

HIRSITALOT (LOG HOUSES) Janne Luotola, 13:20

[Image: Juha-Pekka Kervinen]

A log house passed a study with flying colours – it conserves the environment and the climate

The VTT Technical Research Centre of Finland has been studying how environmentally friendly and energy-efficient log houses are. Modern log houses have an even smaller carbon footprint during their lifespan, than compared to a traditional wooden house.

Throughout its entire lifespan, a log structure does not consume energy or produce carbon dioxide emissions as much as a similar ordinary wooden house. In their calculations, VTT took into consideration the energy consumption emissions during the structure's lifespan, the bioenergy produced as a side product, and the amount of carbon bound in the structure.

As far as the total energy consumption is concerned, a log structure is nearly on the same level as a traditional wooden house. When considering the energy consumption and carbon footprint caused during the manufacturing process of the construction materials, the situation changes. Construction materials have a great environmental impact.

“In our study, the greenhouse gas emissions related to log house materials were about a third smaller than those of basic wooden houses, during a 50-year lifespan,” said Antti Ruuska, a researcher at VTT.

If the carbon footprint calculations include the heating of a log house, the estimates vary greatly according to the method of calculation.

This new study compared a traditional wooden house, built in accordance with the energy efficiency regulations of 2013, and three new log houses; each built using different kinds of log. The thickness of the logs was 200, 243, and 270 millimetres, without any additional insulation. The walls of the wooden building had 250 mm of thermal insulation material. District heating was used as the main energy source in all these buildings.

“The structure with the largest, 270 mm logs, had up to 20 per cent smaller carbon dioxide emissions compared to the traditional wooden house,” said Mikko Löf, the leader of the technical group at Hirsitaloteollisuus.

According to Löf, these research results indicate that certain characteristics of logs will become even more pronounced, as future energy efficiency directives consider the environmental effects of materials.

The more timber is used in a structure, the smaller the house's lifetime carbon footprint remains.

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