



## Maintenance Benefits (Optimising the Service Life of Timber)

Timber, like all materials, degrades and becomes unserviceable if not maintained correctly. It is important during design to choose the appropriate timbers and finishes for the application to optimise the service life of the timber.

### Selecting the Right Timber Product

Timber has a wide range in durability depending on the species. Four durability classes classify natural timber, with Class 1 being highly durable and Class 4 being non-durable. It is necessary to match the durability of the timber with its end use, considering its exposure to weather and location.

**Choosing the right timber for the right purpose, coupled with good design and construction, reduces the need for maintenance.**

Timber buildings require protection from moisture and insects, and good design measures are essential. The placement of a barrier between the timber and the source of moisture, such as using appropriate overhangs, and not placing timber directly into the ground, can achieve moisture protection. Good ventilation and limited enclosed spaces also improves moisture protection.

Sound construction practice is one of the most important factors to achieving a long service life in a building. Having tight joints between products and materials, and avoiding any gaps or leaks can greatly reduce the ingress of moisture from external sources. This is particularly important for protecting the timber used in internal applications.

### Quick Facts

1. Selecting the right timber product for purpose will achieve optimal design life and minimise maintenance requirements.
2. Best practice timber design and construction can significantly reduce the need for maintenance and repair in timber structures.
3. Timber preservative treatments can greatly increase service life. For example, treating timber decking can extend the time until decay sets in from two years to between 35 to 70 years (Wood Solutions, 2017).
4. Good monitoring regimes will ensure that necessary maintenance takes place at the appropriate intervals.

In external application, shielding and capping extend the life of timber. Shielding provides overhangs that shield the sides of timber and capping places a barrier or sloped edge on the top of timber to prevent water from sitting on top of the timber. Timber joints should also have minimal contact points and avoid techniques such as housed joints as they provide areas for water to gather. Timber can also be entirely clad in a more moisture resistant, easily replaceable material such as aluminium cladding.

For guidance on selecting the right timber for a particular purpose, refer to the publication *Construction timbers in Queensland: properties and specifications for satisfactory performance of construction timber in Queensland – Class 1 and Class 10 building* (Queensland Government, 2017) and the [website on QTimber](#) which is the digital version of the publication.

## Treatment and Finishes

The use of **timber that has been correctly seasoned, treated or finished can greatly reduce the maintenance schedule** for timber buildings.

Seasoning or drying of the timber is important. Drying of timber reduces the risk of decay, and decay is more likely when the moisture content of timber exceeds 20 percent. Construction standards specify a moisture content of between 10 to 15 percent, as this is the level where all the free moisture has evaporated, and the timber has reached a steady state with its surrounding environment.

Applying a chemical treatment to timber also increases its durability. Most structural timber available in Queensland is treated. Using treated timber is important for timber exposed to the elements, but it also provides protection against insects and fungi.

Finishes include products like paints and stains. Finishes provide some protection from moisture but do not provide a complete barrier. Checking can occur in both seasoned and unseasoned timber, particularly in dry or hot conditions (such

as direct sunlight). Checking is when timber dries unevenly and it results in a crack forming on the surface of the timber. These cracks do not affect the structural integrity but can provide an entry point for moisture. It is important to maintain any finishes.

## Monitoring

All buildings require monitoring and maintenance and this is equally important for a timber building as a building constructed of other materials. For example, steel can be prone to corrosion and concrete can settle and crack. Timber used in the exterior does require more frequent maintenance as the moisture movement expands and shrinks the timber causing a breakdown of the protective coating. Timber used internally and protected from the elements requires little maintenance.

Some recommended maintenance schedules include:

- Checking of structure and cladding every ten years, or sooner if there was flawed construction or the environment is more hazardous;
- Finishes and chemical soil-based termite deterrents should be applied according to the manufacturer's instructions, and they should also be monitored to ensure they are effective;
- Annual checks for termite incursion to ensure deterrents are working correctly; and
- Checking plumbing systems regularly to prevent leaks which could damage timber.

## Further Reading

Queensland Government (2017) *Construction timbers in Queensland: properties and specifications for satisfactory performance of construction timbers in Queensland—Class 1 and Class 10 buildings*, Books 1 and 2.

Available at: [www.daf.qld.gov.au/business-priorities/forestry/using-wood-and-its-benefits](http://www.daf.qld.gov.au/business-priorities/forestry/using-wood-and-its-benefits)

Reardon, C., 2013. *Repairs and maintenance*. [Online] Available at: [www.yourhome.gov.au/you-begin/repairs-and-maintenance](http://www.yourhome.gov.au/you-begin/repairs-and-maintenance)

Wood Solutions, 2017. *Timber service life design*. [Online] Available at: [www.woodsolutions.com.au/system/files/WS\\_TDG\\_05\\_1\\_17.pdf](http://www.woodsolutions.com.au/system/files/WS_TDG_05_1_17.pdf)