



TIMBER TOWNS VICTORIA

CARBON SEQUESTRATION

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide.

Australian forest and wood products store or sequester approximately 57 million tonnes of carbon dioxide which offsets around 10% of all greenhouse gases emitted in Australia. Carbon constitutes approximately 50% the dry weight of trees. When the wood from these trees is used in construction and other products, it gives carbon storage life for:

- 100 years in homes approx.
- 30 years in furniture approx.
- 30 years in railroad ties
- 6 years in pallets and also paper

Carbon stored in wood is only released back to the atmosphere when wood is burnt or decays.

Many factors contribute to the amount of carbon stored in trees including:

- Tree Species
- Growth Conditions in the environment
- Age of tree
- Density of surrounding trees

CALCULATING THE AMOUNT OF CARBON STORED IN TREES AND SAWN TIMBER

This formula can be used to obtain an average estimate of carbon stored over the life span of a tree, excluding carbon stored in soil. For this purpose, the following generalisations are made:

- 35% of the green weight of a tree is water
- 50% of the dry weight of a tree is carbon (after drying at 70°C)
- 20% of a trees biomass can be below ground level in roots = multiplication factor of 120%
- The carbon figure is multiplied by a factor of 3.67 to determine the equivalent amount of carbon dioxide.

A = Tree mass (kg of fresh biomass)

X = CO₂ sequestered per tree (kg)

X = A x 65% (dry weight) x 50% (carbon %) x 3.67 x 120% = X

CO₂ sequestered per tree per year (kg) = X / age of the tree (yrs.)

Reference: [Leys, Andrea. Southern Cross University 2011. Forest learning. Carbon and its storage in forest and wood products.](https://forestlearning.edu.au/images/resources/3_Carbon_and_its_storage_in_forest_and_wood_products.pdf)
[https://forestlearning.edu.au/images/resources/3_Carbon_and_its_storage_in_forest_and_wood_products.pdf](http://www.daff.gov.au/brs/publications/series/forest-profiles) Robinson, M. and Kile, G. 2007. Forests, wood and Australia's carbon balance. BRS. 2008. Australian Forest Profiles. Fact Sheet. Bureau of Rural Sciences (BRS), DAFF.
<http://www.daff.gov.au/brs/publications/series/forest-profiles>

| PO Box 152, Portland Vic 3305 | Phone: 0428 891 728 |

| Email: secretary@timbertownsvictoria.com.au | Website: www.timbertownsvictoria.com.au |



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