

Wool Room

The wool room is the area in a shearing shed where fleeces are subject to the following critical wool preparation and materials handling activities:

1. Skirting and classing;
2. Storing into bins;
3. Pressing into bales and bale identification;
4. Bale storage prior to transport; and
5. Bale loading onto transport vehicle.

By taking account of the following in the context of what activities are performed in the wool room, and what outcomes are desired, maximum productivity benefits can be achieved whilst containing costs

- The type of shearing board;
- The type and placement of wool tables;
- The type and location of bins for the fleece and the oddments wool;
- The type and placement of the wool press;
- The application of correct clip preparation practices;
- Planned work methods and flows for all shed staff;
- Supervision of the wool room; and
- Storage and loading of wool bales.

Wool Room - Size

The following table is a guide to the size of an effective wool room – relative to the number of shearing stands.

Wool Room Size – Per Shearing Stands

Shearing Stands	2	3	4	5	6 to 8
Minimum size(M ²)	48	62	80	85	95
Minimum size(Ft ²)	500	650	850	900	1000

A similar set of dimensions for shearing shed wool rooms is provided by Conroy and Hanrahan and Barber & Freeman below.

Table 5: Suggested minimum area for wool room*

Number of stands	1	2	3	4
Area required (sq. m.)	30	50	70	90

* does not bale storage or shearing area. An extra 20 sq. m. should be allowed for each additional stand.

Source: Conroy & Hanrahan

Table 6.4 Suggested minimum area for wool room working space

Number of stands	1	2	3	4	5	6	7	8
Area required in the wool room (sq. m.)	30	50	70	90	110	130	150	170
Area per stand (sq. m.)	30	25	23.3	22.5	22	21.7	21.4	21.2

Source: Barber & Freeman

For the storage of wool bales, the following dimensions are suggested by Barber & Freeman.

Baled Wool

For wool bales stored on end, a suitable density for calculation purposes is 1.5 bales per square metre. Bales are usually accumulated to form a truck load, the actual number of bales varying according to the capacity of the truck. Table 6.5 provides a quick reference for the area needed to accommodate various numbers of bales

Table 6.5: Area required to accommodate wool bales (bales are stored on end at a density of 1.5 bales per square metre)

Number of Bales	Area (Sq. m.)	Number of Bales	Area (Sq. m.)
5	3	50	33
10	7	60	40
15	10	70	47
20	13	80	53
30	20	90	60
40	27	100	67

Source: Barber & Freeman

Large access doors are an advantage when using the wool room for other on farm activities and purposes.

The flow of wool should be such that there is minimal double handling. For example, the open-ended fleece bins would preferably be placed across the wool room with the self pinning press positioned in the central bin so that the main line can be placed straight into the press from the wool table.

Wool Room Floor

There are two main types of wool room floors:

1. Above Ground - Wood

Sheep can be stored underneath this type of floor if there is head room and there is grating down. The type of timber available as flooring will vary between States; but, generally hardwood is used.

Close joist spacings (380 mm instead of 450 mm) and hardwood floor boards may be required for heavy wool presses and where the space will be used to store other heavy materials during non shearing times.

Final design details and specifications for any wool room floor should be discussed with a registered builder.

Disadvantages of an above ground wool room are:

- Unless specifically designed, limited storage for heavy equipment and supplies when not in use at shearing and/or crutching;
- Raised (non ground level) access; and
- Limited access for unloading contractor supplied presses.

Advantages of an above ground wool room are:

- Under-floor sheep storage – especially in wet weather conditions; and
- Can load wool bales onto transport with minimal, manual bale handling equipment – e.g. with a bale hook and trolley.

2. Ground Level Multi Use Sheds – Reinforced Concrete Floor

Some newer sheds, especially those with a raised shearing board have wool rooms with reinforced concrete floors at ground level.

When not shearing or crutching, these can be used for vehicle, equipment, grain or fertilizer storage.

Disadvantages of a multi use ground level wool room are:

- The need for a system to load wool bales from ground level on to a truck for transportation;
- Under-floor sheep storage is lost;
- More susceptibility to non wool contamination; and
- Leg fatigue in wool handlers - concrete is more fatiguing to work on.

Advantages of a ground level wool room are:

- Cheaper to build; and
- Available for the storage of heavy equipment and other supplies when not in use at shearing and/or crutching.

Wool Room – Productivity & OH&S

From a productivity point of view, the most critical elements of the design of the wool room are:

- Its close proximity to the shearing board so as to reduce “ineffective” labour carrying fleeces from the board to the skirting table; and
- Sufficient space to enable ease of work flow for shed staff.

With effective design, the wool handler should rarely have to move more than a few paces when transferring the fleece from the board to the wool table. Not only does this enable higher productivity for wool handlers but it also assists in providing additional time for them to pick up and prepare belly wool and clear the board of locks at comfortable height.

There are a number of performance measurements that can be made to determine the productivity and ease in relation to the wool room. Some measurements that can be used include:

- Person seconds to take fleece from stand to wool table at normal walking pace;
- Perceived exertion to take fleece from stand to wool table at normal walking pace;
- Person second to move fleece to wool bins (average of first and last ten fleeces of a run or flock);
- Perceived exertion to move fleece to wool bins (average of first and last ten fleeces of a run or flock);
- Person seconds to carry fleeces from bin to press;
- Perceived exertion to carry fleeces from bin to press;
- Person seconds to carry oddments from bin to press;
- Perceived exertion to carry oddments from bin to press;
- Person seconds to move bale from press to storage;
- Perceived exertion to move bale from press to storage;
- Person seconds to move bale storage to transport; and
- Perceived exertion to move bale storage to transport.

OH & S

Where the wool room is raised, it needs to be at a height level to that of a tray truck, or a little higher. This will reduce the amount of manual lifting of bales. In such circumstances, the loading ramp should be clearly marked, railed and or safety chained to ensure that shed staff do not accidentally fall off. Equally, as this is usually the point of entry for staff into the shed, stairs should be strong and have hand rails and foot treads attached.

Where the wool room floor is at ground level and usually constructed of concrete, mechanical means of lifting and loading the wool bales on to the transport vehicle must be available – either from the farm or from the transport operator.

The other critical aspect of the wool room in terms of OH&S is to ensure that there are:

- No protruding objects that could inadvertently be walked into by shed staff;
- It is suggested that heavy duty lino is used on the wool room floor (especially if it is a concrete floor)
- That all electrical equipment is suitably located and checked and tagged by a qualified electrician;
- The Grinder must be in a well lit enclosed location securely fastened in position;
- That any other mechanical devices are positioned out of the way; and
- That there are clearly marked paths for the movement of all shed staff.

An example of OH&S risks in relation to the wool room can be found below (from the Victorian Workcover Authority).

Source: © Victorian Workcover Authority

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.	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. A minimum of one metre around the wool press must be kept clear to allow safe operation. Ensure there are no obstacles between the board and wool table.
An increased workload on the shed hand increases risks of sprain and strain injuries.	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. “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))
Hazard or risk	Risk control
Small wool tables that are not designed for the size of current fleeces or are the wrong height can cause back strain.	A well designed and constructed wool table is essential for safe work with reduced risk of strain and injury. 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. Ensure wool tables are large enough to accommodate fleeces.
Uneven floor surfaces increase the risk of trips, slips and falls.	The floor needs to be kept in good condition. Protruding nails should be countersunk and uneven, loose and slippery boards should be repaired or replaced.

Hazard or risk	Risk control
Hard (e.g. 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, e.g. 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, e.g. 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.	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. Wool bale weights and dimensions are specified by the Code of Practice for the AWEX Quality System. As per the Code of Practice for the AWEX Quality System "... to avoid contamination, all wool preparation and handling areas within the shearing shed must be smoke free work areas".
Power leads for movable wool presses must be suspended or similar to ensure there is no risk of the wheels cutting or damaging the leads.	

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.	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. 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. 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. Except for the one or two persons actively and immediately using the grinder, no one should be within two meters of the grinder.
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.

Hazard or risk	Risk control
The poor location of grinders and their use by untrained operators increase the risk of accident and injury.	The grinder must be in a secure, properly lit, enclosed space and securely anchored in position. Unsecured grinders with power leads should not be permitted in the shed. All grinding work should be done by a properly skilled and trained person. This includes not only all grinding but all repairs and maintenance such as changing emery cloths. Alternatively, the employer may change the emery cloths.
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.

7.4 Wool presses

Hazard or risk	Risk control
The design of some wool presses makes it possible for body parts to become entrapped.	The clearance between the front of the platen and the side of the bale holding frame should be at least 100 mm. Ensure that wool presses are fitted with a functioning interlocking door mechanism which stops the press if the doors are not fully closed or a trip bar or emergency stop is fitted.
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 need to be properly secured and clear of any moving parts such as the ram, monkey, doors and wheels.

7.5 Shearers' tools and equipment storage

Hazard or risk	Risk control
Loose tools and equipment on the board pose a slipping/tripping hazard. Damage to tools and equipment may occur, which can affect their subsequent use and operation.	Provide adequate storage space for shearers' tools and equipment near the work area. The storage area should not be located above the let-go chute. It is recommended that a storage shelf not less than 300 x 600mm with a raised edge be provided adjacent to every downtube. Where the shearer is paid to supply and maintain his or her own handpiece the shearer is also responsible for keeping it in good order.