



Apply WHS requirements, policies and procedures in the construction industry

CPCCWHS2001

- When working in the construction industry, a worker can be exposed to many different hazards and risks.
 - It is therefore important that workers understand all the hazards and risks associated with construction work.
 - This will allow the worker to identify and implement control measures.
- Hazard - Something with the potential to cause harm or damage.
- Risk - The result of the hazard.
 - Hazards and risks relate to the same task and the worker must identify the hazards and the risks.

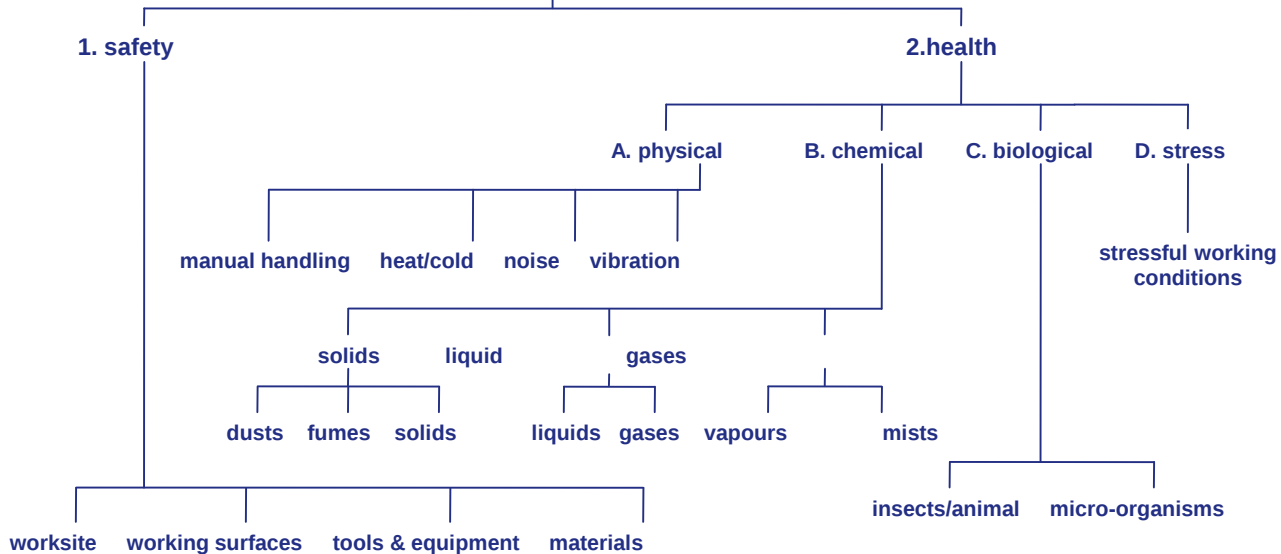


- A hazard is something that could cause harm.
 - Hazards are accidents waiting to happen, they can cause short term injuries or long term injuries.
- A risk is the likelihood of death, injury or illness that may result because of the hazard.
 - E.g. Skin cancer, broken bones, amputations, electrocution etc.

- An incident is an event with causes (or nearly causes) human injury or damage to property.
 - Accidents mean suffering & loss for everyone.
 - Accidents seldom happen – they are usually caused.
- All workplaces have hazards that could cause injury or illness.
 - These cause personal suffering, loss of income, productivity and property.

It is in everyone's best interest to reduce workplace hazards.

- Building industry hazard groups:



- Hazards on site can include the following:
 - Excavations, including trenches;
 - Hazardous materials;
 - Traffic;
 - Fires;
 - Manual handling;
 - Noise;
 - Dust;
 - Temperature (high and low); and
 - Moving machinery, plant and equipment.



- Hazards on site can include the following:
 - Vapours and gasses;
 - Electrical safety work in confined spaces;
 - Ultraviolet rays;
 - Underground and overhead services;
 - Working at heights; and
 - Unguarded machinery and tools.
- Whatever the hazard may be, a control measure must be used to ensure workers and other personal a safe work environment.



Worksite Hazards	Work Surfaces Hazards	Tools and Equipment Hazards	Materials Hazards
Electrical services and overhead power lines	Slippery floors	Hand tools	Steel reinforcement bars
Poor housekeeping	Ladders	Electrical power tools	Protruding rods or nails
Poor lighting	Scaffold	Compressed air	Flammable liquids
Open trenches	Uneven ground	Explosive powered tools (EPT)	Chemicals



- Before work commences, environmental considerations must be considered.
- Among these will be:
 - Vegetation preservation;
 - Noise;
 - Disposal of waste materials;
 - Lakes and river protection; and
 - Protection of native wildlife.
- All the information can be obtained through the site safety and environmental plans.

- Among the many hazards found on construction sites, unguarded tools and equipment can also be faulty.
 - Tools and equipment that are not safe should be tagged out and reported to the supervisor or safety rep.

Safety guards must never be removed from the tools.

- The purpose of a safety tag is to stop the use of unsafe tools as well as locking out accidental use of power, gas and water.
- Any tools such as grinders and circular saws must be fully guarded, if not then they pose an immediate threat to workers and they do not meet WHS requirements.
 - They must be tagged out.
 - Once a tag has been placed on faulty equipment the only person allowed to remove the tag is the person who placed the tag on.



- All workers are protected by the Work Health and Safety Act 2011.
 - This document sets out the law in regards to safety and states the duties of both the PCBU (Person Conducting a Business Undertaking) and the worker.
 - In regards to a workers duty, the Act states:
 - While at work, a worker must take reasonable care for his or her own health and safety; and
 - Take reasonable care that his acts or omissions do not adversely affect the health and safety of other persons.
 - Compliance, so far as the worker is reasonably able, with any reasonable instruction that is given by the person conducting the business or undertaking to allow the person to comply with this Act.
 - Part of these duties can include identifying and reporting hazards.

- It is important for all accidents and incidents to be reported and recorded (written) because:
 - The information (details) may be used for accident statistics;
 - A minor accident (for example, a cut on the face) may indicate a risk of a more serious or later injury (for example, the loss of an eye);
 - If a hazard causes a minor accident, the hazard may then be controlled;
 - This may prevent a major accident occurring.
 - It may be a claim for an industrial injury benefit; and
 - For example, Workers' Compensation.
 - It may help authorised investigators (where required by law) to understand or work out exactly what caused the serious injury or death.



- All accidents and near misses should be investigated quickly - if possible, before anything has been changed in the place where it happened.
 - This will help you get an accurate picture of the incident before the evidence has been cleaned up and people have forgotten the details.
- Incidents, accidents and near misses are the results of hazards.
 - The idea is to remove those hazards before they cause injury or damage.
 - All accidents, incidents and near misses are to be reported to the following people: safety advisor, safety rep, supervisor and site supervisor.

**It is a requirement by law that employers
keep records of any accidents.**

- Near misses or dangerous events need to be reported to stop them from recurring.
- Some of these incidents can include, but not limited to:
 - Collapse or partial collapse of a structure;
 - Electric shock;
 - Uncontrolled explosion, fire, escape of gas, hazardous substances or steam;
 - Collapse or failure of an excavation more than 1.5m deep;
 - Damage or malfunction of any other major plant;
 - Collapse, overturning or failure of the loadbearing of any scaffolding, lift, crane, hoist or mine winding equipment; and
 - Any other unintended or uncontrolled incident or event rising from operations carried out at the workplace.

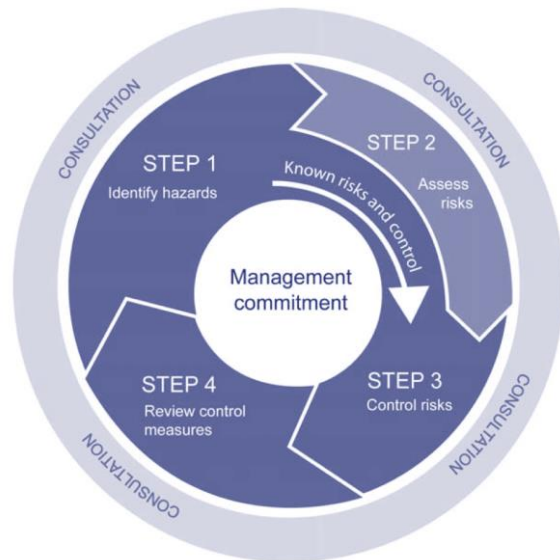
- When a hazard has been identified it must be assessed and dealt with.
 - Part of this will also be the reporting of the hazard to suitable persons in the workplace.
 - If a hazard was identified, then other persons need to be notified, some of these people can include:
 - Safety rep;
 - Supervisor;
 - Site safety advisor/co-ordinator;
 - First aid officer; and
 - Other workers who may be affected by the hazard.

- This information can be given verbally or in the written form of a hazard report.

**Remember that reporting a hazard – may
save someone's life!**



- This simple chart shows the steps in hazard and risk identification as well selecting control measures.
- Once the hazard has been identified, then an assessment can be made on the level of risk and from that the control measures can be identified and implemented.



- Example of a risk matrix chart. This can vary from workplace to workplace. This is an effective way of determining level of risks as well as the consequences.

		Extreme	High	Medium	Low						
								Consequences			
								A: Death or Permanent Disability			
								B: Serious Injury			
								C: Lost Time Injury			
								D: Casualty Treatment			
								E: First Aid			
Likelihood		Matrix	A	B	C	D	E				
1: Very Likely		1	E	E	H	H	M				
2: Likely		2	E	H	H	M	M				
3: Possible		3	H	H	M	M	L				
4: Unlikely		4	H	M	M	L	L				
5: Very Unlikely		5	M	M	L	L	L				

- An example risk register:

Record number	Date of entry	Hazard	Location	People exposed	Possible injuries/ damage	Control measures	Risk assessment
1							
2							
3							
4							
5							
6							

Risk assessment is determined (according to the table on the following slide) to be either:

- Extreme
- High
- Medium
- Low

- Over many years, documents have been created to help workers understand the hazards and risks they will be facing when undertaking work.
- The two most common are the JSA (Job Safety Analysis) and the SWMS (Safe Work Method Statements).
- The SWMS is compulsory for high risk work such as scaffolding, cranes and fork lifts.
 - On the following slides are examples of a JSA and a SWMS.



FORM FS007
Job Safety Analysis

Site:	Location:
Activity/Plant:	
Date:	Responsible person:

Hazard	Applicable?	If applicable, describe the risk?	Risk Score (E, H, M, L)	Safety Control (Reference Hierarchy of Control – Page 2)
Access				
Work at heights				
Falling objects				
Electricity				
Manual Handling				
Plant and equipment				
Confined Space				
Ground condition				

Chemicals, dusts, liquids, gases.				
Slips, trips and falls				
Noise				
Radiation (including UV and welding)				
Environmental conditions				
Biological agents				
Vibration				
Wildlife				
Other				

FS007_ CSTC Pty Ltd_2-1_09/10/2014

Review Date: 01/07/2015

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Slide 1 of 2

T058 - SWMS Template

Company Name:		Location/Address:																																								
ABN:		Implemented Date: 01/07/2014		Review Date: 30/06/2015																																						
Work Method Statement (Part 1)		Referenced Documents: Work Health and Safety Act 2011 Work Health and Safety Regulation 2011		Training Required to Complete Work: Work Method Statement Instruction only: Yes ☐ No ☐ Specialised Training Required (i.e. confined space work etc) Yes ☐ No ☐ If Yes to Specialised Training, type of training required:																																						
Qualification/Prescribed Occupation Required: Yes ☐ No ☐ If Yes, Qualification title: Engineering Details/Certificates Required (i.e. tilt up panels design & construction) Yes ☐ No ☐ Suitable Workplace Area: Yes ☐ No ☐																																										
PPE Requirements: Hard Hat ☐ Steel Cap Boots ☐ Ear Protection ☐ Consider Type ☐ Eye Protection ☐ Consider Type ☐ Protective Gloves ☐ Consider Type ☐ Respirator ☐ Consider Type ☐ Harness ☐ Consider Type ☐ Overall ☐ Visual Vest ☐ Sun Hat ☐ Sun Screen ☐ Barrier Cream ☐																																										
Prepared By Name: _____ Date: ____/____/____ Signature: _____		Risk Priority Chart:		Consequences Legend: A: Death or Permanent Disability B: Serious Injury C: Lost Time Injury D: Casualty Treatment E: First Aid																																						
Approved By Name: _____ Date: ____/____/____ Signature: _____		Likelihood 1: Very Likely 2: Likely 3: Possible 4: Unlikely 5: Very Unlikely		<table border="1"> <thead> <tr> <th>Matrix</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>E</td> <td>E</td> <td>H</td> <td>H</td> <td>M</td> </tr> <tr> <td>2</td> <td>E</td> <td>H</td> <td>H</td> <td>M</td> <td>M</td> </tr> <tr> <td>3</td> <td>H</td> <td>H</td> <td>M</td> <td>M</td> <td>L</td> </tr> <tr> <td>4</td> <td>H</td> <td>M</td> <td>M</td> <td>L</td> <td>L</td> </tr> <tr> <td>5</td> <td>M</td> <td>M</td> <td>L</td> <td>L</td> <td>L</td> </tr> </tbody> </table>			Matrix	A	B	C	D	E	1	E	E	H	H	M	2	E	H	H	M	M	3	H	H	M	M	L	4	H	M	M	L	L	5	M	M	L	L	L
Matrix	A	B	C	D	E																																					
1	E	E	H	H	M																																					
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3	H	H	M	M	L																																					
4	H	M	M	L	L																																					
5	M	M	L	L	L																																					
Reviewed By Name: _____ Date: ____/____/____ Signature: _____																																										

Risk Matrix Legend: C = Consequence L = Likelihood P = Priority / E = Extreme H = High M = Medium L = Low

Slide 2 of 2

T058 - SWMS Template

Work Method Statement (Part 2)									
Procedure (in steps):	Possible Hazards:	Risk Score			Safety Controls:	Revised Risk			Action by Whom
		C	L	P		C	L	P	
Operating Gantry Crane	Personal injury				Personnel must be competent in the use of this machine. Provide proof of competency to management. Never exceed safe working weight as marked on crane.				All staff
Sling Loads	Personal injury / load failure				Do all daily pre-start checks, lifting gear must be tagged and within test date. Lift equipment must be selected by a certified dogger.				All staff

Risk Matrix Legend: C = Consequence L = Likelihood P = Priority / E = Extreme H = High M = Medium L = Low

- Job Safety Analysis (JSA) simply means looking at the work task and considering what is the safest way to complete it.
- It is a way of becoming aware of the hazards involved in doing the job and taking action to prevent an injury.
- The JSA process is suitable for different trades to different tasks, and need not require enormous amounts of time or use endless pieces of paper.

 FORM FS007
Job Safety Analysis

Site:		Location:	
Activity/Plant:			
Date:		Responsible person:	

Hazard	Applicable?	If applicable, describe the risk?	Risk Score (E, H, M, L)	Safety Control (Reference Hierarchy of Control - Page 2)
Access				
Work at heights				
Falling objects				
Electricity				
Manual Handling				
Plant and equipment				
Confined Space				
Ground condition				

Chemicals, dusts, liquids, gases				
Slips, trips and falls				
Noise				
Radiation (including UV and welding)				
Environmental conditions				
Biological agents				
Vibration				
Wildlife				
Other				

- A Safe Work Method Statement (SWMS) is a document that:
 - Lists the types of high risk construction work being done;
 - States the health and safety hazards and risks arising from that work;
 - Describes how the risks will be controlled; and
 - Describes how the risk control measures will be put in place.

Work Method Statement (Part 1)

Company Name: _____ Location/Address: _____

ABN: _____

Work Method Statement (Part 1)

Implemented Date: 01/07/2014 Review Date: 30/06/2015

Qualification/Prescribed Occupation Required: Yes ☐ No ☐

If Yes, Qualification No: _____

Engineering Details/Certificates Required (i.e. lift up plans design & construction): Yes ☐ No ☐

Suitable Workspace Area: Yes ☐ No ☐

Relevant Documents: Work Health and Safety Act 2011, Work Health and Safety Regulation 2011

Training Required to Complete Work: Work Method Statement Instruction only: Yes ☐ No ☐ Specialised Training Required (i.e. confined space work etc): Yes ☐ No ☐ If Yes to Specialised Training, type of training required: _____

PPE Requirements:

Headwear: ☐ Ear Protection: ☐ Eye Protection: ☐ Protective Clothing: ☐ Respirator: ☐ Gloves: ☐ Boots: ☐ Other: ☐

Special Conditions: _____

Prepared By: _____ Date: / /

Approved By: _____ Date: / /

Reviewed By: _____ Date: / /

Risk Priority Chart:

Legend: A: Death or Permanent Disability, B: Serious Injury, C: Lost Time Injury, D: Casualty/Treatment, E: First Aid

	A	B	C	D	E
1: Very Likely	5	4	3	2	1
2: Likely	4	3	2	1	0
3: Possible	3	2	1	0	0
4: Unlikely	2	1	0	0	0
5: Very Unlikely	1	0	0	0	0

Block Matrix Legend: C = Consequence, L = Likelihood, P = Priority, E = Extreme, H = High, M = Medium, L = Low

Work Method Statement (Part 2)

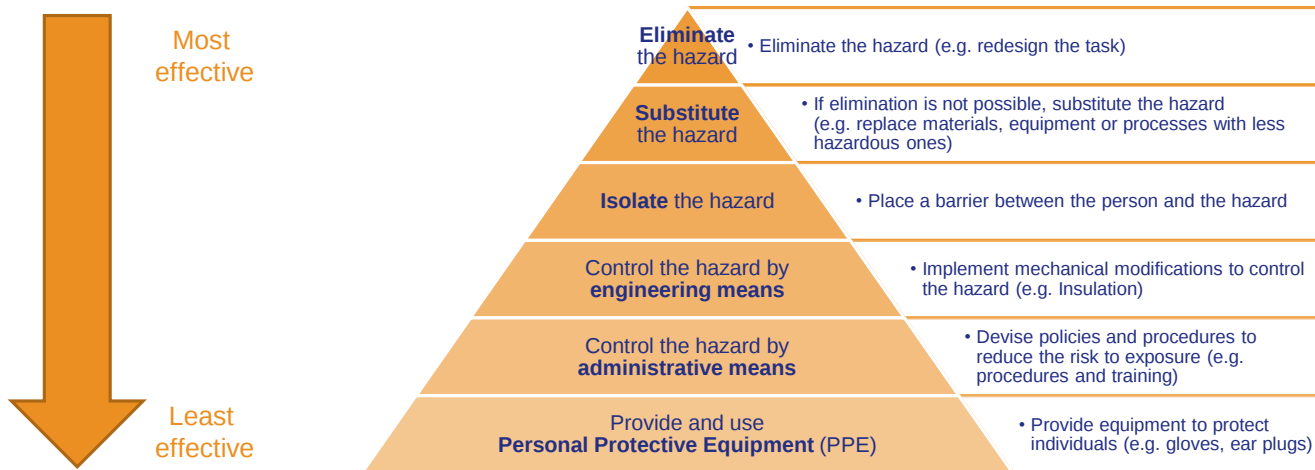
Activities to be performed	Possible Hazards	Risk Score			Safety Controls	Revised Risk			Action by Whose
		E	L	P		E	L	P	
Operating Gantry Crane	Personal injury				Personnel must be competent in the use of this machine. Provide proof of competency to management.				All staff
Sling Loads	Personal injury / load failure				Never exceed safe working weight as marked on crane. Do all daily pre-start checks, lifting gear must be tagged and within test date. Lift equipment must be selected by a certified dogger.				All staff

Block Matrix Legend: C = Consequence, L = Likelihood, P = Priority, E = Extreme, H = High, M = Medium, L = Low

- Each company will have their own JSAs and SWMS.
 - Each employee who may be undertaking work that requires a JSA or SWMS must read, understand and sign these documents.
- Never sign a JSA or SWMS unless you are absolutely sure you understand the task at hand, the methods the work will undertake and also the safety control measures put in place to make the task safer for everybody, not just the person doing the task.
 - If you are unsure of any part of a JSA or SWMS consult with your safety rep, safety advisor, supervisor or fellow workers.



- The hierarchy of control gives priority to the order in which risk controls should be implemented to avoid future incidents.



- Hazardous materials can be found throughout the construction industry, some of these materials can be:
 - Asbestos containing materials;
 - Cleaning chemicals;
 - Solvents;
 - Fuels;
 - Insulation materials; and
 - Glues.



- To best identify and understand how to handle, use, store and dispose of these materials a document called a Safety Data Sheet (SDS) should be issued with these materials.
 - This document must be read, understood and followed to maintain safe work practices.
 - A JSA (Job Safety Analysis) may also be required to ensure safe work practices.
 - Never use chemicals or hazardous substances unless a SDS is provided.

Always consult with your supervisor if you are unsure of the correct procedures.

- The SDS will provide the following information:
 - The identity of the product;
 - The properties and uses of the product;
 - Health hazard information;
 - Precautions for use;
 - Safe handling information;
 - First aid instructions;
 - Methods for safe disposal; and
 - Emergency procedures.



Chem Alert Report

Product Name **ASBESTOS SHEET, COMPRESSED**

Ingredient
ASBESTOS (CHRYSOTILE)
RUBBER

Conc. CAS No.
Not Available 12001-29-5
Not Available Not Available

Shipping **CLASSIFIED AS HAZARDOUS ACCORDING TO NIOSH CRITERIA.**
WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)

Synonyms COMPRESSED ASBESTOS SHEET.

Appearance SOLID, FIBROUS MATERIAL.

OdourLESS

Use(s) INDUSTRIAL APPLICATIONS.

Supplier MANVILLE SALES CORP

Poison Sched None Allocated Hazchem 2X

Pkg Group II EPG 9B7

UN No. 2590

D.G. Class 9

Sub/Tert Risk None Allocated

HEALTH HAZARDS

Health Hazard Summary Highly toxic via inhalation. Use safe work practices to avoid fibre generation. Respirable asbestos fibres have the potential to cause asbestosis, cancer and mesothelioma. There is generally a latency period of 3-50 years after the initial period of exposure before disease becomes evident. In general, mesotheliomas are fatal within twelve months of diagnosis. Classified as carcinogenic to humans (IARC Group 1).

Eye Irritant. Exposure to fibres may result in irritation, lacrimation, pain and redness.

Inhalation Highly toxic. Over exposure may result in asbestosis, cancer or mesothelioma. Symptoms of disease, breathlessness, chest or abdominal pain, dry cough, decreased lung function, rales, finger clubbing, breathing difficulties & possibly a bluish skin discolouration due to a lack of oxygen.

Skin Irritant. Prolonged contact may result in itching, redness and skin rash. Chronic exposure may result in the development of 'asbestos warts'.

Ingestion Non toxic. The development of asbestos related diseases are not related to ingestion of the material, but inhalation of airborne fibres. No evidence exists to indicate that asbestos may be toxic via ingestion.

PRECAUTIONS

Flammability Non flammable. No fire or explosion hazard exists.

Reactivity Compatible with most commonly used materials.

Ventilation Do not inhale dust/fibres. Localised extraction ventilation or wet methods of work should be used to control dust levels. Clean area with vacuum cleaner equipped with high efficiency filters (HEPA) and conforming to AS3544.

PERSONAL PROTECTIVE EQUIPMENT

PPE Wear coveralls, dust-proof goggles, a Class P2 (Particulate) Respirator and PVC or rubber gloves. At high dust levels, wear a Powered Air Purifying Respirator (PAPR) with Class P3 (Particulate) filter, an Air-line respirator or a Full-face Class P3 (Particulate) respirator.



Colour
Rating
RED

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Page 1 of 2

- Asbestos is a product that has many applications and was used extensively throughout the construction industry up until the mid 1980s.
 - Because asbestos has been found to be a very hazardous materials it is no longer being used, however many buildings built before the 1980s still contain traces of asbestos.
 - Asbestos can be found anywhere and these pictures demonstrate its wide usage in construction.
 - The most likely place of contact would be when work was being conducted around old buildings.



Ceiling insulation



Factory roof

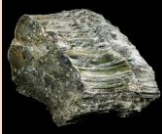


Houses

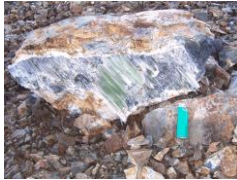


Pipe lagging

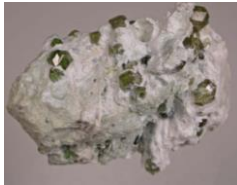
- The name asbestosis given to various forms of naturally occurring fibrous silicate minerals.

Mineral	Picture	Mineral	Picture
Actinolite		Chrysotile (white asbestos)	
Amosite (brown asbestos)		Crocidolite (blue asbestos)	
Anthophyllite		Tremolite	

- Serpentine rock groups



- Amphibole rock groups



- Manufactured materials containing Asbestos fibres are referred to Asbestos Containing Materials under Work Health and Safety Legislation.
 - Asbestos containing materials (ACM) are classified as either friable or non-friable (bonded):
 - Friable ACM (friable asbestos) is asbestos containing material that, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure.
 - Generally if the asbestos fibres can get airborne easily then they can be considered to be in a friable state.
 - Non-friable ACM (also referred to as bonded asbestos) containing a bonding compound such as cement, vinyl, resin or other similar materials reinforced with asbestos fibres.
 - Exposure to asbestos can lead to serious illness such as:
 - Asbestosis
 - Mesothelioma
 - Lung cancer

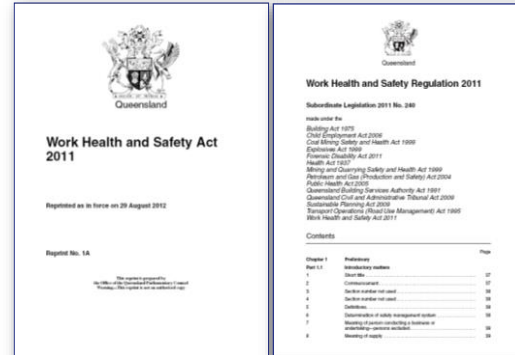
- Only persons who have been suitably trained are permitted to remove more than 10m² of Asbestos.
- Removal of asbestos requires specialist tools and equipment such as an **asbestos designed vacuum cleaner**.
 - **Qualified Removalists:**
 - An '**A**' **class** licence will be required in areas where friable asbestos is being removed. These people may also remove bonded asbestos.
 - A '**B**' **class** licence is required in areas where more than 10m² of bonded asbestos is being removed.
 - A licence is not required if less than 10m² of bonded asbestos is being removed.



- If ever you discover a product you are not sure of, do not disturb and inform your supervisor, safety rep, safety advisor, the person in control of the workplace and other workers and place barricades around the contaminated area.

Non Friable ACM (bonded) may include:	Friable ACM may include:
Asbestos cement	Asbestos backing on vinyl flooring
Asbestos cement moulded guttering	Material that may have degraded condition that has rendered the material friable
Asbestos cement sheets (walls and roofing)	Asbestos cement
Service pits	Asbestos cement moulded guttering
Tiles	Pipe lagging
Adhesive and glues	Ceiling tiles
Bitumastic felts and materials	Asbestos cement sheeting
Vinyl floor covering	Thermal insulation
Mortar	Gaskets that have become friable
Resinous backing board	Woven textiles, ropes, tapes and braids
Sealant mastic and tape	Low density board sprayed on fireproofing

- Manufactured materials containing asbestos fibres are referred to as asbestos containing materials or 'ACM' under work health and safety legislation.
- If you suspect asbestos do not disturb it, never use tools and equipment to smash or drill into asbestos as this can set asbestos particles free.



- Manual handling injuries form a large part of workers compensation claims, and while the lower back is the prime area of complaints the entire body can be put at risk from incorrect manual handling techniques.
 - Back injuries can be caused by a number of factors including:
 - Lifting too heavy a load;
 - Twisting while performing the lift;
 - Overreaching;
 - Sudden jerky movements while lifting;
 - Repetitive work;
 - Fatigue; and
 - Incorrect manual handling techniques.

Injuries from manual handling can include back sprains, strains and spinal damage as well as sprains and strains to other body parts

- By using incorrect manual handling techniques a worker risks an injury that could be something as minor as a strain or sprain or face the possibility of long term damage that could have a devastating effect on the workers ability to work as well as impact on a person's personal life.
- Although manual handling injuries are always presumed to be back injuries the fact is that the whole body is prone to these type of injuries.



- There are several methods to control manual handling injuries and by using the Hierarchy of Control it may be possible to reduce the number of work related manual handling injuries.
 - Consider the movement on a construction site of a large number of bags of cement from one side of the project to the other side by hand, what can be the problem:
 - Too heavy a bag?
 - A large number of bags?
 - A long distance to move the bags?
 - Awkward sized bags?
 - These can be a few problems associated with moving this material but there may be other factors.

What solutions can be found to rectify these problems?

- Possible solutions:



Mechanical aids



Team lifting



Lighten the load – replace heavy 40kg cement bags with lighter 20kg cement bags

- Another control measure can be training.

- Correct manual handling training can help workers think about the task and be prepared for the load.
- Not everything that is lifted is in the shape of a box so consideration must be given to the shape of the object.
- The awkwardness of the object and the intended path to be taken must be considered.

- To assist with manual handling situations, consider the following:
 - Think about what has to be moved or lifted.
 - Is there a better way to perform the task?
 - Can the task be redesigned?
 - What are the hazards and risks associated with the task?
 - Is the task repetitious leading to fatigue?
 - Is the pathway clear?



Problem	Solution
Lifting a heavy load	Lighten the load, use a mechanical lifting device, perform team lifts
Twisting while performing the lift	Do not twist the body while lifting materials
Overreaching	Do not overreach for objects at higher levels, keep the load as close as possible to the body
Sudden jerky movements while lifting	Perform smooth fluid movements, try not to jerk the load upwards
Repetitive work	Change job tasks if possible to stop overuse of the same muscle group
Fatigue	Take a break if needed
Incorrect manual handling techniques	Use correct techniques when lifting items, talk to safety reps, fellow workers and supervisors for guidance

- Plan your lift.

- Use a wide, balanced stance.
- Get as close as possible to the load.
- While lifting, keep your lower back in its normal alignment.
- Use your leg muscles to assist the lift.
- Pick up your feet to pivot and turn.
Do not twist straight around.
- Move your feet as you go.
- Lower the load, maintaining the normal alignment of your back, again using your legs.
- Ensure a solid contact when lifting.
- Use your entire palm, not just your fingers.



- PPE can be defined as something to wear or apply to protect a worker.
 - PPE is placed last in the Hierarchy of Control measures but the importance of PPE cannot be underestimated.
 - Stock standard PPE on all construction sites will be a hard hat, safety boots and Hi Vis clothing and they will be worn at all times.
 - Other PPE items are added to the list depending on the task being undertaking.



- PPE must be worn to fit the task being undertaken at all times.
- Failure to do so can lead to serious injuries.
- So what do we wear?
 - Eye protection when drilling, grinding, jack hammering, hot works, using chemicals and welding



- **Hearing protection** when using power tools such as grinders and saws, jack hammering, using explosive power tools and when working near and operating plant and machinery.
- **Face masks** should be worn when using chemicals, creating dust when grinding, jack hammering or when the atmosphere has a high mist or vapour content.



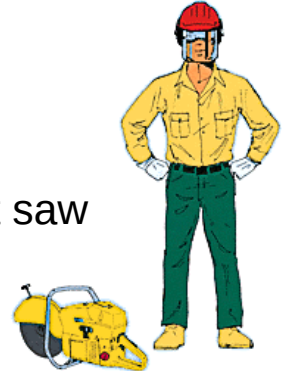
- Welding PPE



- Anti-vibration gloves



- PPE for quick cut saw



- Construction signage plays an important part in keeping work sites safe, it informs workers of the required PPE as well as giving information for emergency exits and first aid locations.
- Warning signs inform workers of hazards and signage depicting the PPE requirements must be followed at all times.



Three signs all designed to stop unauthorized persons entering work zones. Only persons authorised may enter these work areas

- Common PPE signs that are found on construction sites:
 - Notice that these signs are all information signs and they are all the coloured blue.



- Warning signs, all coloured yellow.



- The use of safety barriers as well as signage is the best way to keep unauthorised people away from hazards



- Danger signs are all in red and black.

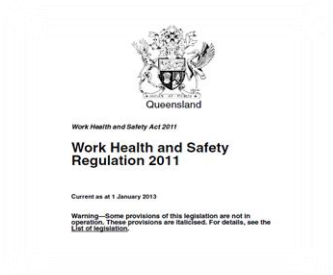


- Information green signs.



- Licensing of High Risk Work

- Section 81 of the WHS Regulation 2011 states that a person must not carry out a class of high risk work unless the person holds a high risk work licence for that class of high risk work, except as provided in section 82.



The WHS Regulation 2011; Schedule 4 Identifies the following as High Risk Work:

- Basic, Intermediate and Advanced Scaffolding
- Dogging
- Basic, Intermediate and Advanced Rigging
- Crane operation – Tower, Derrick, Portal, Bridge and Gantry, Vehicle Loading, Non-Slewing mobile, Slewing Mobile
- Personnel and Materials hoist
- Boom-type elevating work platform
- Forklift truck
- Order-picking forklift truck
- Standard and advanced boiler operation
- Turbine operation
- Reciprocating steam engine operation
- Concrete placing boom
- Reach stacker

- Many sites now require personnel to have undergone formal training if they are to be working at height.
 - On some sites permits are required from the person in charge if the site to ensure on suitably qualified people undertake the work.
 - Work at heights must be undertaken with the most appropriate controls measures.
 - Ideally no hazard would be present but because there is, workers should be trained in the use of devices such as harnesses, fall arrest devices, fall restraint devices, static lines.



- This information excludes work on ladders or trestle ladder platforms and scaffolding work.
 - Risks must be managed if a person could fall less than 3m (housing construction), 2m (other construction) or if work is on a roof pitch not more than 26°.
 - Hazards that may present a risk from a fall include:
 - Vertical reinforcing steel, the edge of a rubbish skip, a picket fence, or a stack of bricks below workers;
 - Unsheeted floor bearers and joints 2m below workers;
 - Work on a brittle roof.



- Entry into a confined space can be one of the most hazardous activities you as a construction worker may be faced with.
 - Be aware of the confined spaces that may exist on site.
 - Generally they will be areas with limited openings for workers to enter and exit and are not designed for regular occupancy.
 - There may be areas that contain or cause an accumulation of atmospheric hazards.
 - They may also have a deficiency or over supply of oxygen.
 - Only persons who have been trained to enter confined spaces are permitted to enter a confined space.
 - If you are unsure if the area you are entering is a confined space or not, stop, do not enter and consult with your supervisor, safety advisor or safety rep.



- Confined space entry is a specialised field requiring detailed training and a thorough understanding of the appropriate work and safety practices.
 - Don't attempt to enter a confined space unless you are fully trained and know what you are doing.
 - Further requirements include a written authority to enter (entry permit), risk assessments, rescue and first aid procedures.
 - Persons entering confined spaces must be trained fully and be able to operate confined space equipment such as:
 - Walkie talkies;
 - Atmospheric tester;
 - Tripods;
 - Harnesses; and
 - Pulleys.



- Examples of confined spaces include:

- Trenches and excavations
- Ceiling work
- Lift wells
- Tanks
- Tunnel construction
- Asbestos removal
- Basement areas of buildings under construction
- Pits
- Man holes
- Pipes



- Every job site will have an emergency evacuation plan in place.
 - This is normally explained to workers through an on site induction before the worker commences work.
 - Part of these plans will indicate the site personnel responsible for co-ordinating an emergency evacuation along with designated exit routes and muster points as well as first aiders on sites.
 - They are often identifiable by a coloured helmet.
 - Know your emergency exits.



- Part of emergency procedures may include information for fire safety and procedures for fighting a fire.
 - A basic simple easy guide to fighting fires is the R.A.C.E term below.

Rescue any people in immediate danger *(only if safe to do so).*



Alarm – Raise the alarm.



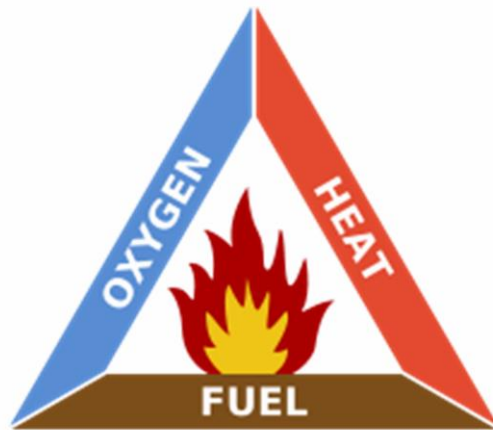
Contain – Close doors, windows to contain fire *(only if safe to do so).*



Extinguish – Use extinguishing equipment if trained *(only if safe to do so).*

- Remember – only attempt to fight a fire if you have been trained!

- For a fire to thrive and spread it requires three things:
 - Fuel for the fire to burn;
 - Air for the fire to breathe; and
 - Heat for the fire to continue burning.
- Removal of any one of the sides of this fire triangle will extinguish the fire.



The Fire Triangle

- There are several categories of fires and it is important to select the correct fire extinguisher to match the fire.

Symbol	Class of fire
	Class A – Ordinary Combustibles <i>Examples: Wood, paper, plastic, rubber, cloth</i>
	Class B - Flammable Liquids <i>Examples: grease, gasoline, oil, solvents</i>
	Class C - Flammable Gases <i>Examples: L.P.G., Acetylene, natural gas</i>
	Class D – Flammable metals <i>Examples: Magnesium, aluminium, sodium</i>
	Class E – Electrical fires <i>Examples: switchboards overloading</i>
	Class F – Cooking fats and oils <i>Example: Cooking oils and fats usually found in industrial kitchens</i>

- A chart showing the fire extinguisher best suited for different types of fires.

Type of Fire, Class and Suitability										Metal Fires
Pre 1997	Current	Extinguishing Agent		A	B	C	E	F	Comments	
				Wood Paper Plastic	Flammable & Combustible Liquids	Flammable Gases	Electrically Energised Equipment	Cooking Oils and Fats		
		Water		✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires	
		Wet Chemical		✓	✗	✗	✗	✓	Dangerous if used on energised electrical equipment	
		Foam*		✓	✓	✗	✗	LIMITED	Dangerous if used on energised electrical equipment	
		Powder	(ABE)	✓	✓	✓	✓	✗	Look carefully at the extinguisher to determine if it is a BE or ABE unit as the capability is different	
			(BE)	✗	✓	✓	✓	✓		
		Carbon Dioxide		LIMITED	LIMITED	✗	✓	✗	Not suitable for outdoor use or smouldering deep seated A Class Fires	
		Vaporising Liquid		✓	LIMITED	LIMITED	✓	✗	Check the characteristics of the specific extinguishing agent. 5 Yearly servicing must be done by ODS & SGG licenced persons.	
		Fire Blanket		LIMITED*	LIMITED	✗	✗	✓	* Fire Blankets may be used as a thermal barrier against radiated heat and to control a fire in clothes being worn by a person.	

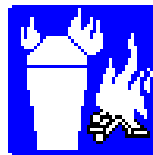
Use only special purpose extinguishers and seek expert advice.

- Water (APW) Fire Extinguishers:

- APWs will be found in older buildings, particularly in public hallways, as well as in Residence Halls.
- They will also be found in computer laboratories.
 - It is important to remember, however, that computer equipment must be disconnected from its electrical source before using a water extinguisher on it.

- APW's are designed for Class A fires only:

- Wood, paper, cloth.

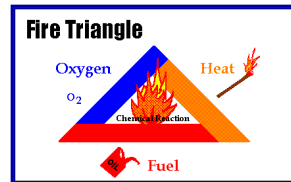


- Water: Carbonaceous Material / 9.1 Lt. 60-120 Secs / 6-9 m
- Please note:
 - Using water on a flammable liquid fire could cause the fire to spread.
 - Using water on an electrical fire increases the risk of electrocution. If you have no choice but to use an APW on an electrical fire, make sure the electrical equipment is un-plugged or de-energized.



- Carbon Dioxide Fire Extinguishers

- Carbon dioxide is a non-flammable gas that takes away the oxygen element of the fire triangle. Without oxygen, there is no fire.
- CO₂s are designed for Class B and C fires only!
 - (Flammable Liquids and Electrical Sources)

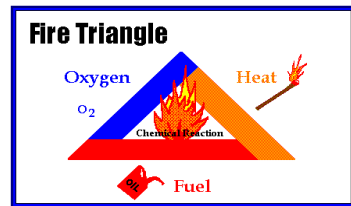


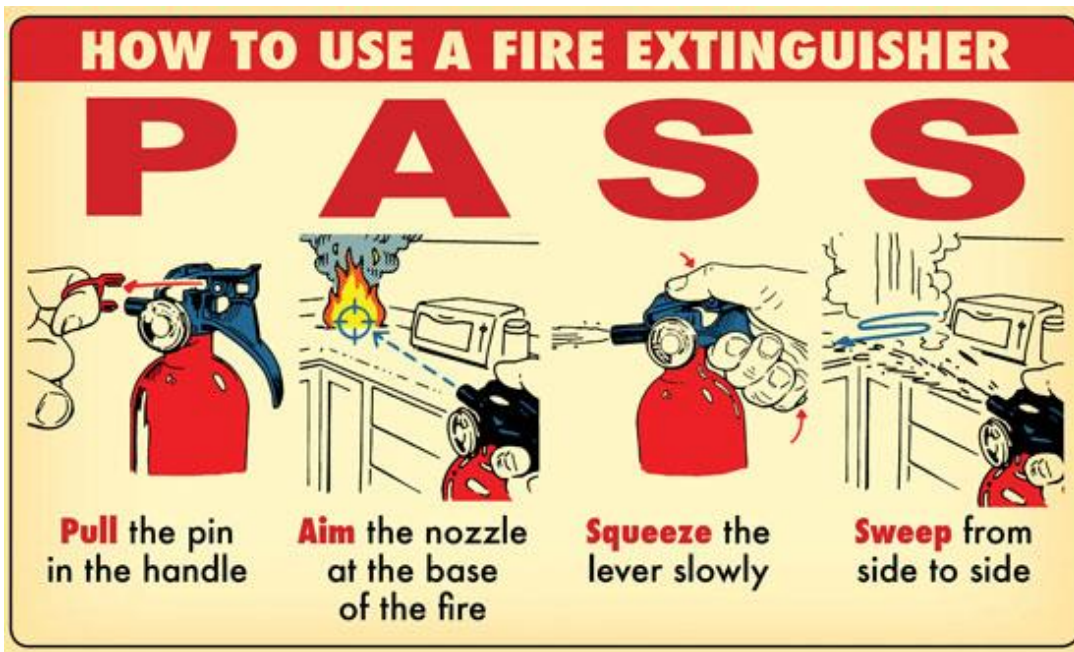
- CO₂s will frequently be found in laboratories, mechanical rooms, kitchens, and flammable liquid storage areas.



• Dry Chemical (ABC) Fire Extinguishers

- Dry chemical extinguishers put out fire by coating the fuel with a thin layer of dust.
 - This separates the fuel from the oxygen in the air.
 - The powder also works to interrupt the chemical reaction of fire.
- These extinguishers are very effective at putting out fire.
- "ABE" fire extinguishers are filled with a fine yellow powder.
 - The greatest portion of this powder is composed of monoammonium phosphate.
 - The extinguishers are pressurised with nitrogen.





- Fires can be very dangerous and you should always be certain that you will not endanger yourself or others when attempting to put out a fire.
 - For this reason, when a fire is discovered, remain calm and remember R.A.C.E.
 - However, before deciding to fight the fire, keep these things in mind:

1. **Know what is burning.** If you don't know what's burning, you won't know what kind of extinguisher to use.
2. Even if you have an ABE fire extinguisher, there may be something in the fire that is going to explode or produce toxic fumes. Chances are you *will* know what's burning, or at least have a pretty good idea, but if you don't, let the fire department handle it.
3. **Is the fire spreading** rapidly beyond the point where it started? The time to use an extinguisher is at the beginning stages of the fire.
4. If the fire is already spreading quickly, it is best to simply evacuate the building.

- Do not fight the fire if:
 - You don't have adequate or appropriate equipment.
 - If you don't have the correct type or large enough extinguisher, it is best not to try fighting the fire.
 - You might inhale toxic smoke.
 - When synthetic materials such as the nylon in carpeting or foam padding in a sofa burn, they can produce hydrogen cyanide, acrolein, and ammonia in addition to carbon monoxide.
 - These gases can be fatal in very small amounts.
 - Your instincts tell you not to.
 - If you are uncomfortable with the situation for any reason, just let the fire department do their job.
- The final rule is to always position yourself with an exit or means of escape at your back before you attempt to use an extinguisher to put out a fire.



- First Aid is the initial care given to a casualty in an emergency.
 - **Duty of care:**
 - In the workplace the person who is designated to be the first aid officer must hold a current certificate.
 - That person has the responsibility of providing care to a casualty at work who is in need – duty of care.
 - Before helping a casualty permission must be sought from the casualty to allow a person to help them.
- There may be times when other persons may need to act to help a casualty in need of first aid, likely situation could be:
 - No first aider available; and
 - Remote work area.



- The first consideration for some one assisting a casualty will be the safety of themselves.
- Stop and think about any dangers that may be present.
- Never place yourself in danger.
- *Calling for Help – 000 or 112.*
- What dangers would you expect to find here?



- In an emergency situation it is important to ring for help as soon as possible.
 - By ringing immediately will allow emergency services to be sent to you straight away. 000 and 112 are the two numbers to remember.
 - These numbers will put you directly through the emergency call centre. When your call is answered you will be asked several questions:
 - State which emergency service you require – Ambulance, Police or Fire.
 - Call from a safe location.
 - Stay calm, speak clearly, answer the operator's questions.
 - The Emergency Medical Dispatcher will ask:
 - The address where the ambulance is required;
 - What the problem is;
 - How many people are injured;
 - The patient's age & gender;
 - If the patient is conscious; and
 - If the patient is breathing.



- The operator may provide you with Ambulance pre-arrival advice to assist the patient. DO NOT HANG UP.
- The ambulance will be despatched whilst you are still on the line in an emergency.
 - If the problem is not urgent, an ambulance will be dispatched as soon as possible.
- If possible, have someone else make the call for help.
- Follow any instructions given to you by the operator.



The emergency call centre operator is a trained person able to give you valuable information.

- Familiarise yourself with the location of the first aid box on site.
- There are certain first aid procedures that can be undertaken without calling for an ambulance, bandaging a small wound is a simple exercise for instance.
- Before administering any First Aid - permission must be sought from the casualty to allow a person to help them.



- Treatment for a minor cut:

- A cut can bleed for a considerable amount of time if left untreated. The procedure to deal with cuts and abrasions can be done following the P.E.R.S.

- **P** – pressure

- **E** – elevation

- **R** – rest

- **S** - seek medical aid

- If the bleeding cannot be stopped then the casualty needs to be referred to a medical centre/doctor.



- Start by placing a pad over the wound ensuring it covers the wound completely.



- Next wrap the wound with a roll bandage applying enough pressure to keep the pad in place. Then elevate the wound.

- Hand bandage for cut going from fingers to wrist or diagonally across the palm.



- Bandage for cut going across the hand where gripping a pad will put pressure on the wound more effectively than keeping the hand flat.



- Management of a nose bleed:

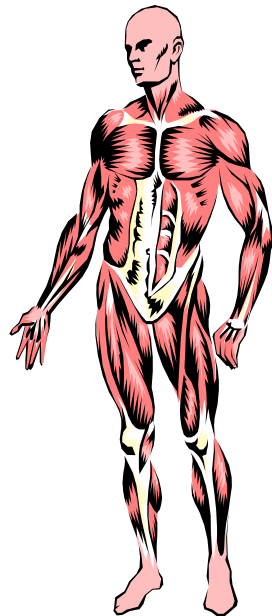
- Sit casualty up with head slightly forward.
- Apply pressure to the soft part of the nose for 10-20 minutes.
- If bleeding persists seek medical aid.



- Management of fainting:

Fainting can be cause by:	Care and treatment for fainting:
Standing for long periods.	If unconscious – recovery position with legs raised if possible.
Sight of needles or blood.	
Pain.	If conscious – lay flat with legs raised if possible. Call 000 or 112 if not fully recovered within a couple of minutes.
Emotional events.	
Heat.	

- Management of musculoskeletal injuries (soft tissue injuries)
 - Sprain – is damage to ligaments etc. due to over-extending a joint.
 - Strain – is stretching of muscle or tendons.
 - Signs and symptoms:
 - Pain, swelling and bruising (sprains may not swell, but will show a 'gap' in the muscle).
 - Care and treatment:
 - **R.I.C.E.**
 - Rest – to reduce swelling;
 - Ice – 10 minutes on, 10 minutes off until swelling goes down;
 - Compress – bandage limits swelling and pain; and
 - Elevate – reduces swelling and blood flow.



• Management of heat exhaustion:

Signs and Symptoms

Feeling hot, exhausted, weak.	Loss of appetite, giddiness and fainting.	Muscular weakness.	Profuse sweating.
Persistent headache.	Stomach and muscle cramps.	Lack of co-ordination.	Rapid breathing and pulse.
Thirst, fatigue, nausea.	Shortness of breath.	Pale, cool, clammy skin.	Confusion, irritability.

• Management and treatment:

- Move casualty to a cool place with circulating air
- Rest & elevate legs if possible
- Cool casualty slowly
- Loosen tight clothing
- Sponge body with cool (not ice) water
- Replace lost fluid as casualty will be dehydrated
- Gently stretch cramped muscles
- Seek medical aid if casualty does not recover promptly, vomits or cannot keep fluid down.



- All workplace accidents and injuries must be reported and documented.
 - This is a requirement by law to record any workplace injuries.
- An accident/injury report must be filled out as soon as possible after the incident.
 - This will be evidence of the accident/injury occurring at the work place and also Allow for the worker to claim workers compensation if needed.
- If a person is injured, then a workers compensation form must be filled out as well.



A hand is shown filling out an "ACCIDENT REPORT" form. The form includes fields for Name, Age, Date, Location, Zip, Monthly Income, Date of Birth, and Order.



A hand is shown filling out a "WORK INJURY CLAIM FORM". The form includes a section for "FILING CLAIM FOR" with checkboxes for "Accidental Injury Only" and "Injury with Disability". It also includes fields for "Work Form Disability Policy Number", "Work Form Injury Policy Number", "Work Form Life Policy Number", and "Work Form Life Policy Number".

- Once work has finished certain procedures must be followed to maintain tools and plant as well as the environment.
 - All tools should be inspected for faults and defects.
 - If faulty they should be tagged out.
- All tools and equipment must be locked away in a secure lockup.
- All waste materials must be placed in waste bins.
 - If the material can be recycled then it should be placed in appropriate waste bin:
 - E.g. Steel bin for all excess reinforcing steel.

