

EPA Green Enterprise

Project: Exploring Cradle-to-Cradle (C2C) opportunities during the construction phase of small-to-medium sized projects

Organisations: Carey Building Contractors and Galway Mayo Institute of Technology (GMIT) • Reference: 2016-ET-CP-86

Project Objective:

To identify and critically evaluate C2C opportunities on small-to-medium sized construction projects from a SME contractor perspective.

Amount Of Grant Aid Awarded: €59,171

Background:

The built environment can have significant environmental impacts:

- Buildings are responsible for 40% of the total EU final energy consumption, 35% of the EU GHG emissions and 50% of all the globally extracted materials.
- Construction and demolition waste (CDW) accounts for 25-35% of all waste generated in the EU.
- Construction accounts for 37% of all carbon emissions in Ireland (23% for building operations and 14% for embodied carbon).

In Ireland, there has been a clear correlation between construction output and CDW production with the most recent EPA data (2021) highlighting a significant increase of 2.6 Mt between 2018 and 2019 to a total figure of 8.8 Mt, which clearly demonstrates the significant challenges facing the sector and highlights the fragmentary and reactionary approach to waste prevention, resource efficiency and circular economy principles across the value chain.

CAREY
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Project activities:

A C2C approach is primarily focused on design out waste principles, the use of renewable energy, and the promotion of species and cultural diversity.

The key lessons learned from this project are:

- Designers and their clients are key drivers of embedding C2C principles across the supply chain.
- It demonstrated that an SME construction company can proactively contribute at an organisational scale through the adoption of a recognised environmental management system standard, i.e. ISO 14001, which will encourage greater environmental sensitivity at the bid evaluation stage. It was determined that it is possible to adapt the culture and practices on site if framed through the preparation of a Resource Management Plan.
- The project directly contributed to curriculum development, and teaching and learning practice for the education of construction professionals at the Galway Mayo Institute of Technology (GMIT).



THE CIRCULAR ECONOMY PROGRAMME
The Driving Force for Ireland's Move to a Circular Economy



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Project Outputs and Outcomes:

A collaboration between an SME construction company, Carey Building Contractors, and an academic institution, GMIT, has developed a model to achieve good environmental performance in the construction sector, and facilitated the wider education of future construction professionals.



Next steps needed:

This evidence-based case study will be integrated into the teaching programmes at GMIT, including its Postgraduate Diploma and M.Sc. in Circular Economy Leadership for the Built Environment and disseminated to the sector. The embedding of circular built environment principles and practices into the higher education curriculum at GMIT will ensure that future professional have the necessary competences to lead the transition towards a more circular society.

For more on the EPA's Green Enterprise programme visit [here](#)

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