Sustainability 101 Glossary

These terms are generalized and, unless noted, not from a specific source. The definitions should serve as a starting point for further learning.

- **Bio-based materials:** Materials derived from renewable biological resources, such as wood, straw, hemp, clay, cork, mycelium, and algae that have a reportable total carbon. “Bio-based” is often used interchangeably with the term, “biogenic.”

- **Biodegradable:** A material that can be broken down by microorganisms (like bacteria and fungi) into simpler, non-toxic substances under natural conditions. Often includes engineered products designed to decompose, though conditions and rates vary.

- **Buy clean:** A procurement policy—federal, state, local, private, or other—that promotes the purchase of construction materials and products with lower embodied carbon. Example: Buy Clean California.

- **Byproduct:** A coproduct from a process that is incidental or not intentionally produced and that cannot be avoided. Note: Wastes are not byproducts. (ISO 21930-2017)

- **Carbon credit:** A tradable certificate representing the reduction or removal of one metric ton of carbon dioxide (CO_2) equivalent from the atmosphere. These credits are generated by projects that reduce or avoid emissions (like renewable energy) or remove carbon (like tree planting). They create a market where entities can purchase credits to offset their emissions (also known as carbon offsets).

- **Carbon intensity:** Carbon metric expressed in relation to a specific reference unit related to the function of the construction works. Reference units may include per unit area, per person, per kilobyte, per unit output, and per GDP. (ISO 6707-3)

- **Carbon sequestration:** The long-term capture and storage of atmospheric carbon dioxide (CO_2). This happens naturally, with trees and oceans absorbing CO_2, or artificially, through technologies like carbon capture and storage (CCS) that capture and store emissions to reduce atmospheric CO_2 levels.

- **Chemicals of concern:** Ingredients that have been linked to a potential increased risk to human health and the environment. Two common classes of chemicals of concern are Carcinogenic, Mutagenic, and Reprotoxic substances (CMRs) and Persistent Bio-accumulative Toxic substances (PBTs).

- **Circular economy:** A global economic model that decouples economic growth and development from consumption and finite resources. The circular economy is also a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. (Partially from Ellen MacArthur Foundation)

- **Circular manufacturing:** A process of keeping materials in circulation for as long as possible. i.e., continuous reuse or recycling.

- **Circularity:** A concept that focuses on reusing, recycling, and renewing existing materials and products. Includes concepts of **design for deconstruction**, deconstruction, resource efficiency, reuse, and extended lifespan.

- **Climate change:** Significant, long-term shifts in global temperatures and weather patterns primarily caused by human activities. The burning of fossil fuels releases heat-trapping greenhouse gases, leading to global warming and impacts such as extreme weather, rising sea levels, and ecosystem disruptions.

- **Common Materials Framework (CMF):** A standardized language for building material sustainability developed by Mindful Materials. It unifies how certifications define and assess eco-friendly products by organizing existing data into five core impact areas: Human Health, Climate Health, Ecosystem Health, Social Health + Equity, and Circularity.

- **Cradle to cradle (**C2C): A design framework and certification standard for products that promotes concepts of circular economy. The multi-attribute certification considers a product based on five categories: material health, circular economy, renewable energy, water stewardship, and social fairness.
- **Deconstruction:** The systematic dismantling of a structure or product to salvage materials for reuse.
- **Dematerialization:** The reduction of total material and energy throughput of any product and service, and thus the limitation of its environmental impact. This includes reducing raw materials at the production stage, energy and material inputs at the use stage, and waste at the disposal stage. (UNEP)
- **Demolition:** Removal of materials and products in a built structure by destructive means; opposite of deconstruction.
- **Design for circularity:** A holistic design approach that aims to design products to stay in economic use for as long as possible, considering the entire life cycle of products and buildings.
- **Design for deconstruction:** A building design approach focused on making building systems easy to disassemble at the end of their lives for future material reuse. Example: Specifying screw connections over adhesives.
- **Design for disassembly:** Approach to the design of a product or constructed asset that facilitates disassembly at the end of its useful life, in such a way that enables components and parts to be reused, recycled, recovered for energy, or, in some other way, diverted from the waste stream. (ISO 20887-202)
- **Design for recycling:** Aims to support the recovery of materials for further use. Example: A product with multiple components can be easily disassembled for recycling, allowing each piece to be reused.
- **Diversion:** Minimize solid waste generation through source reduction, recycling, reuse, or composting. (EPA)
- **Durability:** Durability is the ability of a product, component, or building to remain functional and relevant when used as intended, usually referring to the physical attributes of a product.
- **Ecomedes:** Database of construction and building products' sustainability certifications used during specification and design of sustainable buildings.
- **Embodied Carbon in Construction Calculator (EC3):** Global library of environmental product declarations and associated data on products' environmental impacts, including embodied carbon.
- **Embodied carbon:** Refers to collective greenhouse gas emissions associated with upstream (extraction, production, transport, and manufacturing) stages of a product or project's life. Expressed in global warming potential (GWP).
- **End-of-life:** The [life cycle] stage for a construction material that starts when it is replaced, dismantled, or deconstructed from the construction works and does not provide any further functionality. The end-of-life LCA stage includes information modules C1 to C4. (ISO 21930:2017)
- **Environmental product declaration (EPD):** An environmental claim providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information. An EPD also includes additional product and company information. (ISO 14025:2006) Includes environmental impact indicators: Global warming potential, ozone depletion potential, acidification potential, smog formation, resource depletion, and water use.
- **Environmentally preferable:** Refers to products or services that cause less harm to human health and the environment than similar alternatives. This assessment encompasses the entire product lifecycle, from raw materials to disposal, with a focus on attributes such as energy efficiency, reduced toxicity, and durability.
- **Extended producer responsibility (EPR):** An environmental policy approach that makes product producers financially or physically responsible for the end-of-life management of their products. Example: California SB 54.

- **Global warming potential (GWP):** A measure of how much heat a greenhouse gas traps in the atmosphere. Often expressed in kg CO_2e and used to measure the impact of a material or product's GHG emissions.

- **Greenwashing:** A deceptive marketing practice where products or policies are presented as more environmentally friendly or sustainable than they are. Claims may include vague, misleading, or unsubstantiated claims to capitalize on consumer demand for eco-conscious options.

- **Greenhouse gas (GHG):** The air pollutants carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons, and sulfur hexafluoride.

- **Global Reporting Initiative (GRI) Standard:** A set of sustainability standards used by organizations to understand and report their impacts on the economy, environment, and people.

- **Health product declaration (HPD):** A sustainability reporting format that allows manufacturers to disclose the compositional chemistry and hazard screening results of their products transparently.

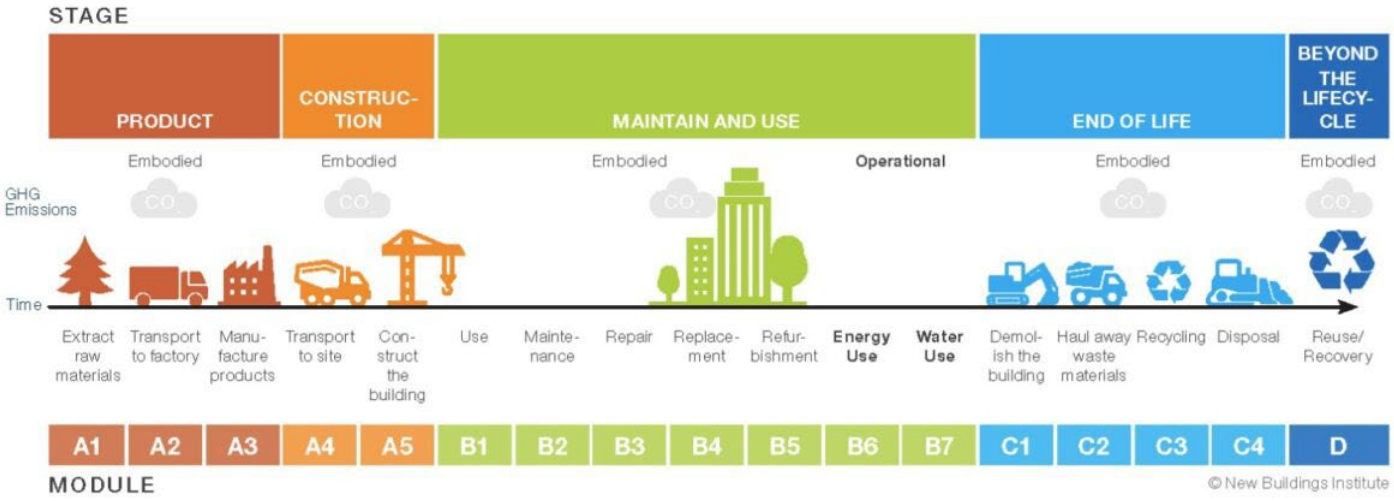
- **Industry-wide EPD:** An EPD that is reflective of the average production impacts for a given declared unit of product within one category, spanning multiple production facilities and companies. Also known as a sector average EPD, a generic EPD, or an industry average EPD.

- **Leadership and Environmental Design (LEED):** A green building rating system developed by the US Green Building Council. LEED certification is available for multiple building types and indicates that a building or project meets standards for environmental performance.

- **Life cycle assessment (LCA):** The compilation and evaluation of the inputs, outputs, and the potential environmental impacts of a product system throughout its life cycle. (ISO 14044-2006)

- **Life cycle assessment information modules (LCA information modules):** Modules A1-A3 (Production Stage) A1: Extraction and upstream production; A2: Transport to factory**;** A3: Manufacturing**;** Modules A4-A5 (Construction Stage)**;** A4: Transport to site**;** A5: Installation**;** Modules B1-B7 (Use Stage)**;** B1: Use**;** B2: Maintenance**;** B3: Repair**;** B4: Replacement**;** B5: Refurbishment**;** B6: Operational energy use; B7: Operational water use; Modules C1-C4 (End of Life Stage); C1: De-construction / demolition**;** C2: Transport to waste processing or disposal; C3: Waste processing; C4: Disposal of waste; Module D: Potential net benefits from reuse, recycling and/or energy recovery beyond the system boundary (ISO 21930:2017)

FIGURE 1: LIFECYCLE STAGES
Data source: BS EN 15978:2011



- **Living Future (LF):** A green building rating system and sustainable product rater. Aims to create buildings that generate more resources than they consume and actively enhance human and ecological well-being. (Formerly referred to as the International Living Future Institute, or ILFI.)
- **Living Building Challenge (LBC):** Living Future's green building rating system. Topics addressed: Place, water, energy, health and happiness, materials, equity, and beauty.
- **Longevity, product:** Product longevity refers to the lifespan of a product, which can be extended by increasing its durability, adaptability, upgradability, repairability, and reducing obsolescence.
- **Materiality assessment:** A process to identify and prioritize the environmental, social, and governance (ESG) issues that are most relevant and have an impact on their business and stakeholders.
- **Mindful Materials:** A movement and framework, focused on selecting building products with reduced human health and environmental impacts. It prioritizes materials based on five key areas: human health, climate health, ecosystem health, social health + equity, and circularity, aiming to simplify sustainable building choices. See the Common Materials Framework.
- **Multi-attribute:** Evaluating a product or material based on many characteristics such as energy use, toxicity, and social impact. Often these attributes are reported on in product-level certifications known as multi-attribute certifications.
- **Product category rules (PCRs):** A set of specific rules, requirements, and guidelines for developing EPDs for one or more product categories. (ISO 14025:2006)
- **Recyclable:** A product's characteristics that determine how well it can be recycled.
- **Recycled content:** The portion of a product made from reprocessed waste materials. This includes both pre-consumer (manufacturing scraps) and post-consumer (used products) waste. Using recycled content conserves resources, saves energy, and reduces landfill waste.
- **Red list free:** Refers to building and construction products that do not contain chemicals on Living Future's Red List known to have negative impacts on human health and the environment. Excluded chemical classes include, but are not limited to, phthalates, isocyanates, and added formaldehyde.
- **Reusability:** Ability of a material, product, component, or system to be used in its original form more than once and maintain its value and functional qualities during recovery to accommodate reapplication. (ISO 6707-3-2022)
- **Salvage:** The deliberate reclamation of reusable materials from the disassembly, deconstruction, or demolition of buildings or structures.
- **Safety Data Sheet (SDS):** A document published by a manufacturer that provides detailed information about chemical substances, hazards, and safe handling procedures for a material or product.
- **Self-declared:** An environmental claim that has not been reviewed or verified by a third party. ISO 14021:2016 provides guidance on how to offer self-declared environmental claims, including statements, symbols, and graphics for products.
- **Sustainability:** A goal of meeting the needs of the present without compromising the ability of future generations to meet their own needs. It fundamentally integrates environmental protection, social equity, and economic viability.
- **Third-party verified:** The process whereby an independent entity confirms the validity of information claimed. Used to enhance trust and transparency. The process can add value in green building and green product rating systems and certification programs.
- **Toxicity, material:** The degree to which a substance or mixture of substances can harm humans or animals, specifically in the context of indoor air quality.

- **Triple bottom line:** A sustainability framework that expands business success beyond just financial profit to include social and environmental performance. It measures impact on people (social equity), the planet (environmental footprint), and profit (economic viability), emphasizing that these three aspects are equally vital for long-term sustainability.

- **Upcycling:** The process of transforming waste materials or unwanted products into new items of higher quality, value, or artistic merit. Unlike recycling, upcycling retains the original form while giving it a new purpose, reducing waste, conserving resources, and fostering a more circular economy.

- **US Green Building Council (USGBC):** The nonprofit organization with the mission to create a sustainable future through transforming the built environment. Operates the **LEED** certification program.

- **Waste:** Substances or objects that the holder intends or is required to dispose of. (ISO 14044-2006)

- **WELL Building Standard:** Certification program developed by the International WELL Building Institute. Topics include: air, water, light, nourishment, fitness, comfort, and mental well-being.

- **Whole building LCA (WBLCA):** An LCA of a building or project's environmental impacts, usually from a GHG emissions perspective, and addresses other environmental criteria throughout its life cycle. WBLCA can be updated to reflect project-specific data post-construction.

- **Zero waste:** A philosophy and system focused on eliminating waste to reuse or recycle. It goes beyond recycling by redesigning product lifecycles to prioritize waste prevention (reduce, repurpose, reuse, repair) and maximize resource recovery, aiming for no discarded materials to land, water, or air.

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