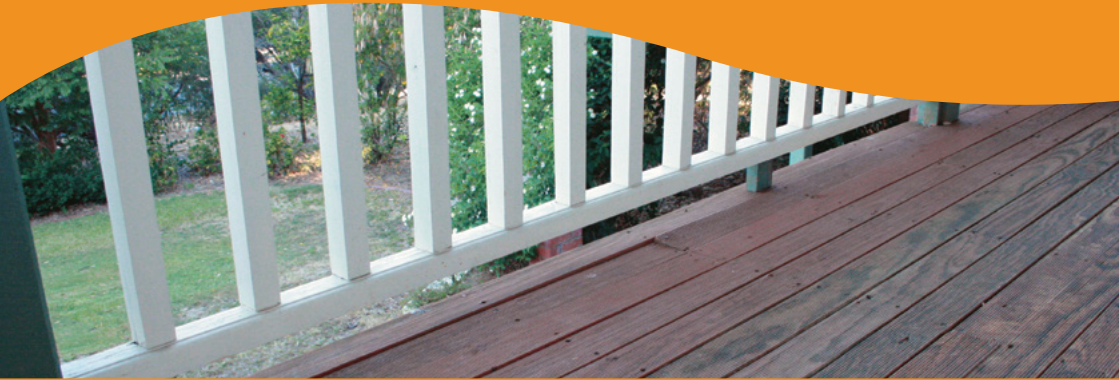




Government of **Western Australia**
Department of **Commerce**

Balconies and decks

a guide to maintenance



Building
Commission

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Acknowledgements

The Building Commission in Western Australia acknowledges the help given by the Victorian Building Commission and its "Balcony Maintenance Guideline".

Disclaimer

The material contained in this booklet provides general guidance and information only and is current at time of printing. Readers should not act or omit to act solely on the basis of anything contained herein. In relation to a particular matter, you should seek appropriate professional advice. The State of Western Australia and its servants and agents expressly disclaim liability, whether in negligence or otherwise, for any act or omission resulting from reliance on this document or for any consequence of such act or omission.

Western Australia has an ideal climate for entertaining outdoors, particularly around the home. In the past few years outdoor living areas have become even more popular, with most home extensions and new home designs incorporating alfresco areas, decks or balconies.

Tragically, the incidence of balcony collapses has also increased with some serious injuries and even deaths resulting from structural collapses and balustrade faults.

This brochure will assist owners with the safety aspects of balconies, decks and other external structures which may be of a sufficient height above ground level to put family members and friends at risk, in the event of a collapse or other structural fault.

Owners should check their balconies and decks are in a safe condition at all times. Any balcony has the potential, if not well designed, constructed and maintained, to fail at some stage.

The human, legal and financial implications for owners can be significant.

What can make balconies and decks unsafe?

Unsafe balconies and decks are a hazard and can place your family, friends, employees and visitors at risk of suffering serious injury or death.

There are many things that can affect the safety of a balcony or deck over its lifetime.

Insects

Timber strength and condition can be affected by insect attack, such as termites and European House Borer (EHB).

For more information on European House Borer please visit the EHB Response website at www.ehb.wa.gov.au

Wet rot

Timber is affected by water. Wet rot can occur when timber is in constant contact with the ground or another timber member in the presence of moisture.

Seaside and corrosive effects

Corrosive environments, particularly in areas near coastlines, can affect unprotected steel structures, reinforcing steel and fixings such as bolts and fixing plates.

Loadings

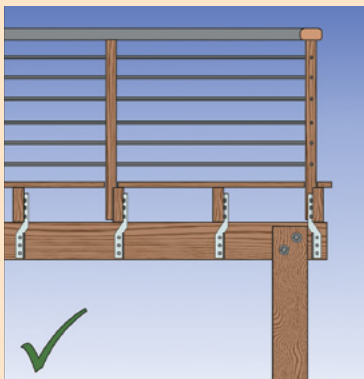
Large pots, water features, furniture and the like provide additional loads for a balcony to support, for which the balcony may not have been designed.

What can I do to ensure my structure is safe?

Check if your balcony or deck has been designed and built correctly. Request a copy of the building approvals and plans from your local government and compare them to the actual structure. You could also have it inspected by a structural engineer or other suitably qualified building practitioner.

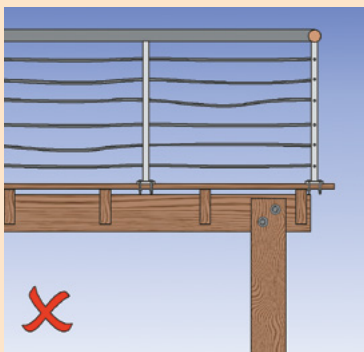
Materials can deteriorate when exposed to the elements. Fixings such as bolts and screws, can loosen or corrode over time. A visual inspection on a yearly basis should identify any potential problems. Some risk factors to look out for are:

- pooling of water on the balcony or deck surface;
- balustrades that are fixed to the balcony's or deck's top surface and not fixed directly to the main supporting structure;
- tops of solid balustrades and balustrade fixings at wall junctions which may be loose or not adequately fixed;
- cladding that finishes hard against the balcony or deck may contribute to wet rot;
- cladding or lining board that is fixed to the balcony or deck which prevents visual inspection of the supporting members and connections of the structure; and
- beams that span long distances without any supporting posts or columns.



An example of floor joist spanning over supporting beams and the balustrade supports being connected directly to the supporting structure. The tension of the balustrade wire is tight.

Where the balcony or deck floor is more than 4m above the surface beneath, any elements within the balustrade must not make climbing possible.



An example of floor joists fixed in between beams and the balustrade supports being connected directly to the decking. The tension of the balustrade wire is too loose.

Most of the time, the decking is only held to the floor joist with a couple of nails and could easily lift up when someone leans against the balustrade.

Timber balconies and decks

The safety of elevated timber balconies and decks should be a primary concern for any building owner, whether the structure is attached to a private home, a restaurant, tavern or other place where people congregate.

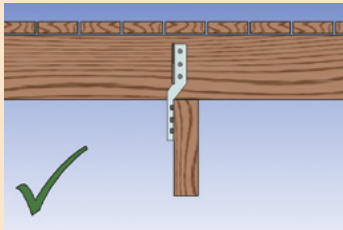
Timber is susceptible to insect attack and decay if not protected in some way. Treated timbers can provide resistance to deterioration for an extended period of time however, they still require inspection and maintenance.

Wet rot is a particular danger. A properly applied stain or paint finish can restrict water entry through the faces of timber members, but gaps and joints and exposed end-grain provide a ready place for moisture to penetrate, especially in coastal areas.

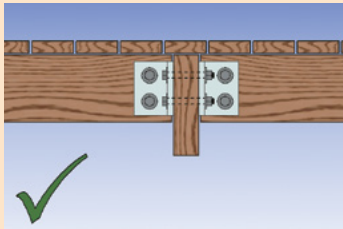
A well maintained timber balcony or deck should last for at least 20 years. The following tips may be useful:

- Look for changes in the structural members. Does the timber appear to bend or warp?
- Are there damp patches or discoloration? Test the timber by probing with a sharp object like a screwdriver. Decayed timber may feel soft and spongy.
- Check handrails and balustrades by using a pushing and pulling action to make sure they are not rotted, corroded, loose or unstable.
- Make sure the structure is properly fixed to the building by pushing or pulling the main supporting beams or joists to check for signs of movement.
- Check for rot at the base of timber posts and the connection points to beams. Check brackets and bolts for signs of looseness or rust. Water should not pool at the base of the post or at the wall support.

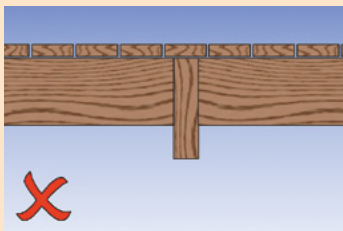
- Gain access underneath and check connection points at the beams with a screwdriver or other sharp object for deterioration. Timber is most susceptible to rotting where two pieces of timber join. Examine brackets and bolts to make sure they are not loose or rusted.



Floor joists that rest on top of beams (also called bearers) are inherently safer because the transfer of decking loads to the bearers does not depend on the fixings.

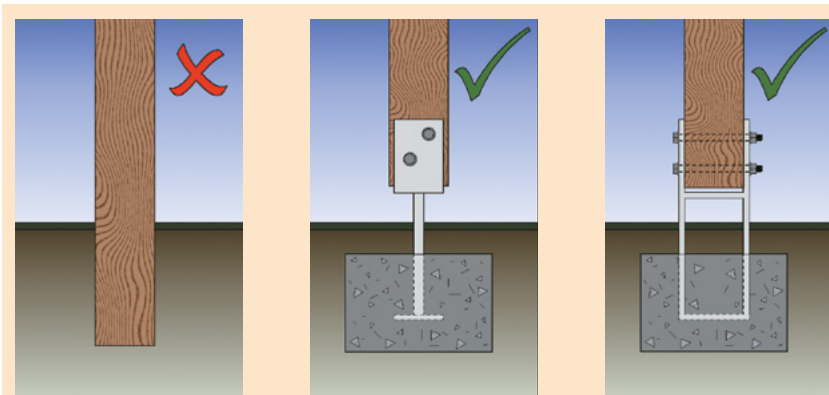


Floor joists that are fixed in between beams require more visual inspections and maintenance. Look for thick steel plates with at least two bolts in each piece of timber or properly fixed manufactured hanger brackets.



This type of support may be weak if the fixings are not the right size or not fitted correctly for the load.

- Certain timbers such as oregon or untreated pine are more susceptible to external environments and are not suitable for the construction of balconies and decks. If these timbers are used in your balcony or deck, introduce a regular and thorough maintenance schedule or consider replacing the timbers with structural timbers more suitable for external environments.
- Make sure that timber posts are attached to concrete footings using proprietary metal brackets or stirrups and have adequate protection from insect attack and rot. Steel posts must be securely anchored to the foundation by being embedded into concrete footings.



Untreated timber posts placed directly into the ground or cast directly into concrete footings are more susceptible to insect attack and rot.

Galvanised metal brackets or stirrups which are cast into concrete footings can stop wet rot from occurring around the base of timber posts. With adequate clearance from the ground, the stirrups can be useful as a termite barrier.

Concrete balconies

All exterior concrete balconies are susceptible to deterioration, though unlike timber balconies, this deterioration isn't always as obvious. Cracking and flaking concrete and corrosion of the reinforcement are signs of decay. Small cracks in a concrete surface may look harmless, but gaps and joints provide a ready place for moisture to penetrate, especially in coastal areas.

A well maintained concrete balcony should last for 40 to 50 years. The following checks may be useful:

- Look for signs of deflection. If the balcony leans, there is a problem.
- Examine the underside of the balcony. Rust stains or exposed steel reinforcing are signs of a serious problem.
- Check handrails and balustrades by using a pushing and pulling action to make sure they are not rotted, corroded, loose or unstable.
- The presence of spalling, where chunks of concrete are flaking off or cracking, may be a serious problem and needs to be inspected by an expert, such as a structural engineer.

What if there is a problem?

If there appears to be anything suspicious about the stability of a balcony or deck, you should avoid the area.

It is recommended that you contact a structural engineer or other suitably qualified building practitioner to inspect the structure and determine the full scale of the problem.

Who can I contact to undertake an inspection of my balcony?

There are a number of people who may have the skills to inspect balconies and decks and to provide advice on their safety and maintenance. These include:

- Building Surveyors
- Building Inspectors
- Structural Engineers
- Architects
- Registered Builders.

Industry associations may also provide advice on appropriate building practitioners. If you are engaging the services of a building practitioner to inspect your property, check the person has the relevant skills or qualifications and can provide evidence of insurance.

What if I buy a building with a balcony or deck?

If you are considering buying a property with a balcony or deck, have the building checked by a structural engineer or other suitably qualified building practitioner.

Check the relevant building approvals as this will help you understand when the structure was built and the current or future maintenance that could be required.

Building owners who purchase illegally built or unsafe balconies or decks are at risk of potential law suits and could find themselves at risk of voiding insurance as the responsibility rests with the owner for building maintenance.

Unsafe balconies and decks are a hazard and can place your family, friends, employees and visitors at risk of suffering serious injury or death.

I'm thinking of constructing a balcony or deck. What do I need to consider?

Your local government must approve the construction of a balcony or deck before any work can commence. It is always recommended that you engage the services of a suitably qualified building practitioner to ensure the balcony or deck is designed and constructed for the purposes intended.

Balconies and decks must comply with the Building Code of Australia and if the work value exceeds \$20,000 you must use a registered builder.

There may be two parts to approval -

Planning Approval

This may be required if the deck is higher than the natural ground level or if there are potential issues of privacy involved. Some local governments require planning approval for all buildings or structures within their jurisdiction.

Building Approval

A building licence is required for all buildings and structures including decks and balconies. Building licences are issued by your local government. You need to submit to them detailed drawings and other information relevant to the construction of the proposed structure. In many instances a structural engineer's certification of the proposed structure will be required before approval is granted.

Contact your local government to check the requirements for your area.

Does my insurance cover a balcony collapse?

Check the wording of your household insurance policy so you are aware of what you are covered for and what your rights and responsibilities are under the policy.

Most insurance policies require owners to keep their buildings in good condition, or they run the risk of voiding their insurance. In general terms, this means that buildings should be structurally sound, watertight, secure and well maintained.

Owners of buildings with illegally built or unsafe balconies or decks have the potential for legal action to be taken against them.

Under many household insurance policies a balcony or deck collapse may not be an insured event and owners can be left with the emotional and financial burden of law suits where a failure causes damage to people and property.

Damage caused by lack of maintenance, deterioration, wear and tear, defects, omissions, material, product or structural failures, insects, corrosion, rusting, rotting or the like may be excluded under many policies.

What should owners do?

As a safety measure, all home owners and commercial property owners with balconies or decks should ensure that:

- the balcony or deck is constructed in accordance with the approved building licence.
- it is inspected on a regular basis for any warning signs of potential collapse.
- a maintenance program is introduced to extend its design life; and
- where there is a doubt or a problem, it is inspected by a structural engineer or other suitably qualified building practitioner, and immediate actions are taken to solve the problems.

Balcony and deck maintenance check list

Use this check list as a quick reference for areas of your balcony or deck that may require regular inspection and maintenance. If you are in doubt as to the safety of your balcony and deck, you should seek the services of a qualified practitioner.

Stairs, handrails and balustrades

- Check for signs of rot, corrosion, looseness or instability.
- Stairs, handrails and balustrades should be securely fastened at all points. Particular attention should be paid to balustrades that are fixed to the balcony's top surface and not fixed directly to the main supporting structure.
- Look for signs of sagging or loss of tightness where wire balustrading has been used.

Timber balconies and decks

- Check the timber for signs of decay, rot or insect attack eg is the timber spongy when probed with a sharp object?
- Look for any signs of bending, warping, sagging and splitting.
- Check to see if the timber needs a reapplication of stains, oils or paints.
- Check all connections for signs of deterioration such as at beam to post connections and for any loose or rusting fixings.
- Check for loose decking boards or flooring.

Concrete balconies

- Look for signs of deflection (leaning).
- The presence of spalling, where chunks of concrete are flaking off or cracking.
- Examine the underside of the balcony for rust stains or exposed steel reinforcing.

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