



Cross-Laminated Timber Constructions in a Sustainable Future – Transition to Fossil Free and Carbon Capture Technologies

<https://research.thinkwood.com/en/permalink/catalogue2696>

Author: Tellnes, Lars
Saxegård, Simon
Johnsen, Fredrik Moltu

Publisher: IOP Publishing Ltd

Year of Publication: 2020

Format: Journal Article

Material: CLT (Cross-Laminated Timber)

Topic: Environmental Impact

Keywords: Environmental Product Declaration
Carbon Capture and Storage
Climate Change
Life Cycle
Carbon Footprint
End of Life

Language: English

Research Status: Complete

Series: IOP Conference Series: Earth and Environmental Science

Summary:

Cross laminated timber (CLT) has recently increased in use as a building material for low carbon design and is often applied in small and multi-story buildings. Several studies have shown lower fossil related greenhouse gas emission than alternatives, but the life cycle emissions vary substantially between different CLT producers. These emissions are mainly indirect and thus climate change mitigation could reduce these emissions. Previous research shows that that biofuels and carbon capture and storage (CCS) are technologies that have the potential to reduce the climate impacts of the CLT life cycle. This study assesses the impacts on climate change from CLT with these technologies within the framework of environmental product declarations (EPD). In the short run, switching to fossil free fuels provides a reduction in the carbon footprint of CLT. In the long run, CCS at the end-of-life of CLT buildings can provide a net negative carbon footprint over the life cycle. This assessment on the use of CLT is mainly related to the Sustainable Development Goal SDG9 Industries, innovation and infrastructure and the indicator for CO2 emissions per value added, so the assessment in this paper is mainly focused on this goal. SDG7 on affordable and clean energy and SDG15 Life on land are also relevant.

Online Access: Free

Resource Link

<https://doi.org/10.1088/1755-1315/588/4/042060>

