

CIRCUIT

Regenerative design: Available solutions to mainstream circular construction and material reuse

The construction and demolition of buildings accounts for around one-third of global material consumption and waste. To reduce the greenhouse gas emissions associated with producing and delivering building components, the construction sector must urgently transition from a linear “take-make-waste” model into a circular economy.

In a circular economy, resources are kept in use for as long as possible. The maximum value is extracted from them whilst in use, with products and materials recovered and regenerated at the end of each service life.

The [Circular Construction in Regenerative Cities](#) (CIRCuiT) project has developed solutions and industry-ready resources, following extensive research across four cities (Copenhagen, Hamburg, Helsinki region and London) with academia, local authority and private sector collaborators to mainstream regenerative design and circular construction practices. Find out more about some of these solutions below.



Materials passports

Materials passports are digital data sets which describe characteristics of materials and components in products and systems, giving them value for present use, recovery and future reuse.

At building level, materials passports would help automate assessment processes (life cycle assessments, carbon assessments, etc.); create predictive schedules for maintenance; maintain a ‘material bank’; provide links to 3D models; and enable deconstruction and disassembly. At city and national level, this aids in the creation of a materials stock database, supporting urban mining and materials exchange.

CIRCuiT supported Waterman Group with the preparation of a materials passports framework (proof of concept under review). Waterman Group have trialled materials passports at London’s Edenica building, a 13,000sqm office development set across 12 storeys and a basement level.

[Learn more](#)



Material Reuse Portal

CIRCuiT’s new [Material Reuse Portal](#) is an aggregator designed to bring together data on available materials from multiple sources, providing a single place to search for materials available across various London material exchange networks. This allows consumers to find the critical volume of materials need for a project that might otherwise be spread across different sources.

The Portal allows users to save data about the listings they are interested in. Over time we will seek to build up more data on the demand for different types of products in the built environment that can help demolition contractors understand the items that could cost-effectively be dismantled for reuse. Additional functionalities to view future upcoming materials are also in the works.

[Explore the Portal](#)



Circularity indicators

There has been much work done on circularity metrics but there is, as yet, no set formalised set of metrics being consistently used on buildings. Without agreed, simple and consistent metrics it is difficult for circularity to be specified or monitored. This risks causing confusion and limiting the adoption of circular techniques.

CIRCuiT, in collaboration with ICEC-MCM and LETI has been working to convene London built environment industry leaders to create a simple singular circular economy indicator for buildings that is universal, scalable, transparent and robust, and can be easily integrated into current industry practices.

The results of CIRCuiT’s work on circularity indicators will be published in mid-2023.

[Learn more](#)

What is CIRCuiT?

CIRCuiT (Circular Construction in Regenerative Cities) is a four-year European project to demonstrate how cities can promote, use and scale sustainable construction practices that minimise waste and maximise material and resource efficiency. It aims to show how the construction industry can radically reduce its impact on the environment.

[Visit CIRCuiT](#)

CIRCuiT networking event - join us!

EcoCity World Summit 2023 delegates are invited to CIRCuiT’s London networking event on **Thursday 8th June, 6:00-9:00pm** at **The Building Centre, 26 Store Street, London WC1E 7BT**. Join the CIRCuiT project’s London partners for a presentation on the latest key project outputs.

[Register](#)