

# Examining the use of Cross Laminated Timbers (CLT) as a Sustainable Material in Irish Housing

**Williams J. Gadimoh (B.Sc.) PhD candidate**  
Dublin Institute of Technology  
Dublin, Ireland

**Lloyd Scott (PhD)**  
Dublin Institute of Technology  
Dublin, Ireland

With the recent economic downturn and the resultant effect on the housing market, Ireland and other European nations are turning to redeveloping properties that are more energy efficient with materials that are better in achieving thermal comfort in buildings, minimizing the dependencies on energy usage in building, Espinoza stressed that the built environment (BE) contributes substantially to the degradation of the environment resulting in the need in for more knowledge on best processes for construction of buildings.

According to O Espinoza, CLT is emerging as a promising building material; he stressed that little research had been conducted about CLT. In response to the United Nations Agenda on climate change, the World Green Building Council, Kyoto agreement and subsequently followed by the Paris agreements on greenhouse gas emission. There is an urgent need for more research in identifying more sustainable approaches to by looking into the use of Cross-Laminated Timbers (CLT) for the construction of residential buildings in Ireland.

This research is at the infancy stage and its sets out to explore the environmental and economic viability of the use of Cross Laminated Timbers for construction of the residential building in Ireland, with the aim of achieving high thermal comfort. Further, to review current practices on issues relating to Sustainability in the built environment and issues relating to thermal comfort and the use of cross-laminated timbers in the built environment in Ireland. The research has primarily adopted literature review as the initial method of investigation. This is in order to ascertain the current policies and systems in place in other countries where CLT has gained importance. This investigation will serve as a benchmark against existing knowledge, highlight mechanisms for improving the process within the Irish construction industry.

The early phase of the research identifies that the use of Radiata pinewood in New Zealand where CLT has gained some level of importance and the Irish grown Sitka spruce have significant similarities. A researcher in timber engineering in Ireland stated that CLT is a new thing in Ireland and has not gained popularity. Stressed further, that with Irish fast-growing Sitka Spruce timber in comparison to the once created in the Scandinavia, Ireland has an excellent opportunity to advance in the use of CLT for residential buildings.

**Keywords:** Sustainability, Irish Housing, Cross Laminated Timbers (CLT)

## References

- Baillères, H., Hopewell, G., Boughton, G. and Brancheriau, L., 2012. *Strength and stiffness assessment technologies for improving grading effectiveness of radiata pine wood*. *BioResources*, 7(1), pp.1264-1282.
- Dodoo, A., Gustavsson, L. and Sathre, R., 2014. Lifecycle primary energy analysis of low-energy timber building systems for multi-storey residential buildings. *Energy and Buildings*, 81, pp.84-97.
- Espinoza, O., Buehlmann, U., Laguarda, M. and Trujillo, V.R., 2016. Identification of research areas to advance the adoption of cross-laminated timber in North America. *BioProducts Business*, pp.1-13.
- Georgiadou, M.C., 2017. Future-Proofed Design of Low-Energy Housing Developments: Case Studies from the UK and Sweden. *In Building Sustainable Cities of the Future* (pp. 29-56). Springer, Cham.
- Oberthür, S. and Ott, H.E., 1999. *The Kyoto Protocol: international climate policy for the 21st century*. Springer Science & Business Media.