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Balconies, decks and balustrades

This VBA information sheet is for any building that has a balcony, deck or balustrading. Home and property owners should regularly check and maintain their balcony, deck and balustrades. If not properly built and maintained they have the potential to be a safety and danger issue.

Before you start

Where a building owner wants to replace or build a new balcony or deck, they must ensure the balcony is designed and constructed legally. That usually means applying for a building permit.

It will also include having the balcony appropriately designed and documented. A Structural Engineer can ensure the design of the balcony or deck meets building codes and requirements. They will check that if the balcony or deck is fixed to a building, the building can support the structural loads.

Part of the design will include allowances for the maximum number of people likely to use the balcony and the installation of features like large pot plants or furniture.

Applying for a building permit

Once you have the design, you will have to apply for a building permit. If the work is valued at over \$5000, you must have a registered builder do the work.

A building permit is obtained from a building surveyor, who will check that the design complies with Victorian building regulations.

If you do building work without a valid building permit, there is a penalty of up to \$10,000.

Further information on the building permit process can be found from your local council.

What if I'm an owner-builder?

As an owner-builder, you must still obtain a building permit for the work.

What can affect balconies, decks and balustrades?

There are many things building owners should be aware of that can affect the structural adequacy of a balcony, deck or balustrading.

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 –

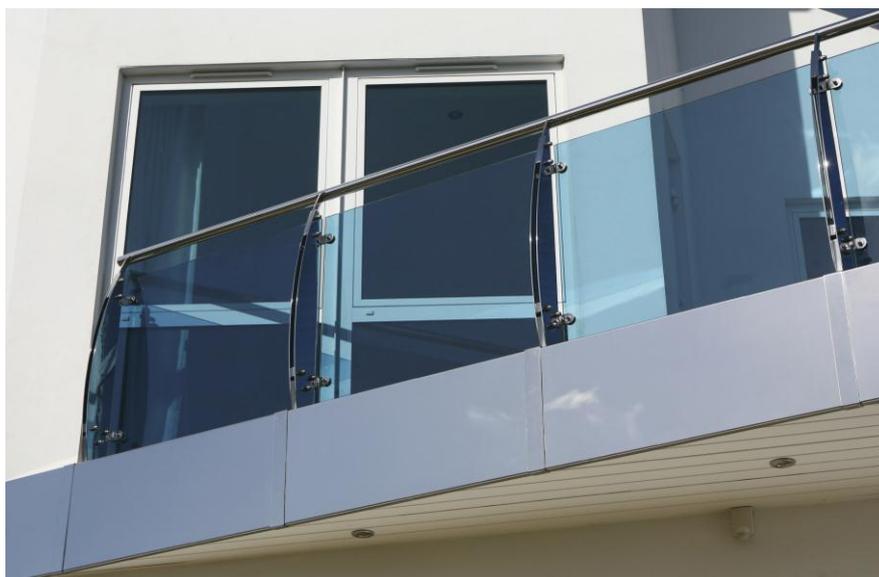
Corrosive environments can affect unprotected steel structures, reinforcing steel and fixings, such as bolts and fixing plates, particularly in areas near coastlines.

Loadings – Groups of people, large pots, water features and the like, provide additional loads for a balcony to support. The balcony may not have been designed to support extra weight and if overloaded, can cause the balcony to collapse.

What should owners do?

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

- 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 are arranged.



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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.

If there is anything suspicious about a balcony, deck or balustrade's stability, it's advised you avoid the area and restrict access.

Contact a Structural Engineer or other suitably qualified building practitioner, who will be able to inspect and determine the full scale of the problem.

Balconies

Timber balconies

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.

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 beams run into the building
- Check the base of timber posts for rot and again check brackets and bolts for signs of rust
- 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.

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 and water-repellent preservatives. 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.

Concrete balconies

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 a structural engineer or suitably qualified person or organisation familiar with concrete structures.

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 sufficient falls across the surface
- Ensuring an acceptable difference in level between the balcony and indoors
- Providing a durable floor surface membrane and appropriate flashing
- Ensuring effective drainage and careful detailing around drains so 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
- Having correct handrail fixings
- Durability of concrete, adequate cover and protection of reinforcing steel.

Balustrades

Balustrades or handrails are often made of concrete, steel and timber. Ensure your balustrade or handrail complies with building regulations and

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standards by checking the height, tension and fixings.

Height

Current height requirements stipulate balustrades must be at least one metre (1m) high, measured from the adjacent finished floor surface.

Check for height compliance, particularly in situations where tiles or some other paving or floor finish may have been applied after the balustrade was installed.

Tensioned wire

Where balustrades using steel or timber posts and handrails or tensioned wire is installed, it's essential to check the size and tension of the cable to meet the building code.

Also check the distance between cables and any other supports that form the balustrade.

Steel or wood should be solid in order to properly support tensioning.

Toughened glass

Balustrades with toughened glass panels are used in many commercial and domestic situations. It's important to ensure the correct glass has been used and the means of attaching the glass is regularly checked to ensure it is safely attached to the balustrade structure. Any cracked or broken glass panes should be immediately replaced to minimise safety issues.

Fixings

Make sure that fixings, such as metal stirrups to floors, bolts and screws are tight. Loose fixings on balustrades or handrails are unsafe and can result in injury.

Rust and corrosion

Balustrades or handrails using steel rails or posts can be susceptible to rust or corrosion. By painting steel with an anti-rust coating as protection against weather elements and inspecting them regularly you may avoid unsafe rust occurring.

Timber balustrades are more susceptible to the elements than other materials. This is particularly the case in coastal areas where the combination of salt and rain can be damaging.

Who to contact for more information

If you would like more information about balconies, decks and balustrades, contact the VBA on 1300 815 127 or customerservice@vba.vic.gov.au.

You can search for a registered building practitioner at www.vba.vic.gov.au.

To contact your local council, go to <http://www.dpcd.vic.gov.au/localgovernment/find-your-local-council>