

May 2nd 2016

Sustainable building materials produced with 100% bioenergy

The global consumption of energy keeps increasing. The construction sector uses a significant share of global energy – and a large part of this goes to the production of building materials. The Metsä Wood mill in Lohja, Finland, produces Kerto® LVL (Laminated Veneer Lumber) in a way that actually generates more bioenergy than is used in the process. The rest of the bioenergy is used by the surrounding town.

When it comes to energy efficiency in construction, the focus has so far been on the energy used to operate a building. “We have to evaluate the net energy balance of buildings over their whole life cycle and turn our attention to the production of the materials, which is the most energy intensive phase”, says **Matti Kuittinen**, architect and researcher from Aalto University.

Over 100% energy self-sufficient mill

The Metsä Wood mill in Lohja is a great example of the joint production of construction products and bioenergy. First, as much of the wood as possible is used for Kerto LVL. Part of the sawdust and wood chips generated in processing the engineered wood are used for pulp, and the rest for bioenergy production. A bio heating plant has been built next to the mill in order to capture the full potential of the production. The heat energy produced at the plant covers the needs of the mill – and the excess is provided to help meet the needs of the surrounding town, which makes the Lohja Kerto LVL mill 100% energy self-sufficient. The heat produced for district heating compensates for the purchase of electricity needed for the mill’s operation.

Powering a town as a by-product

The remaining heat from the Kerto LVL production process is sold for district heating to the town of Lohja. “The local bio heating plant is a significant support for reaching our ambitious low carbon energy goals,” says the mayor of Lohja, **Mika Sivula**. Lohja is part of Finland’s national scheme to reduce greenhouse gas emissions by 80% by 2030. “Due to the bio heating plant, we have reached our first milestone: 15% reduction of greenhouse gas emissions by 2016”, says Sivula. The plant covers 80% of Lohja’s heating.

Sustainable buildings require sustainability in material production

The focus of improving efficiency has to shift from the energy used to operate a building to the production of the construction materials – the most energy intensive phase in a building’s life cycle. The European “Energy Performance of Buildings Directive” (EPBD) requires all

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new buildings to reach nearly zero energy class by 2020. However, zero energy buildings are not enough. Architect Kuittinen says, “The energy used to produce the materials for a building is 50 times more than the energy used to operate it for a year. As the production of engineered wood actually produces an energy surplus, the implications are clear: wood should be used whenever possible.”

Read more about Metsa Wood sustainable building materials produced with 100% bioenergy at www.metsawood.com/publications

Images: <http://databank.metsagroup.com/l/2DpkLkPBJV2C>

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Metsä Wood provides competitive and environmentally friendly wood products for construction, industrial customers and distributor partners. We manufacture products from Nordic wood, a sustainable raw material of premium quality. Our sales in 2015 were EUR 0.9 billion, and we employ about 2,000 people. Metsä Wood is part of Metsä Group.