

# Nail-Laminated Timber as a viable construction material for large commercial buildings

Astrid Bagireanu

**Edinburgh Napier University:** MSc Architectural Technology

## Summary

Astrid is researching the structural, thermic, acoustic and aesthetic applications of Nail-Laminated Timber – NLT - for the design of large buildings. The objective is to demonstrate that NLT is a viable alternative to mainstream engineered timber products currently used in the UK.

## Background

NLT is a mass timber panel system, which can be used for floor, wall, and roof structures in tall and freeform geometric designed buildings. Due to its sustainability, it could be used in a variety of construction settings across Scotland.

## Challenges

Despite being extremely sustainable and a proven construction material, there is little application of NLT in the UK. This research will apply NLT to practical applications of offsite construction at Carbon Dynamics' factory in Ross-shire focusing on measuring structural, acoustic, thermic and aesthetic performance. In turn this will inform further research into how NLT might perform when applied to larger commercial building designs.

## Benefits

Using timber as a construction material with offsite manufacturing, offers significant cost-savings due to the ability for mass production. Timber is proven to be the most sustainable construction material available, reducing carbon emissions from design through the lifetime of the building, and providing healthier environments for end users. Exploring NLT as an option for larger commercial buildings such as schools and hospitals could have a profound impact on the quality and sustainability of Scotland's built environment.

Construction Scotland Innovation Centre funding has enabled me to complete my MSc. Furthermore, the team at Carbon Dynamic have provided continuous mentoring and training through my internship. They have also helped by providing access to their facilities to allow me to undertake testing for my NLT research, under their supervision and guidance.

**Astrid Bagireanu**

