

CIVIL CONSTRUCTION SAFETY GUIDES



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OPERATING PLANT

1

CIVIL CONSTRUCTION SAFETY GUIDES

- All operators **must be** trained and hold appropriate certification or licence
- Check plant daily or **before** use, report any damage or fault immediately
- All warning devices **must be** checked and operating
- Faulty or damaged plant **must be** isolated and Danger Tags used
- **Always** carry out a **pre-start** check, when taking over from another operator
- Clean mud etc from footwear when climbing into plant
- **Always** read the manufacturer's operating instructions
- Before operating plant **check** all underground and overhead services are identified



FOR FURTHER INFORMATION REFER OHSW REGULATION PART 3, AUSTRALIAN STANDARDS – AS 1121, 1418, 1636, 2294, 2550
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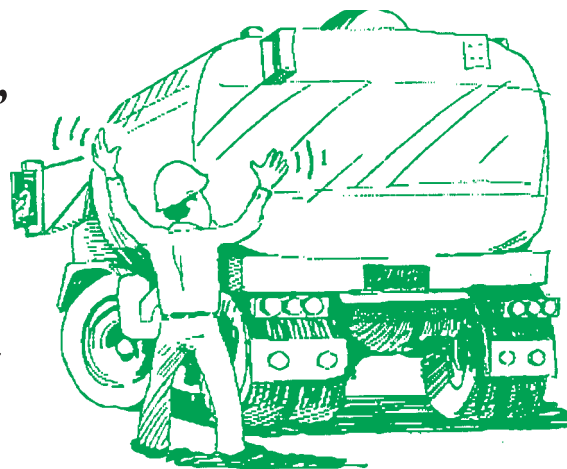


OPERATING PLANT

1

CIVIL CONSTRUCTION SAFETY GUIDES

- **Don't** drive or operate plant close to the edge of any trench or excavation
- **Wear** a seat belt if fitted and appropriate Personal Protective Equipment, eg hearing protection, safety footwear
- **Be aware** of people, plant and equipment in the area
- **Don't** reverse unless there is a clear view or someone directing
- **Keep** travel speed slow enough to maintain control at **all** times
- **Never** leave plant running and unattended
- **Always** leave plant parked in a safe location, easily seen and secured, particularly when left overnight
- Identified tracks, roads and access areas **must** be used
- **Don't** move plant unless authorised, always exercise **caution**

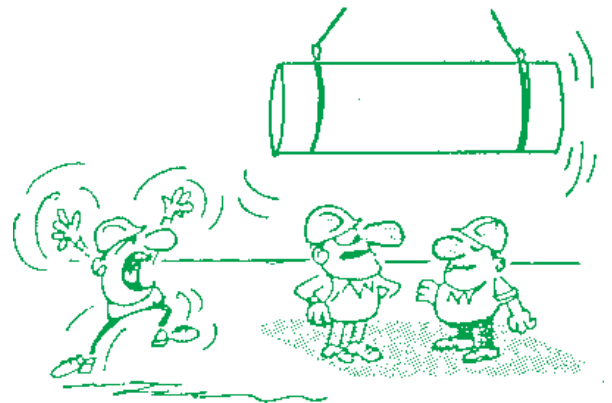




LIFTING & SLINGING

2

- Slinging and lifting **must be** carried out by properly trained and certified persons
- Plan the lift, **don't** overload equipment
- Slings **must** be positioned correctly, not over sharp edges or corners
- Use lifting lugs, **no** multiple slings on the same hook
- Chains, slings and other attachments **must be** tested and tagged
- **No** person is to ride a sling or hook
- **Don't** stand under a suspended load
- **Always** stand well clear of the load to avoid injury if the load swings, slips or spills
- **Always** keep slings away from chemicals
- **Never** combine slings, eg nylon and chains



FOR FURTHER FOR INFORMATION REFER AUSTRALIAN STANDARDS, 1418, 2550 & PLANT REGULATION 3.2.29
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LIFTING & SLINGING

2

CIVIL CONSTRUCTION SAFETY GUIDES

- Shackles must be used where slings are attached to eye bolts or lifting lugs
- Slings must be regularly checked and kept in good condition
- All hooks must be supplied with devices to prevent load movement
- Multiple slings must be shackled together and placed on the hook
- Worn or damaged slings must be discarded or repaired by the manufacturer
- The lifting area must be secured to prevent unauthorised entry
- Don't stand between the materials and the load
- Keep hands and feet well clear of pinch points
- Never leave the load suspended without an operator at the controls





POWERED SMALL PLANT

3

Be aware of hazards such as nip/shear points, vibration, noise, electrical, manual handling and overuse injury.

- Check for any defects thoroughly **before** use, faulty guarding etc
- All guarding **must** be in place, secured and cut off/braking systems operating
- All controls **must** be operating properly and easily accessible
- Emergency controls **must** be properly maintained, easily accessible and clearly marked
- **Before** starting, clear the area of **all** hazards
- **Check** all electrical connections and that plant is filled with oil, fuel etc before starting



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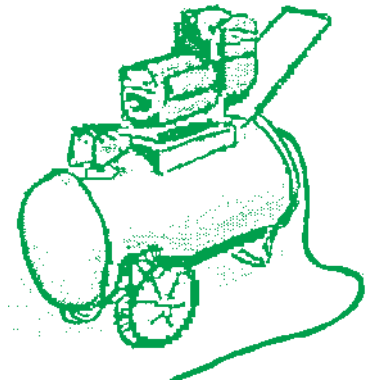


POWERED SMALL PLANT

3

CIVIL CONSTRUCTION SAFETY GUIDES

- The public, other workers and animals **must** be protected by barricades, screens etc
- **Don't** lift or move heavy plant: get help or use a lifting device
- **Wear** all the Personal Protection Equipment (hand, eye, ear, feet, respiratory and clothing)
- Cables, hoses etc **must** not become a tripping hazard or be placed where damage may occur
- Stand out of the line of any blade, chain, pulley etc when in use.
- When refuelling ensure:
 - no flammable materials nearby
 - proper ventilation
 - no naked flame, arching/sparking etc.





MANUAL HANDLING

4

Lifting, lowering, carrying, pulling, holding or restraining can cause Manual Handling injuries.

- Plan the lift, get help, use mechanical devices, reduce double handling
- Avoid reaching or holding above head height and repetitive actions, take breaks
- Avoid holding or working in a fixed position with the back bent
- **Move** the feet, avoid twisting when carrying, stacking etc, avoid sideways bending
- **Keep** the load close to the body and avoid reaching to hold or restrain
- Stack or store between waist and shoulder heights, reduce the size of bundles
- Lift smoothly and slowly **without** jerking, maintain good physical fitness and diet
- Vary heavy tasks with lighter work, load-share: team lifting, co-ordinate the lift



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MANUAL HANDLING

4

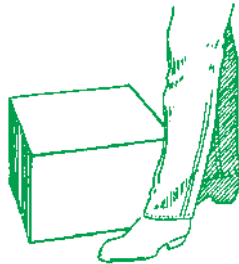
Save Your Back

PLAN

- Assess load, size, weight, etc
- Examine load for staples, sharp edges, etc
- Check path, clear of obstructions, etc

LIFTING TECHNIQUES

2



Keep the feet apart for balance facing the direction of travel.

4



Diagonal grip on the load

Remember to ask for help if you cannot lift the load by yourself.

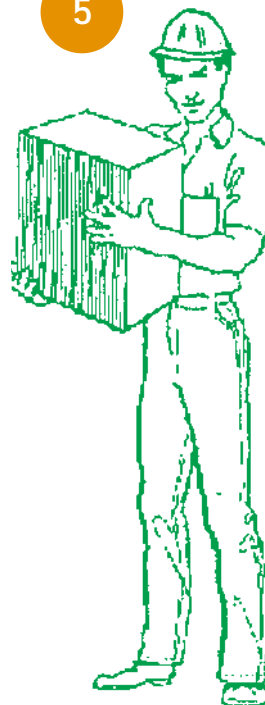


3



Bend the knees
Keep your back straight

5



Keep the load close to the body
Lift smoothly and slowly without jerking



WORKING NEAR PLANT

5

CIVIL CONSTRUCTION SAFETY GUIDES

- High visibility vests **must** be worn at all times
- Retro-reflective vests **must** be worn in poor light conditions
- Hard hats **must** be worn where plant is used for lifting
- Stand well clear of revolving, reversing, swinging or turning plant
- Be aware of sounds, plant, warning devices of reversing vehicles, buzzers etc
- **Know** the work operations, the direction plant and vehicles will be coming and going
- Watch the operator when moving into an area, make and maintain eye contact
- If working in enclosed area, there **must** be adequate ventilation, exhausts fumes can kill



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FOR FURTHER INFORMATION REFER OHSW REGULATION 2.4.1. AND AUSTRALIAN STANDARDS 1715,1716 & 2865
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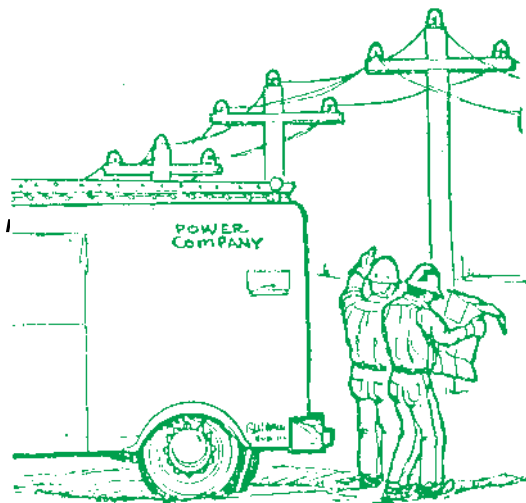
UNDERGROUND AND OVERHEAD SERVICES

6

CIVIL CONSTRUCTION SAFETY GUIDES

- Before digging all services **must** be identified and clearly marked

- Overhead power lines **must** be de-energised, or 'tiger tailed' when working nearby



- **Don't** assume all services have been identified, look for poles, taps, meters, markers etc.
- All shut off valves, isolation switches, etc **must** be isolated and tagged
- **Don't** panic if contact is made with live electrical wires:
 - Stay on the machine
 - If operating, move away
 - If a fire, etc jump well clear
 - **Don't** make contact with machine and ground at the same time



FOR FURTHER INFORMATION REFER STATE EMERGENCY SERVICES
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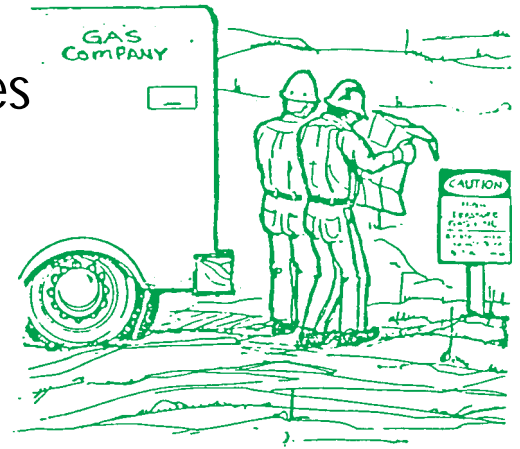
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UNDERGROUND AND OVERHEAD SERVICES

6

- Stop work if you find something that may be a service, report it straight away
- Where a service is damaged, signs, barricades etc must be displayed
- Report any damaged services as soon as possible
- Don't commence work until it is safe
- Control any spillage, water, sewage, hydraulic fluid etc only if it is safe to do so



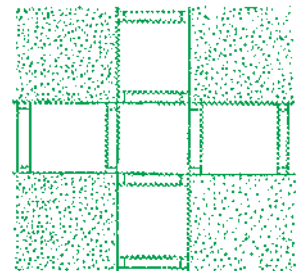


TRENCHING AND EXCAVATIONS



Before starting, obtain all relevant utilities' plans by calling 1100 – Dial before you Dig

- Barricade or flag trenching or excavation
- Warning signs and flashing lights must be used for poor visibility areas
- Bench, batter back, shore any excavation, trench or pit in excess of 1.5 metres deep
- Equipment, plant and soil must not be placed within 1 metre of the edge
- Collapse or cave-ins are more likely when working on previously dug soil
- Check surrounding soil for fretting, water, slump, cracking or ground swelling before entering
- Don't enter a trench where there is a possibility of contaminants, gas leak, exhaust vapours, seepage etc



FOR FURTHER INFORMATION REFER OHSW REGULATION 5.5, SA WATER TRENCHING AND GROUND SUPPORT SYSTEMS THIS EMPLOYEE GUIDE IS TO BE USED IN CONJUNCTION WITH TRADE SKILLS AND ANY OPERATING MANUAL OR TRAINING RELEVANT TO THE TASK

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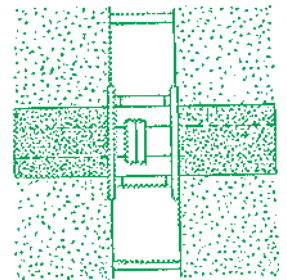


TRENCHING AND EXCAVATIONS



CIVIL CONSTRUCTION SAFETY GUIDES

- Regularly test for contaminants and ventilate trenches and excavations
- **Take care** when moving loads in or out of a trench or excavation to avoid damaging struts or walling
- Corners **must** be battered back or shored when 2 or more trenches cross
- Plant and vehicle traffic **must** be well back from trenching or excavation edges
- Ladders **must** be at intervals not less than 30 metres along the trench
- **Don't** work alone in a trench or excavation unless help is nearby
- Hard hats and appropriate safety footwear **must** be worn





HAZARDOUS SUBSTANCES



CIVIL CONSTRUCTION SAFETY GUIDES

- **Don't** use hazardous substances without proper training
- All containers **must** be labelled when decanting
- **Don't** pour into soft drink containers, or similar household containers
- **Read** the Material Safety Data Sheets (MSDS) and container label before use
- **Read** and obey all warnings
- **Read** instructions about ventilation and necessary Personal Protective Equipment to be used
- Always ensure appropriate personal hygiene
- **Don't** smoke, eat or drink whilst using any hazardous substances



FOR FURTHER INFORMATION REFER OHSW REGULATION PART 4, DIVISION 4.1 APPROVED CODES OF PRACTICE: CONTROL OF WORKPLACE HAZARDOUS SUBSTANCES; PREPARATION OF MATERIAL SAFETY DATA SHEETS; LABELLING OF WORKPLACE SUBSTANCES

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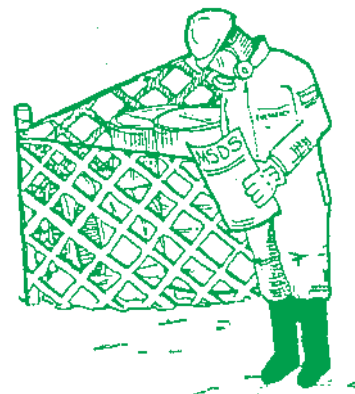


HAZARDOUS SUBSTANCES

8

CIVIL CONSTRUCTION SAFETY GUIDES

- **Know** the emergency procedures and have appropriate First Aid equipment available
- Store securely and properly in accordance with the Material Safety Data Sheet (MSDS)
- Dispose of any container and product in accordance with the MSDS
- Clean up any spillage promptly in accordance with the MSDS
- **Don't** store substances together if they are not compatible
- Report any reaction, skin eyes, throat, headache etc as soon as possible



HAZARDOUS SUBSTANCES CAN KILL

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USE OF LASER SURVEY EQUIPMENT

9

CIVIL CONSTRUCTION SAFETY GUIDES

- All lasers must be labelled, eg class 1, 2, 3A
- Don't operate unless properly trained
- Lasers must be used and maintained in accordance with manufacturer's instructions
- Laser warning signs must be displayed
- A laser beam must not be directed at any person
- The path of the laser beam must be well below or well above eye level
- Wear appropriate eye protection and don't look directly into a laser beam
- Turn off and secure the laser when not in use, no unauthorised operation
- Laser beams must not be directed at reflective surfaces



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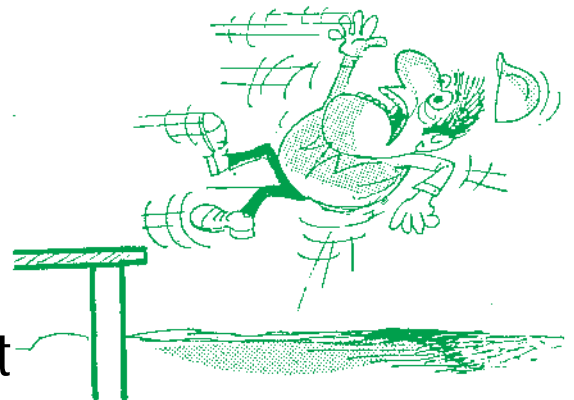


WORKING OVER OR NEAR WATER

10

Before starting work over or near water, the risks and emergency plans must be established.

- Don't work alone where there is a risk of an injury or drowning
- Fall protection must be in place, such as harnesses, nets etc
- Tool belts must be the quick release type
- Rescue equipment must be provided, maintained and easily accessible
- There must be prompt rescue of persons in danger of injury or drowning
- Approved buoyancy vest or life jackets must be worn, depending on the risk



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.6.4
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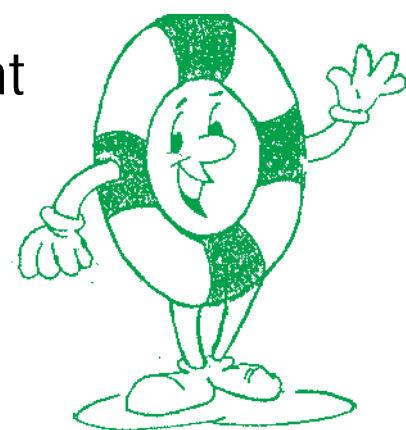


WORKING OVER OR NEAR WATER

10

CIVIL CONSTRUCTION SAFETY GUIDES

- Training must be carried out in emergency rescue procedures and the use of rescue equipment
- In poor visibility, there must be adequate lighting of the worksite
- Life rings or rescue equipment must be the illuminated type
- Communication or appropriate provisions must be made for access to medical assistance
- First aiders should have Cardio-Pulmonary Resuscitation (CPR) training
- Life rings must have sufficient line to reach the water level below
- Don't play practical jokes when working over or near water





WORKING NEAR TRAFFIC

11

CIVIL CONSTRUCTION SAFETY GUIDES

- Wear high visibility vests at all times and retro-reflective vests for poor light
- Know the work site, the traffic flow layout
- Look before crossing any roads, tracks or access roads
- Be aware of traffic noise, warning devices, beepers, buzzers etc
- Don't anticipate drivers slowing down or sighting the work operations
- Stand well back out of the line of travel, where possible, when directing traffic
- Wear appropriate Personal Protective Equipment and sun screen
- Don't work alone: signs and traffic controls must be in place before starting work



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.16, AUSTRALIAN STANDARDS, 4602, 1742
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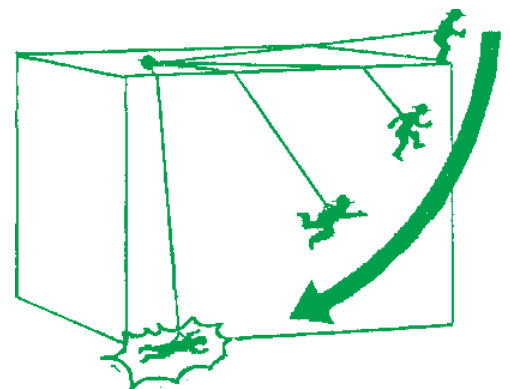
WORKING AT HEIGHTS/ FALL PREVENTION

12

CIVIL CONSTRUCTION SAFETY GUIDES

Fall protection **must** be provided when working at height, eg demolition work, near open edges, roofs, shafts, pits.

- **Only** competent certified persons are to erect, alter or dismantle scaffold
- Approved inertia reels, static lines and harnesses **must** be worn
- **Don't** wear rings or loose jewellery
- Hard hats **must** be worn when there is a possibility of injury
- **Don't** use fall prevention equipment unless trained
- Anchorage points **must** ensure minimum fall and avoid the pendulum effect
- Tools, plant, equipment used at heights **must** be kept to a minimum
- Tools and equipment **must** not be left where they can be knocked or fall over an edge



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.13 & AUSTRALIAN STANDARDS 1418, 1576, 1891, 1892, 2626 ALSO SAFER INDUSTRIES GUIDELINES (SAFE WORK ON ROOFS, INDUSTRIAL AND COMMERCIAL BUILDINGS*) THIS EMPLOYEE GUIDE IS TO BE USED IN CONJUNCTION WITH TRADE SKILLS AND ANY OPERATING MANUAL OR TRAINING RELEVANT TO THE TASK THIS GUIDE, ON ANY PARTICULAR ASPECT OF LEGISLATION, IS NOT TO BE TAKEN AS A STATEMENT OF LAW AND MUST NOT BE CONSTRUED TO WAIVE OR MODIFY ANY LEGAL OBLIGATION

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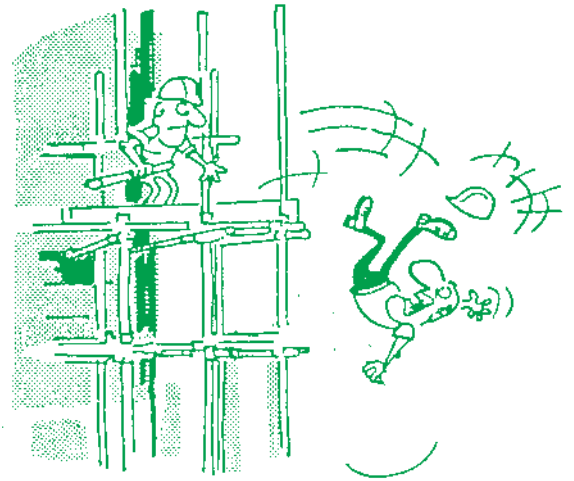
WORKING AT HEIGHTS/ FALL PREVENTION

12

CIVIL CONSTRUCTION SAFETY GUIDES

- Barricades and signs must be displayed, such as '**Danger keep clear overhead work**'

- Handrails and kick boards **must** be used on work platforms over 2 metres in height



- **Don't** move or alter incomplete or damaged scaffolding
- Incomplete or damaged scaffolding **must** be tagged with 'danger out of service' tag
- **Don't** work within 3 metres of power lines, when using hoists, lifting equipment, scaffolding, etc
- There **must** be adequate overhead protection of persons below, use planks etc
- There **must** be no unauthorised access to work at heights, equipment or work areas

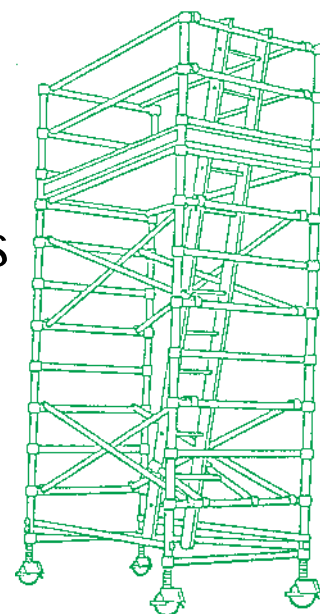


SCAFFOLDING — FIXED & MOBILE

13

CIVIL CONSTRUCTION SAFETY GUIDES

- Any person erecting or altering a scaffold over 4 metres must be a Certified Scaffolder
- Ladders must be secured in position, eg internal ladders on mobile scaffolding
- Don't climb scaffolding standards or transoms
- Don't use damaged scaffold planks or accessories
- Kickboards and handrails must be installed and secured in place
- All tools and equipment must be removed from scaffolds when not in use
- The number of workers and materials must be kept to a minimum at any one time
- Scaffolding must be regularly inspected for faults, damage and stability



FOR FURTHER INFORMATION REFER OHSW PLANT REGULATION 3.2, AUSTRALIAN STANDARDS AND RELATED STANDARDS 1576, 1577, 4576

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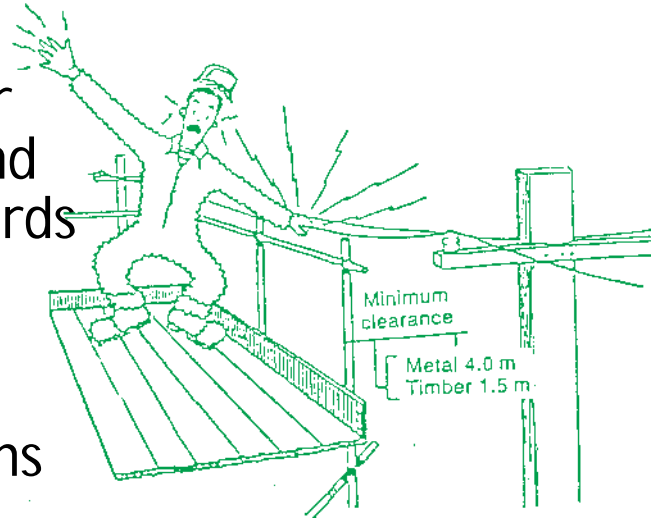
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SCAFFOLDING — FIXED & MOBILE

13

CIVIL CONSTRUCTION SAFETY GUIDES

- Scaffolding must not be erected close to electrical wires. Refer to the Regulations and the Australian Standards
- Mobile scaffolding wheel locks must be engaged when persons are on a scaffold
- Mobile scaffolds must not be moved whilst persons are on the scaffold
- Nearby power lines must be de-energized, insulated, earthed or re-routed
- Don't work on scaffolding during poor weather conditions
- Make sure scaffolding can't be struck by mobile plant or equipment



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USE OF ELECTRICAL EQUIPMENT

14

CIVIL CONSTRUCTION SAFETY GUIDES

- Check all electrical power tool leads and extension cords for defects, cuts, loose wires etc, **before** use
- All power tools and extension cords **must** be tested and tagged
- Damaged electrical equipment, exposed wires, loose plugs etc **must** be tagged '**Out of Service**' and removed
- Fixed or portable RCD's (Residual Current Devices) **must** be used
- **Don't** use piggy back plugs
- **Use** RCD's with generators that are earthed
- Portable RCD's **must** be tested by using the built-in test button prior to use
- Report **all** electrical shocks and wear eye protection where there is a possibility of electrical flash



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.5, & AUSTRALIAN STANDARDS 3000, 90, 3199, 3175, AND INDUSTRY GUIDELINE ELECTRICAL PRACTICES FOR CONSTRUCTION AND DEMOLITION SITES
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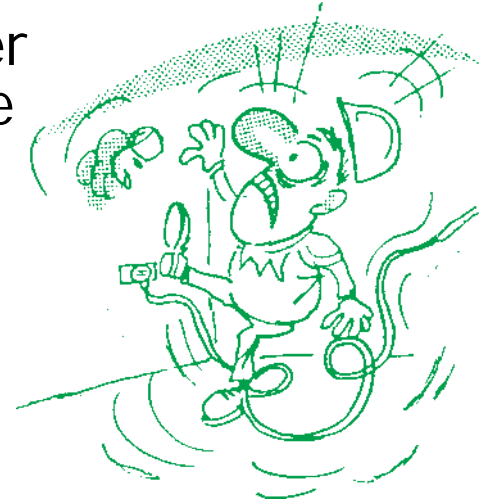
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USE OF ELECTRICAL EQUIPMENT

14

CIVIL CONSTRUCTION SAFETY GUIDES

- **Only** qualified electricians are to make alterations or repairs to leads or cords
- Extension cords and power leads **must** be kept above head height, use cable stands etc
- **Don't** allow cords, leads or plugs to become a tripping hazard
- **Don't** attach extension cords to scaffolding
- **Don't** allow leads, plugs or cords to trail into mud or water
- Ensure equipment or materials **don't** damage cords or leads
- Remove all jewellery and protruding items from shirt pockets etc before use
- **Don't** use electrical equipment in poor light

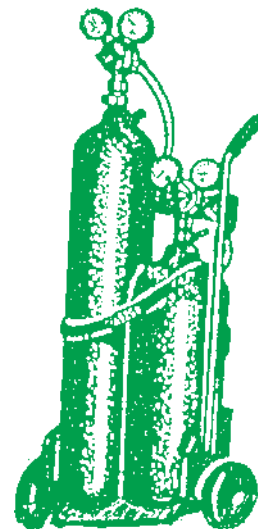




WELDING AND CUTTING

15

- Gas cylinders **must** not be used as supports, as rollers etc
- Cylinders **must** be on trolleys or cradles and secured
- Care **must** be taken to protect cylinders from falls, heat and from being struck
- Personal Protective Equipment and protective clothing **must** be worn
- Hearing protection **must** be worn if required
- Purge hoses **before** igniting to make sure no gas mixture is still inside the hose
- Check for leaks regularly and thoroughly before starting the job, use soapy water:
NOT A NAKED FLAME
- Protect others, use screens or welding curtains, particularly at heights



FOR FURTHER INFORMATION REFER OHSW REGULATION 5.9, AUSTRALIAN STANDARDS 2030, 2865, 2745
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WELDING AND CUTTING

15

CIVIL CONSTRUCTION SAFETY GUIDES

- Ventilate or wear a respirator that fits inside the welding helmet
- Regulators, valves and cylinders threads **must** be kept clean, **don't handle** with dirty, greasy or oily hands or rags
- Dangerous fume signs **must** be displayed
- Maintain safe working distances from flammables
- Welding blanket or fire extinguisher **must** be kept near by
- **Don't** store oxygen cylinders with gas cylinders, near combustibles, flammable materials, oil or grease
- Empty cylinders must be marked '**empty**' and the caps replaced
- Mark completed work '**hot**' with white chalk
- Cylinders **must** be turned off when not in use and the hoses removed

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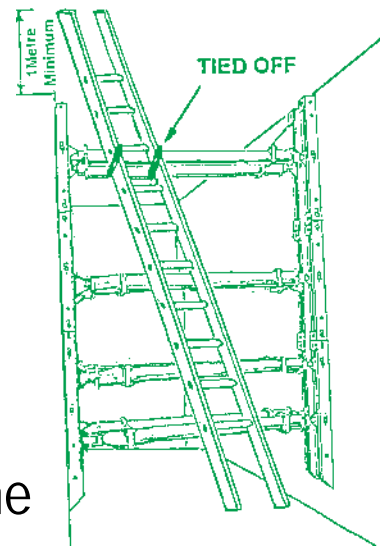
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USE OF LADDERS

16

- Examine **all** ladders for defects and damage before use
- Ladders used in trenches **must** be securely fixed and at intervals not exceeding 30 metres
- Portable ladders **must** be angled one out and four up, but may be less when secured in a shored trench
- Ladders **must** extend at least one metre above the access level
- Ladders **must** be secured at the top or firmly held while a person uses it
- Ladders **must** be placed on firm, secure footing and not rested against an unsecured or movable object
- One person on a ladder at a time
- A step ladder **must** have the spreader fully opened and engaged for stability



FOR FURTHER FOR FURTHER INFORMATION REFER AUSTRALIAN STANDARDS, 1657, 1892 AND OHSW REGULATION 2.13.1 THIS EMPLOYEE GUIDE IS TO BE USED IN CONJUNCTION WITH TRADE SKILLS AND ANY OPERATING MANUAL OR TRAINING RELEVANT TO THE TASK

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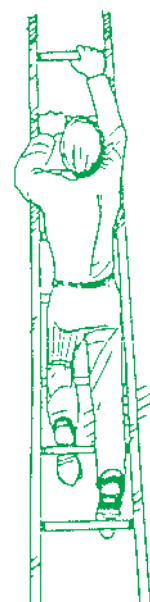


USE OF LADDERS

16

CIVIL CONSTRUCTION SAFETY GUIDES

- **Use** the correct ladder for the job
- **Don't** climb long or extension ladders higher than the third rung from the top
- There **must not** be less than 3 1/2 rungs overlapping sections of an extension ladder
- Metal ladders **must not** be used where electrical hazards exist
- Before using ladders mud, grease etc **must** be cleaned off footwear and the ladder rungs
- Ladders **must not** be used to support planks as a work platform
- **Don't** lean sideways or over-reach when using ladders
- Always climb and descend facing the ladder, with the hands gripping each rung
- **Don't** carry anything when climbing or descending
- **Don't** place ladders in vehicle or pedestrian traffic areas





COMPRESSED AIR/ EXPLOSIVE POWER TOOLS

17

COMPRESSED AIR:

Compressed air is capable of eye penetration, rupturing eardrums and entering the blood stream causing pain and even death.

- Appropriate eye and hearing protection **must** be worn when using compressed air
- Turn off the air supply, **don't** crimp the hose when connecting or disconnecting equipment
- Check air lines and tools **before** use and tighten hose connections
- Air hoses **must** be suspended above traffic height
- Air hoses in traffic or pedestrian areas **must** be protected from damage
- **Check all** quick release couplings to prevent separating under pressure
- Safety chains provided **must** be used



FOR FURTHER INFORMATION REFER TO OHSW PKLANT REGULATION PART 3
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COMPRESSED AIR/ EXPLOSIVE POWER TOOLS

17

- **Don't** use compressed air to blow dust from clothing, skin or hair
- After the job, turn off main supply and bleed air from the system

COMPRESSED AIR – TREAT IT WITH RESPECT

EXPLOSIVE POWER TOOLS:

Only trained and qualified operators are to use explosive power tools.

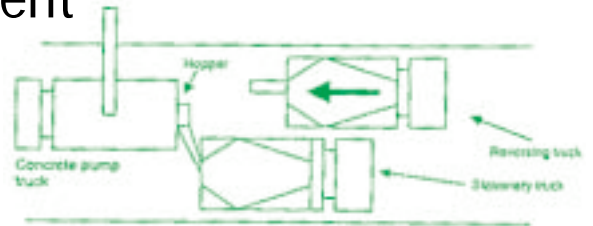
- Appropriate eye and hearing protection must be worn
- Warning signs '**EXPLOSIVE TOOLS IN USE**' must be used
- Loaded explosive power tools **must not** be left unattended and must be maintained in good condition
- Explosive power tools **must** be examined for defects and overhauled by a competent person
- When not in use, lock away together with all explosive charges



CONCRETE PUMPING 18

Planning the work **must** include:

- The method of pumping concrete and the capacity of the equipment
- Placing the pump as close as possible to the work, but allowing for safe access and egress



Hazards must be identified, eliminated or controlled wherever possible:

- The Manual Handling tasks assessed
- Personal Protective Equipment to be used identified
- Tripping and slipping hazards eliminated
- Unauthorised persons controlled
- Weather conditions assessed wet weather run off etc
- Log Books maintained on site



FOR FURTHER INFORMATION REFER OHSW REGULATIONS 1.1.5, 3.2.35

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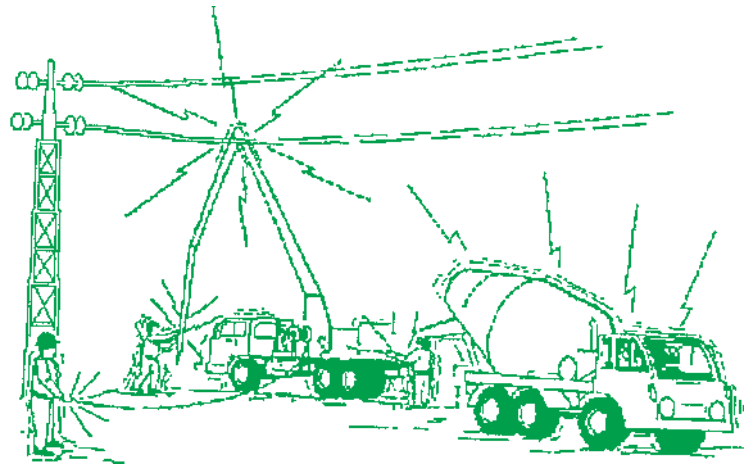
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CONCRETE PUMPING

18

CIVIL CONSTRUCTION SAFETY GUIDES

- **Don't** locate pumping operations on or near unstable ground, trenches, excavations.
- **Use** outriggers and place on solid surfaces, clear of trenches etc
- Be aware of the location of power lines
- Windy conditions, can cause swinging power lines
- Screens to protect the public from splashing, etc, **must** be used
- Fumes and exhaust gases **must not** become a hazard
- Noise exposure to workers and the public **must** be controlled
- Traffic **must** be controlled and adequate street access/egress allowed for emergencies



REMOTE AND ISOLATED WORK

19

Remote and isolated work includes working alone, eg after hours, alone with the public, in remote areas, depots etc.

- There **must** be a reliable and adequate communication system
- Regular communication **must** be provided and maintained
- First Aid and Personal Protective Equipment **must** be provided
- Appropriate vehicle and accessories **must** be provided for remote and isolated worksites
- Non perishable food and drinking water **must** be provide for remote worksites
- Orientation of plant, equipment, area and hazardous substances **must** be carried out
- Weather conditions **must** be monitored



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.14, & APPROVED CODE OF PRACTICE, OCCUPATIONAL, HEALTH AND FIRST AID IN THE WORKPLACE, GUIDELINE ON OCCUPATIONAL VIOLENCE
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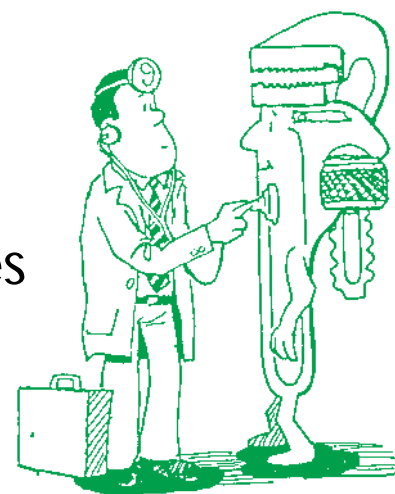


USE OF HAND AND POWER TOOLS

20

HAND TOOLS:

- Use the correct tool, the right size and type for the job, **don't** improvise
- Tools **must** be kept in good condition and used correctly
- **Never** use attachments for extra leverage
- Cutting tools **must** be kept sharp and out of the way when not in use
- Direct the sharp edge away from the body
- Regular checks **must** be made for wear of jaws and pivot points
- **Never** throw tools as injuries and damage can occur
- Sharp edges or points **must** be stored away from areas where persons may reach into



PROTECTIVE CLOTHING
MUST BE WORN
IN THIS AREA



HAND PROTECTION
MUST BE WORN
IN THIS AREA



SAFETY VESTS
MUST BE WORN
IN THIS AREA



SAFETY FOOTWEAR
MUST BE WORN
IN THIS AREA



SAFETY HELMET
MUST BE WORN
IN THIS AREA



HEARING PROTECTION
MUST BE WORN
IN THIS AREA

FOR FURTHER INFORMATION REFER OHSW REGULATION 2.5, AUSTRALIAN STANDARD 3000
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USE OF HAND AND POWER TOOLS

20

CIVIL CONSTRUCTION SAFETY GUIDES

POWER TOOLS:

- **Must** be earthed, except where double insulated, use with a Residual Current Device (RCD)
- **Must** be checked, maintained, tested and tagged by a competent person
- **Check** for damage before use, switches, connections, power cables, guards etc
- Power leads **must** be long enough to reach the job without straining
- Power tools **must not** be located where they can be damaged or create a hazard
- **Keep** power tools dry, **don't** use in wet or damp conditions
- Power tools **must** be used for the purpose they were designed, don't improvise
- **Don't** leave power tools unsecured in overhead locations
- The power **must** be disconnected before making adjustments or changing attachments

SAFETY HELMETS

Must Be:

- Worn when working in excavations more than 1.5 metres deep, eg manholes, sewers, chambers
- Worn when working below steel erection, scaffolding, cranes, hoists, vehicles being loaded and unloaded etc, where there is a possibility of being struck
- Worn with wide brim to protect from UV rays
- Worn when hard hat signs are displayed
- Replaced when damaged and must be kept in a clean condition



Safety helmets can be damaged by substances such as petrol, cleaning agents, paint, adhesives.

FOR FURTHER INFORMATION REFER TO REGULATION DIVISION 2.12 AUSTRALIAN STANDARD 1800 & 1801
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HIGH VISIBILITY VESTS

- Must be maintained in a good and clean condition
- Damaged or faded vests must be replaced as soon as possible
- Retro-reflective vests must be worn during hours of darkness or at times of poor visibility
- Vests must be worn over clothing and not hidden by coats, jumpers etc
- The vest must be done up at all times
- Wear vests that are comfortable, the correct size and fit for unrestricted movement



It is important to be seen when carrying out work near plant, equipment and roads

HAND PROTECTION

- Gloves **must** be worn to protect against abrasions, hot/cold surfaces, electric shock, infections, disease, contamination and vibration
- **Must** be worn when handling hazardous substances in accordance with the Material Safety Data Sheets
- Damaged or worn gloves **must** be replaced as soon as possible
- Rings **must not** be worn, so as to reduce electrocution and finger injury
- **Don't** wear gloves when operating equipment where gloves may be caught
- Hand protection **must** be worn where signs are displayed



EYE PROTECTION

- **Must** be worn where there is a possibility of eye injury, flying particles, dust, lasers, chemicals, high pressure water etc
- **Must** be worn where eye protection signs are displayed
- Appropriate eye protection **must** be worn when welding
- **Must** be worn to protect against UV radiation
- **Must** be maintained and cleaned regularly
- Scratched or damaged eye protection **must** be replaced
- Where there is a possibility of eye protection falling off, a head strap or lanyard **must** be worn



SAFETY FOOTWEAR

- Foot protection **must** be worn where there is a possibility of foot or toe injuries
- **Must** be worn where signs are displayed and there is a possibility of foot injuries
- **Must** be worn in accordance with any Material Safety Data Sheet
- Safety footwear **must** be kept in good repair
- Worn or damaged footwear **must** be replaced
- **Must** be appropriate footwear for the hazard, eg wet conditions, falling objects, cuts etc
- **Don't** allow footwear soles to become covered in mud, grease etc



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.12 AUSTRALIAN STANDARD 2210
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HEARING PROTECTION

- Must be worn when exposed to noise, hammer drills, explosive power tools, breakers, high speed cutting machines, etc
- Hearing protection, muffs, ear plugs etc must be adequate to reduce noise exposure
- Must be maintained in a clean and hygienic condition
- Don't share hearing protection, to avoid infections
- Take regular breaks from noisy tasks
- Report any hearing problems, ringing in the ears etc as soon as possible
- Must be worn where hearing protective equipment signs are displayed



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.12; AUSTRALIAN STANDARDS, 1269, 1270
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RESPIRATORS

- **Must** be worn where there are toxic dust, gases, vapours, welding fumes etc
- Respirator cartridges and canisters **must** be checked for life limit
- Breathing apparatus **must** be worn where there is a shortage of oxygen or atmospheric contaminants
- Damaged respirators, dust masks or 1/2 face mask respirators **must** be replaced as soon as possible
- **Must** be regularly cleaned and maintained
- **Don't** share respirators, dust masks etc, to avoid infections and disease
- **Must** be worn where respirator signs are displayed



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.12 AUSTRALIAN STANDARDS 1715, 1716
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PERSONAL PROTECTIVE EQUIPMENT — CARE, MAINTENANCE AND USE

21

CIVIL CONSTRUCTION SAFETY GUIDES

PROTECTIVE CLOTHING

- **Must** be worn where there is a risk, ie handling chemicals, sewage etc
- **Must** be worn where warning signs are displayed
- **Must** be removed from site and cleaned regularly
- Torn, damaged or faded protective clothing **must** be replaced
- Water proof clothing **must** be worn in inclement weather conditions, sewage etc
- Water proof clothing **must** have light-reflective features
- Protective clothing **must** not be tight or loose fitting and allow adequate movement
- **Must** be suitable for the task eg, non flammable, anti static, chemical proof etc



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FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.1: AUSTRALIAN STANDARD 3795
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SAFETY HARNESS

- **Must** be worn when working in confined spaces
- **Must** be worn when working at heights
- **Must** be checked before use for deterioration or damage
- Any damaged or worn harness **must** be replaced or repaired by the manufacturer
- **Must** be worn when working from elevated work platforms
- Cleaning, maintenance and storage **must** be in accordance with the manufacturer's recommendations
- **Must** be worn when Personal Protective Equipment signs are displayed



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.12 AUSTRALIAN STANDARD 2626
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LIFE JACKETS

- Life jackets **must** be worn when carrying out work near water, eg pump inspections, excavations, dams, bridge construction work etc
- **Must** be worn when there is a possibility of slipping or falling into water
- **Must** be inspected for any damage or wear and replaced or repaired by the manufacturer as soon as possible
- **Must** be appropriately stored for easy access in an emergency
- **Must** be illuminated for night work
- Life jackets **must** be worn where life jacket signs are displayed





HEAT STRESS

HEAT STRESS

Heat stress & heat exhaustion may occur when working in excessive heat, high humidity, radiant heat, direct sun and confined spaces.

Ensure:

- Adequate and regular drinking of water
- Heavy work is carried out at cooler times
- Shade and shielding from radiant heat
- Adequate air movement
- Suitable clothing and head protection worn
- Persons are not affected by medication

Where heat stress occurs:

- Assist person to a cooler environment
- Soak clothing or sponge with cool water
- Encourage sipping of cool fluids
- Obtain urgent medical assistance



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.4.1. & AUSTRALIAN STANDARDS, 1715, 1716 & 2865
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HOUSEKEEPING/ ACCESS & EGRESS

23

CIVIL CONSTRUCTION SAFETY GUIDES

GOOD HOUSEKEEPING IS EVERYONE'S RESPONSIBILITY

- All work areas must be clear of tripping hazards, remove all tools, leads etc when not in use
- Remove all nails from timber and stack in appropriate areas
- Break off hardened nails with correct tools, not by hitting with a hammer
- Clean up spills, oils, chemicals etc as soon as possible, warning signs or barricades must be displayed
- Use absorbent material to clean up, in accordance with Material Safety Data Sheets
- Dispose of absorbent material in accordance with Material Safety Data Sheets



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.1
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HOUSEKEEPING/ ACCESS & EGRESS

23

CIVIL CONSTRUCTION SAFETY GUIDES

- Put rags or parts in appropriate containers, oily rags can result in spontaneous combustion
- Access and egress must take into account the use of tools, plant and equipment
- Walkways must be free of obstruction and sharp objects
- People or equipment must be prevented from falling into openings, trenches and from scaffolding, etc
- There must be adequate lighting for night work or when there is poor light
- There must be clear access to emergency equipment, fire extinguishers, fire hoses, emergency exits, switchboards, amenities
- Scrap and waste material must be removed as soon as possible from work areas
- Warning lights must clearly identify worksite access and egress

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TRAFFIC MANAGEMENT

24

- There must be a plan to identify hazards, assess risks, implement control measures and review the controls.
- Transport SA Workzone Traffic Management Training must be undertaken by site personnel
- All traffic control devices must be erected prior to commencement of work under the supervision of person(s) having completed the Workzone Traffic Management Training
- High visibility vest must be worn and maintained in good condition
- Drive through the area to ensure correct distances and use of control devices
- Signs, bollards, lights, witches hats must be erected by a competent person
- Retro-reflective vests must be worn in poor light, night work or limited visibility
- Signs, barricades, lights, witches hats etc must be secured at the end of the work shift



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.16.1 AUSTRALIAN STANDARD 1742
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TRAFFIC MANAGEMENT

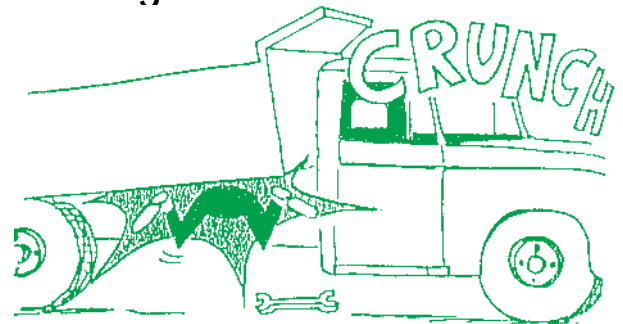
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- Pedestrians and vehicles **must** be prevented from entering trenches and excavations
- Only minimal amounts of roadways and footpaths are to be closed off
- Traffic delays **must** be kept to a minimum
- There **must** be adequate lighting for the work area, to illuminate signs etc
- Signs furthest from the worksite **must** be erected first
- Park vehicles in advance of workers, and signs **must** be removed in reverse order
- Yellow rotating warning lights must be fitted and used on all vehicles working on roads and footpaths
- Report all incidents, damage, incorrect traffic controls, unauthorised personnel etc to site management

REMEMBER: VISIBILITY AND NEGOTIATING ROAD WORKS SAFELY CAN ALSO DEPEND ON WEATHER CONDITIONS

- **Don't** repair or service any plant unless properly trained
- **Don't** carry out temporary, patch up repairs
- **Check** that regular maintenance has been carried out before operating

- **Before** maintenance, isolate, release the hydraulic pressure, lock out and chock



- Tag out and **report** any faults or problems
- When leaving plant, isolate controls, add '**Out of Service**' tag
- **Watch out** for hot lubricants, components and parts when carrying out maintenance
- If an oil or hydraulic fluid spill etc immediate action must be taken to control and dispose of the waste



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 3.1, 3.2, 3.3, 3.4

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ISOLATION PROCEDURES (TAGGING ON PLANT & EQUIPMENT)

26

- Don't start any repairs, alterations or maintenance unless the energy source is disconnected
- Any faulty, damaged or malfunctioning plant or equipment must be fitted with a danger tag and removed from service
- Switch off, isolate, attach danger tags or lockouts, always test first
- The person to remove a danger tag or lockout is the person who put it in place
- Don't remove any lockout or tag unless authorised to do so and always test first
- Plant or equipment must be isolated and tagged where guarding has been removed



FOR FURTHER INFORMATION REFER OHSW REGULATION PART 3 AUSTRALIAN STANDARDS, 1318
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ISOLATION PROCEDURES

(TAGGING ON PLANT & EQUIPMENT)

26

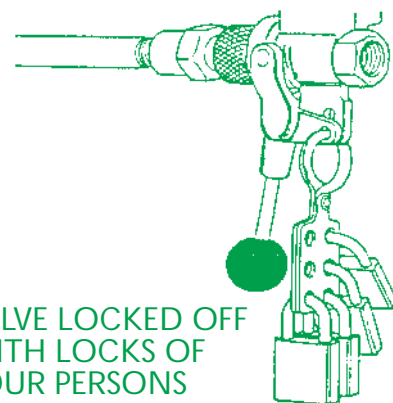
- Out of service tags or lockouts must be fixed to operating controls
- All tags must remain in place until all repairs, maintenance and or alterations have been completed
- All danger tags and or out of service tags must be clearly visible
- If there are two or more persons working on the same equipment or machinery, at the same time each person must use a separate **DANGER TAG**



OUT OF SERVICE
DO NOT USE
OR OPERATE

PLACED BY:
Name _____
Dept _____ Date _____
Reason _____

SEE OTHER SIDE



VALVE LOCKED OFF WITH LOCKS OF FOUR PERSONS

BE AWARE MORE THAN ONE HAZARD MAY NEED TO BE ISOLATED, ENSURE THE CORRECT ONE IS ISOLATED

SUNBURN AND SKIN CANCER

27

Skin can be damaged by the sun even on cloudy days.

- **Wear** loose fitting, light coloured clothing, sleeves rolled down, long pants
- Arrange work for cooler parts of the day; ultra violet rays strongest 10 am-2 pm (11am-3pm daylight saving)
- Sun screen SPF 30 plus **must** be used
- Liberally apply sunscreen to exposed parts of the body and regularly re-apply
- **Wear** hats that protect the ears and neck. Wear sunglasses/safety glasses to reduce ultra violet radiation to the eyes
- **Wear** head protection, broad rim or legionnaire's style caps
- When hard hats are to be worn, a brim **must** be attached



FOR FURTHER INFORMATION REFER ANTI - CANCER FOUNDATION
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SUNBURN AND SKIN CANCER

27

CHECK FOR SKIN CANCERS

Checks must be carried out on parts of the body mostly exposed, for example, face, ears, neck, shoulders, arms and hands. (Refer to your GP)

Melanoma

- Very dangerous and can be fatal: a spot, unusual freckle or mole that changes colour, size and thickness over months. Colours range from dark brown, black, red, blue, black or a combination. Can appear on body parts protected from the sun.

Basal Cell Carcinoma (bcc)

- Most common type, a small round or flattened lump, red, pale or pearly in colour, may have blood vessels over the surface.

Squamous Cell Carcinoma (scc)

- Less common than BCC's but more dangerous, can spread, usually red scaly areas that bleed, turn into ulcers and it has the appearance of a sore that does not heal.

Sun Spots

- Usually rough dry, firm spots. These are not skin cancers but show the skin has had an overdose of ultra violet light and on very rare occasions can turn into cancers.

FOR FURTHER INFORMATION REFER OHSW REGULATION PART 3, AUSTRALIAN STANDARDS - AS 1121, 1418, 1636, 2294, 2550
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COMMUNICABLE DISEASE

- **Don't** have direct contact with body fluids, such as blood, urine, faeces, pus
- **Wear** disposable gloves where contact with body fluids, sewerage, rubbish etc
- **Immediately** wash hands thoroughly if body fluid contact is made and wear eye protections if chance of splashes in eyes
- **Never** place hands directly into rubbish
- Needle stick injuries **must** be thoroughly and immediately washed and reported straight away
- **Never** pick up syringes with bare hands, use heavy duty gloves or tongs and place in appropriate sharps container
- Persons giving resuscitation **must** be adequately trained
- Anaesthetic face masks **must** be used when giving resuscitation



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PERSONAL HYGIENE

- Wash hands **before** eating, drinking, smoking and after going to the toilet
- **Never** use solvents, petrol etc to clean hands
- **Report** any skin problems, dermatitis, cuts, scratches, infections, before starting work
- Toilets, lunchrooms, change rooms and showers **must** be kept clean, tidy and in a hygienic condition
- **Put** all foods scraps and rubbish in bins
- Gloves **must** be worn when handling rubbish, toxic or corrosive chemicals, wash hands afterwards
- Bins **must** have tight fitting lids and be emptied regularly
- Maintain personal hygiene: wash and shower regularly



DRUGS AND ALCOHOL

29

Civil Construction work involves a number of hazards, operating dangerous plant and equipment, working at heights, confined spaces, excavation work etc.

Drugs and alcohol can impair co-ordination and **increase** the risk of injury, not only to the plant and equipment operator, but to other persons.

- Alcohol or illegal drugs are **banned** from the workplace. It is an offence under the Occupational Health, Safety and Welfare Act 1986 to work under the influence of drugs or alcohol
- **Don't** start work whilst affected by any drug or alcohol
- Contractors, subcontractors, visitors etc **must not** endanger themselves or others by the consumption of drugs or alcohol



FOR FURTHER INFORMATION REFER WORKCOVER GUIDELINES FOR DRUGS & ALCOHOL IN THE WORKPLACE.
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DRUGS AND ALCOHOL

29

CIVIL CONSTRUCTION SAFETY GUIDES

- Report all incidents involving drugs or alcohol
- Should there be a drug or alcohol problem and there is a need to do something about it, see the company management for private and confidential assistance
- Prescription drugs may have an affect on work performance. They could make a person drowsy, impair judgement or reactions
- If concerned about any prescription medication being taken, discuss this with the Site Supervisor and a Medical Adviser

YOU HAVE AN OBLIGATION TO DO WHAT IS REASONABLY PRACTICAL TO PROTECT YOUR OWN HEALTH AND SAFETY AND THAT OF OTHERS BY NOT BEING AFFECTED BY ANY DRUG OR ALCOHOL AT WORK.

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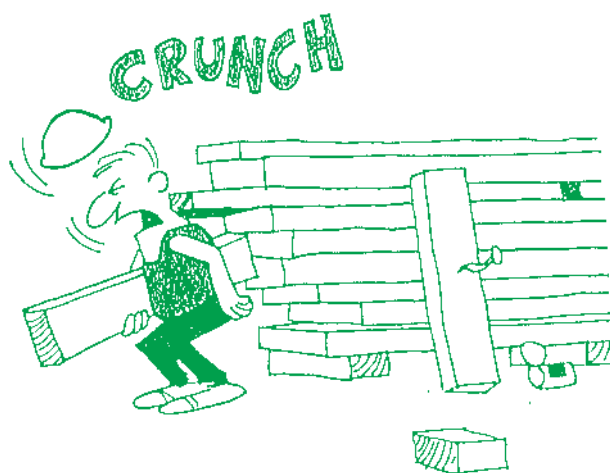
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MATERIAL STACKING & STORAGE

30

CIVIL CONSTRUCTION SAFETY GUIDES

- Materials must be stacked in a neat and orderly manner
- Adequate access and egress must be maintained around material stacks for emergencies, fire fighting etc
- No sharp or rough edges of materials are to protrude into any walkway areas
- Materials must be securely stacked so as not to fall or be easily dislodged
- Materials must be stored in a stable condition, on the base rather than in the upright position eg concrete rings and pipes
- It must be safe to retrieve any material from a stack or storage
- Appropriate protective equipment must be worn when handling any materials eg gloves



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 2.15 : DANGEROUS SUBSTANCE ACT
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MATERIAL STACKING & STORAGE

30

CIVIL CONSTRUCTION SAFETY GUIDES

- Any hazardous or dangerous substances **must** be stored in accordance with the Material Safety Data Sheet (MSDS)
- Housekeeping **must** be regularly carried out to reduce debris build up and any fire hazard
- Non-compatible materials **must not** be stored or stacked together
- Materials **must** be stacked and stored so as to reduce double handling
- Bearers **must** be used to improve stack stability
- Round items may need to be strapped or chocked
- When A frames or racks are provided for storage of materials, these **must** be used
- Material stacks **must** be secured to prevent access by unauthorised persons

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DEMOLITION

31

- Demolition warning signs must be put in place before work commences
- All services, gas, electricity etc, must be disconnected
- The area must be fenced or barricaded to prevent unauthorised entry
- Overhead structures must be erected to protect any public place or persons
- Work must not be carried out from a fragile roof unless adequate protection provided
- Openings in floors must be barricaded
- Access roads, paths etc, must be closed off and only used in connection with the work
- Demolition site traffic must be controlled
- Stairways must be maintained in a clean condition, free from debris and materials



PROTECTIVE CLOTHING
MUST BE WORN
IN THIS AREA



HAND PROTECTION
MUST BE WORN
IN THIS AREA



SAFETY VESTS
MUST BE WORN
IN THIS AREA



SAFETY FOOTWEAR
MUST BE WORN
IN THIS AREA



SAFETY HELMET
MUST BE WORN
IN THIS AREA



EYE PROTECTION
MUST BE WORN
IN THIS AREA

FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 5.2 & AUSTRALIAN STANDARD 3012
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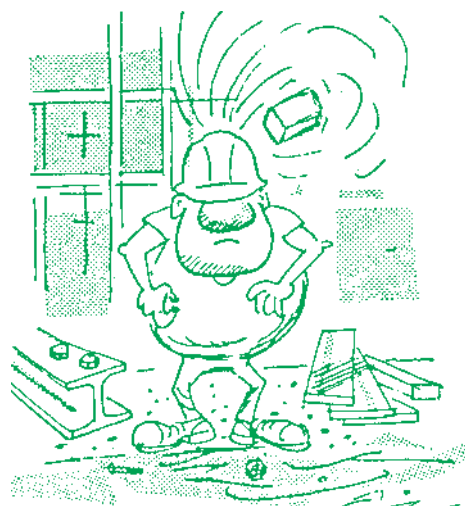


DEMOLITION

31

CIVIL CONSTRUCTION SAFETY GUIDES

- Keep dust to a minimum dust by vacuuming, extraction or wetting
- Run-off water **must** be collected for recycling, if possible
- **Don't** drop or throw waste from a structure, lower by hoist or use chutes
- Materials **must not** be allowed to accumulate on overhead structures
- Vehicle movement **must** be restricted and kept to a minimum
- Water supply hoses **must** be strong enough to with stand impact from demolition waste
- Appropriate fire fighting and emergency plans **must** be established
- All Personal Protective Equipment **must** be worn where signs are displayed



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ASBESTOS

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- Where any material is discovered and may contain asbestos, **report** it immediately
- Warning signs **must** be displayed and barricades erected
- **Don't** attempt to remove, cut, drill etc any asbestos product unless properly trained and certified
- Use non-powered hand tools, **wet down** to avoid airborne fibres
- When wetting down the asbestos product, **don't** use a high pressure water jet
- **Wear** the proper overalls, disposable respirator or half face respirator with appropriate cartridges
- There **must** be a good face seal, close contact between face & respirator, no beards, moustaches, sideburns, stubble etc



FOR FURTHER INFORMATION REFER OHSW REGULATION DIVISION 4.2, APPROVED CODE OF PRACTICE: SAFE REMOVAL OF ASBESTOS: ASBESTOS WORK
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ASBESTOS

32

CIVIL CONSTRUCTION SAFETY GUIDES

- **Don't** use a breathing apparatus/respirator unless properly trained
- **Don't** use any damaged or faulty protective clothing or equipment, and report as soon as possible
- When working with asbestos products, work **must** be carried out in a well ventilated area, where possible the open air
- **Don't** drop any asbestos to the ground, remove with minimal breakage
- Asbestos and debris **must** be stacked on ground sheets and removed as soon as possible
- Any debris **must** be cleaned up by using an approved vacuum cleaner
- **Don't** eat, drink or smoke in the area of asbestos work
- Remove Personal Protective Equipment, maintain high level of hygiene, wash, shower before eating, drinking or smoking

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NOISE

33

REDUCING NOISE ON SITE IS EVERYONE'S RESPONSIBILITY, WEARING HEARING PROTECTION IS THE LAST OPTION, REDUCE THE NOISE AT THE SOURCE.

- Noisy plant and equipment can be a sign of damage, wear, etc and regular maintenance **must** be carried out



- Noisy plant or equipment **must** be enclosed with sound absorbing material where possible
- Schedule noisy work when least number of persons are present
- Tools and equipment **must** be kept in good condition eg pneumatic tools, air lines, blades sharp etc
- **Obey** warning signs to keep away from noisy operations
- **Before** operating check all underground and overhead services are identified



FOR FURTHER INFORMATION REFER TO OHSW REGULATION DIVISION 2.10, AUSTRALIAN STA AUSTRALIAN STANDARDS 1269, 1270, 2436

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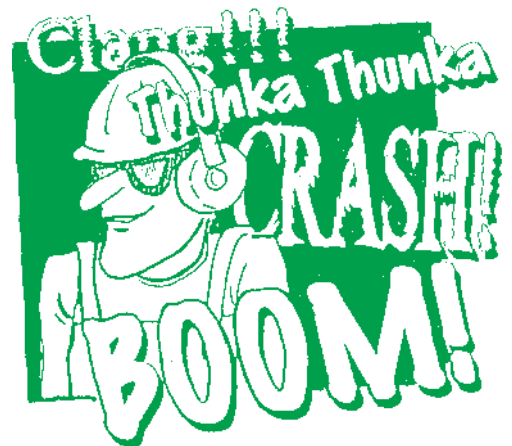
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NOISE

33

- **Use** a quieter process, such as pressing or bending instead of hammering
- **Wear** hearing protection, ear muffs, ear plugs that are comfortable and suitable
- **Don't** share hearing protection to avoid infection or disease
- Take regular breaks when working in noisy environments or when using noisy plant or equipment
- Hearing protection **must** be the correct type to reduce noise exposure to acceptable levels
- Training **must** be carried out in regard to safe use, fitting and maintenance of hearing protection
- **Report** any hearing problems, ringing in the ears, etc, as soon as possible





CONFINED SPACE

CONFINED SPACE

An enclosed or partially enclosed space:

- not intended as a regular workplace
- restricted entry and exit
- at atmospheric pressure
- and may have poor ventilation or atmosphere that can't sustain normal breathing

HAZARDS MAY INCLUDE:

- Materials may give off toxic/flammable gas
- The work may create a hazard: welding, hammering, exhaust fumes etc
- Lack of oxygen resulting from eg bacteria
- Electrical hazards, metals that conduct electricity
- Poor lighting
- Restricted access and egress, cramped or awkward working positions
- Engulfment by soil, sand etc

Before entering a confined space check oxygen/air levels; toxic gas, dust or vapours, fire or explosion hazards and temperature.



FOR FURTHER INFORMATION REFER OHSW REGULATION 2.4.1. & AUSTRALIAN STANDARDS, 1715,1716 & 2865
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CONFINED SPACE

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- A Work Permit must be completed and signage displayed
- There must be adequate emergency and rescue procedures
- Only trained persons with Personal Protective Equipment are to enter confined spaces

