

NATURAL DURABILITY OF WOOD

Natural Durability refers to the woods inherent ability to resist biological degradation such as fungus, decay and insect attacks. The extent of the wood's natural durability all depends on the species of tree, geographical region, the environment in which the individual trees are grown and the age of the tree. As the tree matures, sapwood is changed into heartwood and in this process, chemical and physical changes occur. The sapwood part is regarded as non-durable while the heartwood part ranges from slightly to highly durable. The durability depends on the wood species. There are commonly grown trees that are considered low natural durability such as softwoods (pine) and hardwoods (eucalyptus grandis/saligna). Due to the sapwood part of the timber being non-durable, it is important to ensure that this part is treated correctly in order to increase the durability of the timber. The long-term performance of the timber all depends on this natural durability and the treatability of the timber. When building with timber, it is important to look at all of these aspects and ensure timber is selected that will last.

If timber is fully protected from the environment (i.e. kept indoors free from moisture and insect attack), the timber could last for over 50 years. In the case of timber being used outside, the life expectancy will decrease and the natural durability of the wood will determine the life expectancy of the wood.

The table below shows the natural durability classification system for the probable life expectancy of untreated heartwood (this table is internationally recognized):

Natural Durability Class	Probable in-ground life expectancy (years)	Probable above-ground life expectancy (years)	Example of wood species
1	>25	>40	Eucalyptus paniculate
2	15 – 20	15 – 40	Eucalyptus cloeziana
3	5 – 15	7 – 15	Eucalyptus saligna/grandis
4	0 - 15	0 – 7	Pinus radiata, Pinus patula, Eucalyptus saligna/grandis

The actual performance of the above mentioned timbers is affected by the following factors:

- Presence of preservative chemicals
- Building techniques
- Climate and environment exposure