

Foreword

Farms are among the most dangerous workplaces in Australia. Statistics show that more than eight out of every 100 farm employees are injured at work each year. The figure would be much higher if all injuries to farmers, shearers and their employees, their families and their friends were officially recorded.

A not insignificant proportion of those injuries are associated with the activity of shearing sheep and arise predominantly within the confines of a shearing shed. The safety of a shearing shed is therefore critical to the productivity and efficiency of the shearing team and each individual involved. In circumstances where speed and efficiency are key factors for a successful outcome, a high level of health and safety awareness is essential.

Where an employee cannot work due to an injury, the disruption can be costly, not only to the farmer or shearing contractor but may also cause economic hardship to the employee and his or her family.

This Industry Guideline has been developed with a number of purposes:

1. to raise awareness of the legislative requirements for employers and employees to maintain a safe workplace and safe systems of work;
2. to highlight particular areas within the working environment that require more considered attention; and
3. to assist in developing a consciousness among farmers, contractors and employees of the benefits that will flow where a high level of safety and health is achieved within the working environment.

The parties who have developed this Industry Guideline believe that the best way to reduce the high number of injuries that occur in and around shearing sheds is for all those who take part in the process and activity to work together towards achieving a greater sense of safety all year round and not just when shearing is undertaken.

Organisations that endorse this document and support its implementation include, but are not limited to:

- * Western Australian Shearing Contractors Association;
- * Western Australian Farmers Federation;
- * Pastoralists and Graziers Association of Western Australia;
- * Australian Workers Union; and
- * WorkSafe Division, Department of Consumer and Employment Protection

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OVERVIEW

1. What this document is, who it is for and how to use it

This document provides practical help to everyone involved in shearing and associated areas to find and fix safety and health problems.

It provides guidance on how safety and health problems can be avoided or minimized by:

- changing work areas, work practices, tools, equipment, machinery and amenities;
- employers, contractors and employees understanding and meeting their legal duties in workplace safety and health; and
- cooperation between employers and employees.

This document may also be used as a guide by WorkSafe Inspectors when assessing how employers, contractors and employees are meeting their legal duties.

- The document begins by outlining the legal duties of persons involved in shearing and a general consultative approach to finding and fixing safety and health problems in shearing.
- It then provides practical guidance on the risks and hazards involved in shearing and advice on how to remove or reduce those hazards and risks.
- The last section contains a practical checklist and worksheet to find and fix safety and health problems and lists further sources of advice and guidance.

2. Safety and health problems in shearing

There can be many safety and health problems in shearing including:

- sprains, strains and similar injuries to the back, arms, shoulders, hands, knees and other parts of the body;
- cuts and bruising;
- injuries due to machinery and motor vehicles;
- injuries due to slipping, tripping and falling;
- heat exhaustion and heat stroke;
- exposure to vibration, noise, fumes, dusts and chemicals;
- injuries and diseases arising from working with animals; and
- problems with amenities, travel and accommodation.

Shearing is recognised as a high risk occupation for injuries and illness and workers compensation claims.

WorkSafe Western Australia records show:

- the main types of claims are falls/trips/slips, hitting/hit by objects, and body stressing;
- the main types of injuries are fractures, sprain/strains, open wounds, contusion (bruising) or crush and repetitive strain injury (RSI); and
- the major “agencies of injury” for shearing claims are “animal/human factors” and machinery or powered equipment.

There is also anecdotal evidence that not all injuries and illnesses are reported.

3. The costs and benefits of safety and health in shearing

In addition to the direct financial costs of injuries (wages, medical treatment and rehabilitation) there is also often the considerable pain and suffering and the high personal cost to those injured. Some injuries are permanent and result in lifelong suffering and disability.

Employers are also personally affected by workplace injuries. There are the costs to the industry of losing skilled and valuable workers, effects on workplace relations, increased operating costs for farms and higher workers compensation premiums.

There is a link between safety and health, productivity and quality.

Good safety and health avoids or minimises these problems and improves quality and productivity. Many industries also find that good workplace safety and health is an important factor in attracting and retaining good workers.

4. The legal duties of persons involved in shearing

4.1 Duties of employers and contractors

The *Occupational Safety and Health Act 1984* (the Act) specifies the legal duties of employers and employees in the area of occupational safety and health. The Act and the duties specified apply to all employers (including farmers, managers, wool growers and shearing contractors) and all employees (including shearers, shed hands, cooks, wool classers, experts and wool pressers) involved in shearing and associated activities and all workplaces where shearing and associated activities are carried out.

Employers have a general duty of care to provide and maintain for employees a working environment that is safe and without risks to health, as far as is practicable.

In addition to this general duty, employers must:

- consult with safety and health representatives (where they exist) and other employees on all proposed changes to the workplace, the plant or substances used at the workplace or the conduct of work at the workplace that may affect the safety or health of any employee;
- maintain plant and systems of work that are safe and without risks to health;
- ensure the workplace is in a condition that is safe and without risks to health;
- where it is not practicable to avoid the presence of hazards, provide employees with such adequate personal protective clothing and equipment as is practicable to protect them against those hazards, without any cost to the employees;
- ensure, so far as is practicable, that the use, cleaning, maintenance, transportation and disposal of plant and the use, handling, processing, storage, transportation and disposal of substances at the workplace does not expose employees to hazards; and
- provide such information, instruction, training and supervision to employees to enable the employees to perform their work in a manner that is safe and without risks to health.

The duties of an employer extend to contractors and their employees as though they were the employer's employees.

4.2 Duties of employees

An employee must:

- take reasonable care to ensure his or her own safety and health at work and avoid adversely affecting the safety and health of any other person through any act or omission at work;
- comply, so far as he or she is reasonably able, with instructions given by his or her employer for his or her own safety or health or for the safety or health of other persons;
- use protective clothing or equipment provided by his or her employer, in a manner in which he or she has been properly instructed to use it;
- not misuse or damage any equipment provided in the interest of safety or health;
- report any hazardous situation at the workplace or injury or harm to health that arises in the course of, or in connection with his or her work, that he or she cannot self-correct; and
- cooperate with his or her employer in the carrying out by his or her employer of any obligation imposed on him or her by the *Occupational Safety and Health Act 1984*.

4.3 Safety and health representatives

The Act provides for employees to elect safety and health representatives if they want to. Properly elected safety and health representatives are authorised by the Act to undertake a range of duties for the purpose of safety and health, including regular inspections of the workplace and consultation with the employer. Electing safety and health representatives is a good way of ensuring effective consultation on safety and health matters and can be considered part of a 'best practice' approach.

Where practicable, the employer must consult the safety and health representative(s) on all proposed changes to the workplace, the plant or substances used at the workplace or the conduct of work at the workplace that may affect the safety or health of any employee.

A safety and health representative may be disqualified for failing to meet their duties as prescribed by the Act.

4.4 Occupational Safety and Health Regulations and Codes of Practice

In addition to their legal duties under the Act there are Regulations addressing safety and health issues that employers and employees must comply with. These issues include asbestos, plant users and operators, confined spaces, hazardous substances, injury reporting, manual handling, noise and plant.

There are also codes of practice that provide guidance to employers and employees on managing safety and health issues relating to confined spaces, first aid, hazardous substances, manual handling, noise and plant.

Relevant Regulations and Codes are listed in Appendix 1.

For general information about the legal duties of employers and employees see the WorkSafe publications:

- *Guidance Note - The General Duty of Care In Western Australian Workplaces*
- *Safety and Health Depends on You*
- *Making The Workplace Safe*

4.5 Is it practicable?

Employers and employees are required to carry out their duties as far as is practicable.

- To decide what is practicable the following need to be considered:
- the severity of the hazard;
- what is known about the hazard and how it can be controlled;
- the availability and suitability of ways to control the risk; and
- the cost of controlling the risk.

It is important to note that the cost of controlling the risk is only one of the four factors to be considered when deciding what is practicable.

FINDING AND FIXING SAFETY AND HEALTH PROBLEMS IN SHEARING

5. How to find and fix safety and health problems

The rest of this document provides help on finding and fixing safety and health problems.

Common shearing safety and health problems are listed and discussed along with ways they can be fixed.

A checklist and worksheet in Appendix 2 are provided to help employees, employers and safety and health representatives.

Problems are best addressed by a three step method which can be applied to all areas, jobs, machinery and equipment.

Step 1 - Spot the hazards

Hazards are the jobs, activities, processes, materials, machines, buildings, equipment etc. in the workplace that have the potential to cause harm.

Step 2 - Assess the risks

Assessing risks is about working out how likely it is that a hazard will cause harm.

Step 3 - Make the changes

Eliminate or reduce risks - risk control.

It is a legal requirement, if practicable, for employers to consult the safety and health representative on all proposed changes to the workplace, the plant or substances used at the workplace or the conduct of work at the workplace that may adversely affect the safety or health of any employee(s).

5.1 Step 1 - Identifying hazards and assessing risks

There are several methods of hazard identification and risk assessment.

Consulting with the workers doing the job.

The workers in the woolshed - contractors, woolclassers, shearers, shed hands, cooks, experts and wool pressers - know a lot about the hazards and risks in a particular shed. These workers can offer their experiences of working in a wide range of woolshed types and conditions and will be helpful in working out the best ways of improving safety and health.

Looking at the work and the work areas

Using the worksheet and checklist provided in Appendix 2 will help with this.

Using existing information

Any past safety and health incidents, problems and hazards that have not been addressed need to be recognised. Examining injury registers and first aid books is helpful. Have there been injuries or compensation claims before? What were they and what caused them? It is important to look at how often and how long someone is exposed to a hazard.

Discussing possible hazards and risks with neighbours and friends on other properties in the district might be helpful. What injuries or incidents have occurred on other properties? How did they occur?

This document is a good source of information and advice about hazards and risks. Other sources of information and advice are listed in Appendix 1.

Regulations and codes of practice on specific hazards and issues cover hazard identification and risk assessment in more detail.

All persons working in and around the woolshed should participate in the identification of hazards.

The responsibility to ensure that effective control options are implemented is a shared responsibility between the employer of the shearing team and the person in control of the workplace (the grower) and turns on who is in control of that particular part of the workplace or work process.

HAZARDS, RISKS AND RISK CONTROLS

5.2 Step 2 - Eliminating or reducing the risks - risk control

Any risks assessed must be eliminated as far as is practicable. If risks can't be eliminated they must be reduced as far as is practicable. The worksheet in Appendix 2 provides help in deciding how to control risks.

There is usually more than one means of reducing or eliminating the risk associated with a particular hazard. However, there are general principles that assist in setting in place best practice risk controls.

When putting risk controls in place, it is important to ensure that new hazards are not created.

Risk controls that rely on workers doing things differently, being safety conscious, working more safely and using personal protective equipment, often don't work very well. These types of controls often need constant supervision and training and are less effective as workers become fatigued or because there is a turnover of workers. Often protective equipment is uncomfortable or won't allow the worker to do the job properly, and ends up not being used.

Workers may cut corners because of pressure to get the job done in time. They may revert back to former methods or not adopt new methods for other reasons.

It is generally better to eliminate or reduce risks by other methods.

Method	Example
Eliminate a hazardous activity altogether or do it in a completely different way or at a different location.*	For a poorly designed and laid out woolshed with many built-in hazards it may be better to abandon the shed and use a neighbouring, safer, better shed or a trailer crutching station.
Change engineering and design.	<p>A new, well designed wool press with interlocked doors can reduce or eliminate hazards of crushing and entrapment. An older press can have a safety bar fitted., but this requires a person to be trapped before it operates.</p> <p>Changing woolshed layout by using raised boards, improving pen arrangements, changing bins to eliminate bending and twisting during lifting and handling are all examples of engineering or design controls.</p>
Alter workplace setup.	Relocating machinery away from work areas reduces or eliminates risks due to noise or exhaust fumes.
<p>* An unguarded machine must have the hazard eliminated by installing an effective guard. Warning workers to be careful when working on or near the machine is not acceptable.</p>	

5.3 Practicable risk controls

The legal duty to eliminate or reduce risks and how this will be done is subject to the test of practicability, as discussed in Section 4.5

Risk controls can vary considerably in the cost, time and effort required to put them in place. Effective risk controls can often be implemented quickly with minimum cost and effort.

Sometimes it may only be practicable in the short term to use interim or temporary controls that rely on training, supervision and changed work practices.

Controls based on:

- engineering or design changes
- the use of safer equipment and machinery
- alteration of workplace setup
- elimination of a hazardous activity or doing it a completely different way or at a different location may only be possible in the medium or longer term.

Medium or longer term controls have to be put in place if practicable. Interim and temporary controls are just that.

5.4 Planning

Finding and fixing safety and health problems will be more effective if properly planned.

Having a plan that includes what needs to be done, by when, by whom and how ensures all matters are addressed. Adequate records help and the worksheet in Appendix 2 can be used for this.

Measures to improve safety and health are often not 'set and forget' and may require checking, maintenance or follow up eg risk controls need to be checked to see if they're working and to ensure they have not introduced new hazards. Regular consultation with safety and health representatives and other workers in the shed is recommended to ensure agreed matters are in hand.

5.5 Before shearing starts

Before shearing starts it is recommended that employers meet with workers to discuss safety and health and resolve any particular safety and health matters they raise. Amenities, accommodation and travel can also be addressed at this time. Employers should consult with employees and agree on a procedure by which workers may raise any safety and health concerns they have.

Agreement can be reached on how particular safety and health matters will be dealt with as they arise eg shearing wet sheep.

If necessary, the default procedure contained in the *Occupational Safety and Health Regulations 1996* Regulation 2.6 prescribes a procedure for the effective resolution at workplaces of safety and health issues as they arise, where there is no agreed procedure for resolution, as provided for in Section 24 of the *Occupational Safety & Health Act 1984*.

Workers unfamiliar with safety and health measures should be properly briefed (inducted) before shearing starts to ensure they don't put themselves or others in the shed at risk. This includes knowing where all emergency stop and cut off/cut out buttons and controls are on the shearing board, in the wool room, grinding area and anywhere else in the shed.

6. The shearing shed

6.1 Access to and movement around the shed

Hazard or risk	Risk control
<p>Safe access to and movement around the shed are essential. There may be risks of injuries from trips, slips, falls, collisions etc. These may be caused by obstacles, tripping hazards, presses, other machinery, working shearers, changes in floor levels, etc.</p>	<p>The layout of the shed should allow adequate space so that collisions with other workers, machinery and plant are avoided. Machinery and plant should be located away from entrances and exits and other high traffic areas.</p> <p>Placement of signs or other warning devices restricting access to some areas may be necessary.</p>
<p>Getting on and off raised boards and entering and leaving elevated sheds without steps places high stress on the knees.</p>	<p>Steps should be provided for access to elevated sheds or raised boards as required, and they should be properly designed for their purpose. They should be sound, have wide treads and have a non-slip surface. Where the height from the ground to the shed is over one metre the steps and landing should be fitted with adequate handrails.</p>



Safe access to the shed

6.2 Sheep pens and gates

Hazard or risk	Risk control
Sometimes sheep pens, races and gates expose the penner-up to risks of injuries from trips, slips and falls.	Gate hinges, catches, railings and stops should be well maintained and in good working order. Pen gates should be able to swing in and out. Penners-up should be adequately trained in their work.
There may also be sharp edges, protrusions and splinters, exposing the penner-up to a risk of cuts and embedded objects in the skin.	All parts and components used should be free of sharp edges, protrusions and splinters. Pens and gates should be inspected for protrusions and sharp edges before each shearing season and repaired as required.



Penning up

When designing, building or modifying sheep pens and gates it is recommended that as well as using any published information available, the designer or builder should seek the views of experienced penners-up. They have often penned millions of sheep in hundreds of different pen and gate systems and have useful information to offer.

Further information may be found in '*Design of Shearing Sheds and Sheep Yards*' by A Barber and B Freeman and the Ballarat Shearing Shed Design Notes listed in Appendix 3.

6.3 Catching pens, gateways and doors

Hazard or risk	Risk control
<p>The physical size of the pens may result in excessive lifting and dragging if too large, or restrict movement if too small. Shared pens need to be bigger, and as a result the shearer must drag the sheep further.</p>	<p>When constructing new sheds or altering the shed layout, catching pen dimensions should provide the best tradeoff between pen-ups and distance of drag. The catching pen dimensions providing the best tradeoff between the minimum number of pen-ups per run and minimum distance to drag the sheep should be about 2.5 metres (which would hold about 20-25 fully grown sheep). Typically, more energy is spent on catching and moving the sheep from the catching pen to the stand than on shearing the sheep. (See the Ballarat Shearing Shed Design Notes in Appendix 3).</p>
<p>Protrusions in the pen, particularly on or near the gate, can result in punctures, cuts and bruising.</p>	<p>The inside of pens and gates (for sheep access to the pens) should be examined for protrusions before shearing season, and repairs made if necessary.</p>
<p>Battens that run across the catching pen allow sheep to gain a foothold, restricting the ease of tipping and dragging and increasing the risk of back injury to workers.</p> <p>Additionally, rotten or loose battens can result in sprains, fractures and wounds from exposed nails.</p>	<p>Battens should run towards the catching pen doors, (pen doors that provide the shearers access from the board to the catching pen) enabling the shearer to tip the sheep's back towards the doors more easily, reducing twisting and the distance it needs to be dragged, and reducing friction during dragging.</p> <p>Before each shearing season, all battens should be inspected and any loose and/or rotten battens repaired. Generally all battens must be in sound condition and securely fixed. Light coming up from under the floor should be blocked out if it is causing problems during penning. (see the Ballarat Shearing Shed Design Notes in Appendix 3).</p>
<p>The size, weight and action of the catching pen doors can create risks. Low doors can strike the shearer in the lower back region when pushed backward by a sheep. Heavy doors can also injure the shearer's back when they strike the shearer as they drag the sheep from the pen. Doors that are hard to open may also increase fatigue and back strain while dragging.</p>	<p>The top edge of the pen door should not be able to strike the shearer in the lower back. To minimize the impact of the pen door on the shearer at every (sheep) catch, resistance and inertia of pen doors should be minimized. Broad padding should be fixed on the inside of doors at the height of the lower back. Doors should be made from lightweight material, smooth on both sides and with no protrusions. The force required to open gates and doors should be minimized.</p>
<p>Latching doors open can allow sheep to escape from the catching pen onto the board, resulting in collisions, falls from raised boards and loss of handpiece control.</p>	<p>Pen doors should be self closing and allowed to close after catching each sheep.</p>



*These battens in the catching pen are parallel to the direction of drag and are in good condition.
Note: there is no light coming up through the boards.*



Dragging places strain on the back, arms and legs.



Make sure there is sufficient space to perform work tasks

Shared pens can also lead to problems between shearers due to real or imagined snobbing taking place; that is, one shearer leaving his or her pen mate more than their share of snobs. When constructing new sheds or renovating existing ones it is recommended that a catching pen for each shearer is provided.

Further information may be found in '*Design of Shearing Sheds and Sheep Yards*' by A Barber and B Freeman and the Ballarat Shearing Shed Design Notes listed in Appendix 3

See also Section 8 for related hazards, risks and risk controls.

Hazard or risk	Risk control
<p>Obstructions or steps between the board and catching pen increase the risk of trips and falls and back injury when dragging sheep to the downtube (workstation).</p> <p>If the floor is wet and dirty there is a risk of injuries from slips, trips and falls.</p>	<p>There should be no step or obstruction (eg board fixed to the floor across gateway) between the catching pen and the board. The catching pen doors should swing both ways to allow uninterrupted access for the shearer. Double (batwing) doors are most suitable for across-the-board sheds and provide easy access for the shearer, minimal obstruction to the pickers-up on the board and offer equal accessibility to left-handed shearers. Single doors may be more appropriate for same-side catch and let-go designs.</p> <p>Keep the floor as clean as possible. Although it is understood that in some cases a dirty floor is unavoidable, measures can be taken for improvements, such as not leaving sheep in the catching pens overnight</p>
<p>Strain on the shearer's back results from poorly located and oriented catching pens and doors. If a shearer is required to turn and twist each sheep through more than 90° as he or she drags it from the pen to the shearing position, the risk of injury, short and long-term, increases. Fatigue and its associated problems also increase. Provision for left-handed shearers needs particular attention here.</p>	<p>The shearer should be able to walk backwards from the catching pen door to the downtube without needing to twist or turn more than 90°. That is, the shearer or crutcher, having caught the sheep in the catching pen, should be able to walk backwards, carrying or dragging the sheep from the catching pen door (eg position 12 o'clock) to the shearing starting position beside the downtube, facing 3 o'clock or 9 o'clock depending on whether the shearer is right or left-handed and whether the board design is across the board or open board.</p> <p>The best design is where the shearer walks backwards to the shearing position through a smaller angle. A very good example can be seen in some new sheds where the catching pen and door directly face the stand. That is, the door is at an angle to the wall rather than parallel with it.</p> <p>The distance from the back of the catching pen to the downtube should be kept to a minimum. The distance from the centre of the catching pen door to 305 mm in front of the downtube (when hanging perpendicular) should be no more than 3050 mm.</p> <p>A gradual floor slope in the catching pen toward the downtube will making tipping and dragging easier. Remove any obstructions between pen door and downtube.</p> <p>Provide one or two stands in each shed for left-handed shearers. One left-handed stand for every four-right handed stands may be a suitable ratio.</p>



These pen doors swings both ways, are made of light ply and have a smooth finish

6.4 Shearing board

Hazard or risk	Risk control
<p>The floor of the shearing board is an extremely high use area. It may become worn and grooved, increasing resistance to drag when handling sheep. Slippery boards increase the effort required by shearers to hold the sheep and maintain stability, and increase the risk of back injury. Protruding nails and movement in floorboards increase strain on the shearer and the risk of catching.</p>	<p>The floor needs to be kept in good condition - even and level. Protruding nails should be countersunk before shearing commences and loose and slippery boards should be repaired or replaced.</p>
<p>Hard floor surfaces increase the risk of comb breakage and injury from handpiece lockup.</p>	<p>Softwood is the most common floor material used and is ideal for the job, provided it is in good condition. Combs are also less likely to be damaged if dropped on softwood boards.</p>

Hazard or risk	Risk control
<p>Insufficient floor space increase the risk of collisions and interference with other shearers.</p>	<p>Ensure sufficient floor space for all workers to perform their tasks safely and properly. The shearer must be able to work without encroaching on the next shearer's workspace or route in and out of the catching pen. Sufficient workspace is required for the end stand, particularly when it is used by a left-handed shearer. Left-handed shearers should be able to face the rest of the shearers.</p> <p>Board space, the measured distance between downtubes, needs to be sufficient to accommodate the size of the sheep. The common board space of 5 ft (1525 mm) may be insufficient due to increases in the size and weight of sheep. A minimum dimension of 2000 mm is recommended for new and renovated sheds to provide a safer workstation. Greater distances may be required due to factors such as shed layout and sheep size</p>
<p>Absence of a suitable fixing point above the board for a shearer's back harness prevents use of the harness.</p>	<p>A secure fixing point, which is free to swivel and therefore remain above the harness throughout shearing, should be provided. It should be clear of the overhead shaft and within reach when standing on the floor. The harness and its mounting must be clear of any electrical wiring, leads or installation.</p>



This shearing board is in good condition. Back harnesses are in use and are suspended from good fixing points that are well clear of overhead obstructions and machinery. The area is well lit and the white walls improve the light.



Clean well lit work area



Back harness in use.

6.5 Let-go area

Hazard or risk	Risk control
<p>Obstructions to the smooth exit of sheep following shearing or crutching place significant strain on the shearer, and increase the risk of back injury.</p>	<p>The sheep should have an unobstructed exit from the shearing board that requires the least effort from the shearers. Where chutes are used their entrance should be extended onto the floor of the shearing board by some 100-150 mm, with the front edge 100 mm lower than the floor, for easy release of sheep.</p> <p>Ensure that barriers such as wooden strips at the opening of let-go chutes/doorways are removed. To prevent wool going into the let go area flexible plastic strips or strips of bristles can be fixed at the opening. These save the wool but don't obstruct the movement of the sheep.</p> <p>The chute/doorway should be located directly in front of the sheep at the completion of shearing.</p> <p>Ensure that chutes/doorways are large enough to allow for easy handling of large-framed sheep.</p> <p>Ensure that dogs are kept away from exit points on let-go areas to reduce baulking of sheep.</p>
<p>Let-go chutes/doorways in areas that funnel prevailing cold winds can increase muscle fatigue.</p>	<p>If modifying or designing the let-go area consider placement of chutes/doorways in positions that limit drafts and glare.</p> <p>Placement of clear plastic strips at the mouth of chutes will reduce the wind blowing through.</p>



This let go chute is not recessed



Recessed let go chute

6.6 Wool and press rooms - hazards and risks

Hazard or risk	Risk control
Continual bending and reaching to pick up fleeces off boards increases the risk of back strain	Raised shearing boards reduce back strain when picking up.
Insufficient space in the wool room may cause collision with other workers and contact with shed machinery, and difficulty in safely and properly throwing, skirting, rolling, classing and storing the wool.	<p>The minimum clear space around the shearing board end and working sides of the wool table should be 1 m, with a minimum of 2 m between any machine and the wool table.</p> <p>A minimum of one meter around the wool press for walkways must be kept clear to allow safe operation.</p> <p>Ensure there are no obstacles between the board and wool table.</p>
An increased workload on the shed hand increases risks of sprain and strain injuries.	<p>It is recommended that a ratio of one shed hand (excluding the presser) for each 200-250 fleeces shorn per day be employed rather than a shed hand to shearer ratio. The workload in the wool room is a result of the number of fleeces being shorn not the number of shearers removing the fleeces.</p> <p>“A woolclasser shall not perform wool rolling in addition to wool classing in a shed where more than 900 fleeces per day are shorn.” (Woolclassers Award 1999, Clause 4.2.2 (b))</p>
Small wool tables that are not designed for the size of current fleeces or are the wrong height can cause back strain.	<p>A well designed and constructed wool table is essential for safe work with reduced risk of strain and injury. Making the height of the tables appropriate to the user is essential in avoiding back pain. The table height should be adjustable. This could be achieved on folding leg tables by provision for adjusting the legs to various angles in relation to the table top. Non-rotating rectangular (1.6 x 3.3 m) wool tables with rounded corners appear to be the most efficient design for two or more wool rollers. Where there is only one wool roller a rotating round table may be more efficient. Contoured-height tables sloping down towards the throwing (shearing board) end may facilitate easier and more accurate throwing.</p> <p>Ensure wool tables are large enough to accommodate fleeces.</p>
Uneven floor surfaces increase the risk of trips, slips and falls.	<p>The floor needs to be kept clear and in good condition. Protruding nails should be countersunk and uneven, loose and slippery boards should be repaired or replaced.</p>



*This good sized wool table has good clearance around it.
The posture and movements here place strain on the back, shoulders and arms.*



A good sized wool table.

6.6 Wool and press rooms - hazards and risks cont...

Hazard or risk	Risk control
Hard (eg concrete) floors cause strain and jarring on feet and legs.	If there is a concrete floor, some impact absorbing material is required considering the amount and speed of movement required of wool rollers. Any such material would need to be able to be kept free of wool by sweeping, and should be washable.
Sharp edges and protrusions used to support wool packs or on wool bins pose a risk of cuts and puncture wounds, eg spikes protruding from wool butt suspension frames. They may also obstruct the removal of wool by the presser.	Sharp items such as nails and spikes, eg spikes protruding from wool butt suspension frames or similar, should be covered or removed.
Wool bins, particularly where they are used for skirtings, bellies or locks, that aren't oriented and located in the correct way will obstruct access by the wool rollers and classer.	Wool bins, particularly where they are used for skirtings, bellies or locks, should be oriented and located in such a way as to provide easy access for the wool rollers and classer.
Moving and shifting bales by hand carries a risk of serious injury.	<p>Moving and shifting bales using bale hooks and trolleys and getting help to move the bales will decrease the risk of injury. If a bale trolley is used the floor must be level and of sufficient strength to support the wheels of the trolley. The routes between wool bins and press should be kept short and must be clear of obstructions.</p> <p>Wool bale weights and dimensions are specified by the Code of Practice for the AWEX Quality System.</p>
Power leads for movable wool presses must be suspended or similar to ensure there is no risk of trolley or wool press wheels cutting or damaging the leads.	

Summary

Good shed design and layout and all related aspects are critical to good safety, health and welfare in the industry. The quality of shed design and construction is directly related to safety and health hazards and risks.

Improvement in the safety and health aspects of shed design can significantly reduce the costs of injury and increase productivity and the quality of the clip.

Consultation by employers with safety and health representatives, where they exist, on safety and health is a legal requirement while consultation with the workers doing the work is best practice.



Throwing - there is good circulation space around the table



This is a good sized table and at a good height

7. Machinery

7.1 Overhead gear and shearing plant

Hazard or risk	Risk control
<p>Contact with overhead drive shafts, either directly or by contact with clothing, towels or fleeces, can result in serious injuries.</p>	<p>Prohibit the hanging of towels and clothes near overhead gear. Provide towel hooks or rails near to the stand.</p> <p>Ensure that adequate guards are in place to minimize the risk of clothing, towels or fleece becoming entangled in the shaft.</p>
<p>Portable stands that are inadequately secured and incorrectly fitted can result in injuries.</p>	<p>Ensure portable stands are safely fitted and secure.</p>
<p>The absence or inadequate signage of emergency stop controls on machinery (including overhead shaft type shearing machinery) may result in confusion and delays in the event of an emergency. The team may be unfamiliar with the shed and the location of emergency stops.</p>	<p>Existing emergency stop controls should be prominently signposted and a waterproofed chart positioned at the entrance to the shed. The team needs to be alerted to the purpose, operation and location of all controls. Controls should be easily, safely and quickly accessible.</p> <p>Positioning of power points for individual electric power plants between 1 and 1.5 m above floor level is recommended to bring them within reach of the shearer.</p> <p>Where shearing machinery is of the overhead shaft type an emergency stop mechanism should be fitted. Where an emergency stop mechanism is to be fitted to a new or existing shed it should be in a standard location, eg between the wool table and the nearest stand. The emergency stop should be easily, safely and quickly accessible from the wool room and shearing board in an emergency, not within range of a locked handpiece.</p>
<p>Downtubes too close together increases the risk of shearers colliding and losing control of the handpiece. Locked or loose handpieces may hit other shearers.</p>	<p>The minimum distance between stands needs to be reviewed because of the increased size and weight of sheep. (See Section 6.4). Downtube positioning and range of movement should be taken into account when designing shearing sheds or altering existing ones.</p> <p>Gear should be positioned so that the downtube is 152-178 mm to the left (for right-handed shearers) of the chute.</p> <p>The posts support the main plank to which the overhead gear or shearing plant(s) is attached. The posts should be placed midway between the stands.</p>
<p>Incorrect downtube positioning and inadequate range of movement restrict the workspace of shearers.</p>	<p>The downtube height should be positioned so that the lower end of the short tube describes a circle of 275 mm in diameter on the floor, with the long tube perpendicular and 600 mm away from the wall or any obstruction.</p>

Hazard or risk	Risk control
<p>Downtubes in poor condition or not properly maintained are unsafe. Incorrect spring tension can cause wrist and arm strain; worn downtubes, cogs or handpiece back joints cause vibration and overheating problems.</p>	<p>Ensure that the downtube parts are in good condition and correctly installed. The spring at the top of the downtube should be in good condition and not worn or weak. The downtube should be free of excessive vibration. Spring tension must be checked before shearing.</p>
<p>The absence of joint guards on downtubes increases the risk of lockup.</p>	<p>Joint guards must be fitted to all joints.</p>
<p>Handpieces become jammed on such things as burrs, metallic ear tags, fencing wire and wool in the back joint cogs. Safety clutches that are in poor condition, have been incorrectly adjusted, removed or not been fitted may not protect a shearer from injury if the handpiece becomes jammed.</p> <p>Present safety clutches are reported as problematic because they tend to wear out quickly after slipping the first time. After that they tend to slip unreliably and unpredictably. Some shearers overtighten safety clutches to avoid clutch slippage in dense wool.</p>	<p>Properly adjusted safety clutches and worm drives in good condition should be fitted to all shearing machines. Safety clutches are a spring-loaded drive-breaking (motion disengagement) mechanism located in the short gut. If the driven parts of the handpiece become jammed, the clutch (if in good repair and properly adjusted) will disengage and isolate the drive from the handpiece so long as the handpiece is held firmly.</p> <p>Standard specifications for such drives are necessary to ensure the integrity of this safety mechanism. Employers and shearers should check that compatible components are used.</p> <p>Both the employer and employee should check the condition and adjustment of the safety clutch before shearing. The tension setting of the safety clutch should provide a torque not greater than 2.9 Nm (a load setting of 26 in/lb). A tension wrench that fits the safety clutch should be available at every shearing shed during shearing.</p>
<p>Short gut bayonet joints become worn, causing the safety clutch to jam when it comes into contact with the short tube.</p>	<p>It is recommended that the bayonet joint at the drive end of the short gut be eliminated. The bayonet joints can be replaced with “Johnno” joints, i.e. a short gut that screws directly into the drive cog.</p>
<p>Poor location of on-off rope causes twisting of the back and stretching when used and makes efficient use difficult in an emergency (eg a shearer losing control of a struggling sheep).</p>	<p>The rope, and therefore the start-stop mechanism on the overhead gear, should be positioned so that the shearer, whether left- or right-handed, can reach it without overreaching, twisting or being obstructed by the downtube or any other object. The downtube should not interfere with or obstruct the shearer’s access. The rope should be made of heavy cord strong enough to hang straight down and not be flicked out of reach by the slightest knock. The rope should hang from the machine down to the long tube elbow joint.</p> <p>One solution is to attach the free end of the rope to a piece of 25 mm (1”) heavy duty PVC pipe. This pipe is slipped over the long downtube. This allows the shearer to pull the PVC tube or rope to stop the handpiece. The shearer never has to find the rope because, irrespective of his position on the shearing board, the rope is always in easy reach and in the same position. Do not attach the rope to the pipe with a bale fastener.</p>

Before shearing starts, it is important to ensure that all machinery including overhead gear, downtube and safety clutch are checked and working effectively.

All electric leads and cables should be in good condition and be routed to ensure there is no risk of them being cut or damaged

Manufacturers must consider the factors in the table in this section during design of shearing machines. They have a legal duty to do so. Purchasers of shearing machines should not purchase unsafe machinery.

7.2 Handpieces

Hazard or risk	Risk control
A worn out, poorly adjusted or maintained handpiece will vibrate, heat up, cut poorly and put more physical strain on the shearer, particularly their hands and arms.* Effects include increased fatigue and injuries such as sprains and strains, cuts, “squeaky wrist” from vibration and burns from overheated handpieces.	The handpiece must be in the best possible condition and kept in good working order and worn parts replaced. Where the shearer is required to supply and maintain his or her own handpiece the shearer is also responsible for keeping it in good order. Ensure that a correctly operating safety clutch is fitted. (See Section 7.1) Consider new technology when replacing handpieces.
* Hand, arm and shoulder injuries account for about half of all shearer compensation claims.	



Keep handpiece in the best possible condition and working order

7.3 Grinders

Hazard or risk	Risk control
Combs, cutters or sparks may strike the operator, particularly on the face. Foreign objects propelled from the grinder may lodge in the operator's eye.	Safety glasses that allow good vision must be provided, used and maintained in good condition. Guards must be provided and maintained.
Rotating discs can fly off the grinder.	<p>The grinder should be mounted so that the direction of the disc rotation is away from busy work areas such as the shearing board and wool room, and flammable materials including wool packs.</p> <p>Operators should check that discs are properly secured before each startup by attempting to simultaneously rotate discs in opposite directions. Discs, nuts and washers should be compatible with the grinder.</p> <p>It is also important to check that discs are rotating in the correct direction. This depends on the manufacturers' recommendations. Usually there is an arrow on the grinder bearing housing.</p> <p>Except for the one or two persons actively and immediately using the grinder, no one should be within two metres of the grinder.</p>
Exposure to high noise levels in the vicinity of the grinder can result in permanent hearing loss. Dust levels near the grinder may also be high.	Earmuffs must be provided, used and maintained in good condition. Dust extractors may be necessary in some sheds.
The poor location of grinders and their use by untrained operators increase the risk of accident and injury.	<p>The grinder must be in a secure, properly lit, enclosed space and securely anchored in position. Unsecured grinders should not be permitted.</p> <p>All grinding work should be done by a properly skilled and trained person. This includes not only all grinding but also all repairs and maintenance such as changing emery cloths. Alternatively, the employer may change the emery cloths.</p>
Risk of electrical leads and cables being cut or damaged; leads and cables being tripping hazards	Electrical leads and cables need to be properly routed to eliminate any risk of them being cut or damaged or being tripping hazards

Australian Standard 4024.1 Safe-guarding of machinery - General Principles is a Code of Practice pursuant to the Occupational Safety and Health Act 1984. AS 4024.1 provides information for guarding of machinery typically found in workplaces.



Fire extinguishers should be easily accessible - see page 49



Grinders should be in a secure, properly lit enclosed space.

7.4 Wool presses

Hazard or risk	Risk control
The design of some wool presses makes it possible for body parts to become entrapped.	<p>The clearance between the front of the platen and the side of the bale holding frame should be at least 100 mm.</p> <p>Ensure that wool presses are fitted with a functioning interlocking door mechanism which stops the press if the doors are not fully closed. Alternatively, on old units a trip bar or emergency stop may be fitted.</p>
Injuries from hydraulic hoses that have burst under pressure can result in serious burns or penetration injuries from hydraulic fluid.	Hydraulic lines should be inspected before operation and worn lines should be replaced.
Presses are sometimes operated by untrained and unskilled persons.	Anyone using a press must be properly trained and skilled in its use.
A safety stop mechanism to avoid entrapment is not present.	Powered wool presses should have a safety stop mechanism. A readily accessible trip bar should stop operation of the press if the bar is “tripped” by an operator or bystander. A stop button or bar that can be operated by the knee enables the operator to stop the press without using hands or arms.
There is no failsafe mechanism if the platen support system fails while the platen is in the top position.	A failsafe system must be provided to prevent the platen from falling when it is in the top position.
Electrical hazards	Electrical leads and cables must be properly secured and clear of any moving parts such as the ram, monkey, doors and wheels.

Check wool presses for protrusions and sharp edges before operation and repair if necessary.

Ensure the press is located so that there is no interference between the operation of the press and other work being carried out nearby.



This well maintained wool press has a trip bar fitted.