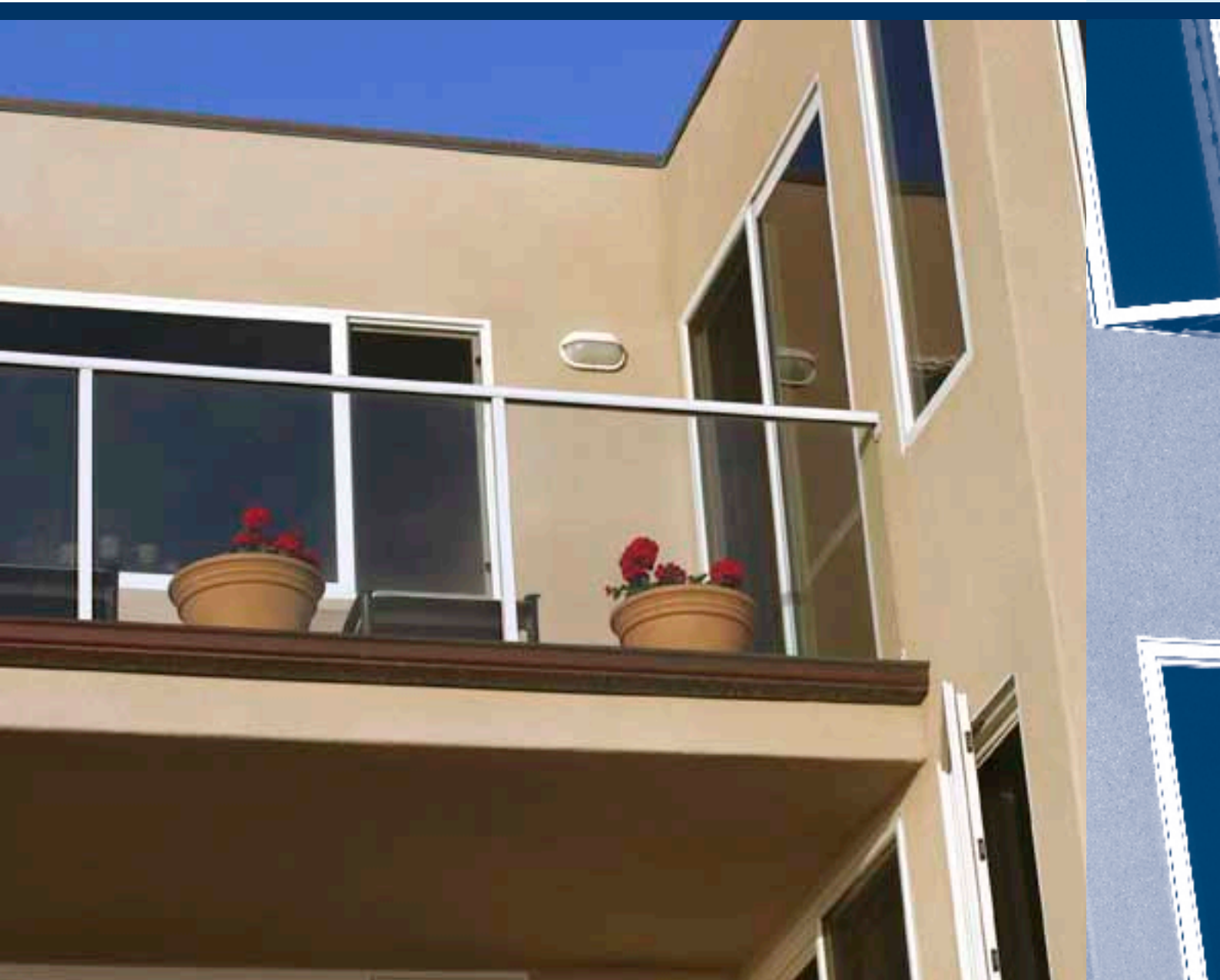


What you need to know about

# Maintenance of Balconies



Inspection statistics have revealed numerous rotting balconies that could cause severe injury or death in the event of a collapse.



## Why is there a need for this guideline?

This guideline has been developed for the safe use, inspection and maintenance of balconies. Note that any reference to a balcony may also be read to mean deck, as the issue relates to any such external structure exposed to the elements and sufficiently high above ground level to harm people in the event of a structural collapse.

Inspection statistics have revealed numerous rotting balconies that could cause severe injury or death in the event of a collapse. The risk is greatest when they are heavily loaded at public functions, parties or similar occasions where people may congregate outside.

Independent research conducted by the Building Commission in 2009 shows that 45 per cent of Victorian households have a deck and or balcony. Almost a third of these, 27 per cent of decks and 33 per cent of balconies, were built between 1960 and 1990, when balconies became prevalent and there was widespread use of inappropriate timber, lack of proper building approval, inadequate structural design and poor workmanship. Research also tells us that 39 per cent of respondents were not aware that decks and balconies require checks. In the last few years balcony collapses in several states and territories have resulted in a number of injuries and deaths.

**Any balcony has the potential, if not appropriately maintained, to fail at some stage. The legal and financial implications for home owners are enormous.**

This guideline is just as relevant to any buildings, other than houses, that incorporate balconies (for example, restaurants, hotels, clubs, apartments etc).

## What can affect balconies?

There are many things building owners should be aware of that can affect the structural adequacy of a balcony over time. These may include:

- **Termites**  
Timbers can be affected by insect attack. In areas of termite risk, the appropriate timber and treatment are needed, regardless of whether the council has declared the area likely to be subject to termite attack.
- **Wet rot**  
Timber is affected by water. Wet rot occurs when a timber member is in constant contact with the ground or another timber member in the presence of moisture.
- **Seaside and corrosive effects**  
Corrosive environments can affect unprotected steel structures, reinforcing steel and fixings such as bolts and fixing plates particularly in areas near coastlines.
- **Loadings**  
Large pots, water features and the like, provide additional loads for a balcony to support, for which the balcony may not have been designed.

## What should owners do?

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

- It is constructed following the issue of a building permit
- 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, an inspection by a Structural Engineer or other suitably qualified building practitioner, and remedial measures, as necessary, are arranged.

## How to look out for potential balcony collapse

### What can I do to ensure my balcony is safe?

It is critical to ascertain whether your balcony was built properly. One way is by checking council records for proof that building approvals were issued. Another way is by having the balcony inspected by a Structural Engineer or other suitably qualified building practitioner. Materials can deteriorate when exposed to the elements. In addition, fixings (such as bolts and screws) can loosen or corrode over time.

A general visual inspection on a yearly basis should identify any problems. Some risk factors to look out for are:

- Pooling of water on the balcony surface
- Handrails fixed through the balcony's top surface
- Tops of solid balustrades and fixings at wall junctions
- Cladding finishing hard against the balcony
- No threshold between the building and the balcony.

### Timber balcony

The safety of elevated timber balconies should be a primary concern for any building owner. All exterior timbers are susceptible to insect attack and decay. Only pressure-treated pine is resistant to deterioration for an extended period of time.

Wet-rot is a particular danger. A properly applied stain or paint finish will 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 seaside areas. Most well-maintained timber balconies should last for at least 20 years. The following tips may be useful:

- Observe for any compression or deformation of the structural members. Test the timber by probing with a sharp object like a screwdriver. Decayed timber may feel soft and spongy
- Gain access underneath and check connection points at the beams with a screwdriver for deterioration. Timber generally rots where two pieces of timber join. Examine brackets and bolts to make sure they are not loose or rusted
- Make sure the structure is properly fixed to the building or that the members run into the building
- Check the base of timber posts for rot and again check brackets and bolts for signs of rust

The Monash University Accident Research Centre suggests three factors to a structural failure of decks and balconies; structure is compromised, goes unchecked and is exposed to loads exceeding its capacity.



- Ensure that posts are securely anchored to the foundation by being embedded into concrete footings, or being attached to concrete footings using proprietary metal brackets
- Ensure that water does not pond at the base of a post or at a wall support
- Check handrails and balustrades to make sure they are not rotted, corroded, loose or unstable
- Certain timbers such as oregon or untreated pine are more susceptible to external environments and may require a more rigorous maintenance schedule.

### Concrete balcony

All exterior concrete balconies are susceptible to decay although this may not be readily evident. Cracking and flaking concrete and corrosion of 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 seaside areas.

A well-maintained concrete balcony should last for 40-50 years. The following tips may also be useful:

- Look for signs of deflection. If the balcony leans, there is a problem
- Examine the underside of the balcony. Rust stains on exposed steel reinforcing are signs of a serious problem
- Check handrails and balustrades 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.

### What if there is a problem?

If there is anything suspicious about a balcony's stability, it is advised that you avoid the area and, most importantly, restrict access to the balcony. It is recommended that you contact a Structural Engineer or other suitably qualified building practitioner, who will be able to inspect to determine the full scale of the problem.

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

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

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

Industry associations may also provide advice on appropriate building practitioners. Owners who engage a building practitioner to inspect their property should ensure that the person has the relevant skills and can provide evidence of insurance.



### **What if I buy a building with a balcony?**

Agents and anybody considering buying a property with a balcony should have the building checked by a Structural Engineer or other suitably qualified building practitioner, as the risk to family, friends, employees or visitors can be considerable. They are advised to seek the details of any relevant building permit to ensure it was legally approved. This will assist to gain an understanding of when the balcony was built and the maintenance that could be required.

Buildings sold with illegally built or unsafe balconies provide a potential risk of law suits. Owners could also find themselves at risk of voiding insurance, as they have a responsibility for maintaining their buildings in good order.

### **What if I build a new balcony or replace my balcony?**

Where an owner of a building proposes to replace or build a new balcony, they should seek the appropriate approvals to ensure the balcony is designed and constructed legally.

This will include having the balcony appropriately designed and documented. It may also include involving a Structural Engineer to ensure the design of the balcony is sufficient and if fixed to the building, the building can support the appropriate structural loads. These include the maximum number of people likely to use the balcony and the installation of fixtures such as large pot plants.

A building permit must be obtained from a building surveyor who will check the documentation and ensure that the design complies with the building regulations.

Further information on the building permit process can be obtained from your local council or a Private Building Surveyor.

Ongoing maintenance of a home balcony or deck rests with the homeowner and if a balustrade fails or the structure collapses, the legal, financial and health implications can be enormous.



## What can I do to extend the life of a concrete balcony?

A number of design features can be incorporated to extend the life of a balcony constructed of concrete, or having an impervious sheet floor finish. These include:

- Providing adequate falls across the surface
- Ensuring an adequate difference in level between the balcony and indoors
- Providing a durable floor surface membrane and appropriate flashing
- Providing effective drainage and ensuring careful detailing around drains to ensure inlets are below the level of the surrounding balcony and can be cleaned easily
- Providing overflows in case drains become blocked, or their capacity is exceeded
- Providing correct handrail fixing
- Durability of concrete, adequate cover and protection of reinforcing steel.

## What can I do to extend the life of a timber balcony?

Timber used for construction of balconies should have the level of durability appropriate for the relevant climate and expected service life and conditions: that is, exposure to insect attack or to moisture, which could cause decay.

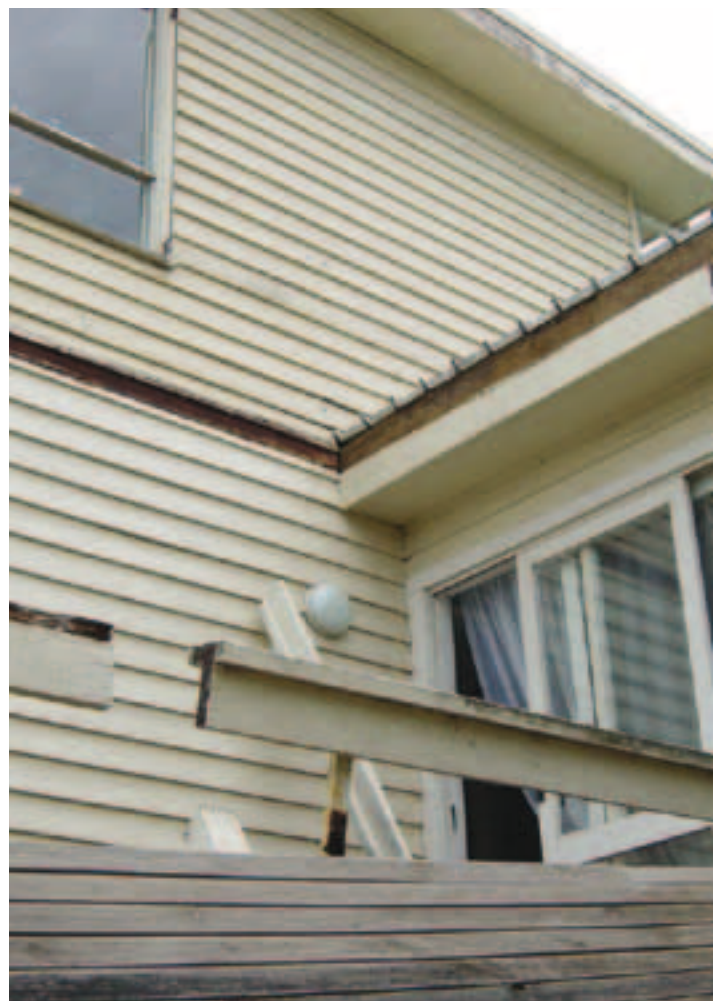
All timber should be protected against weathering by the application and proper maintenance of coatings such as paints, stains, water-repellent preservatives and the like. Clear finishes may provide limited protection against weathering, as many finishes deteriorate when exposed to sunlight. Weathering is essentially a surface effect (not decay), causing aesthetic rather than structural problems.

## What if I have a heritage building with a balcony?

If a building with a balcony is included on a Heritage Register or covered by a Heritage Overlay in a planning scheme, then its heritage significance needs to be taken into account when devising balcony repairs or remedial work. Inquiries regarding this matter should be made to Heritage Victoria on phone: 8644 8800 or to the relevant local council.

## Acknowledgements

The Building Commission developed these guidelines in conjunction with Archicentre, the Victorian Municipal Building Surveyors Group, the Victorian Association of Forest Industries, Cement Concrete and Aggregates Australia, and included input from Structural Engineers.



## Need more information?

### REFERENCES

Timber decks – Design and Construction Manual – (former) Timber Promotion Council.  
Now available from Wood Products Victoria – Telephone: 9611 9044

AS 3600 – 2001 Concrete structures – Standards Australia International

AS 1684 – 2006 Part 4 Residential timber-framed construction – including information on durability  
of timber in Appendix C - Standards Australia International

### CONTACTS

For balcony safety, call your local council, Archicentre, a building practitioner or contact the Building Commission:

Telephone: 1300 815 127 Facsimile: 9618 9062  
Goods Shed North, 733 Bourke Street, Docklands 3008  
PO Box 536, Melbourne Victoria 3001

[publicrelations@buildingcommission.com.au](mailto:publicrelations@buildingcommission.com.au)  
[www.buildingcommission.com.au](http://www.buildingcommission.com.au)