THE ENGINEERS REUSE COLLECTIVE

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Reuse Glossary

Introduction

To ensure a clear and consistent message is presented, it is vital that we all use precise, consistent, and widely understood language when talking about, discussing, and presenting topics related to reuse and circular economy. Without a common vocabulary, important concepts can be misinterpreted, leading to confusion, inefficiency, or missed opportunities for collaboration.

This glossary has been developed to bring together a set of carefully collated definitions for standard terms, drawn from trusted industry sources and best practice. It aims to provide clarity, increase understanding, and promote alignment in the way we talk about reuse and related circular economy concepts.

By adopting this shared terminology, we can improve communication, strengthen industry collaboration, and present a unified voice that supports the growth and implementation of reuse and circular economy practices.

Quick navigation

The Basics

Circular economy

An economic system based on the reuse of materials, in contrast to a linear economy.

A systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution. It is based on three principles, driven by design: eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature.[1]

An alternative to a traditional linear economy (take, make, waste) in which as few new resources as possible are used when creating something new by:

- Keeping resources in use for as long as possible
- Extracting the maximum value from them while in use
- Recovering and regenerating products and materials at the end of each service life

Circular economy within the built environment aims to address the global issue of resource scarcity and environmental degradation. Following circular economy principles will frequently lower the whole life carbon, thereby helping to address the climate emergency.[2]

Linear economy

An economy in which finite resources are extracted to make products that are used – generally not to their full potential – and then thrown away ('take-make-waste').[1] This is the opposite of a circular economy.

Regenerative design

The goal of regenerative design is for humans and the living world to survive, thrive and co-evolve. In other words, that every time we design a building, the living work – which includes us – becomes healthier. In short, that our work leads to greater thriving, not less.[10]

Resource scarcity

An absolute or relative shortage of natural (or environmental) resources which may occur for several reasons:

- Absolute scarcity of resources – where there is limited supply
- Increased consumption of resources – so that demand exceeds the available supply
- Uneven distribution of resources – where resources are not located where they are needed
- Uneven access to resources – where people cannot obtain/use otherwise available resources.[8]

Restorative design

Design that improves the health of social and ecological systems.[3]

Reuse hierarchy

The following reuse hierarchy applied as a priority order to maintain assets and components at their highest value, aiming to minimise waste and additional external inputs.

a. retain;
b. repair;
c. refurbish;
d. retrofit;
e. remodel; and
f. repurpose.

Sustainable procurement

Buying materials and products in a way that minimises impact to the environment, the climate and people. Sourcing products should be done responsibly and ethically by considering not only the impacts of the materials across the lifecycle – during extraction, processing and transport, but also consideration for the wellbeing of all workers and building users and the ethical and environmental standards demonstrated by the supplier.[7]

Waste hierarchy

The following waste hierarchy applied as a priority order in waste prevention and management legislation and policy:

a. prevention;
b. preparing for re-use;
c. recycling;
d. other recovery, e.g. energy recovery; and
e. disposal.[6]

Reuse in Practice

Maintain

Keep a product in its existing state of quality, functionally and/or cosmetically, to guard against failure or decline. It is a practice that retains the highest value of a product by extending its use period. [1]

Refurbish

Return a product to good working order. This can include repairing or replacing components, updating specifications, and improving cosmetic appearance.[1]

For structural applications, this typically involves retaining the majority of the structure with smaller interventions such as repair and localised strengthening.

Remanufacture

Re-engineer products and components to as-new condition with the same, or improved, level of performance as a newly manufactured one.[1]

Remodel

Make significant changes to the structure, design, or layout of an existing building, specifically with comprehensive and structural modifications.

Repair

Operation by which a faulty or broken product or component is returned back to a usable state to fulfil its intended use.[1]

Repurpose

Taking a component from a structure and using it again, but to fulfil a different function or purpose.[3]

Retrofit

Directed alteration of the fabric, form or systems that comprise the built environment to improve energy, water and waste efficiencies and adaptation to overheating. Common building retrofit techniques involve improving insulation and/or airtightness, implementing water conservation strategies, updating heating or cooling systems, and installing renewable energy systems.[4]

Light retrofit

Light retrofit focuses on performance optimisation, basic remodelling, replacement, or adaptation of existing building elements which tend to focus on a single aspect or feature (e.g., lighting upgrades, optimisation of building controls and operation, etc).[5]

Deep retrofit

Deep retrofit focuses on significant works of size or scale that result in a fundamental change to the building structure and/or services. This can be represented as a collection of light retrofit enhancements or individually disruptive measures, such as major plant replacement.[5]

For structural application, deep retrofit typically includes some modifications to the structure while retaining the majority of the structure and with smaller interventions such as repair and localised strengthening.

Reuse

The repeated use of a product or component for its intended purpose without significant modification.[1]

Taking a component from a structure and using it again in the same way as originally intended. Unlike recycling, reuse requires minimal reprocessing.[3]

Ex situ reuse

Removal of an existing structural element from its current location in a building for reuse elsewhere. If the element is used on another site, then this is referred to as 'off-site ex situ reuse'.[3]

In situ reuse

Where the structure/component/material remains in place, retained and unchanged. In some cases, for example a vertical extension, additional strengthening or protection of the existing structure might be required.[3] Also known as 'retention'.

End-of-Life Strategies

Deconstruction

The practice of dismantling a built asset, to preserve or maintain integrity and material value of component parts. It is construction in reverse.[3]

Demolition

The practice of breaking down a built asset to enable materials to be recycled or disposed of. A site is cleared of its building by the most expedient means.[3]

Design for Deconstruction (DfD)

Design decisions that increase the quality and quantity of materials that can be reused at the end of a building's life. Also known as 'design for disassembly'.[3]

Downcycling

Recycling of waste where the recycled material is of lower quality, functionality or value than the original material, e.g., concrete structure to crushed aggregate.[3]

Pre-demolition audit

An inventory of materials and components in an existing building due for demolition. Materials with high potential for reuse are identified.[3]

Pre-redevelopment audit

Strategic review of an existing building for retention and development options, including an inventory of materials and components arising from the planned redevelopment.[3]

Recovery

Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.[6]

Recycle

Transform a product or component into its basic materials or substances and reprocess them into new materials.[1]

Upcycling

Recycling of waste in such a way that the resulting product is of higher quality, functionality and value than the original item, e.g., using waste timber to create glued laminated timber (glulam) or cross-laminated timber (CLT).[3]

Waste

Any substance or object which the holder discards or intends or is required to discard.[6]

Materials

Material bank

Material banks are repositories or stockpiles of valuable materials that might be recovered.[9]

The phrase is frequently used in 'buildings as a material bank', referring to the perspective or viewing building as a store of materials which can (and should) be used in the future.

Material harvesting

Recovering materials from the existing stock of building with the aim to reuse, recycle or biodegrade them and realise a technical or biological material loop.[9]

Material passport

A document or database which provides a record of all the materials, components and products in a building. It provides both qualitative and quantitative data.[3]

Prime steel

Virgin steel that has been made-to-order by a producer or purchased from a stockholder's inventory, passes all manufacturing inspection tests and is available on the 'primary' raw materials market.[3]

Reclaimed material

Materials or items that have been previously used in a building or project and are then repurposed for a new use, without undergoing significant processing or reprocessing.

Typically they are salvaged and reused in their original form, or slightly altered for a new purpose, rather than being broke down and remanufactered.

Repurposed material

Materials or items used for a purpose other than their original intended one, without significant alteration to their form.

Typically repurposed material refers to material which has been procured for a specific purpose but is no longer required or is surplus to requirements.

Secondary steel

Steel that does not meet 'prime' standards and can typically be categorised as 'used/reclaimed' or 'surplus'.[3]

Urban mining

Recovering materials or assemblies of materials from the building stock instead of using virgin materials.[9]

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The Engineers Reuse Collective CIC is a not-for-profit group of practising engineers championing, accelerating and delivering reuse in the built environment to support the transition of the UK's built environment to Net Zero Carbon.

Our mission is to dramatically increase reuse within the built environment, with minimal reprocessing, to support the transition to circular economy principles and to urgently reduce the carbon intensity of the built environment.

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