to 12 inches in front of the load.
- Place the truck squarely in front of the load with the forks at the correct height.
- Set the direction control to neutral.
- Do not raise or lower the forks unless the forklift is stopped, and the brake is set.

Fork Position

- Level the forks before inserting them into the pallet and place under the load as far as possible.
- Slide the forks into the pallet until they are fully under the load.
- Be careful that the forks do not go through to the other side where pallets are closely stacked.
- Centre the weight of the load between the forks and adjust the forks to distribute the weight evenly.
- Tilt the mast back carefully to stabilise the load.

Lifting the Load

- Check that there is adequate overhead clearance before raising the load.
- Make sure there is sufficient headroom under overhead installations, lights, pipes, etc.
- Carefully lift the load up above the lower stack about 4 inches.
- Lift the load and then tilt the mast back slightly to rest the load against the backrest extension.
- Ensure that the load does not catch on any obstructions.
- Slowly return the lift control lever to the neutral position.



Questions for Discussion

1. Is your forklift in good condition? (i.e. tyres, hydraulic lines, signage, etc.).
2. What are some of the forklift hazards specific to your workplace?



Moving Materials and Equipment

Moving materials and equipment is a daily requirement in fabrication shops. Unfortunately, the improper handling of materials results in injuries to fabrication shop workers every day. However, there are a few key steps you can take that will help you prevent most material handling injuries. The following are safe work practices to help protect yourself when moving materials and equipment.

- Unload materials from the delivery trucks as close to the immediate work area as possible.
- Keep pipe, fittings and other materials off the ground as much as possible. Materials that aren't too big or too bulky should be stored on pallets, in mobile racks or on tables or shelves as close to waist height as possible.
- When moving materials and equipment, use material handling equipment such as forklifts, gantry cranes, pallet jacks, pipe carts, and hand trucks.
- Never lift and move materials that can be moved by some other means.
- When you have to lift and move heavy or bulky objects always get help from a co-worker.
- Always use proper lifting techniques.
 - Get as close to the object as you can.
 - Bend your knees.
 - Get a firm grip on the object.
 - Keep your head up and back straight.
 - Tuck in your arms and elbows.
 - Use your legs to raise your body and lift the object in a slow, smooth motion.
- When you are carrying an object, never twist your torso. Move only your feet to change direction.
- Wear cut resistant gloves to protect your hands from cuts and scrapes, especially when working with sheet metal or sharp edges on pipe.
- Think ahead about where you are placing your hands when moving materials to avoid having them pinched or crushed.
- Efficient material handling increases productivity. The good news is that for every percentage point that productivity is increased, the risk of injury decreases by one percentage point.

Questions for Discussion

1. What types of injuries can be caused due to poor lifting?
2. Explain the proper lifting techniques.



High Pressure Water Jetting

The term High Pressure Water Jetting covers all water jetting processes, including those using additives, abrasives or chemicals where there is an energy input to increase the pressure applied to water and also applies to Power Washing. Manual High-Pressure Water Jetting, if not handled competently is a potentially hazardous process due to the power of the jet and the proximity of the operator to the jetting equipment.

High Pressure Water Jetting Activities.

- Graffiti Removal / Stone Cleaning.
- High Level Building Exterior / Grounds / Car Park Cleaning.
- Drain/Sewer Cleaning.



Equipment Maintenance

All equipment should be checked daily by users and weekly by supervisors for any damage or corrosion in accordance with the manufacturer's instructions. These checks should be recorded on a checklist / log sheet which should include:

- Condition of hoses and couplings - suitable for required pressures and be free from kinks, tears or bulges.
- Jetting guns - minimum of 1 metre long for standard operations; the trigger mechanism should be free from debris and never locked or wedged in the on position.
- Jetting unit - checked for external damage with special emphasis on connections, junction boxes, switches and supply cables. All electrical components should be protected from the ingress of water.

Safety Control Measures

- Read the operator's manual and follow the manufacturer's instructions for safe use, maintenance and storage.
- Wear eye and hearing protection when pressure washer is in operation.
- Avoid contact with the high-pressure stream of water. Keep your hands, feet and body out of the way.
- Always wear good footwear and clothing when using a pressure washer.
- To keep control of the water stream, hang on to the spray wand with both hands.
- **NEVER POINT THE SPRAYER AT ANOTHER PERSON**, whether the pressure washer is operating or not. It could discharge unexpectedly.
- Maintain good footing. Do not reach so far that you lose your balance.
- Do not use a pressure washer in an area where the water could contact electrical equipment.

Questions for Discussion

1. When carrying out the pre-use inspection what checks would be carried out on the equipment?
2. What must you NEVER do with the sprayer?



Abrasive Blasting

Abrasive blasting uses compressed air or water to direct a high-velocity stream of an abrasive material to clean an object or surface, remove burrs, apply a texture, or prepare a surface for the application of paint or other types of coatings. Air pressure and nozzle velocities and pose a high risk to users.

Hazards

- Fume and dust from allied processes, e.g. flame and arc cutting, blasting and post-weld dressing, can cause lung disease.
- Abrasive blasting produces a great deal of dust that includes metals and metal oxides.

Access to work area

- Allow access to authorised and appropriately trained people only.
- Other safety precautions that employers should take to protect workers during abrasive blasting operations include:
 - Ensure that only one person operates each blast nozzle, when feasible.
 - Install guards to protect the operator from high-speed particles.
 - Use hose-coupling safety locks and hose whip checks.
 - Substitute toxic or hazardous abrasive blasting materials with less toxic or hazardous alternatives and use abrasives that can be delivered with water (slurry) to reduce dust.
 - Train workers to never point a blast nozzle at a person, and to keep co-workers away from the blaster.
 - Perform routine clean-up using wet methods or HEPA filtered vacuuming to minimize the accumulation of toxic dusts.
 - Do not use compressed air to clean as this will create dust in the air.
 - Schedule blasting when the least number of workers are at the site.
 - Avoid blasting in windy conditions to prevent the spread of any hazardous materials.
 - Vacuum or remove contaminated work clothes before eating, drinking or smoking.
 - Conduct abrasive blasting activities in a blasting enclosure or use isolated areas for non-enclosed blasting operations (e.g., barriers and curtain walls) and control access. This will reduce the possibility of workers and others being struck by high-speed particles.



Questions for Discussion

1. When carrying out the pre-use inspection what checks would be carried out on the equipment?
2. What must you NEVER do with the blast nozzle?



Working in Confined Spaces

A confined space is a place which is substantially enclosed and includes cellars, chambers, pits, tanks, manholes, sewers, plant rooms, lofts, service tunnels and some excavations (a confined space does not have to be totally enclosed), and where serious injury could occur from hazardous substances or conditions within the space, or nearby. Avoid where possible, e.g. use remote controlled equipment to inspect tanks.

Hazards and risks

- Oxygen-depleted or oxygen-enriched environments, leading to suffocating, toxic or flammable atmospheres.
- Actual or potentially hostile environments (e.g. inside plant).
- Biological hazards (e.g. Weil's disease from rat's urine).
- Fire, explosion, suffocation.

Before entering

- A risk assessment produced and briefed to all workers must be carried out by a competent person.
- Checks should be carried out for flammable or toxic gases and oxygen content. The risk assessment should identify all potential hazards such as the different types of gas which may be present.
- If breathing apparatus is required, do not enter unless you have been trained to use it.
- Permits to work, follow procedures and check communications and monitoring equipment.

Working in confined spaces

- Work shall be controlled by a permit to work. The permit will include arrangements for rescue in an emergency.
NO RESCUE TEAM – NO ENTRY!
- You must wear all protective equipment and clothing provided.
- You should continuously monitor the air quality and fume / gas levels.
- Where flammable gases may be present, only use intrinsically safe, electrical equipment.

Emergency procedures

- You must not attempt a confined space rescue unless you are part of a trained rescue team.
- As a rescuer, your first duty is to ensure your own safety.
- Make sure the recovery winch and other rescue equipment is working, BEFORE you attempt rescue.
- You must leave the confined space immediately if told to do so.
- REMEMBER: always follow the rescue plan!

Questions for Discussion

1. List some hazards found in confined spaces?
2. What areas could be classed as confined spaces?



Hazard, Risk Assessment, Method Statement

Hazard identification and Risk Assessment are the basis of health and safety management. A risk assessment is simply a careful examination of what could cause harm to people, so that the organisation can weigh up whether it has taken enough precautions or should do more to prevent harm. Risk Assessment can be applied to cover the general workplace and specific tasks. Method Statement' is a term that is predominantly used to describe a document that gives specific instructions on how to safely perform a work -related task or operate a piece of plant or equipment.

What is a Hazard? Something that can cause harm or create the conditions for harm to occur. Examples include:

- Slip/trip hazard
- Vehicle/Traffic hazard
- Hazardous substance
- Hazardous weather
- Manual handling
- Drowning hazard
- Fall from height hazard
- Falling objects
- Electrical hazard
- Entrapment hazard
- Fire hazard etc.

What is Risk? The likelihood of a hazard causing harm.

Why do Risk Assessments?

An effective risk assessment lets you be proactive in regard to health and safety, as opposed to being reactive and dealing with the injuries or illnesses once they occur. It has been recognised that the best, most efficient, and most economical way to eliminate hazards is at the earliest possible stage.

Risk assessments must be completed for tasks that have a significant risk and the workers must be included in the preparation of the risk assessment and safe system of work, so before starting any task: **stop and think:**

- What is the work task to be carried out?
- What are the potential hazards associated with the task, or what can potentially cause injury / harm?
- How may the risk from these hazards be controlled?
- What rules or instructions are related to the work activity?
- What is the safe way of doing the work activity?
- Can the work activity be carried out in a safe manner?

Questions for Discussion

1. What are the primary hazards to your health & safety in your work area?
2. What is the purpose of a risk assessment?



Point of Work Risk Assessment (PoWRA)

A Point of Work Risk Assessment (POWRA) is used as a workplace risk assessment used to identify those things, situations, processes and activities that may cause harm particularly to people.

When is a Point of Work Risk Assessment (PoWRA) Used?

Regular observations and assessments of the environment are necessary to predict unforeseen events. A Point of Work Risk Assessment (POWRA) helps when risks and hazards arise from the following circumstances:

- Introduction of new equipment/resources.
- Change of supervision approach.
- Opening a new line of business.
- Reallocation of work, and
- When there are threats to health, safety, environment and security.

Point of Work Risk Assessment (PoWRA) Requirements:

- The PoWRA is carried out by all operatives involved in the work activity.
- The PoWRA is a supplement to the task risk assessment & Permit to Work where applicable.
- The PoWRA must be completed at the workplace and not the mess-room.

Point of Work Risk Assessment (PoWRA) Considerations – take a few minutes to consider what the work activity is and question..... what could go wrong?

- The work activity itself and what is involved?
- How the work activity will be undertaken safely?
- Are the correct tools, equipment and PPE available and been issued?
- Can the work activity be accessed safely?
- Is the method of access to height safe?
- Who else is involved in the work activity / area and what are they doing?
- What else is going on around your work activity?
- Are you or anyone else at risk due to the work activity?

Questions for Discussion

1. When could a Point of Work Risk Assessment (POWRA) be used?
2. Who should be involved in producing Point of Work Risk Assessments (POWRA)?



Permits to Work (PTW)

A Permit to Work is a formal procedure to ensure that the system of work is properly planned and implemented for jobs that are potentially highly dangerous. The originator of a permit to work (Permit to Work Issuer), must ensure all control measures detailed in the PTW are in place before issuing it to the Permit to Work Acceptor. The hazards identified and consequent control measures specific to the particular task will vary depending upon the task. All hazards must be identified, clearly detailed on the permit, and suitable and sufficient control measures must be put in place in the risk assessment process.

Completing a Permit to Work

- The aim of a Permit to Work is to ensure that the task is carried out in accordance with carefully considered conditions specified in the Permit and verified by competent individuals.
- It should set out the steps to be taken before and during the job, and the conditions to be met after the work is done - procedure for handing back for normal use.

When to use a Permit to Work

- Permits are most often required for maintenance work where normal safeguards cannot be used, or where new hazards are introduced by the work.
- A Permit to Work should not be confused with giving someone permission to work on a site.
- A Permit to Work is not an excuse to carry out a dangerous job without eliminating hazards or minimising risks.

When is a Permit to Work required?

- | | |
|------------------------------|-------------------------------|
| 1. Electrical work. | 5. Work on excavations. |
| 2. Pressure testing. | 6. Welding or other hot work. |
| 3. Work in a confined space. | 7. Mechanical (maintenance). |
| 4. Scaffolding. | |

Common problems with the completion of the Permit to Work

- Inadequate description of work to be done and its location.
- No cross referencing of risk assessments or method statement.
- Hazard identification inadequate.
- No control measures considered, or inadequate.
- Clearance certificate not signed off.

Questions for Discussion

1. What is the aim of the Permit to Work?
2. What training must a Permit to Work receiver have?

Waste Management – Segregation of Waste

Each business generates waste; some can be recycled; some has to be sent to landfill and some has to undergo special pre-treatment procedures due to the hazardous nature of the waste. To ensure waste streams are handled correctly, from storage on site through to removal and final disposal, legislation exists that governs every step of the way. It is therefore very important that everyone involved in the generation, handling and disposal of waste is aware. It is importance that Waste Transfer Notes of Waste Consignment Notes (Hazardous Waste) are completed correctly.

Segregation of Waste

- Segregating wastes into hazardous, non-hazardous and inert for disposal can help minimise costs and maximise the opportunities for recovery and recycling of wastes.
- Check waste containers for standard signs, which are being introduced across the UK to encourage and improve the segregation of waste.

Why Segregate Waste

- Avoid environmental harm - incorrectly disposing of hazardous waste could cause water pollution and damage habitats. Landfills and waste treatment centres are specially designed to be able to handle specific wastes without causing environmental harm.
- Avoid prosecution - it is illegal to mix hazardous waste with other waste types that are to be sent directly to landfill. A fine of up to £20 000 and imprisonment for up to five years could be incurred.
- Reduce costs: segregating wastes maximises recycling and allows waste to be recycled and reused on site.

Segregation of Waste

- Look out for the standard signs shown in the figure. Where possible segregate wastes into the types.
- Check what skips there are on site and ensure the correct wastes are placed in the correct skips
- Close lids or doors on skips to prevent waste getting wet or escaping
- Ask a line manager for advice if unsure about correct waste segregation on site.
- Overfill skips.
- Put liquids and flammable liquid wastes into skips.
- Mix non-hazardous and hazardous waste.



Questions for Discussion

1. Why segregate waste?
2. What type of storage containers for waste should be used?

Waste Management – Recycling

Recycling and the re-use of materials does not just relate to paper but to waste products produced in every industry. The following list will give you an idea of the sort of items that can be recycled:

- Paper/magazines
- Cardboard
- Plastic (all types)
- Wood
- Aluminium
- Steel
- Green waste (grass, tree cuttings)
- Tyres.

If some of these items sound familiar and you use them on a daily basis within your workplace, the league table of controls are:

- Reduce
- Re-use
- Recycle

The benefits of recycling include:

- Lower raw materials cost.
- Increased production efficiency.
- Reduced waste disposal costs.
- Reduced energy consumption.



Guidelines to re-use, recycle and reduce

- Re-use, shred and/or recycle paper and envelopes.
- Use scrap paper for rough printing, photocopying and instead of Post It notes.
- Only use the photocopier when really necessary and photocopy double sided where possible.
- If a paper recycling scheme is implemented in your workplace participate and encourage others to do so as well.
- Re-use envelopes.
- Re-use pallets and any other raw material etc.

Questions for Discussion

1. What current opportunities are there within the workplace to improve recycling?
2. How could we improve workplace recycling?



Waste Management – Waste Storage

Allowing waste to escape into the environment not only causes nuisance to neighbour and generates a poor public image, it is illegal.

We need to store waste appropriately to avoid prosecution. It is the duty of all waste producers to prevent their waste escaping into the environment (i.e. windblown or as leachate) reduce costs: the segregation of waste into separate containers or skips can lead to lower costs by:

- Reducing disposal costs and landfill tax through preventing the contamination of inert wastes by non-hazardous and hazardous/special wastes.
- Maximising the potential for reusing and recycling materials.
- Making it easier to see how much of each type of waste is being produced and where efforts to reduce waste need to be targeted.

Waste Management Do's and Don'ts

- Keep sites tidy and collect waste regularly.
 - Use waste containers or skips suitable for the type of waste being stored.
 - Use skips with lids or cover them with sheets or nets to prevent dust and litter escaping.
 - Check the condition of containers and skips to minimise risk of accidental spillages or leaks.
 - Use colour coding to mark waste containers and skips clearly with their intended contents.
 - Ensure labels on containers and skips are kept in good order.
 - Segregate waste before putting it into the designated skips.
 - Locate skips away from watercourses, gullies and drains.
 - Place liquid hazardous/special waste containers within bunds or on drip trays ensure protection of waste against vermin (eg rats).
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- Throw materials into the wrong container/skip.
 - Contaminate one waste type with another.
 - Mix hazardous with non-hazardous waste - it is illegal.
 - Give waste away, all waste taken off site needs to be accompanied by paperwork.
 - Overfill skips or damage covers over or bunds around any skips or containers.
 - It is illegal burn or bury waste.



Questions for Discussion

1. Where is the waste storage area on site?
2. What wastes cannot be mixed?
3. What type of waste needs to be banded?