



NCG Airconditioning Centre Pty Ltd

Occupational Health, Safety, and Welfare Manual

Table of Contents

| | |
|---|----|
| Section 1 – OHS Objectives | 1 |
| Section 2 – Our Responsibilities | 1 |
| Section 3 – Your Responsibilities..... | 1 |
| Section 4 – Accident Prevention Rules | 2 |
| Section 5 – Young Workers Policy | 4 |
| Section 6 – Bullying & Harassment Prevention Policy | 5 |
| Section 7 – Risk Management | 5 |
| Section 8 – OH&S Training and Information | 6 |
| Section 9 – Safe Work Method..... | 7 |
| Section 10 – Risk Assessment..... | 10 |
| Section 11 – SWMS Risk Analysis | 14 |
| Section 12 – Guidelines for the Safe Use of Ladders..... | 17 |
| Section 13 – Guidelines for Working at Heights | 21 |
| Section 14 – Securing Loads on Vehicles | 24 |
| Section 15 – Manual Handling: Lifting..... | 24 |
| Section 16 – Sun Protection for Construction Workers..... | 25 |
| Section 17 – Hazards of Working in Heat..... | 27 |
| Section 18 – Basic Rules for Safe Welding | 28 |
| Section 19 – Cylinder Safety | 31 |
| Section 20 – Electrical Safety | 32 |
| Section 21 – Exposure to Radiofrequency Radiation | 35 |
| Section 22 – Asbestos Awareness | 36 |
| Section 23 – Noise Awareness..... | 36 |
| Section 24 – Confined Spaces..... | 38 |
| Section 25 – Drug & Alcohol Policy..... | 39 |
| Section 26 – Rehabilitation Policy | 39 |
| Section 27 – First Aid Kit | 40 |
| Section 28 – Incident Reporting Form | 40 |

Section 1 – OHS Objectives

The occupational health and safety (OHS) of all personnel that are under the areas of NCG control are of the utmost importance.

Risks and hazards that impact on health and safety must be identified and reasonable steps are to be undertaken to reduce or eliminate them. In a situation where the risk cannot be entirely eliminated, a Safe Work Method Statement must be carried out and enforced.

Every employee has the responsibility to prevent accidents in the workplace. Good housekeeping will ensure that new employees learn the necessary practices to ensure safety in the workplace and for others. Each employee is responsible for their own safety and much work to NCG safety procedures, if an employee is unsure, it is up to the individual to communicate the queries with supervisors or managers.

Section 2 – Our Responsibilities

To achieve the objectives stated above, NCG will:

Ensure appropriate training is made available for all employees
Provide appropriate support and resources to maintain safe work
Provide all necessary and appropriate safety equipment for employee use
Consult with employees and encourage participation in working safely
Notify employees of changes to legislations and procedures

Regular safety meetings will be held with all employees in an effort to exchange information about potential risks in the workplace, and how to reduce them. It is also a perfect opportunity to provide on-going training.

Section 3 – Your Responsibilities

Due to the nature of the business that is carried out at NCG, many of the tasks require employees to work alone and tasks that are considered to be **'High Risk'**.

As an employee, you must be part of the solution and have these basic responsibilities:

- Work Safely, follow all safety instructions and keep good housekeeping in the workplace
- Know the safety precautions before the start of a job, carry out Safe Work Method Statement
- Ask your supervisor if you are unsure of the risks
- If there are hazards or risks that could be managed in a more effective manner, inform the supervisor immediately
- Co-operate in activities that prevent accidents and improve safety
- Report all accidents/injuries/near misses to your supervisor and complete the accident report form
- Ensure the equipment is used in the correct manner
- Ensure the safety of those around you, this includes co-workers and the public
- Report any safety breaches to the supervisor immediately

All employees including sub-contractors are held accountable for following safety and risk management strategies and are responsible for implementing appropriate action with due diligence. In any risk management decisions, safety will always take precedence.

It is expected that all people in the workplace are to work towards a safer environment and maintaining a high standard. Ensure that a JSA or SWMS are filled out for each job.

Section 4 – Accident Prevention Rules

Working at heights

For our industry, working at heights poses to greatest risk of serious injury. Observe all requirements of falls from heights legislation, industry codes or practice, working off ladders and roof safety. **Refer to Section 12 & 13**

Lifting & Manual Handling

Serious accidents and injuries are caused by incorrect lifting methods. Manual handling includes, lifting, sitting, pushing or pulling. Wherever possible use lifting equipment to reduce stress on parts of the body, if this is not possible, ask for assistance. The proper way to lift items is by bending the knees and using the power of the legs. If there is an intention to lift an object alone, make sure that the weight, size and shape allows for it to be lifted without causing injury, **refer to Section 15** for more information.

Housekeeping

Keep working areas clear at all times. Sections are set-aside on most projects for storage and location of raw materials, tools and equipment. Keep all items in their proper place. Keep exits, fire extinguishers and switchboards clear.

Personal Dress

Make sure that you are dressed appropriately. Loose clothing, such as ties, belts, necklaces and rings are particularly dangerous and should not be worn when working with mechanical equipment or tools

Protective Clothing

Protective clothing and equipment appropriate for the job must be worn whenever there is a risk of injury. Safety vests and boots must be worn at all times.

Gloves

Wear gloves to protect your hands from rough, splintered or sharp objects.

Safety Boots and Shoes

Steel capped boots are a must, and is to be worn at all times on worksites.

Safety Helmets (Hard Hats)

Hard hats are to be worn where:

- a. An employee is working below another person
- b. There is a likelihood of any person being struck by or striking an object.
- c. Any site controlled by another person where a sign is displayed requiring the use of a safety helmet, or where required by a site-specific induction.

Hard hats are to be inspected on a regular basis. This should be done when electrical equipment is tested and tagged. Each helmet is to be disposed of after 2 years, as per Australian Standard AS1800: 1988.

Welding

Welding operation shall be carried out only after the immediate area has been cleared of flammable material. The supervisor in charge of the area must also give approval to proceed. Protective mats and screens shall be placed as necessary. A fire extinguisher of appropriate type shall be close at hand while welding is in progress. After welding, the area shall be inspected for possibility of fire and again, no later than one hour after welding has ceased. **Refer to Section 18** for more details.

Long Hair

All employees with long hair, who are working on site, are to wear a hairnet or tied back. If working with moving machinery, long hair must be in a hairnet and securely fixed as specified by the Factories Act.

Machine Guards

All dangerous parts of machinery, belts, pulleys, shafting and chains should be securely guarded. You must check that all parts of the machinery are working correctly before starting work. Make sure that you know how to operate the machinery and that you are authorized to operate. Always stop machinery before cleaning or adjusting.

Hoists, Cranes, Forklift Trucks

Whilst hoists, cranes and forklifts are in operation, area must be kept clear. Only personnel who are qualified should be using such equipment.

Hand Tools

Always use appropriate tools for the job. Makeshift tools are unsafe. Report any defective tools to the supervisor and ask for a replacement. Keep all tools properly stored when not in use to minimize hazards.

Electric Leads & Tools

All electrical tools, extension cords and electrical appliances must be tested and tagged by an approved person on a quarterly basis, by a qualified person.

Electricity

Never work with live electricity, electricity can kill. Only qualified personnel should work on electrical equipment after isolating the power.

Fire Protection

In the event of a fire:

Notify the supervisor. When reporting, remain calm, and give the exact location of the fire by quoting building level or room number. State the extent and nature of the fire.

Be sure to raise the alarm first then do what you can to control the fire, until the fire crews arrive.

Be aware of the fire exit nearest to your workspace at all times. If there are any questions, please discuss with your supervisor.

First Aid

If an accident occurs, the first point of contact should be the first aid representative. All accidents should be recorded. The OHS representative and the site manager should both be contacted.

Asbestos

If asbestos is discovered on a site:

- a. Do not disturb it in any way
- b. Report the matter to your supervisor and OHS representative

c. Do not work in the affected area until clearance has been given to do so
A qualified person must undertake all asbestos removal.

Site Specific Inductions

Many sites have specific induction programs, which must be followed by all staff on the premises. If there is a discrepancy, this should be brought to attention by both clients and management. NCG safety policy is not to be jeopardized by a lesser requirement.

Education

As part of an inductions program, each employee will be provided with a copy of the Occupations Health and Safety Policy. Employees will have on-going training for OHS policies and procedures. Employees will be notified if there is updated information or if changes are made. It is up to each employee to read the information as it is provided.

Section 5 – Young Workers Policy

As an employer of apprentices, we will ensure that all young workers are protected from risk of injury or illness due to risks in the workplace. Special attention needs to be given to young workers as they lack experience and may not be familiar with workplace procedures. Adequate information and training shall be provided, which will be appropriate for their age and experience

All young workers will be given a general industry induction, along with training for the following:

- Hazard identifications & Risk assessment
- Manual Handling
- Work Environment
- Powered and non-powered equipment
- Heat – Burns and scalds
- Electrical Hazards
- Harassment
- Hazardous substances
- Noise
- Confined Space

All qualified employees shall ensure that all young workers are adequately trained and work under supervision.

Supervision includes:

Observe and evaluate the competency of the young worker before they use any power tools. Make sure that they understand the safe use of the equipment. Young workers are to be supervised when working from elevated platforms such as lifts and scaffolds. Apprentices are to be supervised at all times, and are not to complete a task alone.

Young workers are to receive manual handling training, to ensure they understand the correct techniques to push, pull, lift and carry. Young workers under the age of 16 are not to carry, lift, lower more than 16kg without mechanical or other assistance.

Section 6 – Bullying & Harassment Prevention Policy

Bullying or harassment is unacceptable behavior. All forms of bullying and harassment are not productive and are unlawful. This sort of anti-social behavior will not be tolerated whatsoever.

Any person who believe they have been or are being bullied or harassed may approach their supervisor, external authority, or if they so wish, their union. Any complaints received will be dealt promptly and confidentially. All incidents will be taken seriously and investigated impartially to ensure that any misconduct does not continue.

All employees are to observe this policy. Any breach will result in disciplinary action and may lead to dismissal.

What is bullying?

Worksafe defines workplace bullying as ‘repeated, unreasonable behavior directed toward an employee or group of employees that creates a risk to health and safety.’ Risk to health and safety includes risk to mental and/or physical health.

What is occupational violence?

Worksafe defines occupational violence as any incident where an employee is physically attacked or threatened in the workplace.

How can bullying affect the health and safety of employees?

Due to the exposure of bullying in the workplace, the result can be a range of psychological and physical illnesses. Psychological injuries can appear as physical symptoms such as hypertension, insomnia, and skin disorders.

Does bullying and occupational violence have any other workplace effects?

Effects can include, reduced productivity, lack of trust, poor morale, and increased financial costs.

Section 7 – Risk Management

All employees are to try to identify potential hazards of the proposed work, assess the risks and develop controls to eliminate or minimize the risk. The risk management process will be carried out in consultation with the workers.

Identify Hazards

All potential hazards will be broken down to a sequence of activities. These activities are to be provided in a Safe Work Method Statement (SWMS), which lists job procedures and other work related practices, the statement details how the scope of the work will be carried out.

For each of the work activities identified in SWMS will identify potential hazards. Resources that can be used for job steps regarding the SWMS can be found on the Worksafe website and publications.

Assess Risks

For each potential workplace hazard a risk class will be determined by referring to the categories below.

| | Consequence | | | | |
|--|-------------|--------------|---------|-------------|-------|
| | Disaster | Very Serious | Serious | Substantial | Minor |

| | | | | | |
|-------------------------------|---|---|---|---|---|
| Almost Certain | 1 | 1 | 1 | 2 | 2 |
| Likely | 1 | 1 | 2 | 2 | 2 |
| Possible | 1 | 2 | 2 | 2 | 3 |
| Remotely Possible | 2 | 2 | 2 | 3 | 3 |
| Practically Impossible | 2 | 3 | 3 | 3 | 3 |

| Likelihood / Consequence | Risk Class |
|---|-------------------|
| This Risk Class 1 hazard has the potential to: <ul style="list-style-type: none"> • Permanently disable or kill • Cause major damage to the structure • Have significant impact on the surrounding populations and environment | 1 |
| This Risk Class 2 hazard had the potential to: <ul style="list-style-type: none"> • Temporarily disable or seriously injure • Cause minor damage to the structure • Breach the site boundary and pollute local environment | 2 |
| This Risk Class 3 hazard has the potential to: <ul style="list-style-type: none"> • Cause minor injury • Be contained within the site boundary | 3 |

Section 8 – OH&S Training and Information

All personnel will be trained in relevant OH&S. On-going training and education will be provided to remain up to date on current health and safety issues.

Employees will be trained in carrying out their own risk assessments, and job safety analysis as the job requires many employees to work alone for long periods of time. Some of the industry education courses are:

- Construction Induction (White Card)
- Roof Safety & Working at Heights
- First Aid
- Noise Awareness
- Elevated work platform operation
- Scissor & Boom lift
- Electrical Hazards
- Chemical Hazards
- Asbestos Awareness
- Manual Handling

Many tasks that are undertaken on a day-to-day basis are considered to be high risk; some of the aspects are highlighted below:

- Manual Handling
 - Lifting the extension ladder off the truck roof
 - Carrying gas bottles
 - Lifting air conditioners
- Falls from heights
 - Servicing roof mounted AC equipment
 - Installing access equipment
 - Working off ladders

- c. Electrocution
 - Working on air conditioning equipment
 - Testing controls & Tracing Faults
 - Working in ceiling spaces or under floors in old buildings where wires could be live
- d. Fires & Burns
 - Welding refrigeration & plumbing pipes
 - Cutting and welding steel frames
 - Handling Oxy & acetylene
- e. Hazardous Substances
 - Working with refrigerant gas
 - Working with plastic glue
 - Asbestos in old buildings

Section 9 – Safe Work Method

Safe Work Method

| | |
|---------------|--|
| To: | |
| Job: | |
| Trade: | |

Administrative Controls

Scope

This safe work procedure, risk assessment and control document has been formulated to cover the supply, installation, commissioning and servicing of all air conditioning, heating, ventilation and access equipment and materials as per our quotation and your order

Site Supervision

NCG's foreman will make himself known to the site supervisor. In many instances the foreman will also be on the tools installer.

Hours Worked

NCG staff will work, where possible, a normal 38-hour week on Monday to Friday between 7am and 7pm. All effort will be made to fit in with the construction calendar.

Skills and Education

All personnel are appropriately trained and certified in their trades. We encourage all employees to continue further education to enhance their trade skills where possible.

OH&S Training and Information

All personnel are appropriately trained in OH&S and continue their training and education including all appropriate aspects of safety relevant to their work. However, due to the business, most employees are required to work alone for a considerable amount of time.

Employees will be trained in carrying out their own risk assessments, and job safety analysis as the job requires many employees to work alone for long periods of time. Some of the industry education courses are:

- Construction Induction (White Card)
- Roof Safety & Working at Heights
- First Aid
- Noise Awareness
- Elevated work platform operation
- Scissor & Boom lift
- Electrical Hazards
- Chemical Hazards
- Asbestos Awareness
- Manual Handling

Many tasks that are undertaken on a day-to-day basis are considered to be high risk; some of the aspects are highlighted below:

- f. Manual Handling
 - Lifting the extension ladder off the truck roof
 - Carrying gas bottles
 - Lifting air conditioners
- g. Falls from heights
 - Servicing roof mounted AC equipment
 - Installing access equipment
 - Working off ladders
- h. Electrocutation
 - Working on air conditioning equipment
 - Testing controls & Tracing Faults
 - Working in ceiling spaces or under floors in old buildings where wires could be live
- i. Fires & Burns
 - Welding refrigeration & plumbing pipes
 - Cutting and welding steel frames
 - Handling Oxy & acetylene
- j. Hazardous Substances
 - Working with refrigerant gas
 - Working with plastic glue
 - Asbestos in old buildings

Preparation

1. Arrange Schedule
2. Workers to complete induction course
3. Check site
4. Check positioning of units/penetrations / solid duct/ ladders and walkway
5. Check position of purlins and access on to roof
6. Check access for crane and determine size required
7. Check access for deliveries and storage of materials
8. Check schedule and details with site foreman
9. Take deliveries of equipment and accessories
10. Check for location and access to switchboard
11. Check for location and access to gas and water meters

Above Roof

1. Cut penetrations and install droppers, hatch, soakers and under flashings.

2. Take delivery of equipment and crane lift.
3. Position red gum load spreaders.
4. Position units, walkway, ladders, and handrails.
5. Install surface mounted wiring to units.
6. Install refrigeration, gas, and water and drain pipes to units.
7. Fit droppers.
8. Fit over flashings, seal duct, flashings and fit dectite's.
9. Clean Roof.

Below Roof

1. Mount fan coils.
2. Install wiring to units.
3. Install refrigeration, gas, and water and drain pipes to units.
4. Mount solid duct.
5. Attach starting collars.
6. Run flexible duct
7. Install grilles
8. Install ladders
9. Commission

Completion of Project

1. Instruct client in operation of system.
2. Explain client obligations for maintenance
3. Explain client obligations to provide safe access for service.

Means of Access to Workplace

All access equipment will comply with the current Safety Standards.

Method to Ensure Safety of Public/Workers Not Involved

NCG will ensure that all staff is trained to demonstrate and supervise all works

Delivery Trucks

Unloading areas are to be cordoned off as necessary. Must ensure that there is sufficient staff available to unload delivery vehicle. Safe lifting practices will be carried out at all times, and using gloves as necessary

Crane Lift

We use only Accredited Crane Operators with proper training and certifications. Ensure local and surrounding work area is cordoned off to prevent others wandering into the area while the lift is being carried out. All employees are to abide by "No Go Zone" Regulations.

Elevated Platforms

NCG only uses approved scissor lifts, scaffolding, duct lifters, industrial rated ladders and steps. Certified staff will be used to operate scissor lifts and/or erect scaffolding. Under no circumstances will any person ride on mobile tower scaffold whilst it is being moved. Extension ladders will be tied off. Tools etc. will not be carried up, but will be pulled up via rope.

Roof Work

No employee is to work within 2 meters of an unprotected roof edge or opening if it is possible to fall more than 2 meters. All employees will be trained in the use of the fall restraint harness, which is part of their P.P.E. The harness will be used strictly in accordance with the training provided and usage guidelines set out in the relevant section of this manual and after completion of a SWMS

Use of Ladders

If after an assessment by the hierarchy of control, that the most practical solution available is to use a ladder for a task, then the guidelines for the safe use of ladders must be followed. If these guidelines cannot be followed, then another means will have to be used to perform this task.

Fire Prevention

Employees will ensure that fire blankets and fire extinguishers are within reach when welding. The emergency exits out of the workspace should also be known.

Load Spreaders for Units

Materials appropriate to spread the weight onto supports will be supplied by NCG

Engineers Details

It is the Site Manager's (client's) responsibility to ensure that the building structure is capable of supporting the weight of all equipment.

Duct Supports

All duct support systems will be rated to exceed the weight of the ductwork.

Demolition Work

All employees are to take extra care and precautions when carrying out demolition and removal works. Employees must confirm that all power has been isolated from any demolition areas by a qualified electrician, prior to starting and demolition or removal equipment. Employees are to confirm with the Site Manager that all asbestos products on site have been made safe or disposed of according to regulations.

Manual Handling & Material Handling

Employees will use cranes, duct lifters and scissor lifts to lift materials. Employees are not to lift materials which are heavy, or awkward to carry. If appropriate, enlist the help of others.

Rubbish Removal

Employees are to place all rubbish in the on-site bin provided by the site manager.

Personal Protection Equipment (PPE)

All employees will have access to appropriate safety gear. Appropriate PPE must be worn at all times on site. All vans are equipped with first aid kits.

First Aid

Employees will be trained in first aid appropriate to their work. First aid kits are to be regularly checked and re-stocked. It is each employee's responsibility to advise their supervisor of any replacement items needed. A checklist for the first aid kit items is attached in this manual.

Tools

All power tools are checked and tagged by a qualified tester every three months.

Hazardous Materials/Chemicals

Employees will ensure that hazardous goods are stored in the designated place.

Section 10 – Risk Assessment

All employees are to take note of any risks on a job, and take appropriate control to avoid injury.

| Risk Factor | Result |
|-------------|---|
| 1 | Potential for permanent injury or death |

| | |
|---|-----------------------------------|
| 2 | Potential for loss time injury |
| 3 | Potential for first air treatment |

All Trades

| Task | Risk | Factor | Control Measures |
|--|--|-----------------------------|---|
| Preparation for roof loading | Roof collapsing under load | 1 | <ul style="list-style-type: none"> Check with site manager that structure is strong enough to carry equipment |
| Marking position for units and penetrations | Falling from roof | 1 | <ul style="list-style-type: none"> Client should provide handrails. Personnel over 2m away from edges and openings Personnel should be trained in roof safety Should be wearing appropriate PPE |
| Cutting penetrations for ducts or roof hatches | Minor/Major Cuts Falling from roof or through openings | 2&3 1 | <ul style="list-style-type: none"> Personnel should be aware of the risk Leave mesh and insulation in place until ready for dropper ducts Place temporary timber across penetrations until filled Personnel should wear appropriate PPE |
| Unloading trucks | Hit by Traffic Cuts Strains | 1&2 2&3 2 | <ul style="list-style-type: none"> Cordon off suitable area Wear Gloves Use proper lifting techniques Use mechanical lifting equipment |
| Crane lifts | Personnel can be hit/injured by falling load or balance weight Crane Tipping Equipment/Personnel falling from roof | 1,2&3 1,2&3 1 | <ul style="list-style-type: none"> Cordon off work areas All equipment is secure and safe Crane is not overloaded and can reach specified height Ensure operators are certified and trained. |
| Installing droppers | Strain/Falling through roofs | 2&1 | <ul style="list-style-type: none"> Use crane to install where possible Wear gloves Use proper lifting techniques |
| Mounting solid duct | Strain/Falling through roof | 2&1 | <ul style="list-style-type: none"> Use approved duct lifters Ensure two workers together |
| Wire Units | Electrocution/Cuts | 1&2 | <ul style="list-style-type: none"> Use only licensed electricians Be aware of wiring in area Ensure electrician is trained in roof safety |

| | | | |
|-----------------|---------------------------------|--------------|--|
| Working outside | Sunburn, Heatstroke/Stress | 2&3 | <ul style="list-style-type: none"> • Use sunscreen, hats and anti-glare glasses • Proper clothing and liquid intake |
| Task | Risk | Factor | Control Measures |
| Using Tools | Trip over Cuts Falling | 2&3 | <ul style="list-style-type: none"> • Ensure all workers are aware where tools are • Pack away tools • Keep work area clean and tidy • Place off-cuts and rubbish in bins provided |
| Demolition Work | Inhaling dust/foreign matter | 2&3 | <ul style="list-style-type: none"> • Wear breathing mask • Wear safety glasses • Wear gloves • Use proper lifting techniques • Check with site manager that structure can hand weight |
| | Dust/Foreign matter in eyes | 2&3 | |
| | Cuts/Abrasions | 2&3 | |
| | Strains Falling through roof | 2&3 1,2&3 | |

Electrical & Service

| Task | Risk | Factor | Control Measures |
|---|--|------------|--|
| Refrigeration pipe up, wiring, commission and servicing | Accessing equipment falls | 1,2&3 | <ul style="list-style-type: none"> • Carry out JSA and ensure proper access • Ensure step ladders are correctly used and maintained • Use only licensed mechanics • Ensure power is isolated • Only use quality testing equipment • Use welding blanket if over combustible materials • Ensure mechanic is trained in roof safety • Use proper lifting techniques • Use sunscreen, proper clothing and ensure liquid intake |
| | Working from step ladders | 2&3 | |
| | Electrocution | 1&2 | |
| | Burns from welding | 1,2&3 | |
| | Falling | 1&2 | |
| | Strain from lifting Working in heat | 2&3 2&3 | |

Installing Roof Access

| Task | Risk | Factor | Control Measures |
|--------------------------------------|--|--------|--|
| Set up work space | Limited space & office personnel traffic | 2&3 | <ul style="list-style-type: none"> • Cordon off work area • Advise client before starting work |
| Cut out plaster ceiling | Electrocution from wires in roof | 1 | <ul style="list-style-type: none"> • Check for wires before cutting • Wear PPE |
| | Cuts, dust & noise | 2&3 | |
| Drill, cut, fit hangers and supports | Cuts, noise & metal fibers | 2&3 | <ul style="list-style-type: none"> • Wear PPE |
| Working from step ladders | Falls, slips & dropping tools | 2&3 | <ul style="list-style-type: none"> • Ensure work area is clear |

| | | | |
|--------------------------------------|--|--------|---|
| | or equipment | | <ul style="list-style-type: none"> • Only use ladders safely |
| Lifting, pull down ladder into place | Strains or falls | 2&3 | <ul style="list-style-type: none"> • Use a duct lifter is possible • Use proper techniques • Two installation team |
| Installing safety handrail | Falls from roof | 1,2&3 | <ul style="list-style-type: none"> • Apply roof safety practices • Wear PPE and restraint |
| Task | Risk | Factor | Control Measure |
| Installing roof walkway | Cuts, strains, slips, falls, noise & working in heat | 2&3 | <ul style="list-style-type: none"> • Keep work area tidy |

Hazardous Goods

| Task | Risk | Factor | Control Measure |
|-----------------------------------|--|--------|---|
| Working with hazardous goods | Complacency | 1,2&3 | <ul style="list-style-type: none"> • All personnel will be made aware of danger by referring to the MSDS held in vans |
| BOC Gases R-22 Refrigerant | Inhaled may cause asphyxiation Skin irritation/eyes – May cause burns | 1,2&3 | <ul style="list-style-type: none"> • Keep containers tightly closed • Only trained personnel to use • Only to be used in open areas • Wear appropriate clothing |
| Coil & Filter cleaner | Acute effects – Corrosive Eyes/Skin irritation/Swallowed | 2&3 | <ul style="list-style-type: none"> • Wear goggles & gloves • Wear PPE • Take care of splashing • Practice good hygiene |
| Bostik – PVC Priming Fluid (Red) | Acute effects – Eyes/Skin irritation/inhales/highly flammable | 2&3 | <ul style="list-style-type: none"> • Avoid contact with skin • Wear goggles, gloves and PPE • Wear vapour cartridge breathing mask |
| Bostik – PVC Priming Fluid (Blue) | Acute effects – Eyes/Skin irritation/inhales/highly flammable | 2&3 | <ul style="list-style-type: none"> • Avoid contact with skin • Wear goggles, gloves and PPE • Wear vapour cartridge breathing mask |
| Silicone – Plumbers Sealant | Inhaled/Skin irritation | 3 | <ul style="list-style-type: none"> • Use in well ventilated areas • Remove/wash off immediately • Use gloves |
| Mirror gas pipe thread sealant | Flammable | 3 | <ul style="list-style-type: none"> • No smoking • No naked flames • Avoid contact with skin and eyes |
| Selleys – Kwik Strip | Eyes/Skin irritation Inhaled | 3 | <ul style="list-style-type: none"> • Wear gloves • Work in well ventilated areas |
| FBS – 1 Glass wool insulation | Eyes/Skin Irritation Inhaled | 3 | <ul style="list-style-type: none"> • Wear goggles • Use respirator |
| Devcon Safetap | Eyes/Skin Irritation Inhaled | 3 | <ul style="list-style-type: none"> • Wash for 15 minutes • Use mask |
| Aftek Uraseal | Eyes/Skin Irritation | 3 | <ul style="list-style-type: none"> • Use in well ventilated areas • Wash off immediately • Use gloves |
| Strike-All Purpose Spray & | Eyes/Skin Irritation | 3 | <ul style="list-style-type: none"> • Use in well ventilated areas |

| | | | |
|--------------|---------|--|--|
| Wipe Cleaner | Inhaled | | <ul style="list-style-type: none"> • Wash off immediately • Use gloves |
|--------------|---------|--|--|

Authorization: This safe work procedure and risk assessment is authorized by:

NCG: _____

Client: _____

Site: _____

Employees on Site

| Name (Print in full) | Signature |
|----------------------|-----------|
| | |
| | |
| | |
| | |

Section 11 – SWMS Risk Analysis

The safe work method statement process does not require much time. The suggested method requires a few minutes of time, prior to each task. The SWMS approach is flexible to the tasks, which are account to all trades. Tasks should be done safely to protect yourself and others around you.

Statistics indicate that most deaths are caused by falls/falling off roofs. It is followed by not recognizing the dangers of plant machinery, electrocution and structural collapse.

The majority of injuries, which occur on building sites, relate to manual handling i.e. lifting, pushing, pulling and stretching. It is therefore essential that those doing the tasks know the best and safest way of completing the task. It is also essential to include all workers and sub-contractors in the development of the SWMS where appropriate. This should be done at toolbox meetings.

High-risk tasks

The following highlights some of the high-risk tasks in which a SWMS used. It is suggested that SWMS should be compiled to ensure there is one for each particular task.

1. Working at heights, particularly on roofs
2. Use of ladders
3. Lifting heavy weights
4. Working near electricity or gas
5. Welding
6. Working with cranes and or machinery
7. Working with hazardous substances and/or dangerous goods
8. Working in public places
9. Working with/near asbestos or lead
10. Demolition

Risk Analysis – Safe Work Method Worksheet

How to complete this form

Regular tasks, which are performed on a day-to-day basis, such as lifting ladders and setting up, do not need to be itemized on each WMS. For this reason, the sheet has tick boxes to shorten this process

It is important for those doing the tasks to know the best and safest way of proceeding work. Use the working and follow the steps outlined below.

Five Steps to Effective WMS

1. Document the activity
Assemble all involved in the activity then, using the WMS worksheet, write down step by step form the task that make up the activity
2. Identify the hazards
Next to each task, identify what part of the task may cause injury or others in the vicinity
3. Document the control measures
For each identified hazard, assess the associated level of risk to those involved, and then list the control measures required to eliminate or minimize those risks.
4. Identify who is responsible
Document the name of the person responsible for implementing the control measure.
5. Monitor and review
Make sure the activity is supervised to ensure the documented process is being followed.

All personnel involved in the preparation of the WMS must print their name & sign the form.

Give 1 copy to customer, 1 copy return to office and 1 copy each for workers

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

Section 12 – Guidelines for the Safe Use of Ladders

Introduction

A ladder should be primarily used for gaining access to areas above or below ground or to other levels without permanent access. There are limits imposed on the use of ladders, as many workplace accidents occur due to surpassing these limits.

Regulations require that when a fixed or portable ladder is used to control a fall, the employer must ensure that the ladder is:

- a. Appropriate for the task to be undertaken; and
- b. Appropriate for the duration of the task; and
- c. Set up in a correct manner

Under regulations, which only apply to persons who are exposed to a fall hazard of more than 2 meters, portable ladders can only be used where other methods of work at height are not practical. Fall protection and emergency procedures are required to be established prior to the task being undertaken.

The term Working at height is of utmost importance here. There should be no confusion between working at height and using a ladder for access. It is quite acceptable to use a ladder for access to a roof for instance provided the rules for setting it up are adhered to.

The fall height is the distance from the level at which a person's feet are supported on the ladder to the level below, to avoid falls from ladders it is necessary to ensure a risk assessment is carried out where it is intended to undertake any such work from a ladder. Generally, ladders are only appropriate for short duration, light tasks, such as painting a down pipe, repairing a gutter or carrying out minor installations.

The chief hazard when using a ladder is falling. A poorly selected, designed, inspected, maintained or improperly used ladder may collapse under the load placed upon it and cause the employee to fall. A ladder is an appliance of two side rails joined at regular intervals by crosspieces on which a person may step / stand to work, ascend or descend.

Any tools or materials (other than those held on a worker's belt) should be transferred to the work area separately. Don't carry equipment up the ladder.

Various Types of Portable Ladders

Self-Supporting

Portable ladder. Non-adjustable in length, flat steps and hinged back. In many cases a flat platform at the top broader than the ladder steps

Collapsible Stepladder Platform

Self-supporting portable ladder. Non-adjustable in length. Flat steps and hinged back similar to a stepladder however having a work platform at the top broader than the steps e.g. 600mm x 600mm approximately and a handrail around approximately two thirds to three quarters of the working platform

Extension Ladder

Non self-supporting portable ladder. Adjustable in length consisting of two or more sections and controlling ropes or wires and pulleys enabling the adjustment in length.

Multipurpose

Designed with moveable hinging and folding to be compatible as a self supporting step ladder, a non self supporting single straight ladder or self supporting as a limited work platform / bench. These guidelines do not apply to trestle ladders or trestle ladder components, nor do they apply to what is commonly referred to as a step platform [non collapsible chariot] which is similar to a stepladder platform however it generally has a larger working platform and handrails on all four sides or a self closing gate with steps leading up to the platform.

Selection of ladders

Employers must make sure that portable ladders are correctly selected for the task. Employers must have regard to the duration of the task, the physical surroundings and the prevailing weather conditions. Typically, ladders used for construction work should be of robust design and construction. Accordingly, ladders used for construction works must be industrial grade, not domestic grade. Only industrial ladders may be used at the workplace. Industrial ladders must have a load rating of 120kg or more.

No metal ladder and no ladder reinforced with wire shall be used near any electrical conductor or of any electrified equipment or apparatus; as such use may result in a person receiving an electric shock.

Inspection

A competent person should regularly inspect ladders. Ladders with any of the following faults should not be used and be replaced, repaired or destroyed:

- Timber stiles warped, splintered, cracked or bruised
- Metal stiles twisted, bent, kinked, crushed or with cracked welds or damaged feet
- Rungs, steps, treads or top plates, which are missing, worn, damaged or loose
- Any rung or tread depends for its support solely on nails, spikes or other similar fixing device
- Tie rods missing, broken or loose
- Spreader bars / hinges that are damaged, broken or do not work for the purpose intended
- Ropes, braces, or brackets which are missing, broken or worn
- Timber members that, apart from narrow identification bands, are covered with opaque paint
- Other treatment that could disguise faults in the timber

Proper inspection, set up and use of ladders is essential in preventing accidents. A good ladder can pose as a hazard is used in a dangerous manner. Ladders shall be inspected frequently and those, which have developed defects, shall be tagged or marked (Dangerous, Do Not Use) and removed from service for repair or destruction. Ladders must be fitted with rubber (or similar non slip material) feet to prevent slipping.

Set Up

A ladder must be set up on a surface that is solid, stable, secure, and capable of supporting the ladder and its load. Do not erect a ladder on a slippery surface; its stability depends on the friction at the base of the ladder.

Ladders shall always be securely fixed at the top. Ladders should be secured against movement and be supported from a firm, level, and non-slip surface. If this is not possible, then a person shall stand at the base of the ladder and secure it manually against slipping. Ladders shall be placed with a secure footing, even surface when possible, or they shall be tied off at the top, middle and bottom to prevent slipping.

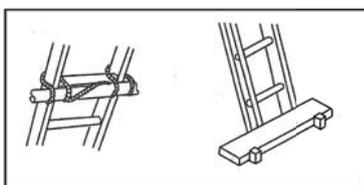
Ladders used to gain access to the roof or other area shall extend at least 900mm above the roof so it provides a point of support when stepping on the roof. Where possible, ladders being used as access should be set up at right angles to the working surface to allow workers to step off the ladder rather than having to step around or over the ladder. The base of the ladder should be placed so that it is 1 meter away from the building for every 4 meters of height to where the ladder rests against the building. This is known as the 4 to 1 rule.

Ladders set up in public thoroughfares or other places (where there is potential for accidental collision with the ladder) must be provided with effective means to prevent the displacement of the ladders due to collision. A ladder should never be 'walked' by the person standing on the ladder. Walked describes the action of a person standing at the top of a ladder who, by moving his body, causes the bottom of the ladder to lift the ends of the stiles alternately to cause the ladder to move. This is a very dangerous practice, since the ladder is not under proper control.

Securing

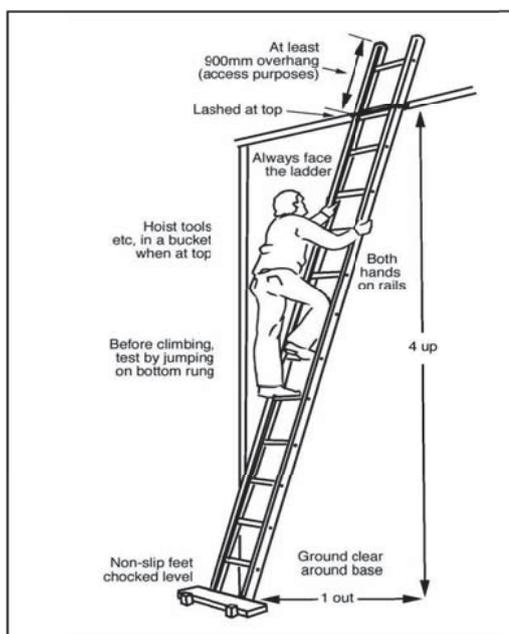
Any ladder used at a workplace must be set up on a surface that is solid and stable, and set up so as to prevent the ladder from slipping. Slipping of ladders can be prevented by:

- Placing single and extension ladders at a slope of 4 to 1, and setting up stepladders in the fully opened position
- Securing single and extension ladders at both the top and bottom



and extension ladders at
and bottom

Some effective ways of securing a ladder



Safe Use of Ladders

Persons using ladders should NOT:

- Handle or use ladders where it is possible for the worker or the ladder to make contact with power lines
- Use metal or metal reinforced ladders when working on live electrical installations or where an electrical risk exists
- Set up the ladder in places, such as driveways and doorways, where a person or vehicle could hit it without appropriate safeguards such as, the erecting of a barrier or locking the door shut.
- Use a stepladder near the edge of an open floor, penetration, or on scaffolding or an EWP to gain extra height
- Over-reach (the workers belt buckle should remain within the ladder stiles throughout the work)
- Use any power (air, hydraulic, electric or battery) equipment or tool, specifically designed to be operated with two hands and which may require the operator to brace them against the high level of torque exerted by the tool.
- Carry out work such as arc welding or oxy cutting unless step platforms or other temporary work platforms are not feasible and the task is of short duration and a safe work procedure is followed.
- Use tools requiring the use of both hands and dynamic movement such as axes and crowbars
- Use tools which require a high degree of leverage type force which, if released, may cause the user to over balance or fall from the ladder such as stillsons or pinch bars
- Work over other people or allow anyone else to be on the ladder at the same time
- Stand higher than the second tread below the top plate of any stepladder
- Short ladders shall not be spliced together to make long ladders.
- Ladders shall never be used in the horizontal position as scaffolds or work platforms unless designed specifically for that purpose.

Do's and Don'ts for Ladder Use

Do not stand on the top or the first step down from the top of a regular stepladder. When climbing or descending, use both hands and ensure you are facing the ladder. Personnel using ladders should ensure they are wearing fully enclosed slip resistant footwear at all times. There should be only one worker a ladder at any time. Ladders shall not be used for any other purpose than the objective it is designed.

Trestle ladders can be used to support a plank upon which a person has to work. At no time, should ladders be joined up to form a longer ladder, unless it is specifically designed.

STEP LADDER USAGE

A person may carry out light duty work that requires the simultaneous release of both hands from a stepladder under the following circumstances:

- The step ladder will be used only in the fully opened position
- The height at which a person is supported for working is limited to accessing the ceiling or soffit of the floor above which the stepladder is positioned, or be restricted to 2.0m elsewhere;
- The person carrying out the work and the stepladder will remain stable throughout the intended work;
- The person had the use of both hands to grip the stepladder when ascending and descending [tools to be carried in a belt or passed up by others];
- The person does not work from above the third step from the top of the stepladder;
- The nature of the work allows the person to lean forward towards the stepladder;

Where the work involves hand tools

- The tools are used as intended to be used in their normal operating position;
- Their use does not negate guarding or other safety features on the tools;
- All tools are supported by the person undertaking the task, e.g. in a tool belt or tool bag, and are not supported from the stepladder unless designed for the purpose;

- The tools, and the manner in which they are used, do not cause the center of gravity of the person operating them to be shifted from the stable position of leaning towards the stepladders; and the tools are relatively lightweight, battery operated and free of cords or hoses.
- The nature of the work, and the position of the stepladder, does not require the person to overstretch;
- The work does not cause fatigue - it is of short-term duration and conducted in an ergonomic manner.

An inability to comply with any of the above requirements would indicate that a stepladder is inappropriate for the work in hand and it should be replaced by a more suitable work platform.

Section 13 – Guidelines for Working at Heights

The Occupational Health and Safety (Prevention of Falls) Regulations 2003, have specific provisions for controlling the risk of falling when working at heights, which are based on a prescribed hierarchy of controls.

Where there is a risk of a person falling 2.0 meters or more the following should be assessed for practicability before considering what is to be used as the most practicable working platform.

1. Is it practicable to bring the work task including moving to and from the task to be performed on the ground where a person would fall to the same level or on a solid construction.

[A solid construction means an area that has a surface that is capable of supporting any people and material that may be on it and has sufficient barriers around its perimeter and any open penetrations where there may be an unprotected edge with a void, gap or space greater than 300mm {e.g. skylights, stairwells} to prevent a fall from the area to a different level and has an even and negotiable surface and gradient and a safe means of access and egress]

2. If it is not practicable to do 1. Above or part thereof and a risk of a fall still remains the risk of a fall must be controlled so far as it is practicable by using a passive fall prevention device.

[A passive fall prevention device means material or equipment, or a combination of material and equipment that is designed for the purpose of preventing a fall and that, after initial installation, does not require any ongoing adjustment, alteration or operation by any person to ensure the integrity of the device to perform its function such as a temporary work platform, roof safety mesh or guard railing.]

A Temporary Work Platform means;

- A fixed, mobile or suspended scaffold
- An elevating work platform
- A work box supported and suspended by a crane, hoist, forklift truck or other form of mechanical plant
- Building maintenance equipment including a building maintenance unit
- A portable or mobile fabricated platform such as a step platform or
- Any other temporary platform that provides a working area for the duration of work carried out at height that is designed to prevent a fall.

3. If it is still not practicable to do 1. or 2. Above or part thereof and a risk of a fall still remains the risk of a fall must be controlled so far as it is practicable by using a work positioning system.

A work positioning system means;

- An industrial rope access system {meaning a system designed for the purpose of carrying out work on a building or structure by a person and consists of (a) equipment that enables a person to manually lower or raise themselves in a harness or seat supported by one or more fiber ropes and (b) equipment used to anchor the ropes}
- A drainers hoist
- A travel restraint system {A travel restraint system means equipment that is worn by or attached to a person and is designed for the purpose of physically restraining a person from reaching an unprotected edge or elevated surface from which they may fall}
- Any other equipment, other than a temporary work platform that enables a person to be positioned and safely supported at a work location for the duration of the task being undertaken at height

4. If it is still not practicable to do 1. 2. or 3. above or part thereof and a risk of a fall still remains the risk of a fall must be controlled so far as it is practicable by putting in place a fall injury prevention system

[A fall injury prevention system means equipment or material or a combination of equipment and material that is designed to arrest the fall of a person such as an Industrial Safety Net, catch platform or Safety Harness system {other than a travel restraint system}]

5. If it is still not practicable to do 1. 2. 3. or 4. Above or part (combination) thereof and a risk of a fall still remains, the risk of a fall must be controlled so far as it is practicable by ensuring that;
 - A fixed or portable ladder is used in accordance with the following guidelines
 - An administrative control is implemented

[An administrative control means a system of work or work procedures, information, instruction and training which eliminate or reduce the risk of a fall]

Practicable means practicable having regard to:

- a. The severity of the hazard or risk in question, and
- b. The state of knowledge about the hazard or risk and any ways of removing or mitigating that hazard or risk, and
- c. The availability and suitability of ways to remove or mitigate that hazard or risk, and
- d. The cost of removing or mitigating that hazard or risk.

Where a fixed or portable ladder is used as the practicable control measure to control the risk of a fall, the ladder must be appropriate for the task to be undertaken and appropriate for the duration of the task and is set up in the correct manner. The supporting Guidelines for the Safe Use of Ladders give further explanation and example. Whichever control measure/s are used the employer must ensure employees using the control measure and any equipment or material are provided with information, instruction and are appropriately trained and competent in the use of the control measure and its equipment or material and that the person is comfortable working at height.

In the use of some equipment persons will be required to be trained and deemed competent to the level of a National Certificate of Competency to use, alter, erect, dismantle, maintain or operate the plant or equipment or associated safety equipment, such as scaffolding or harnesses.

Where control measures from items 2, 3, 4 or 5 above are used to control the risk of a fall employers must ensure that emergency procedures are established before the task is undertaken.

The emergency procedures must, so far as is practicable, enable the rescue of a person in the event of a fall and that that can be carried out as soon as possible after the emergency situation arises and that any risk including a non fall risk e.g. an electric shock, crushing, musculoskeletal disorder – associated with the carrying out of the emergency procedure is eliminated or is reduced so far as is practicable.

Fall Arrest and Travel Restraint Systems

Fall arrest equipment is personal protective equipment and should not be selected unless other systems, which provide a higher level of fall protection, such as scaffolding or elevated work platforms are impractical. When you are working in an elevated position and not on a properly constructed scaffold or railed platform, you must use a full body harness complying with the relevant legislative standard. Before trusting your body to the harness, you must secure the free ends of the pole strap or rope to your body in such a manner as to ensure that they do not hinder safe movement.

Roof Work Using Travel Restraint

The term travel restraint is used to describe situations where the system user is physically prevented from reaching an unprotected edge and a fall from or through the structure is not possible. This is usually obtained by using a lanyard of a predetermined length, which is connected to the anchorage and the user, and is shorter than the distance to the unprotected edge.

In travel restraint systems the anchorage point for the lanyard may be placed at foot level, provided there is no likelihood of the wearer falling through the surface. Where travel restraint is used, it should be set up such that the system user will be prevented from reaching an unprotected edge. Static lines can sometimes be used to form part of a travel restraint system. Static lines are horizontal lines, generally constructed from steel wire rope, to which lanyards are usually connected. Static lines may be used as part of a travel restraint system where access is required close to an unprotected edge, or on a sloping/slippery surface, provided the following conditions apply:

- The static line is parallel to the roof edge, to which access is required;
- The surface is strong enough to safely support personnel and there is no risk of persons falling through the surface;
- The length of the lanyard is such that it is physically impossible for persons attached to the static line via the lanyard to fall off the edge; and
- All other edges should not be accessed or should be provided with fall protection

Important Notes to All Employees

1. All vehicles have one travel restraint harness and a relocate roof anchor clamp kit included
2. There are additional spare harnesses at the office when needed
3. No employee is to use a harness until they are trained in its proper use
4. The harness is never to be used as a fall arrest system
5. The harness will be inspected quarterly and before every use, but the trained person.

Work Method and Specific Risks

1. The roof anchor is a fall restraint.
2. The device is to be positioned at least 2 meters from any unprotected edge directed above a purlin of the underlying roof structure and tightened to 28N.W.
3. Do not clamp the roof anchor over a lap joint and between roof decking sections

4. When using corrugated roofing adaptor bracket, at least 4 screws have to be used (Extending 50mm into timber purlin or 25mm through steel purlin).
5. Only use harness as provided and trained
6. Personnel who use the harness must have completed the height safety course
7. Always take into account the 'pendulum effect' when using the anchor
8. Should the anchor system be loaded for any reason, the anchor removed inspected and refitted to an undamaged section of the roof before re-use.

Section 14 – Securing Loads on Vehicles

Loads that are not secured properly can be a risk to yourself and others. The unsecured load can cause serious injury or death during sudden braking accelerating or cornering.

To control the hazard:

- a. Ensure that you understand the appropriate way to secure a load.
- b. Use aids, such as netting and rubber straps if necessary.
- c. Do not secure loads with electrical or duct tape.
- d. Cover slippery surfaces on the delivery vehicle.
- e. Use flags to identify and overhangs.

Section 15 – Manual Handling: Lifting

When you move loads by hand:

1. Size up the load.
2. If the load is too big, heavy or awkward, get help or use a mechanical aid.
3. Carry out a JSA in conjunction with the people that are going to lift.
4. Check for anything that could be a hazard (nails, slippery surfaces, etc.)
5. Place feet apart.
6. Stand close to the load, and use palms to lift the load firmly.
7. Keep back straight and use leg muscles.
8. Always be sure you can see where you are going.
9. When setting the load down, use the same movements and keep fingers away from pinch points.

Team Lifting

The capacity of a team lift is less than the sum of the individual capacities for the members of the team. Usually the capacity is reduced by 10 to 20% for a two-person lift, and more than that for a team of three or more.

Method to team lifting:

- a. Use team lifting only when other solutions are inappropriate.
- b. Remember that the combined strength of the team is less than the sum of individual strengths.
- c. Select team members of a similar height and strength.
- d. Assign a leader to the team.
- e. Determine a set of commands to be used. And all members know what to do when they hear the command.
- f. Follow the commands given by the team leader.
- g. Practice team lifting and carry together before attempting task.

Section 16 – Sun Protection for Construction Workers

Background

Australia has the highest incidence of skin cancer in the world with more than 380,000 people treated for the disease every year. Two out of three Australians will require treatment in their lifetime for various forms of skin cancer. Construction workers have a higher risk of skin cancer than many other workers due to long periods exposed to UV radiation from direct sunlight and UV rays reflected from nearby surfaces such as concrete. Studies have shown that construction workers can be exposed to 10 times the recommended daily exposure levels for UV radiation, based on the exposure limits set by the National Health and Medical Research Council.

General Information

What is UV radiation?

UV radiation is the wavelength of sunlight that can damage the skin. The level of UV radiation varies depending on the time of the year and the proximity to surfaces such as concrete and metal which can reflect and scatter UV radiation. In Victoria, UV radiation is most intense during the middle of the day from September to April (11 am to 3 pm during daylight saving and 10 am to 2 pm at other times). On a clear summer's day (i.e. January), it can take only 10 to 15 minutes for skin damage to occur.

What is skin cancer?

Over exposure to UV radiation can damage the body's skin cells. This can result in various forms of skin cancer, which can be fatal if not detected and treated early. It usually takes many years of exposure for skin cancer to occur. However, there are also cases of it being diagnosed in young people.

The most common types of skin cancer are:

- Basal cell carcinoma – the least serious form of skin cancer. Appears as a red lump or scaly area. Usually found on the head, neck and upper body.
- Squamous cell carcinoma – appears as a thick, scaly red spot that may bleed, crust or ulcerate. Occurs on most exposed areas of the body. Can spread to other parts of the body.

Other less common but more dangerous forms of skin cancer are:

- Melanoma - appears anywhere on the body as a flat spot with a mix of colours and an uneven, smudgy outline. Changes colour, size or shape. Can spread to other parts of the body.
- Nodular melanoma – raised, firm and dome shaped pimple-sized melanoma that is red, pink, brown or black. Develops quickly and spreads to other parts of the body.

Ultraviolet Protection Factor (UPF)

When choosing material for providing shade, and when selecting clothing and hats for sun protection, refer to its Ultraviolet Protection Factor (UPF), which should be on the label. UPF indicates the percentage of UV radiation absorbed and transmitted by the fabric (see table below).

| Ultraviolet Protection Factor (UPF) | % UV Radiation Absorbed | % UV Radiation Transmitted |
|-------------------------------------|-------------------------|----------------------------|
| 15-25 (high protection) | 93.3 to 96 | 67 to 4 |
| 25 (very high protection) | 96 | 4 |
| 30 (very high protection) | 96.7 | 3.3 |
| 40 (very high protection) | 97.5 | 2.5 |
| 50 (very high protection) | 98 | 2 |

What forms of sun protection are most effective?

A risk assessment should be conducted on outdoor work scheduled for the period from September to April, when UV radiation levels peak, to assist in developing appropriate sun protection measures. The

most effective way of reducing UV exposure is to use a combination of protection methods. In order of effectiveness, following the hierarchy of controls, they are:

1. Re-organizing work to avoid the UV peak of the day.
2. Providing natural or artificial shade.
3. Providing appropriate protective clothing i.e. long-sleeve shirts, clothing, hats and sunglasses.
4. Applying sunscreen.

Re-organizing work

Where practicable, and the production schedule permits, organize rosters to avoid workers being outside in the middle of the day for long periods. Try to:

- a. Minimize the amount of outdoor work.
- b. Move jobs undercover.
- c. Do outdoor tasks in the early morning or late in the day.
- d. Share outdoor and indoor work to minimize individual exposure.

Using shade

Where work has to occur outside for extended periods, assess the location of this work, proximity to reflective surfaces, such as concrete, and the availability of natural shade from surrounding structures or trees. If there is no natural shade, have a physical barrier to UV radiation by erecting temporary shade structures, if practicable. Examples of shade structures are:

- Awnings - generally made from closely woven fabric and that have a rating of UPF 50+.
- Market-type shade "umbrellas" - provide strong protection due to dense weave and may be plastic coated (plastic is a strong absorber of UV radiation). Most material would be UPF 50+.
- Structures using roofing materials - clear plastic or tinted plastic roofing materials that are UPF 50+.
- Structures using shade cloth - UPF ratings may be low to moderate.

Outdoor workers are exposed to UV radiation both directly from the sun and indirectly as it is reflected or scattered from surrounding surfaces. Workers are therefore potentially exposed to a great deal of UV radiation from the sun, even when working in the shade or under overhead protection. Workers should continue to wear sun protection (protective clothing and sunscreen) in the shade for maximum protection.

Protective clothing

The levels of UV protection provided by clothing increases with the density of the fabric's weave and darker colours absorb more UV radiation than lighter colours of the same fabric. Light colours can also reflect UV radiation onto exposed skin. When selecting clothing:

- Refer to the UPF rating, which should be on the label, and choose clothing with the highest rating. Close-weave fabric with a UPF of 30+ or greater offers excellent protection and would suit most applications. As a rule of thumb, if light can be seen through the fabric, UV radiation will penetrate.
- Choose clothing that covers as much skin as possible, and Consider appropriate fit and comfort. Sun protection garments are available in lightweight, comfortable fabric.
- Sun protection for workers should consist of long sleeve shirts and a collar and long trousers.

Hats

On sites where safety helmets (hard hats) are mandatory, additional sun protection is needed during outdoor work to protect face, ears and neck. Various sun protection accessories are available for attaching to helmets, such as broad brims or Legionnaire covers with peak and flap at the back and sides. On sites where safety helmets are not required, select a hat with a broad brim (8 to 10 cm). Wearing a canvas hat with an 8 cm brim, for example, protects the face, ears, and neck and helps protect the eyes. Legionnaire style caps also provide excellent UV protection. Hats should be made from a close-weave fabric of UPF 50+ to provide sufficient protection.

Sunglasses

Eyes are also susceptible to sun damage and need protection. Choose close fitting, wrap-around style sunglasses (or sunglasses with side shields) that comply with Australian Standard AS/NZS 1067. Sunglasses complying with this standard will prevent 95 per cent of UV radiation reaching the eyes. For tasks where safety glasses are required, either tinted or clear safety glasses would provide adequate sun protection, if the type of lens is specified for outdoor use and complies with Australian Standard AS/NZS 1337. An alternative would be the provision of safety glasses in the form of sunglasses that provide good UV protection.

Sunscreen

Never rely on sunscreen alone to protect against UV exposure. Sunscreen is not a "block-out" and it is still possible for some UV radiation to get through to cause skin damage. Sunscreen provides a level of protection for areas of skin that are not covered by sun protection clothing and it should be used in combination with other methods of protection previously mentioned. For best results with sunscreen:

- Select a type labeled "broad spectrum SPF 30+ and water resistant" for maximum protection.
- Apply liberally 20 minutes before going outside to ensure the skin absorbs it. A thin application will reduce the protection level by up to a half.
- Reapply every two hours to clean, dry skin, or more frequently if perspiring or in contact with water.

Various forms of sunscreen are available. An alternative is "zinc cream" for exposed areas such as the nose. Workers should not forget to apply protection to lips using either SPF 30+ lip balm or zinc cream. People with a natural suntan also need to apply sunscreen. A tan does not provide any significant protection from UV exposure.

Section 17 – Hazards of Working in Heat

Working in heat can be unpleasant; can lead to illness and under extreme circumstances can be fatal. Employees may be at risk of heat illness when engaging in significant physical activity during hot weather, to avoid this; plan ahead to prevent situations where heat illness may occur.

Effects of Heat

If a body's natural cooling system cannot cope with heat, heat illness can occur. Early symptoms of heat illness are feeling sick, weak, clumsy and/or dizzy. Cramps can also be caused by heat. People with these symptoms who keep on working may collapse (heat exhaustion). In extreme cases, this may even be fatal (heat stroke). Symptoms of heat illness must never be ignored. Symptoms usually disappear rapidly while resting in a cool, well-ventilated area and drinking ample non-alcoholic fluids. People may be more susceptible to heat illness if they:

- Are overweight
- Have a pre-existing heart, circulatory or skin disease
- Suffer from dehydration or fever (e.g. alcoholic hangover or diarrhea).

Working in hot conditions may affect health and safety, such as by affecting the concentration of the working, therefore increasing the risk of accidents.

Assessing the Risk of Heat Illness

Air temperature alone cannot be used to determine whether there is a risk of heat illness.

Other factors that need to be taken into account are:

- Humidity
- Radiant temperature wind speed
- Work load
- Physical fitness of the worker.

Formal risk assessments for heat illness would be required as part of the JSA where there is uncertainty about a risk to health. In many cases, the risk can be managed by implementing appropriate controls as outlined in the next section.

A number of methods may measure the risk of heat illness. The method most widely used for assessing heat illness is the Wet Bulb Globe Temperature (WBGT) index. It is an internationally recognized index, and has been adopted in a number of countries for assessing heat illness.

Preventing Heat Illness

It is best to engineer prevention measures into workplace. Reducing the workload can reduce the risk of heat illness. Measures include:

- a. Reschedule the work so the hot tasks are performed during the cooler part of the day
- b. Wear the lightest clothing that still provides adequate protection.
- c. Reduce the time spent doing the hot task (e.g. job rotation)
- d. Arrange for more employees to do the job
- e. Provide extra rest breaks in a cool area
- f. Use mechanical aids to reduce physical exertion.

Heat Discomfort

This is not an illness. Symptoms of heat discomfort include the flushing of the skin and an increase in sweating. It is important to realize that discomfort will occur long before any illness occurs.

People working in office environments doing light work are unlikely to be exposed to a risk of heat illness. Comfort is a subjective issue. For most office workers, the optimum comfort levels occur between 21 to 26°C air temperature and 30 to 60% relative humidity.

In general, heat discomfort can be managed by:

- Wearing suitable clothing
- Increasing air movement using fans or conditioning the air ensuring employees have access to cool, clean water.

Section 18 – Basic Rules for Safe Welding

Welding – Electrical Safety

Each year welders die from electric shock. Some safety guidelines are highlighted below.

1. Only a qualified licensed electrician can undertake Servicing and installation. Never tamper with electrical supply circuits or systems. The welder is only responsible for making connections in the welding circuit and for setting external welding machine controls.
2. Equipment should be well maintained and checked regularly, particularly the insulation and connections on work return leads and holders.
3. Wherever possible work should be performed on a dry insulated floor. Wooden platforms, rubber mats, or dry areas provide extra protection especially in confined spaces.
4. Electrodes or welding wire should never be touched with bare hands when in the holder or welding gun. Holders or welding guns should never be held under the armpits. Remember, hot work increases risk due to the reduced skin resistance when sweating occurs.
5. Always use Australian Standards - approved welding helmets and lenses.
6. Where practicable consideration should be given to the use of Welding Voltage Reducers that maintain an output no greater than 12v until the arc is struck.
7. Further information is available in AS1674.2 Safety in welding and allied processes Part 2: Electrical.

Burns, Fire and Explosion

Flame cutting and welding operations are a major cause of industrial fires. The precautions necessary to avoid such incidents depend largely upon the processes being used and the location of the work, and include the following:

- Prevent burn hazards with proper Personal Protective Equipment that includes gloves, overalls, safety footwear, aprons and head covering. Remember sparks and molten metal can fly and work - pieces can be hot even though the glow has gone.
- Protect eyes with helmet and grade of visor designed for the type of welding.
- Prevent fire with welding blanket, by removing or covering flammable materials, and maintaining a proper distance from flammable substances.
- Prevent explosion by checking before welding or cutting that tanks and drums are free of substances that are flammable or give off flammable substances.
- Use appropriate flash arresters and non-return valves on gas cutting and welding equipment.
- Ensure threads and fittings to Oxygen supplies are clean and oil free
- Store Oxygen and fuel gases separately.
- Ensure gas equipment is well maintained and leak free.
- Protect gas supply lines from hot metal and abrasion.
- Ensure appropriate fire fighting equipment is maintained and readily available.

Fumes and Gases

During the welding process certain health and safety hazards may be present in the form of metal fumes and gases. Evidence suggests that welding is not a particularly hazardous occupation provided the welder is appropriately protected. General ventilation, local point exhaust and personal respiratory protection all serve to remove or reduce risk to the worker.

Aluminum appears to pose less of a hazard than many other metals, but inhalation of fumes should be avoided.

Cadmium occurs in some alloys. It may also be part of the coating of the welding electrode, or in other protective coatings. Cadmium can cause serious pulmonary edema (fluid in the lungs). Chronic effects are emphysema and kidney damage. Potential exposure to cadmium fumes warrants stringent preventative measures.

Chromium is used as an alloying agent in stainless steel. Prolonged excessive exposure to chromium may result in skin irritation and a greater risk of lung cancer. Welders may also become sensitized to chromium, and develop skin eczema when exposed to small amounts.

Copper is found in many alloys, such as brass and bronze, as well as in welding electrodes. Copper can cause respiratory irritation nausea and metal fume fever.

Fluorides are present in some electrodes and in flux. Long - term exposure to very high concentrations may cause bone changes and joint deterioration. Milder excessive exposure may have chronic effects such as pulmonary edema and skin rashes.

Iron is a very common constituent of welding fumes. Acute effects include respiratory irritation. Iron is also capable of causing siderosis, a benign accumulation of iron oxide in the lungs.

Manganese is used in most stainless steel carbon alloys and welding electrodes. Welders are unlikely to be exposed to hazardous concentrations if adequate ventilation is provided.

Lead is found in solder, brass, and bronze and is also used as a metal primer and steel coating. Exposures must be controlled to prevent lead poisoning.

Molybdenum can cause respiratory irritation and impaired breathing, but welders are unlikely to be exposed to excessive amounts.

Nickel is found in many alloys and stainless steel. Eye and throat irritation are acute effects. Scientists are currently disagreeing on whether nickel compounds are capable of causing or promoting cancer in welders.

Tin is present in some bronze alloys and solders. The fumes are known to cause stenosis, a benign pneumoconiosis, but it is improbable that soldering work could place the worker at risk.

Titanium is found in stainless steel, alloys, flux and coatings, but it is not known to have any ill effects on welders.

Vanadium is present in certain alloys and welding electrode coatings. Acute symptoms are eye and respiratory irritation. Chronic conditions may comprise bronchitis, rhinitis, pulmonary edema and pneumonia.

Welding galvanized or zinc plated metals can result in the inhalation of zinc oxide fume and cause metal fume fever.

Ozone is formed when air is exposed to ultraviolet radiation, as happens in the welding arc. Ozone may be very detrimental to health, causing pulmonary congestion, edema, and hemorrhage. Minute concentrations of about 0.1 ppm - even for short periods - dry out the eyes and cause headaches. Prolonged exposure may result in severe changes in lung function.

Oxides of nitrogen (NO₂, N₂O₄, NO) can cause eye, nose and lung irritation at 20 - 25ppm. At higher concentrations, pulmonary edema and other serious lung conditions can result.

Carbon monoxide is colorless and odourless. The gas is an asphyxiant, causing headache, dizziness and confusion.

Decomposition products may also be hazardous to health. Solvents used to clean and degrease metal before welding may release toxic gases or fumes when welding starts. These gases include: Phosgene, Phosphine, Hydrogen chloride, Chloroacetic acids, Acrolein, Formaldehyde, and Acetaldehyde

Teflon welding (thermoplastic welding) may also include several dangerous gases, such as carbonyl fluoride, hydrogen fluoride and perfluorobutylene. Of these substances, phosgene may warrant special mention. Phosgene is formed through the decomposition of chlorinated hydrocarbons (trichloroethylene, perchlorethylene) which are quite common degreasing agents in places where welding is carried out. Metal inert gas (MIG) welding electrodes are particularly prone to the creation of high concentrations of phosgene. Normal welding is unlikely to cause excessive amounts, but care should be taken to keep these substances well away from all welding work. Welders who smoke are more likely to be severely affected by welding fumes.

Control Measures

The most effective way to reduce exposures is to eliminate the offending substance or process. This is not practical, however, in most instances. Ventilation is the most common way of controlling exposure to fumes, gases and heat in welding operations. There are two types of ventilation – dilution ventilation or local exhaust ventilation.

General or dilution ventilation relies on diluting airborne contaminants with fresh air from open doors, windows or fans. General ventilation is limited in its usefulness for controlling welding hazards.

Heat and humidity can usually be controlled with general ventilation. It is difficult for this type of ventilation to provide enough air movement to keep the fumes and gases out of the welder's breathing zone.

Local exhaust ventilation is much more effective in controlling welding fumes and gases because it captures the fumes and gases close to the source and keeps them from entering the welder's breathing zone. To be effective, local exhaust ventilation must:

Be close to the welding arc or flame where the fumes, gases and heat are generated, and have enough velocity to draw away the contaminants. Ensure protection from fume and gases by (depending on circumstances) one or a combination of:

- Good general ventilation
- Use of a booth
- Local exhaust ventilation on the hand piece
- Air supply to the helmet, and
- Suitable respirator, which fits inside the helmet.

Physical Hazards

Safe work practices should exist for all welding activities including handling and storage of compressed gas cylinders and oxy - acetylene or electric arc welding equipment. Following established procedures and practices can prevent injuries.

Always use proper supports and ensure that you are comfortable. Wear suitable eye protection, which protects the eyes from radiation and foreign objects. Never weld near cleaning tanks containing chlorinated solvents.

Laser cutting requires protection from accidental eye contact with the beam or beam reflections.

- Properly mount cylinders.
- Use correct cylinder regulators.
- Ensure adequate lighting.
- Ensure proper earthing of arc - welding equipment.
- Wear appropriate eye protection during slag removal (chipping).
- Avoid radiation exposure from weld check equipment.
- Use welding screens to prevent welding flash from affecting others.
- Always use the welding blanket when needed.
- Always have fire extinguisher adjacent to the work area.

Section 19 – Cylinder Safety

Gas cylinders are to be handled and stored safely. Always read the label and the Material Safety Data Sheet (MSDS) before use.

10 Steps for Cylinder Safety

1. Read labels and Material Safety Data Sheet (MSDS) before use.
2. Store upright and use in well ventilated, secure areas away from pedestrian or vehicle thoroughfare.
3. Guard cylinders against being knocked violently or allowed to fall.
4. Wear safety shoes and gloves when handling cylinders.

5. Always move cylinders securely with an appropriate trolley.
6. Keep in a cool, well-ventilated area, away from heat sources, sources of ignition and combustible materials, especially flammable gases.
7. Keep full and empty cylinders separate.
8. Keep oil and grease away from cylinders and valves.
9. Never use force when opening or closing valves.
10. Don't repaint or disguise markings and damage, if damaged return to supplier immediately.

Gas cylinders should be considered and treated as full, regardless of their content. When handling cylinders, safety shoes and gloves must be worn. Before moving cylinder, must make sure that all valves are closed and equipment is detached. Never roll cylinders along the ground, as the valves may open accidentally and damage other parts of the cylinder.

When transporting cylinders, make sure that you:

- Ensure cylinders are secure on a vehicle to prevent movement during transport. Flammable liquefiable gases must be transported vertically.
- Ensure other equipment does not damage cylinders.
- Ensure cylinders are loaded within the rigid sides or gates of the vehicle.
- Remove regulators, hoses from cylinders before transporting.
- Never smoke, use naked flame or non-flameproof electrics near a vehicle carrying flammable gases.
- Never use cylinders which are standing in an enclosed vehicle, move outside first
- Always plan for emergencies

Section 20 – Electrical Safety

All electrical equipment in each vehicle and workshop will be listed in the Equipment Register.

Testing & Tagging

All electrical leads, portable power tools, junction boxes and earth leakage devices will be tested, inspected by a competent person and labeled with a tag of current date every Quarter as per AS/NZS 3760:2001.

AS/NZS 3760:2001 Definition of a competent person

A person, who the person in charge of the premises ensures has acquired through training, qualification, experience or a combination of these, the knowledge and skill enabling that person to perform the task required correctly.

Inspection

The following equipment checks shall be made by visual and physical inspection on all equipment:

- a) Check for obvious damage or defects in the accessories, connectors, plugs or extension outlet sockets.

NOTE: For low voltage portable equipment and cord extension sets fitted with AS/NZS 3112 type (flat pin) plugs and extension sockets, the use of clear backed or integrally molded (non rewirable) plugs, and cord extension sockets are recommended. Clear backed plugs and sockets facilitate the easy inspection of the effectiveness of the sheath grip.

- b) Check that flexible cords are effectively anchored to equipment, plugs and cord extension sockets.

NOTE: This inspection, including flexing and straining at points of entry and clamping points, may be carried out in conjunction with the continuity test. This may detect broken strands or loose connections.

- c) Check for damage to flexible cords –
 - i. The inner cores of flexible supply cords are not exposed or twisted;
 - ii. The external sheaths are not cut, abraded, twisted, or damaged to such an extent that the insulation of the inner cores is visible; and
 - iii. Unprotected conductors or insulation tape are not in evidence.

NOTE: Running the supply cord through the hand will often detect internal damage.
- d) For portable outlet devices, check that the warning indicating the maximum load to be connected to the device is intact and legible.
- e) Check that any controls are in good working order i.e. they are secure, aligned and appropriately identified.
- f) Check that covers, guards and the like are secured in the manner intended by the manufacturer or supplier.
- g) Check that safety facilities and devices are in good working order.
- h) Check that ventilation inlets and exhausts are unobstructed.

Testing

All Class I equipment –

- a) With exposed metal: must have the continuity of the protective earthing conductor from the plug earth pin or supply earth point to the exposed metal checked at intervals as specified in Table 2. The resistance shall not exceed 1 ohm.
- b) Without exposed metal: such as cord extension sets, EPODs and PRCDs must have checked the continuity of the protective earth conductor from the earth pin of the connector plug to the earth socket/contact of the outlet(s). The resistance shall not exceed 1 ohm.

Insulation Test

When tested at 500V D.C. (or, for equipment containing an MOV, at 250V D.C.), the insulation resistance between components of equipment shall be as specified below. Alternatively a leakage current test may be performed at rated voltage with values not exceeding those stated below –

- a) Not less than 1 MΩ from live parts to exposed metal parts of class I equipment or alternatively not greater than 5 mA leakage current in the protective earth conductor;
- b) Not less than 1 MΩ between live supply conductors and external metal parts in Class II equipment, or alternatively not greater than 1 mA leakage current to any external metal;
- c) Not less than 1 MΩ between live supply conductors and the earthing conductor in cord extension sets, portable outlet devices or portable RCDs; and
- d) Not less than 0.01 MΩ between live supply conductors and exposed metal parts on appliances containing mineral insulated metal sheathed heating elements. This requirement is not applicable if the equipment is double insulated and has no exposed metal parts.

NOTES:

1. When equipment containing MOV surge protection or EMI Suppression is tested, the voltage applied between live parts and earth may be 250V D.C. This is intended to avoid triggering the MOV or EMI Suppression and the equipment failing the test.
2. A live part is a conductor or conductive part intended to be energized in normal use, including the neutral conductor. The protective earth conductor is not a live part.
3. Where equipment contains, by design, resistors installed between live conductors and earth, values of insulation resistance not less than the effective value of the resistors are acceptable provided the manufacturer can prove that the resistors are part of the design.
4. The insulation resistance of RCDs with functional earth (FE) connections shall be not less than 0.1 MΩ. Alternatively, portable RCDs, which require the supply to be closed, and units with an FE connection may be tested for leakage current with a maximum value allowed being 2.5 mA. (A functional earth is a connection with earth to ensure the correct normal operation of the RCD).
5. RCD).

Selection and Use

Any electrical equipment without a tag of current date will not be used. All electrical equipment is to be connected to an Earth Leakage protection device. If practicable all electrical leads will be kept off the ground on insulated handers or on insulated lead stands. Electrical equipment will not be placed on, or near, wet areas unless the equipment is designed for the specific purpose, e.g. pump, Pressure washer.

Disconnect & Reconnect

Many staff at NCG hold a “D” Permit, it is imperative that they comply with the requirements of this license.

Guidelines for Disconnect/Reconnect Workers

The person holding the disconnect/reconnect workers license must be carried on site at all times. The license should be used to support their work.

Classes of Work Function

1. Office equipment
Hot water units, auto doors, coffee machines
2. Domestic Equipment
Wall ovens, hot plates, dryers, heaters, and roller doors
3. Plumbing/gas fitting equipment
Electric hot water services, wall ovens
4. Commercial equipment
Dryers, washing machines, cooking and catering equipment, motors
5. Industrial equipment
6. All equipment for the commercial sector that is used in industrial, conveyor and production lines
7. Refrigeration and air conditioning equipment
Compact air conditioners, general commercial refrigeration motors
8. Instrumentation/process control equipment
Control panel equipment and indicators
9. Communication/Computing equipment
Equipment associated with the maintenance of this system
10. Laboratory/scientific equipment
Test equipment

When the disconnect/reconnect worker undertakes the electrical work, the requirements of the Electricity Safety Act 1988 must be complied with. Section 45A states (in part):

45A Certificates of Electrical Safety

1. The person who is responsible for the carrying out of electrical installation work must in accordance with this section:
 - a) Ensure that a certificate of electrical safety is completed in respect of that work; and
 - b) Within the required time:
 - i. Give the completed certificate of electrical safety in respect of that work to the person for whom the work was carried out: and
 - ii. Give a copy of that certificate to the Office.

Penalty: 10 penalty units

The Electricity Safety Act 1998 therefore requires the disconnect/reconnect license holder to complete certificates of electrical safety when electrical work (disconnect and reconnect electrical equipment) is completed.

In summary, the license permits the holder to remove equipment or components of equipment, which are to be replaced with equipment or their components with equivalent power and current rating in the same location without alteration to existing cables.

Section 21 – Exposure to Radiofrequency Radiation

Working near radio transmission devices, such as dishes and antennas typically mounted on roofs, can be dangerous or may affect health if exposure to excessive levels of radiofrequency (RF) radiation occurs. Workers may be exposed to RF radiation if the work area on a building or structure has radio transmission devices. Workers most at risk are those involved in tasks where access is required to roof spaces containing communication transmission hardware.

What is RF radiation?

RF radiation, also known as EME, EMR or EMF, is low frequency radiation (less than 300 GHz), which includes microwave transmissions. The major sources of RF radiation are radio, television, mobile telephone and paging transmission antennas.

Health Effects

RF radiation heats in the same way that microwave ovens heat food. Harmful heating of body tissue is a possibility where there is exposure to RF fields above the maximum recommended exposure levels. Shocks, similar to electric shocks, due to touching or receiving arcs from RF devices are also possible from over-exposure to RF radiation.

Responsibilities

Employers must ensure that employees, independent contractors or the general public are not exposed to RF radiation above recommended maximum levels outlined in the radiation protection standard, Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz published by the Australian Radiation Protection and Nuclear Safety Agency, ARPANSA

Any person who has management or control over the workplace, including access to and egress from the workplace must also, so far as is practicable, provide a safe workplace. This includes building owners, occupiers or building managers who control access to the roof. No person should be able to access a roof with radio antennas without receiving training and information on the risk of any RF radiation present and the controls needed to avoid over-exposure. This is a joint responsibility of those persons who control access to the roof area and any principal contractors and subcontractors undertaking works on the roof.

How to Avoid Over-Exposure

Section 5 of the ARPANSA radiation protection standard recommends how the risk of occupational exposure may be managed. Key factors to ensure a safe workplace include:

Hazard identification / Risk assessment

- Identify radiation sources and list the contact numbers of all companies controlling transmissions from the roof or work location.
- Determine "NO GO" areas where maximum exposure levels may be exceeded. This may be by measurement, or on the advice of a competent person.
- Document information on No Go Areas. These actions of hazard identification and risk assessment need to be taken prior to workers accessing any area where RF radiation is likely.

Control measures

- The preferred method of controlling exposure to RF radiation is to cease or power down transmissions. However, as control over the transmission signal is usually remote from the

worksite, employers need to ensure that they are able to continually verify the strength of the signal during the works.

- Develop a Safe Work Procedure (SWP) giving consideration to all identified risks, including RF radiation.
- Induct and train all workers in the SWP.
- Make sure that NO GO areas are sign-posted, marked or provided with physical barricades in accordance with the SWP.
- Where workers have a need to enter a NO GO area, a competent person who has undergone training in safely managing an RF radiation environment should directly supervise them.

Section 22 – Asbestos Awareness

Asbestos is a naturally occurring mineral fiber that was, until recently, used extensively in the construction industry. Asbestos-based products can be found sprayed or trowelled onto beams, ducts and battens, or in wall, floor and ceiling cavities; in lagging held onto pipes with metal clips; or as asbestos cement sheeting. Asbestos cement sheeting becomes a health risk if the sheet is broken and fibers are exposed. Asbestos cement sheeting must never be sawn, drilled or sanded.

Dangers of Asbestos

All types of asbestos can cause disease that result from inhaling or swallowing asbestos fibers over a long period of time. When inhaled, smaller fibers can penetrate deep into the lungs where they collect in the delicate lung tissue, potentially leading to onset of lung cancer or asbestosis of the lungs. If swallowed, asbestos fibers can cause tumors and cancer in other parts of the body.

Working Safely with Asbestos

If material thought to contain asbestos is found on site, the following measures should be strictly observed:

1. Immediately cease all work that involves disturbing the suspect material in any way.
2. Remove all employees from the affected area.
3. Report the matter to the Supervisor and Safety Committee representatives.
4. Make sure that any suspect material is tested and officially identified.
5. Ensure that any asbestos found is clearly labeled before being removed by a licensed asbestos removal contractor.
6. If employees believe that they have been exposed to asbestos, it is advisable for them to have a thorough examination by an approved medical practitioner as soon as possible.
7. An asbestos audit should be performed before any work commences on existing buildings

Section 23 – Noise Awareness

Our policy relating to noise is:

1. Each employee will have a hearing test on commencing employment and subsequently every 2 years as required by the regulations.
2. A copy of the test report will be provided to the employee.
3. Each employee will be provided with appropriate hearing protection.
4. Each employee will be provided with Noise Awareness Training as soon as practical after commencing employment.

What is noise?

Noise can be described as unwanted sound that may damage a person's hearing.

Noise or sound is made up of relatively small changes in air pressure. The changes in pressure are detected by the eardrum and carried to the hair cells in the cochlea of the inner ear. These hair cells convert the

pressure changes to electrical impulses, which are sent to the brain. The brain is then able to process these electrical impulses into meaningful sounds.

How is hearing damaged?

The extent of damage caused by noise depends on the total amount of noise received over time. Noise destroys the sound sensitive cells in the ear. As the noise becomes louder and more intense, it takes less time to cause damage. A person's ability to hear can become temporarily or permanently impaired if the person's unprotected ear is exposed to loud noise.

The effects of Noise Exposure

Both temporary and permanent hearing damage can affect a person's social and work life. Temporary hearing impairment may involve muffled hearing or ringing in the ears. Recovery from temporary impairment may take hours or days, depending on the severity of the noise exposure. With continued exposure, the impairment is likely to become permanent, leading to hearing loss and buzzing or ringing sounds in the ears, known as tinnitus. The noise level, time period and pattern of exposure, along with the person's own proneness to hearing impairment, influence the severity of damage.

Some of the effects of long-term exposure to noise include:

- Dulled hearing and ringing in the ears
- Difficulty in hearing high pitched sounds, for example, the letters S, T, K and C
- Difficulty in understanding speech
- Increased blood pressure
- Increased stress, contributing to irritability, fatigue, headaches; and
- Reduced ability to hear alarm signals or verbal warnings.

Permanent and severe tinnitus may disrupt sleep, reduce concentration and contribute to lower productivity. The effects in turn may contribute to increased absenteeism, difficulty in communicating and reduced quality of work, product or service.

Is there a potential noise problem at work?

How do you know if the noise is a potential problem? Generally, if you have to raise your voice to be heard over background noise when speaking to another person about a metre away, the noise is a problem. If you are regularly exposed to excessive noise, you are likely to begin to experience changes in your hearing. Use the following checklist to rate yourself:

1. Do you have ringing or buzzing in your ears at the end of the day?
2. Does your family say that you have difficulty hearing them when you come home?
3. Do you have to turn up the volume on the television or radio after a day at work?
4. Do you often have to ask people to repeat what they say?
5. If you have any of these problems with your hearing, have they become worse over time?

If the answer to any of these questions is 'yes', it is likely you have a hearing problem, which may be due in part to noise exposure at your work. If you are involved in noisy leisure activities, that noise will also contribute to hearing damage.

What can I do about the noise?

If you think your workplace is too noisy, then you could take the following action:

- Talk to us about the noise.
- Participate in planning to manage noise in the workplace.
- Always wear your hearing protection when working in noisy areas.
- Be familiar with the areas and the jobs at work associated with harmful noise.

- Use the correct working procedures to reduce noise. For example, use the appropriate tools or machine speed for the task.
- Use any noise reducing equipment provided, for example, enclosures, mufflers or screens.
- Report any damaged equipment or noise controls immediately to ensure prompt attention so that noise levels are minimised.
- Participate in job rotation to reduce noise exposure.
- Undergo voluntary hearing testing.
- Ask your employer to provide training on identifying noise hazards, using noise control measures and using hearing protectors.

Noise at work is a major cause of noise induced hearing loss. However, exposure to noise outside work can also cause damage. It is especially important to control noise exposures outside work if you already work in a noisy job. Use the measures outlined in these guidelines to reduce your exposure to noise outside work. Always wear hearing protectors whenever you use power saws, drills, sanders, mowers or any other noisy equipment at home or during recreational activities, such as shooting.

Section 24 – Confined Spaces

The Regulations apply to; ‘a space in any vat, pit, pipe, duct, flue, oven, chimney, silo, reaction vessel, container, receptacle, underground sewer, shaft, well, trench, tunnel or other similar enclosed or partially enclosed structure, if the space –

- a) Is, or is intended to be, or is likely to be, entered by any person; and
- b) Has a limited or restricted means for entry or exit that makes it physically difficult for a person to enter or exit the space; and
- c) Is, or is intended to be, at normal atmospheric pressure while any person is in the space; and
- d) Contains, or is intended to contain, or is likely to contain –
 - i. An atmosphere that has a harmful level of any contaminant; or
 - ii. And atmosphere that does not have a safe oxygen level, or
 - iii. Any stored substance, except liquids, that could cause engulfment”

Although it is not expected that any of our work tasks will require work to be carried out in spaces that come under the above definition, it is imperative that before working in a space such as under a building or in a roof space, that the space is clearly defined as safe.

The nature of the space

The nature of the space may contribute to the risks associated with hazards present. For example, consideration should be given to:

- The type of space.
- Where it is located;
- What processes are adjacent to it that may affect the risk associated with the hazard;
- The size and internal structure of the space, for example, whether it lacks room for movement or equipment that is likely to trap the person or hinder or block their progress;
- The material the space is constructed of;
- The soundness and security of the space, such as whether the space could be moved inadvertently;
- Whether there is poor illumination and visibility.
- What work is to be carried out in the space
- How long the work will take.
- What other workers are in the vicinity and aware of the fact that someone is in the space.

It is imperative that a JSA is completed before entering or performing any work in a space that could be restrictive to movement or could be construed to fall under the above definition.

Section 25 – Drug & Alcohol Policy

Our policy relating to the use of unauthorized drugs and alcohol in the workplace is based on the principle of safety for all our workers. Attending the workplace whilst under the influence of either or both these substances can pose a safety risk to yourself and other workers and may contravene the Occupational Health and Safety Act 1985.

A person who is affected by drugs or alcohol will not be allowed to work until that person can work in a safe manner. The decision on a person's ability to work in a safe manner will be made by the Supervisor or Manager. There will be no payment of lost time to a person unable to work in a safe manner. If this happens more than once the worker shall be given a written warning and be made aware of the availability of treatment counseling. If the worker refuses help he/she may be dismissed the next time he/she is affected.

For the purposes of disciplinary action a warning shall be effective for a period of 12 months from the date of issue. The possession, distribution and sale of illegal drugs at the workplace are a serious offence that will not be tolerated and could result in instant dismissal. A worker having problems with alcohol and or other drugs:

- Will not be sacked if he/she is willing to get help.
- Must undertake and continue with recommended treatment to maintain the protection of this programme.
- Will be entitled to accrued sick leave or leave without pay while attending treatment.

Prescribed Drugs

Where prescribed drugs are involved, we will ensure that safety is not affected and that any performance impact is properly managed. Employees must inform their supervisor if prescribed drugs that might affect their safety at the workplace are being taken.

Section 26 – Rehabilitation Policy

NCG has a total commitment to the health, safety and welfare of all persons at its workplaces and to the timely and cost effective rehabilitation of any employee who may be unfortunately injured.

Our commitment involves:

- Preventing injury and illness through provision of a healthy and safe working environment;
- Ensuring that all employees are aware of the Rehabilitation Programme and provide appropriate information to an injured employee in order to facilitate understanding and acceptance of the rehabilitation service provided;
- Enacting timely referrals to Rehabilitation Providers to ensure that occupational rehabilitation commences as soon as possible after an injury or illness;
- Ensuring that the return to work as soon as possible by an injured worker is a normal practice and expectation;
- Providing suitable employment/duties, where practicable and where possible, for an injured employee, or partially incapacitated worker, as an integral part of the rehabilitation process;
- Ensuring that participation in the rehabilitation programme will not, of itself, prejudice an injured worker.

NCG will make every effort to resolve disputes regarding rehabilitation by consultation with employee, supervisor and where applicable, the Rehabilitation Provider. Unresolved disputes may be referred to the Work Cover Authority Rehabilitation Mediation Service.

Section 27 – First Aid Kit

Section 28 – Incident Reporting Form

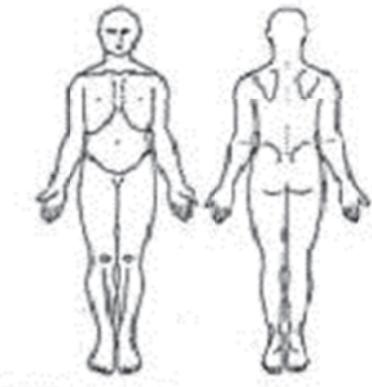
Incident Reporting Form

This form must be completed IN FULL immediately after an incident has occurred

| | | | |
|---|---|--------------------------------|----------------------|
| Date of incident: | | Incident Report Number: | |
| Division: | Business Unit: | Manager: | |
| Location: | | Injured person: | |
| Witnesses: | | Brief Description of incident: | |
| | | | |
| | | | |
| Immediate/short term actions to prevent recurrence: | | | |
| | | | |
| | | | |
| Possible Contributing Factors | | | |
| Guarding Inadequate | | Lack of PPE | |
| Projecting Hazard | | Used Incorrect Tool | |
| Fire/Explosion Hazard | | Equipment Used Incorrectly | |
| Poor Housekeeping | | Lack of Safety Device | |
| Congested Work Area | | Lack of Manual Handling Aides | |
| Defective Equipment | | Lack of Risk Assessment | |
| Defective Material | | Lack of Supervision | |
| Inadequate Lighting | | Chemical Exposure | |
| Inadequate Ventilation | | Exposure to Sound/Pressure | |
| Exposure to electricity | | Other | |
| Inadequate Training | | | |
| Inadequate Procedures | | | |
| Root Causes: | Corrective Actions to Prevent Recurrence: | Person Responsible: | Date for Completion: |
| | | | |
| | | | |
| | | | |
| | | | |
| Investigation Completed By: | | | |

| | | |
|---|---|--------------------------------|
| Print Name: | Supervisor: | Date: |
| Supervisor | | |
| Have immediate/short term actions been taken and implemented to prevent recurrence? | Yes | No |
| Note Action Implemented | | |
| Name: | Signature: | Date: |
| Department Manager | | |
| Do you concur with the root causes and corrective actions recommend preventing recurrence? | Yes | No |
| If no, give reason: | | |
| Name: | Signature: | Date: |
| Department Manager Follow-Up – Actions Completed/Notifications | | |
| Comments: | Action By Supervisor | W/Comp Form |
| | Business Unit Manager Informed | Treating Doctor |
| | GM Informed | Pay Office |
| | Regional OH&S Manager Informed | Office of Energy |
| Signature: | Claims Admin/Injury Management Coordinator | Statutory Authorities Informed |
| Date: | | Client Report |
| Follow the Incident Reporting and Investigation Procedure 8.1, refer to flowchart for appropriate forms and actions | Workers Compensation Claim form to be completed for an injury where any medical cost will be incurred | |
| Copy to Department Manager – within 2 Working Days of the incident occurring | Copy to Regional OH&S Manager within 4 Working days of the incident occurring | |
| Part “A” – Personnel Details (injured person for name of person reporting non injury incident) | | |
| Surname: | Given Names: | |
| Address: | Tel (H): | Tel (W): |
| | Date of Birth: | Employ Date: |
| Occupation: | Employment Status: | Length of time in current job: |
| | Division: | Business Unit: |
| Job: | Supervisor: | |
| Part “B” – Incident Details | | |
| Client/Site Name: | Date of Incident: | |
| Incident site name and address: | Time: | |
| | Date Reported | |
| Place on site: | Reported to: | |
| Main take being performed at time of incident: | Treatment of Injury | |
| | No Injury | |
| Type of Incident: (please circle) Safety Environmental Damage | First Aid | |
| | Medical Treatment (Doctor) | |
| Incident Category: | Hospital | |
| | Name of First Aid | |

| | | |
|----------------------------|--------------------------|--|
| | Person: | |
| Incident Classification: | Description of incident: | |
| Nature of Injury: | | |
| Mechanism/Cause of Injury: | | |

| Part of Body Injured: | | | | Mark the injured body part/s | |
|----------------------------|--|----------|-------|---|--|
| L | | R | | | |
| Head | | Toe | |  | |
| Eye | | Neck | | | |
| Ear | | Back | | | |
| Arms | | Chest | | | |
| Hand | | Internal | | | |
| Finger | | Abdomen | | | |
| Leg | | Groin | | | |
| Knee | | Shoulder | | | |
| Feet | | Multiple | | | |
| Hips | | Unknown | | | |
| Ankles | | Other | | | |
| Supervisor Signature: | | | | | |
| Investigation Assigned to: | | | | Date: | |
| Manager Sign Off: | | | Name: | Date: | |

INCIDENT REPORT PROCEDURE

