

A photograph of a brown cow standing in a metal cattle crate. The crate has a slatted floor and metal walls. The cow is looking towards the right. The background shows other parts of the crate and another cow's head.

Guide for safe design and use of cattle crates

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Introduction

The purpose of the guide is to improve the health and safety of operators, workers and others when transferring cattle and working around crates.

Legislation requires that work health and safety and electrical safety risks be controlled as far as reasonably practicable. Australian Animal Welfare Standards also set requirements during cattle transportation to minimise the risk to the welfare of the cattle.

This guide identifies potential hazards of cattle crates and provides practical examples of ways to reduce the risks. Risk controls mentioned in this guide are examples only and are not exhaustive. Innovative approaches to effectively control risk are actively encouraged.

General principles of safe design for components of the crate are included to assist with the design of new cattle crates and retrofitting of existing crates. Appropriate Australian Standards should be used to assist with the selection of features incorporated into the crate to reduce the risks.

Risk management needs to be specific to your business activities to ensure that work health and safety and electrical safety risks associated with the use of cattle crates are effectively controlled. This guide does not replace any statutory or accreditation requirements from other authorities.

It is acknowledged that other factors not covered in this guide also need to be considered when designing cattle crates, such as the design of receiving facilities.

Scope

This guide focuses specifically on the activity of moving cattle onto, off and between cattle crates, including mid-transit inspection of cattle (cattle movement activities), as well as cleaning and maintenance of the crate. In this guide these activities are collectively termed use and maintenance of cattle crates.

Examples of specific elements addressed include access ladders, catwalks, transition zones, gates, flaps, hinges, chains, steps, lighting, systems of work, general access and egress points.

Other stages of the cattle supply chain are outside the scope of this guide, such as livestock loading ramps at saleyards, abattoirs, feedlots and cattle forcing yards.



Health and safety and electrical safety duties

Cattle movement activities are conducted within a unique supply chain. Supply chain parties should work together to improve work health and safety and electrical safety for transport operators. It is a legal requirement, for businesses that interact with transport operators to consult and co-operate together to jointly reduce risks when there are shared duties.

A person conducting a business or undertaking (PCBU) must provide and maintain:

- a safe work environment without risks to health and safety
- safe plant
- safe systems of work, including performing work that is electrically safe.

PCBUs that design or manufacture plant, must ensure that plant is designed and manufactured so that it is without risks to the health and safety of people using it.

Risk management

As early as possible in the concept development and design phase, identify all potential work health and safety and electrical safety hazards associated with activities involving cattle crates. Look at and assess work practices and situations that could potentially cause harm to people or animals through the use, cleaning or maintenance of cattle crates.

Consultation between cattle transport operators, crate designers/manufacturers, maintenance and cleaning staff is fundamental throughout this process.

Controls must be developed based on the hierarchy of control. Controls that eliminate the risk are the most effective. If you can't eliminate the risk, the next most effective solution is the good design of work systems, equipment and tasks. Improved design leads to reduced injury risks and more efficient ways to perform work. Reliance solely on training to reduce risks is not considered reliable or effective.

Monitor and review the controls implemented to check they are reducing risk and not introducing new risks.



Good design

There are fundamental goals, principles and processes to be applied when designing cattle crates so operators can safely use and maintain them. These principles can be implemented regardless of type or size of operation.

Good design goals

Good design goals should:

- minimise health and safety risks to operators
- maximise the welfare of cattle and promote smooth ‘flow’ of cattle
- keep operators off the crate
- physically separate the operator from the cattle.

Design process

The design process:

- involves consultation between designers, manufacturers, engineers and operators throughout the process
- refers to and applies principles of relevant statutory requirements and Australian Standards when designing features (such as ladders and walkways) or selecting components (such as bolts, cabling and hardware) to ensure suitable rated capacity
- ensures crates are safe for use by a single operator and under expected conditions such as day/night and in a range of weather and environments
- checks all parts are reliable and easy to maintain and clean.

Management of hazards

The following are common work health and safety and electrical safety hazards identified when working on cattle crates.

Minimise work at heights

Keep operators off the crate as much as possible to avoid working at heights. Aim to:

- do as much work at ground level or as low as possible to reduce the need to work at height. Possible solutions include:
 - pneumatic/hydraulic remote operated rear gates/flaps
 - remotely operated internal gates
 - internal monitoring camera systems (fixed, remote or wireless)
 - fold down walkway level with lower deck
 - peep holes around the crate to observe cattle on lower and upper decks
 - cattle management to keep cattle as settled as possible.
- use external walkways/gantry or cross loading structures where facilities are available.
- when working at height, provide an adequate work area so the operator can safely stand and undertake tasks for example offset area next to rear flaps (A).

Provide secure access/egress

Provide secure and comfortable movement of operators around the crate to undertake tasks. Things to consider:

- Design ladders and access points around the crate with:
 - adequate hand and foot hold depth and dimensions plus ladder width (refer to Australian Standards AS 1657 - 2013) so operators can comfortably and securely grip the rung and their foot can securely rest on the rung
 - consistent spacing and uniformity in design
 - proper positioning of ladder and handles or cut-outs to transition areas, to maximise support and smooth movement around the crate
 - comfortable step up and down height of the first step, so that operators don't need to overstretch or climb onto the crate, or jump down off the crate
 - sufficient lighting on access way so the operator can clearly see where they are stepping and any possible hazards or contamination
 - handholds and footholds that do not trap expected contaminants and remain non-slip in all weather conditions.
- When using ladders or steps, operators should:
 - maintain at least three points of contact with the access points (with hands and feet)
 - keep the centre of their body between the sides of the ladder or steps, and both feet on the same rung or step
- install external hand rails on the crate's side panel to keep operators' hands outside of the crate.
- Avoid tasks being done from ladders wherever possible – operators should only undertake short duration and low risk tasks from a ladder.

Opposite are examples of features to reduce access and egress risks.

- Stable catwalk structure on top of the crate and approximately 600 mm wide.
- Pop up or pull up hand rails (tanker style).
- A safe transition zone (B) with transition board between top of ladder and catwalk and between mid-way along catwalk to side of crate (for better access and increased ease to open and close internal gate).
- A cut out area (C) to allow step through onto catwalk.
- Extended ladder hand rails (D) to assist moving on/off ladder.
- Use of a long handled stick at the top of the catwalk and midway to help kneel on the catwalk (need to ensure this handle is lowered when not in use).
- Fold down walkway level with the lower deck (E). Refer to AS 1657 for requirements.

Maintain physical separation between operator and cattle

Keep out of the crate as much as possible and keep off the catwalk to avoid falling onto cattle. Suggestions include:

- Maintain a physical barrier between operator and cattle by using:
 - blocking or safety gate to prevent cattle from coming back to operator
 - a three-quarter internal gate with an area to stand behind the door when an operator is in with the cattle
 - a second opening for the internal gate to allow quick escape from cattle
 - a chain limiter on the gate so the operator isn't hit or crushed if cattle kick the gate
 - concertina/folding rear doors that reduce the opening for cattle to be able to make contact with the operator during through-loading
 - an external hand rail positioned on the side of the crate, instead of holding onto the crate panel.
- Reduce stress in cattle using cattle handling techniques and appropriate lighting levels inside crate.

Reduce hazardous manual tasks

Minimise effort required and awkward postures to reduce stress on the body. For example:

- reduce effort by using automated or assistive devices, for example pneumatic closing ramps, spring loaded flaps, chain limited gates
- position the crate's hand-holds, latches and other features to minimise awkward postures
- select closing mechanisms that are reliable, smooth action and require minimal effort
- maintain operating mechanisms in good order to avoid excessive and unnecessary effort
- use devices with smooth and reliable mechanisms for example latches, pins
- have a foot operated opener for the internal gate
- use a long handled opener for internal gate
- provide adequate water pressure to hose down crate.



Minimise slips, trips and falls

Install and maintain non-slip work and access surfaces for use in various weather conditions and under a build-up of effluent by:

- using non-slip, easy to clean and non-bruising materials throughout, for example avoid sharp and protruding sheeting, ensure good drainage, and ensure walking and access surfaces provide good grip to footwear.
- designing better effluent and water drainage to minimise mud, pooling and slippery floors, manage effluent and reduce the cleaning effort, for example by using drainage channels in flooring.
- having walkways and hand/foot hold surfaces to prevent capture of mud and have sufficient grip to reduce slipping in wet or muddy conditions.
- providing adequate lighting inside and outside of crate so operators can see any safety hazards, access ways and work areas and check cattle. Lighting should not be hand-held to allow operators to use both hands when climbing ladders and other structures.
- regularly remove waste and clean floor and walkways to reduce slipping and keep its non-slip qualities.
- allowing sufficient curfew time for the livestock before loading to minimise effluent.

Compatibility with other crates and structures

Improve compatibility with other crates and loading ramps to avoid gaps between flaps, ramps and the crate where an operator or cattle could fall or escape through. This includes:

- consistent positioning and dimensions of doors within the crate fleet to avoid gaps and other issues at regularly used loading ramps. Please see *Guide to safe design of livestock loading ramps and forcing yards* for information on ramp dimensions
- consistent placement of pins and latches within the crate fleet to reduce errors and risks for operators.



Avoid crush or pinch points

Eliminate potential crush or pinch points, for example, near gates, ladders and flaps, when operating various parts of the crate.

External walkways and cross loading facilities

Structures designed to eliminate the need for operators to be on the sides or top of the crate to reduce work-at-height risks, allow operators to clearly view and move cattle along ramps and operate gates on both decks. They can be found at high volume cattle loading and unloading facilities, wash bays and transfer areas. Good design features of these structures include:

- layered (or double) walkways to accommodate the upper and lower decks and catwalk
- rails for falls protection when loading or unloading including opening and closing gates and flaps
- non-slip walking surfaces that do not clog up with contaminants
- ability for use by a single operator
- good lighting in work areas and walkways to highlight hazards.

Reduce electrical risks: look up and live

Overhead power lines are difficult to see in bright sunlight or in low light. Always assume overhead power lines are energised.

- Keep cattle crates parked outside the power line's exclusion zone.
- Operators who access the top of the crate must also stay outside the exclusion zone.
- Avoid contact with power poles and stay wires.
- Signage should be placed on the cattle crate and in vehicle cabs to remind operators of the risks of overhead power lines. Contact Energy Queensland for signage examples.

Further information on exclusion zones is in the *Electrical Safety Code of Practice 2010 – Working near overhead and underground electric lines*.

Innovation and technology

Progressive technology in materials, design and information technology hardware may offer solutions. Consider the use of:

- alternative materials can reduce the weight of the crate's components, or how it is operated without compromising structural strength for example fibreglass reinforced plastic catwalk sections
- remotely operated systems to reduce the need to access the crate for example internal cameras, hydraulic or pneumatic remotely operated gates and flaps.

Maintenance of crate

Schedule regular maintenance of the crate's non-vehicle components, including:

- regular proactive maintenance programs for non-vehicle components of the crate including gates, hinges, springs, ladders, pins, latches and slam shut mechanisms to ensure all components work reliably, effectively, separate cattle from operators and minimise effort required to reduce strains
- regular cleaning of walkways and work areas to reduce slipperiness.

Training and supervision

An operator's training, induction and supervision to include:

- understanding animal behaviour and low stress animal handling approach and techniques to ensure a smooth flow and best practice handling of cattle by competent livestock handlers
- layout of crate and using safe loading procedures
- using a safe system of work by understanding relevant work health and safety hazards and risks
- how to report safety hazards and incidents.

Systems of work

Consider how the work will be done to reduce the risks associated with working around the crate. This includes:

- compatibility of gates and ramps with other facilities
- coordination of delivery with other parties for example abattoirs, saleyards
- driving hours and fatigue management
- working alone and in isolated and remote environments
- roadside inspection – when working near traffic or near electrical lines.



Consultation

From the start to finish, consultation between designers, manufactures, operators, and maintenance and cleaning staff is an essential part of managing health and safety risks and is a legal requirement.

Importantly, regularly communicate and consult with other supply chain parties such as saleyard operators, feedlots, and regular clients about how the use and maintenance of cattle crates can be improved.

Review and report

Periodically monitor and review relevant hazards, risks and controls and after any incident or near miss.

Further information

Legislation and Codes of Practice

Work Health and Safety Act 2011

Work Health and Safety Regulation 2011

Electrical Safety Act 2002

Electrical Safety Regulation 2013

How to manage work health and safety risks code of practice –2011

Work health and safety consultation, co-operation and co-ordination code of practice 2011

Electrical Safety Code of Practice – Working near overhead & underground electric lines 2010

Other relevant publications

Australian Livestock and Rural Transporters Association of Australia Guide to safe design of livestock loading ramps and forcing yards

Australian Standard AS1657 - 2013 Fixed platforms, walkways, stairways and ladders— design, construction and installation

Guide to electricity in the rural industry

Safe Work Australia Guide to managing risks in cattle handling

Further information is available at worksafe.qld.gov.au.

