



COATING DURABILITY

The durability requirement of a coating might appear quite simple on first glance but, in reality, it is a bit more complex.

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Coatings are widely used in buildings as a decorative finish and to enhance appearance, for example, a clear coating on timber. They are also used to:

- impart a specific performance to a surface, e.g. water resistance
- protect the substrate from deterioration, e.g. a corrosion-inhibiting coating
- protect a surface or material from damage from a particular circumstance, e.g. fire
- modify the performance of a surface, e.g. a coating on a combustible surface or material that inhibits flame spread or the development of smoke
- waterproof an exterior or interior surface, e.g. a waterproof membrane on a roof or under tiles.

What durability is needed?

To determine if there is a specific durability requirement under the Building Code, the first question to ask is 'has the coating been applied to enable the substrate to meet a specific performance function of the Building Code?'

If the answer is *no*, there is no specific minimum durability requirement under the Building Code. The client or owner will have expectations as to the life of the coating, but it is not a mandatory requirement.

If the answer is *yes*, then there is a specific minimum durability requirement for the coating under the Building Code. The difficult part is to decide what that minimum durability requirement is.

Building Code requirements

BRANZ's interpretations of the durability performance requirements of the Building Code Clause B2 *Durability* for applied coatings are:

- the life of the building, being not less than *50 years*, for coatings applied to building elements that are difficult to access or replace, and failure of those



Minimum durability levels apply where a coating is required for a substrate to meet a specific Building Code performance requirement.

building elements (coating) to comply with the Code would go undetected during both normal use and maintenance of the building, the reason being, if the element is difficult to access or replace, it is also difficult to access for coating maintenance

- not less than *15 years* for coatings that are applied to building elements that are moderately difficult to access or replace, and failure of those building elements to comply with the Building Code would go undetected during normal use of the building, but would be easily detected during normal maintenance
- not less than *5 years* if the coating is easy to access and replace and coating failure would be easily detected during normal use of the building.

Some real-life examples

A *50-year minimum* is likely to be required for:

- an anti-corrosive coating applied to a flashing or masonry lintel bar installed behind the cladding because the failure of the coating would go undetected during both normal use and maintenance of the building
- an intumescent coating applied to steel that is concealed behind a framed wall or is located within a skillion roof



Access is readily available to recoat the face of the steel shown, but what about the coating durability on the rear face, which appears relatively inaccessible?

- a waterproofing membrane to a below grade basement wall or to the slab edge rebate for masonry veneer cladding.

A *15-year minimum durability* is likely to be required for:

- an intumescent coating applied to steel that is located within an accessible roof space
- a waterproof coating applied to a substrate before wet area tiles are laid – remember that the waterproof coating is required to remain durable as long as the tiles remain durable, which could be well in excess of *15 years*.

A *5-year minimum durability*, with normal maintenance, applies to coatings that allow ready access for maintenance or recoating, such as:

- the external paint finish to a wall cladding such as fibre-cement bracing panels, concrete masonry and H3.1 weatherboard (to comply with Clause B1 *Structure*)

- a coating applied to make a wet area surface impervious
 - a fire-retardant coating in an exitway.
- No specific or mandatory durability* requirement will apply to a coating that is:
- solely decorative, e.g. to the plasterboard wall linings in a bedroom
 - a cladding such as profiled steel and H3.2 treated timber, which are considered able to meet Building Code durability and weathertightness performance requirements without a coating. ■