

Glossary of Key Terms

Designing for Net-Zero Embodied Carbon: Practical Strategies

Glossary of Key Terms

- **ABCB (Australian Building Codes Board):** The governing body responsible for developing and maintaining Australia's National Construction Code.
- **Adaptive Reuse:** The process of renovating and repurposing an existing building for a new use, often reducing the need for new construction materials and their associated embodied carbon.
- **BIM (Building Information Modelling):** A digital process that creates and manages information on a construction project throughout its lifecycle, often used in conjunction with LCA tools for carbon modelling.
- **Carbon Intensity:** The amount of carbon dioxide equivalent (CO₂e) emissions generated per unit of a material or activity (e.g., kg CO₂e per kg of concrete).
- **Circular Economy:** An economic model focused on maximising the value of resources by keeping products, components, and materials in use for as long as possible, promoting reuse, repair, refurbishment, and recycling.
- **Cradle-to-Cradle:** An LCA approach that considers the entire lifecycle of a material or product, with a focus on designing materials and systems so that they can be endlessly cycled in either biological or technical cycles, avoiding waste.
- **Cradle-to-Grave:** An LCA approach that considers the environmental impacts of a product from the extraction of raw materials through to its disposal at the end of its life.
- **Deconstruction (Design for Deconstruction):** Designing buildings in a way that facilitates the easy and efficient disassembly of materials at the end of their useful life, enabling reuse or recycling.

- **Embodied Carbon:** The total greenhouse gas emissions generated throughout the lifecycle of building materials, including extraction, processing, manufacturing, transportation, installation, maintenance, and end-of-life disposal. Measured in kilograms of CO₂ equivalent (kg CO₂e).
- **EPD (Environmental Product Declaration):** A standardised, third-party verified document that provides transparent and comparable information about the environmental performance of a product over its lifecycle, including its embodied carbon footprint.
- **EPiC Database:** A database specifically developed for the Australian market providing verified embodied carbon data for common construction materials.
- **Green Star:** A voluntary environmental rating system for buildings and communities in Australia, administered by the Green Building Council of Australia, which includes embodied carbon benchmarks and requirements.
- **Green Public Procurement (GPP):** Procurement policies adopted by government bodies that include sustainability and carbon performance criteria for goods, services, and works.
- **kg CO₂e (Kilograms of Carbon Dioxide Equivalent):** A standard unit of measurement used to express the impact of all greenhouse gases (not just CO₂) in terms of the amount of CO₂ that would create the same amount of warming.
- **KPI (Key Performance Indicator):** A quantifiable measure used to evaluate the success of an organisation, project, or activity in meeting its objectives, in this context, often including embodied carbon targets.
- **LCA (Lifecycle Assessment):** A scientific method used to evaluate the environmental impacts of a product or system throughout its entire lifecycle, from raw material extraction to end-of-life.
- **Mass Timber:** Engineered wood products (like CLT - Cross-Laminated Timber) used as structural building materials, offering a lower-carbon alternative to traditional concrete and steel, and storing carbon during their growth.
- **NABERS (National Australian Built Environment Rating System):** A system for rating the environmental performance of buildings and tenancies in Australia, historically focused on operational energy, but expanding to include embodied carbon.

- **NatHERS (Nationwide House Energy Rating Scheme):** A scheme that rates the energy efficiency of residential buildings in Australia, primarily focused on operational energy, with work underway to include lifecycle emissions.
- **NCC (National Construction Code):** Australia's primary technical code for construction, which is increasingly introducing provisions related to whole-of-life carbon impacts.
- **Net-Zero Embodied Carbon:** Achieving a state where the sum of greenhouse gas emissions associated with building materials across their lifecycle (extraction, production, construction, use, end-of-life) is zero or negative, typically achieved through significant reduction and offsetting of residual emissions.
- **Operational Carbon:** Greenhouse gas emissions generated from the energy used to operate a building once it is occupied, including heating, cooling, lighting, and powering appliances.
- **Passive Design:** Design strategies that utilise natural elements like sunlight, wind, and temperature differences to reduce a building's energy consumption for heating, cooling, and lighting, often also reducing the need for complex, high-carbon materials.
- **Prefabrication (Modular Construction):** Building components or modules off-site in a factory environment, which can lead to reduced waste and more efficient construction, potentially lowering embodied carbon.
- **Procurement:** The process of acquiring goods, services, or works, including the selection of suppliers and materials for a construction project.
- **Science-Based Targets Initiative (SBTi):** A global initiative that helps companies set greenhouse gas emission reduction targets in line with climate science, increasingly encouraging the inclusion of embodied emissions.
- **Specification:** Detailed technical requirements and standards included in construction documents that dictate the materials, products, and methods to be used in a project.
- **Whole-of-Life Carbon Accounting:** An approach to assessing the total greenhouse gas emissions associated with a building or infrastructure project across its entire lifecycle, from raw material extraction to end-of-life.

- **World Green Building Council (WGBC):** A global network of national Green Building Councils promoting sustainable buildings, with initiatives including a Net-Zero Roadmap for the built environment.