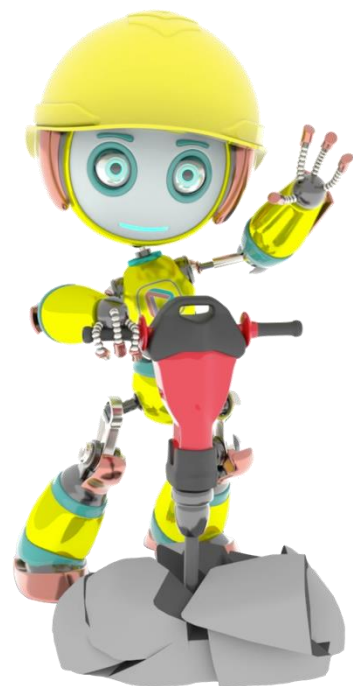




WorkSafe SmartMove Certificate

Building and Construction Industry Module Study Guide



Disclaimer

The State of Western Australia supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 4.0 International (CC BY) licence.



Under this licence, with the exception of the Government of Western Australia Coat of Arms, the Department's logo, any material protected by a trademark or licence and where otherwise noted, you are free, without having to seek our permission, to use this publication in accordance with the licence terms.

We request that you observe and retain any copyright or related notices that may accompany this material as part of the attribution. This is a requirement of the Creative Commons Licences.

For more information on this licence, visit creativecommons.org/licenses/by/4.0/legalcode

Date published: 1 March 2022

Reference

Department of Energy, Mines, Industry Regulation and Safety. (2022, March 1). *WorkSafe SmartMove Certificate: Building and construction industry module study guide* (2nd ed). Western Australian Government.

Contact

SmartMove Coordinator

Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)

100 Plain Street

EAST PERTH WA 6004

Telephone: 1300 307 877

Email: smartmove@dmirs.wa.gov.au

Contents

Learning outcomes	4
Common WHS terms.....	4
Job safety analysis (JSA)	4
Safe work method statement (SWMS)	4
Quiz – Common WHS terms	5
Falls	5
Falls from height	6
Let’s have a look at how to stay safe from falls from height	6
Slips, trips and falls	7
What can your employer do to prevent slips, trips and falls?	7
Quiz – Falls.....	8
Electricity.....	8
Lockout procedure.....	9
Let’s have a look at how to stay safe	9
Quiz - Electricity	10
Hazardous Substances.....	11
What is a hazardous substance?	11
Example of hazardous substances	11
Quiz – Hazardous substances	12
Machinery, equipment and tools.....	13
Powered mobile plant (PMP).....	13
Nail guns.....	13
Power drills	14
Quiz – Machinery, equipment and tools.....	14
Manual Tasks.....	15
How does performing a manual task may result in injury?	15
What can your employer do to keep you safe?.....	15
Quiz – Manual tasks.....	16
Noise	17
What can your employer do?	17
What can you do to save your hearing?.....	17
Quiz - Noise.....	18
Working safely in hot conditions	18
What is heat stress?	18
What is heat stroke?.....	19
What can your employer do to keep you safe?.....	19
What should you do to be safe?	19
What should you, your employer or workmates do if someone has heat stroke?	19
Quiz – Working safely in hot conditions	20

Spot the hazards	21
O'Brien and Sons Construction	21
Hazard notebook	21
Building and construction module – Knowledge quiz.....	22

Building and Construction Industry

Learning outcomes

In this module you will:

1. Learn about common workplace hazards encountered in the building and construction industry
2. Learn WHS terms commonly used in the building and construction industry
3. Identify existing and potential hazards at a workplace and learn how to report and record them
4. Learn how to eliminate workplace hazards and reduce risks

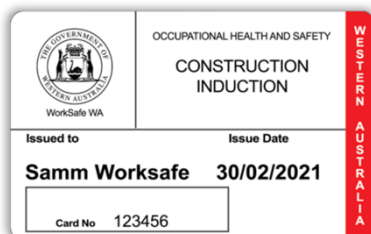
Common WHS terms

The construction industry is one of the most dangerous industries to work in.

Some important things to remember to stay safe when working in the industry are that you should:

- be properly trained and have a *Construction Induction Training Card
- be given a specific site induction when working at a new construction workplace
- be given instructions for **safe work procedures
- follow safe work procedures and wear the PPE provided.

** A Construction Induction Training card, also known as a white card, is evidence that you have completed a construction safety induction training course. This is a legal requirement for people working on construction sites in Western Australia.*



*** A safe work procedure is a written document that provides step-by-step instructions on how to perform a risky task or activity safely. In construction activities, the safe work procedures are referred to as the job safety analysis (JSA). In high risk construction activities, the safe work procedures are referred to as the safe work method statement (SWMS).*

Job safety analysis (JSA)

A JSA is a written procedure detailing a step-by-step to carry out a task safely. The JSA lists potential hazards at each step and describes correct solutions to remove or reduce the risk of those hazards.

Safe work method statement (SWMS)

An SWMS is a document that sets out the high risk construction work activities to be carried out at a workplace. An SWMS describes the hazards arising from these activities and the measure put in place to control the risks. It is created by an employer in consultation with workers directly engaged in the projects.

High risk work activities required an SWMS includes:

- scaffolding

- dogging and rigging
- crane operation
- forklift operation
- pressure equipment operation.

Notes:

An SWMS and JSA are administrative controls in the hierarchy of control.

Quiz – Common WHS terms

1. A Construction Induction Training card is:
 - a. Also known as a white card
 - b. Evidence that you have completed a construction safety induction training course
 - c. Required by law for people working on constructions sites in western Australia
 - d. All of the above.
 2. An example of an administrative control would be:
 - a. Blaming the worker
 - b. SWMS and JSA
 - c. Cautioning the worker
 - d. Having administrative staff to do paperwork.
 3. Identify **five** high risk work activities that requires to have an SWMS.
 - a. Scaffolding
 - b. Dogging and rigging
 - c. Crane operation
 - d. Forklift operation
 - e. Pressure equipment operation
 - f. Landscaping
 - g. Sanding drywall
-

Falls

An apprentice carpenter was working on the third floor of a building site where there was no fall protection or scaffolding. He fell more than five metres, headfirst, onto a concrete path. He required surgery to his arm, wrist, knee, jaw and face. He also suffered mild brain damage, short-term memory loss and loss of vision. He had not been given a site induction.

Falls from height and slips, trips and falls are a common cause of serious injuries on construction sites.

Falls from height

A fall from height is a fall from one level to another. These incidents have the highest fatality rate in the construction industry.

Falls from height can be reduced by:

- safe use of equipment
- use of scaffolding, scissor lifts or other types of safe working platforms to access areas where is risk of a fall
- use of industrial-rated and well-maintained ladders
- use of fall protection systems
- use of mesh and covers in and over penetrations larger than 200 mm x 200 mm, but less than two metres x two metres.

Let's have a look at how to stay safe from falls from height

Scaffolds

Scaffolds are a temporary platform used to elevate and support workers and materials during construction work. Scaffolding can be fixed or mobile. Scaffolds must be erected by a licensed person.

The safe use of mobile scaffolds means:

- never climbing on the outside of mobile scaffolding as it is easy to overturn
- never riding on a mobile scaffold when it is being moved and making sure the wheels are locked when it is stationary
- never placing ladders against the outside of the mobile scaffold.

Ladders

Many falls occur from inappropriate use of ladders. Your employer must provide ladders that are suitable for the task and make sure they are looked after. Ladders are only to be used for light work or easy to reach places.

You must be supervised when you first use ladders and until you are competent.

Before using a ladder, conduct safety checks. Check that the ladder:

- is industrial-rated (don't use a domestic ladder)
- is made from fibreglass not aluminium (fibreglass will not carry an electrical current)
- has no damage, including loose or missing parts
- is properly put up, secure and located on a firm footing
- protrudes at least 900 mm beyond the landing for the platform it is being used to access.

Make sure that you maintain "three point contact" when going up or down a ladder. This means two hands one foot, or two feet one hand.

Roof work

Access to and work on roofs is often dangerous and requires precautions, especially from the risk of falling. Examples of roof work activities include tiling, roofing installation and solar panel installation. Your employer must manage the risks of roof work falls.

- Where possible, it is best to avoid or limit the need to work at height. This can include reducing the amount of time spent working on roofs.
- If working at height cannot be avoided, your employer must provide safe systems of work such as:
 - fall injury prevention devices – examples include roof safety mesh, safety net, guard railing, scaffolding, fall-arrest systems and elevating work platforms
 - work positioning systems – for example, travel restraints which are designed to prevent

workers from reaching an edge where they could fall.

- Your employer must ensure the tools and equipment provided are appropriate for the task and in good condition.

Fragile roofs

All roofs should be treated as fragile until a competent person has confirmed they are not. If practicable, the work should be done from scaffolding or another work platform.

The following roofing materials are likely to be fragile:

- old liner panels on built-up sheeted roofs
- non-reinforced fibre cement sheets
- corroded metal sheets
- glass (including wired glass)
- rotted chipboard
- polycarbonate sheeting (skylights)
- slates and tiles.

Be aware!

- If there is a risk of falling through the roof, protection must be provided such as:
 - a non-corrosive safety mesh that is capable of preventing a person falling through the roof fixed directly over the top of the fragile area, or directly underneath the brittle or fragile areas
 - securely fixed and adequately maintained barriers around the brittle or fragile areas.
- Never stand on or walk across a roof made of fragile materials.

Slips, trips and falls

Slips and trips resulting in falls are described as falls on the same level. They are a common cause of injuries of young workers in the building and construction industry. They can result in serious harm and lengthy time off work. These types of injuries can also affect young workers in their everyday social and school lives and may mean they can't play sport or engage in physical activities or hobbies.

Slips, trips and falls may cause injuries including:

- broken bones when colliding with an object or hitting the ground
- cuts if it occurs near sharp objects
- sprains or strains.

Falls into holes

Holes, penetrations and openings through which a person could fall should be made safe immediately after being formed.

If a cover is used as a control measure, it must be made of a material that is strong enough to prevent persons or objects falling through, such as embedded wire mesh, and should be securely fixed to prevent any dislodgement or accidental removal.

Covers should be marked in clearly legible lettering with the words DANGER. HOLE BENEATH

What can your employer do to prevent slips, trips and falls?

Your employer should:

- ensuring the floor surface is in good order such as being free from holes and uneven surfaces, curled up linoleum or carpet edges
- avoid any changes in floor surface level, or if this is not possible, highlighting these changes
- restrict access to work areas identified as higher risk for slips and trips
- allow safe movement in the workplace

- provide adequate lighting for safe movement
 - ensure sufficient space to work
 - following good housekeeping practices and maintain workplaces in a clean and tidy condition
 - ensure that workers are wearing safety boots and checked regularly to ensure treads are not worn away or clogged with contaminants.
-

Quiz – Falls

4. Which of the following will reduce the risk of falls from heights?
 - a. Using scaffolding or another type of work platform
 - b. Using fall arrest systems (such as a safety harness)
 - c. Reducing the amount of time spent working on roofs
 - d. Any of the above
 5. Before using a ladder, safety checks should include ensuring that the ladder:
 - a. Has no damage including loose or missing parts
 - b. Is properly put up and secured
 - c. Is industrial rated
 - d. All of the above
 6. Which of the following statements is correct?
 - a. Always access a mobile scaffolding from the outside
 - b. It is safe and fun to ride on a mobile scaffold when it is being moved
 - c. Scaffolds must be erected by a licensed person
 - d. It is safe to place a ladder against the outside of a mobile scaffold
 7. Which of the following statements is **NOT** correct?
 - a. All roofs should be treated as fragile until a competent person has confirmed they are not
 - b. All roofs are considered stable
 - c. Never stand on or walk across a roof made of fragile materials
 - d. Roofs made of corroded metal sheets are fragile roofs
-

Electricity

A young construction worker was fixing cladding to a wall with screws when one hit an electrical cable. When her mate touched the metal cladding, he was electrocuted. The employer had not isolated the power and had not checked for cabling.

Electric shocks happen when a person becomes part of an electrical circuit and the current flows through their body. Electricity passing through the body can cause convulsions (involuntary contractions of the muscles), the heart to stop beating and internal and external burns. It can also cause secondary injuries resulting from falls or collisions and fire hazards resulting from an electrical fault.

The most common causes of electrocution in the building construction industry are:

- contact with overhead wires, usually when using equipment
- drilling or cutting into unseen, non-isolated cables that might be located in walls, ceiling panels etc.
- faulty electrical tools
- working with or near equipment that people think is off or isolated, but is actually on or 'live'
- an absence of a **residual current device* (RCD) and lack of testing of RCDs.

*An *RCD is a safety switch of life-saving device designed to prevent you from receiving an electric shock if you touch something live, such as bare wire. If you are using portable electrical equipment and extension leads at work it must have an RCD installed at the switchboard, built into a fixed socket or through a portable RCD outlet. This is a legal requirement.*

Lockout procedure

When cleaning, maintenance or adjusting machinery and equipment, a lockout procedure is required to safeguard the workers who carry out the tasks.

Lockout is a safety procedure to ensure that dangerous machines are properly shut off and are not able to be started up again prior to the completion of maintenance or repair work.

The lock procedure is used when:

- servicing or repair work places workers in danger
- a machine guard is removed for servicing.

There are three steps involved in locking out machines and equipment.

Step 1: Lock

This means the electrical circuits must be shut down and locked.

This is when a lock is put on an ON switch so the machine can't be turned on. Only the person who put it on can remove it. If that person isn't available, strict rules need to be followed to ensure it is removed safely.

There are wide range of locks that can be used in this process. These can be: switches with a built-in lock; chains; jaws or hasps.

Step 2: Tag

Tag refers to the information tag attached to a power source or piece of equipment warning others not to operate it. Tags have information about the name of the person working on the equipment, the time and date of the work and the equipment that's being isolated. Types of tags commonly used in the lockout procedure are danger tags and out of service tags.

Step 3: Test

This means that all power sources need to be checked with proper test instruments to make sure everything is de-energised before going ahead with work.

Let's have a look at how to stay safe

- Understand the lockout procedure. Do not operate or use machinery and equipment that is locked and/or tagged.
- Always switch off electrical equipment at the power point before you pull out the plug.
- Use equipment properly – regularly check and clean the equipment that you use and follow the equipment's operating instructions.
- Report any breakdowns or faulty equipment to your employer. It is the responsibility of your employer to make sure equipment is in good working order.
- Leave repairs to the experts. Serious and fatal injuries can occur when people who are not qualified undertake electrical repairs.

- Don't overload power boards with lots of appliances. Only use power boards fitted with overload protection.
- Be aware of the locations of all safety switches and what equipment they cover in case equipment needs to be switched off in an emergency. You may ask this question during your induction.
- Know emergency procedures for electrical hazards.
- It is very important to understand that water and electricity do not mix. If the area becomes wet, turn off power to electrical equipment that is not designed to be used in wet conditions. Do not plug in or unplug electrical equipment with wet hands or while touching a wet surface.

Be aware!

Extreme care must be taken to avoid touching any live overhead electrical lines or supply cables.

Use battery powered tools on the roof.

Quiz - Electricity

8. When cleaning, maintaining or adjusting machinery and equipment, a lockout procedure is required to:
 - a. Safeguard workers
 - b. Safeguard machinery
 - c. Identify hazardous energy
 - d. Prepare an SWMS
 9. There are three steps in locking out machine and equipment. These steps are:
 - a. Lock, look and tag
 - b. Lock, tag and test
 - c. Tag, do and test
 - d. Lock, test and try
 10. What are the most common causes of electrocution in the building construction industry?
 - a. Contact with overhead wires, usually when using equipment.
 - b. Drilling or cutting into unseen, non-isolated cables
 - c. Faulty electrical tools.
 - d. All of the above.
 11. How can you keep safe working on roofs and near electricity?
 - a. Check for electrical cables in the area you are working.
 - b. Ignore safe working distances from overhead wires.
 - c. Investigate any fallen power lines.
 - d. Check for live wires by touching.
-

Hazardous Substances

Two construction workers received third degree burns after kneeling on wet concrete for an hour. The workers were wearing thin cotton overalls and were kneeling on the wet concrete to level it. Concrete contains lime, a strong alkali which can cause chemical burns to the skin and eyes. The workers needed skin grafts and were in hospital for eight days.

What is a hazardous substance?

A hazardous substance can be any substance, liquid, solid, dust or gas that may cause you harm. In the construction industry these include asbestos, fibreglass, synthetic mineral fibres, cement dust, silica dust, exhaust fumes, glue, paint or solvents.

These substances shouldn't be a problem most of the time, but things can go horribly wrong if you:

- get them on your skin
- eat or drink them by mistake
- breathe them in
- mix substances so they become deadly
- mistake one substance for another

Example of hazardous substances

Silica dust

Silica (or silicon dioxide – SiO₂) is a very common mineral used in the construction industry. Sand, concrete, bricks, tiles, mortar and engineered stone all contain silica. Silica is most dangerous to health when dust is generated, becomes airborne and is inhaled by a worker. Concrete dust may carry high levels of silica dust and repeated exposure can cause silicosis, which causes scarring and stiffening of the lungs. The effects are irreversible, resulting in death.

How much silica do these products contain?

- Bricks: 5-15%.
- Concrete: up to 30%.
- Ceramic tiles: 5-45%.
- Reconstituted stone: more than 80%.

What tasks in construction can lead to high silica exposure?

- Jack-hammering concrete.
- Dry sanding concrete
- Abrasive blasting of bricks and concrete.
- Rock crushing.
- Road work.
- Installation activities such as cutting, grinding, sanding and polishing stone bench tops.

What can you do to be safe from silica dust?

- If you are working with material that may contain silica, your employer must provide you with information, training and instruction about:
 - the risks associated with the work and exposure to silica dust
 - the control measures at the workplace
 - the correct use and maintenance of RPE (respiratory protective equipment)
 - health monitoring of workers

- Use PPE and RPE given to you; for example, safety goggles suitable for dust protection and masks that cover your nose and mouth. RPE must be suitable and comfortable, be tested for fit, and well maintained.

Remember:

Silica dust is harmful. If you are required to work with silica and be exposed to silica dust, talk to your employer about the control measures and how to work safely. You must be given RPE and PPE.

Asbestos

In Australia, asbestos was once used in more than 3000 different products including fibro, flue pipes, drains, roofs, gutters, brakes, clutches and gaskets. Asbestos is now banned for use in new materials, but it is still commonly found in older properties.

When asbestos is bound in asbestos cement sheeting and in good condition, it is not a problem. However, if asbestos cement sheeting is cut with power tools or broken up, asbestos dust is produced.

What can you do to be safe from asbestos?

- Make sure you follow safe work procedures.
- Know what to do and where to go if you are affected by asbestos. Check with your employer if you are unsure.
- Ask to be trained in the procedure to handle asbestos panels without making dust. Never use power tools to cut or drill asbestos material.
- Wear PPE provided.

Quiz – Hazardous substances

12. When jack-hammering concrete, dry sanding concrete, rock crushing and polishing stone bench tops, workers may be exposed to _____.
- a. silica dust
 - b. wood dust
 - c. dust mites
 - d. another one bites the dust.
13. Which one of the following is the correct statement?
- a. Repeated exposure to silica dust may cause silicosis which is an incurable lung disease.
 - b. Silica is most dangerous to health when dust is generated, becomes airborne and is inhaled by a worker.
 - c. Reconstituted stone may contain more than 80% of silica.
 - d. All of the above.
14. Select **three** statements that correctly describe asbestos
- a. Cutting asbestos cement sheeting with power tools will produce asbestos dust.
 - b. Asbestos dust is very toxic to inhale and may cause cancer.
 - c. Asbestos is still being used in new buildings.
 - d. When asbestos is bound in asbestos cement sheeting and in good condition, it is not a problem.

15. What are the documents that provide information about hazardous substances called?
- Safety data sheet.
 - Label.
 - Hazardous substance register.
 - Read me sheet.
-

Machinery, equipment and tools

A young demolition worker suffered serious injuries when he was hit in the back by a bucket from an excavator. The bucket had not been properly fixed into place before the machine was used.

Examples of dangerous machinery, equipment and tools

Powered mobile plant (PMP)

Mobile plant is any machine that is self-propelled and controlled by an operator. It includes:

- forklifts
- mobile cranes
- excavators, bulldozers, bobcats and graders
- elevating work platforms.

Why is PMP so dangerous?

Powered mobile plant is associated with a number of accidents and injuries that occur at workplaces. The most common are:

- falls from PMP
- crushing by PMP
- run-overs by PMP
- roll-overs of tractors and forklifts
- entanglement in and being trapped between moving parts (including implements attached to tractors).

How can you keep safe from PMP?

- Keep away from any machinery or equipment being operated.
- If you need to be in an area where mobile plant is operating, make visual contact with the operator before moving into the area.
- Operators must be trained to operate plant safely and without risk to themselves or others.

Nail guns

An apprentice had to have emergency surgery to remove a nail that had been shot into his arm by another worker. The workmate thought the nail gun was empty and shot at the apprentice as a joke.

Accidents with nail guns regularly occur to young workers. Often, these injuries could have been easily avoided.

How can you keep safe when using nail guns?

- Never use a nail gun unless you have been trained.
- Read the instructions provided with the tool for its safe use. Remember the rules and stick to them.
- Don't point the tool towards yourself or others, no matter how far away they are. Don't use the tool in a congested area. Don't work above other workers.

- When leaving the tool unattended, turn off the air supply and disconnect the air hose.
- Ensure all nail guns are regularly maintained. Don't use a defective nail gun.
- Wear safety glasses.

Remember:

*A person should not use a nail gun unless one or more safety warning signs with the words **WARNING – NAIL GUN IN USE – KEEP CLEAR** are clearly displayed at or near the area where the nail gun is to be used.*



Power drills

Injuries caused by using power drills are common in young workers. It's important to know that the power drill itself doesn't do the actual drilling, it is actually the drill bit that goes through the wood, brick or other material you're using.

You must choose a proper drill bit to perform the task effectively and safely. Always keep drill bits sharp and do not use bent drill bits. Follow manufacturer's instructions, ask experienced workers or ask your supervisor to help select the proper drill bit.

To avoid injuries when using power drills

- Wear safety glasses or goggles.
- Don't use excessive force to drill into hard material. Reduce drill speed if possible.
- When working with small pieces, clamp the material so it will not twist or spin
- Don't drill with one hand while holding the material with the other.

Quiz – Machinery, equipment and tools

16. Powered mobile plant (PMP) used in the building and construction industry includes:

- a. Chainsaws
- b. Forklifts and cranes
- c. Hand held tools and equipment
- d. Mobile phones

17. Accidents with nail guns occur because the nail gun was:

- a. Accidently or deliberately misused
- b. Used in congested areas
- c. Defective
- d. Any of the above.

18. Which of the following is NOT a safe practice when working with power drills?

- a. When working with small pieces, clamp the material so it will not twist or spin.
- b. Wearing safety glasses or goggles.

- c. Using excessive force to drill into hard material.
 - d. Keeping drill bits sharp.
19. A person should not use a nail gun unless one or more safety warning signs with the words WARNING – NAIL GUN IN USE – KEEP CLEAR are clearly displayed at or near the area.



- a. True. False.

Manual Tasks

A 19-year-old apprentice painter injured his lower back while lifting a 20-litre paint tin and carrying it 40 metres. He only felt a twinge at first, but over the next few days, he could not move at all. He has had a slow recovery and is now likely to suffer from back pain for a long time.

Manual tasks are any activity or sequence of activities that requires a person to use their body (musculoskeletal system) physically to perform work.

The most common injuries and health issues that can arise from performing manual tasks are musculoskeletal injuries.

Examples of musculoskeletal injuries are:

- sprains and strains of muscles, ligaments and tendons (e.g. back strain)
- joint injuries
- disc protrusion or disc herniation of the back
- nerve injury or compression
- muscular and vascular disorders (e.g. carpal tunnel syndrome or repetitive strain injury)
- soft tissue injuries.

How does performing a manual task may result in injury?

The construction industry is highly physical. Manual tasks, such as lifting, carrying and putting down objects, are the highest cause of these injuries.

Contrary to popular belief, it's not just the weight of an object that creates the risk of musculoskeletal injuries. Workers are at risk of suffering injuries due to:

- increased effort (force)
- awkward postures
- applying pressure on one part of the body
- performing the same action quickly and repeatedly
- lifting heavy objects

What can your employer do to keep you safe?

- Your employer has a responsibility to provide and maintain a safe workplace. If you are about to perform hazardous manual tasks and you are unsure how to go about it, ask your employer or supervisor for assistance.
- Your employer should provide you with **risk management* and ***task specific training* where hazardous manual tasks have been identified at your workplace.

Risk management is the steps required to manage workplace hazards described as **SAMM- Spot the hazard; Assess the risk; Make the changes; Monitor and follow-up.*

***Task specific training is the practising of actual tasks that will be performed.*

Task specific training should be provided:

- during induction to the task
- as part of your refresher training
- when work tasks are about to be changed or new ones introduced.

After the training, you should be able to:

- recognise the risks and the sources of those risks, and in discussion with your employer or supervisor decide the best way to minimise them
- prepare the workplace layout and surroundings to perform manual tasks safely
- prepare the load for manual handling, where applicable
- organise the task and work flow to minimise the risk of injury
- use relevant mechanical aids and handling devices provided to you
- use tools or equipment provided to you.

There are a variety of ways you can be trained to perform hazardous manual tasks. Training methods include a buddy system, demonstrations, observation, staff meetings, toolbox talks and practice sessions.

Remember:

As the person doing the lifting, you decide the maximum weight you can carry.

Speak up if you think the task is too much for you. The effects of injuries from manual tasks can last a lifetime.

Quiz – Manual tasks

20. When should you receive task specific training to perform manual tasks?

- a. During induction to the task.
- b. As part of refresher training.
- c. When work tasks are about to be changed or introduced.
- d. All of the above.

21. The most *common* health problems that can arise from hazardous manual tasks are:

- a. musculoskeletal injuries
- b. cold and flu
- c. bone cancer
- d. food allergies

22. The maximum weight you can carry is decided by:

- a. your supervisor
- b. your health and safety representative
- c. you

d. your workmates.

Noise

A worker was picking out debris from a freshly graded section of formed earthworks. A reversing grader ran over the worker, killing him. Hearing the grader's engine noise and reversing alarm was very difficult over nearby road traffic noise, strong winds and the presence of other earth moving equipment.

Noisy workplace can be dangerous. The most negative effects caused by noise exposure are hearing impairment or hearing loss. Other effects are accidents and serious injuries occurred from noisy workplace, which can be prevented if workers are able to hear moving machines, warning shouts or danger signals. Construction workers are among the most affected by industrial deafness.

The hazard noise poses is dose related, and the higher the dose of noise, the greater the risk to the worker's hearing.

The noise dose is dependent on three factors:

1. Intensity/loudness: is measured by a noise level meter and is described in decibels (dB).
2. Frequency: is the number of sound vibrations in one second and is measured in hertz (Hz).
3. Duration: the length of time the workers have been exposed to noise.

In Western Australia, the law sets a workplace exposure standard on average over eight hour to be 85 dB(A) (e.g. the typical sound levels of front-end loader), or a peak noise level of 140 dB (e.g. impact noise of sledge-hammering or explosive noise of a gunshot). Any noise exposure above 140dB can create almost instant damage to hearing.

If you have to raise your voice to be heard, the noise level is likely to be 85 dB(A) or more.

What can your employer do?

Where the exposure standard exceeded, your employer must provide solutions to noise hazards such as:

- choosing quieter equipment (e.g. brooms or vacuum cleaners instead of blowers)
- keeping equipment in good working condition
- arranging the site layout so noisy work areas are located away from workers not involved in their operation
- using portable noise barriers around static equipment like generators and concrete pumps
- scheduling the noisy work for times when as few workers as possible are present
- using job rotation to alternate noisy tasks with quiet ones
- providing you with hearing protectors (e.g. earplugs and earmuffs) to use with all other control measures.

What can you do to save your hearing?

To safeguard your hearing, you must wear the hearing protectors that have been given to you. It might seem like there is nothing wrong with your hearing, but the damage is done without you noticing it. Hearing protectors, like earplugs and earmuffs, should be regularly cleaned, repaired and stored near noisy areas.

Remember:

The most important factor for effectiveness of hearing protection is wearing it!

Quiz - Noise

23. Noise levels are measured in:
- Decimals or dM
 - Decibels or dB
 - Millimetres per second
 - dBs per second.
24. The law sets a workplace exposure standard on average over eight hour to prevent hearing loss at work to be _____ dB(A)
- 85
 - 95
 - 140
 - 200
25. The most important factor for the effectiveness of hearing protection devices is:
- Style
 - Appearance
 - Colour
 - Wearing it.
-

Working safely in hot conditions

Working outdoors in the building and construction industry is common. Workers are at risk of heat stress and exposure to solar ultraviolet (UV) radiation. The effects of heat stress range from discomfort to life threatening illnesses such as heat stroke. Sunburn can cause permanent skin damage and is a major risk factor for developing melanoma.

Heat may come from:

- hot climate conditions
- radiant heat from the surroundings such as heat trapped in ceiling space
- work where heavy PPE must be worn
- any combination of these factors

What is heat stress?

Heat stress occurs when your body cannot cool itself enough through sweating to maintain a healthy temperature. Symptoms of heat stress include:

- cool, moist skin with goose bumps
- heavy sweating
- dizziness
- fatigue
- weak, rapid pulse
- low blood pressure upon standing
- muscle cramps
- headache.

What is heat stroke?

Heat stroke is much worse than heat stress. Heat stroke symptoms include:

- body temperature above 40C
- hot dry skin
- irritability
- speech problems
- confusion
- convulsions
- unconsciousness
- *cardiac arrest.

**Cardiac arrest is potentially fatal; however, it is reversible in most victims if treated within a few minutes. Cardiac arrest is a life threatening condition that requires immediate first aid (cardio pulmonary resuscitation – CPR) and medical treatment.*

What can your employer do to keep you safe?

- Know the weather forecast and assess how to organise the day's tasks to avoid the risk of heat stress and heat stroke.
- Make shade available.
- Rearrange tasks and lighten the work in extreme heat.
- Provide workers with information on heat stress and skin cancer and ways to prevent both.
- Supervise workers to ensure they are working safely and that their skin is not exposed to the sun.

What should you do to be safe?

- Drink approximately 250ml of water every 15 to 20 minutes during hot working conditions. Keeping well hydrated is a critical factor in avoiding heat illness.
- Take regular breaks. Know your limits. Practice self-pacing when working in hot conditions.
- Inform your employer if you have an underlying health condition (e.g. heart disease, high blood pressure and diabetes) that may increase your risk of heat illness.
- Maintain a healthy lifestyle, including a healthy diet and regular exercise.
- Apply sunscreen (SPF30+) 20 minutes before sun exposure. Make sure the back of your neck and arms are covered. Re-apply as necessary.
- If you are feeling tired, dizzy or weak or you're having trouble concentrating, tell your supervisor. Rest in a cool, well-ventilated area, remove excess clothing, drink plenty of water and fluids, and apply a wet cloth, cold water or ice packs to the skin (particularly the neck, armpits and groin).
- Although water is generally adequate for fluid replacement, low joule cordials and electrolyte replacement solutions may be provided to encourage fluid intake. High sugar cordials and sports drinks are not recommended.

What should you, your employer or workmates do if someone has heat stroke?

- First, call 000 for an ambulance.
- Lay the person down.
- Cool the person down by applying cold packs or wrapped icepacks to neck, groin and armpit areas.
- Use a wet towel, sheet or clothing to cover the person.
- If the person is fully conscious and able to swallow, provide water. Encourage them to take sips rather than large gulps.

Remember:

Urgent medical attention must be sought if the person becomes unconscious or has a seizure. In the case of cardiac arrest, CPR is required immediately and should continue until the paramedic arrives

(ambulance). If available, attach an automated external defibrillator to the person as soon as possible and follow the step-by-step instructions.

A first aid officer is trained to perform CPR in your workplace.

Quiz – Working safely in hot conditions

26. If you suspect a person has heat stress, encourage them to:
- Rest in a cool, well ventilated area
 - Remove excess clothing and drink plenty of water and fluids
 - Apply a wet cloth, cold water or ice packs to the skin (neck, armpits and groin)
 - All of the above.
27. _____ is the most serious form of heat stress.
- Heat rash
 - Heat exhaustion
 - Heat stroke
 - Heat waves
28. To avoid heat stress during hot work conditions, it is recommended that you drink at least 250ml of water _____ to replace lost fluids.
- Every 15 to 20 minutes
 - During lunch break
 - Every 2 to 3 hours
 - If needed
29. What should you do in the first instance when you suspect that your workmate is experiencing heat stroke?
- Call 000 for an ambulance.
 - Lie the person down.
 - Cool the person down by applying cold packs or wrapped icepacks to neck, groin and armpit areas.
 - Use a wet towel, sheet or clothing to cover the person.
-

Spot the hazards

O'Brien and Sons Construction

There are 6 hazards in this area. Try and find them all.



Hazard notebook

Fill in the hazard notebook

#	Spot the hazard	Assess the risk	Make the change	Monitor and follow-up
1	A toolbox is directly behind the person close to the roof edge	High	Move the toolbox to a safer place and speak to the person about it. Advise the person to wear a safety harness.	Check in later to make sure the toolbox has been removed and the person is wearing the safety harness.
2				
3				
4				
5				
6				

Building and construction industry – Knowledge quiz

1. A Construction Induction Training card is:
 - a. also known as a white card
 - b. evidence that you have completed a construction safety induction training course
 - c. required by law for people working on constructions sites in Western Australia
 - d. All of the above.

2. An example of an administrative control would be:
 - a. blaming the worker
 - b. SWMS and JSA
 - c. cautioning the worker
 - d. having administrative staff to do paperwork.

3. Identify **five** high risk work activities that requires to have an SWMS.
 - a. scaffolding
 - b. dogging and rigging
 - c. crane operation
 - d. forklift operation
 - e. pressure equipment operation
 - f. landscaping
 - g. Sanding drywall

4. Which of the following will reduce the risk of falls from heights?
 - a. Using scaffolding or another type of work platform
 - b. Using fall arrest systems (such as a safety harness)
 - c. Reducing the amount of time spent working on roofs
 - d. Any of the above

5. Before using a ladder, safety checks should include ensuring that the ladder:
 - a. has no damage including loose or missing parts
 - b. is properly put up and secured
 - c. is industrial rated
 - d. all of the above

6. Which of the following statements is correct?
 - a. Always access a mobile scaffolding from the outside
 - b. It is safe and fun to ride on a mobile scaffold when it is being moved

- c. Scaffolds must be erected by a licensed person
 - d. It is safe to place a ladder against the outside of a mobile scaffold
7. Which of the following statements is **NOT** correct?
- a. All roofs should be treated as fragile until a competent person has confirmed they are not
 - b. All roofs are considered stable
 - c. Never stand on or walk across a roof made of fragile materials
 - d. Roofs made of corroded metal sheets are fragile roofs
8. When cleaning, maintaining or adjusting machinery and equipment, a lockout procedure is required to:
- a. safeguard workers
 - b. safeguard machinery
 - c. identify hazardous energy
 - d. prepare an SWMS
9. There are three steps in locking out machine and equipment. These steps are:
- a. lock, look and tag
 - b. lock, tag and test
 - c. tag, do and test
 - d. lock, test and try.
10. What are the most common causes of electrocution in the building construction industry?
- a. Contact with overhead wires, usually when using equipment.
 - b. Drilling or cutting into unseen, non-isolated cables
 - c. Faulty electrical tools.
 - d. All of the above.
11. How can you keep safe working on roofs and near electricity?
- a. Check for electrical cables in the area you are working.
 - b. Ignore safe working distances from overhead wires.
 - c. Investigate any fallen power lines.
 - d. Check for live wires by touching.
12. When jack-hammering concrete, dry sanding concrete, rock crushing and polishing stone bench tops, workers may be exposed to _____.
- a. silica dust
 - b. wood dust
 - c. dust mites
 - d. another one bites the dust.

13. Which one of the following is the correct statement?
- Repeated exposure to silica dust may cause silicosis which is an incurable lung disease.
 - Silica is most dangerous to health when dust is generated, becomes airborne and is inhaled by a worker.
 - Reconstituted stone may contain more than 80% of silica.
 - All of the above.
14. Select **three** statements that correctly describe asbestos
- Cutting asbestos cement sheeting with power tools will produce asbestos dust.
 - Asbestos dust is very toxic to inhale and may cause cancer.
 - Asbestos is still being used in new buildings.
 - When asbestos is bound in asbestos cement sheeting and in good condition, it is not a problem.
15. What are the documents that provide information about hazardous substances called?
- Safety data sheet.
 - Label.
 - Hazardous substance register.
 - Read me sheet.
16. Powered mobile plant (PMP) used in the building and construction industry includes:
- chainsaws
 - forklifts and cranes
 - hand held tools and equipment
 - mobile phones
17. Accidents with nail guns occur because the nail gun was:
- accidently or deliberately misused
 - used in congested areas
 - defective
 - any of the above.
18. Which of the following is NOT a safe practice when working with power drills?
- When working with small pieces, clamp the material so it will not twist or spin.
 - Wearing safety glasses or goggles.
 - Using excessive force to drill into hard material.
 - Keeping drill bits sharp.

19. A person should not use a nail gun unless one or more safety warning signs with the words WARNING – NAIL GUN IN USE – KEEP CLEAR are clearly displayed at or near the area.



- a. True. b. False.
20. When should you receive task specific training to perform manual tasks?
- a. During induction to the task.
 - b. As part of refresher training.
 - c. When work tasks are about to be changed or introduced.
 - d. All of the above.
21. The most *common* health problems that can arise from hazardous manual tasks are:
- a. musculoskeletal injuries
 - b. cold and flu
 - c. bone cancer
 - d. food allergies
22. The maximum weight you can carry is decided by:
- a. your supervisor
 - b. your health and safety representative
 - c. you
 - d. your workmates.
23. Noise levels are measured in:
- a. decimals or dM
 - b. decibels or dB
 - c. millimetres per second
 - d. dBs per second.
24. The law sets a workplace exposure standard on average over eight hours to prevent hearing loss at work to be _____ dB(A)
- a. 85
 - b. 95
 - c. 140
 - d. 200

25. The most important factor for the effectiveness of hearing protection devices is:
- style
 - appearance
 - colour
 - wearing it.
26. If you suspect a person has heat stress, encourage them to:
- rest in a cool, well ventilated area
 - remove excess clothing and drink plenty of water and fluids
 - apply a wet cloth, cold water or ice packs to the skin (neck, armpits and groin)
 - all of the above.
27. _____ is the most serious form of heat stress.
- Heat rash
 - Heat exhaustion
 - Heat stroke
 - Heat waves
28. To avoid heat stress during hot work conditions, it is recommended that you drink at least 250ml of water _____ to replace lost fluids.
- every 15 to 20 minutes
 - during lunch break
 - every 2 to 3 hours
 - if needed
29. What should you do in the first instance when you suspect that your workmate is experiencing heat stroke?
- Call 000 for an ambulance.
 - Lie the person down.
 - Cool the person down by applying cold packs or wrapped icepacks to neck, groin and armpit areas.
 - Use a wet towel, sheet or clothing to cover the person.
-