



Materials sourcing and management

The construction sector is a major contributor to UK and global carbon emissions.

Sourcing and managing materials in a sustainable way can help to reduce these overall emissions.

This guidance note looks at:

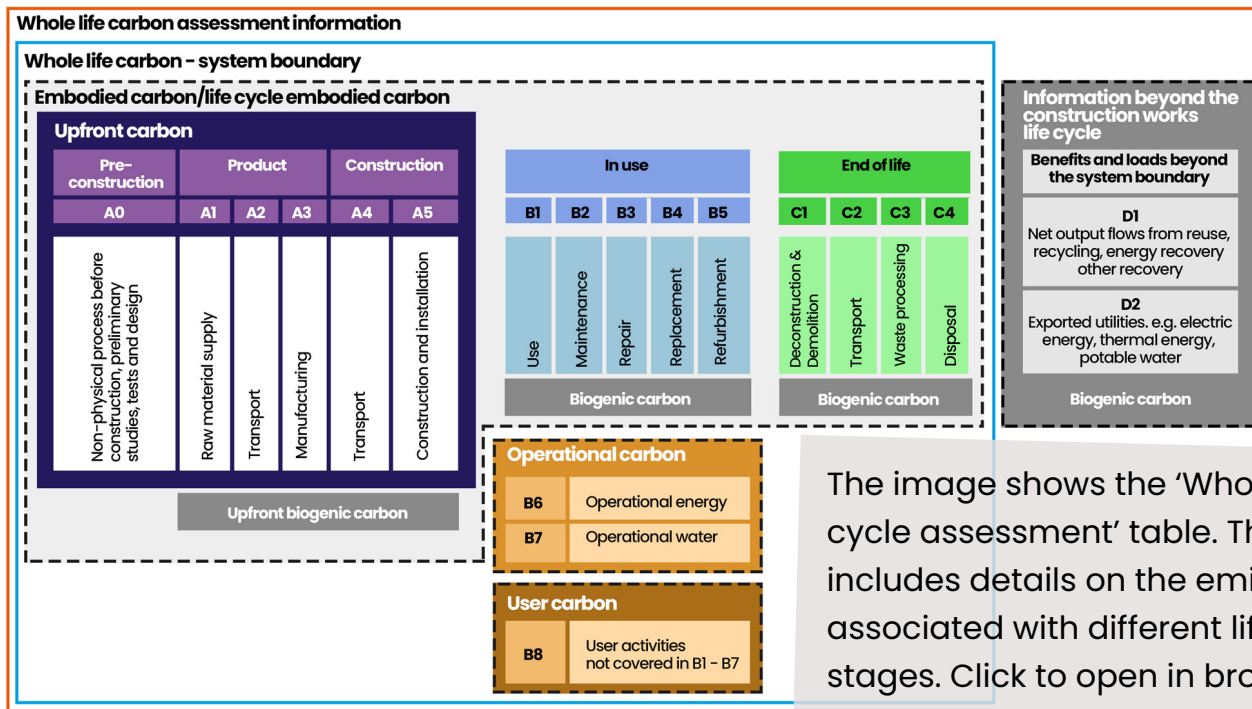
- Embodied carbon
- Project considerations
- Responsible sourcing

Embodied carbon

Embodied carbon is all of the CO² emissions arising from the manufacture, transportation, installation, maintenance and disposal of building materials.

Environmental product declarations

Data on the levels of embodied carbon in products and materials can be found in Environmental Product Declarations (EPDs), a report based on the product or materials Life Cycle Assessment (LCA). EPDs include information on the environmental impacts of the product across its life cycle, from raw material extraction to disposal. EPDs should be available from all suppliers and should be verified by an independent third party.



The image shows the 'Whole life cycle assessment' table. This table includes details on the emissions associated with different life cycle stages. Click to open in browser.





Project considerations – information for designers, architects and clients

Take these steps to reduce whole-life embodied carbon. Include these measures in procurement contracts and review them throughout the project.

- Identify major contributors to embodied carbon and plan for improvement. Sub-structure and structure impacts can be reduced by reducing over specification
- Carry out an LCA at detailed design stage and have this independently verified
- Simplify designs, use standardised components and consider natural finishes
- Minimise mechanical, electrical and plumbing networks, with focus on passive design solutions
- Minimise material use, prioritise biobased options, and re-use when possible – if re-use isn't viable, maximise recycled content and source locally, considering the manufacturing process
- Consider using materials passports to encourage re-use or recycling of components
- Digital models should be verified to ensure they are complete and correct
- Use fewer finishing materials (for example, mass timber walls or exposed ceiling voids)
- Explore lower carbon alternatives to optimise operational, embodied and whole life carbon, such as:
 - Carbon steel reinforcing bar with a high recycled content percentage (100 percent), produced in an electric arc furnace
 - Use timber or glulam/cross laminated timber (CLT) instead of steel or concrete frames
 - Steel frame with high recycled content percentage (90 percent+)
 - Concrete frame with high Ground Granulated Blast-furnace Slag (GGBS) percentage (60 percent+) OR an eco-concrete

Project considerations (continued)

- Timber or brick cladding, over metal cladding
- Use of insulation with low Global Warming Potential (GWP) – use mineral wool instead of Expanded Polystyrene (EPS), Extruded Polystyrene (XPS) and spray foam
- Use fewer finish materials and utilise natural finishes (e.g. polished concrete slabs or exposed ceiling voids)
- Use finish materials with high recycled content
- Minimise use of paint. If required, consider a low Volatile Organic Compound (VOC) paint

Construction operatives actions – information for site staff

Follow these steps to reduce the carbon impact of construction activities:

- Sourcing local materials to reduce transportation emissions
- Request for low carbon transport to deliver materials
- Record all materials delivered and used on site
- Report any material changes (as any change may impact on carbon emissions)
- Collate EPDs where available for materials
- Re-use and recycle material during renovation and demolition where possible
- Provide guidance and support for sourcing low carbon materials specific to each trade
- Engage in regular meetings to check on track with meeting carbon targets
- Record and share lessons learned to promote continuous improvement
- Carry out skip audits to identify commonly wasted materials
- Train site staff on the importance of proper material handling and storage





Responsible sourcing – information for procurement

Responsible sourcing is a voluntary commitment by companies to consider the social and environmental impacts of the supply chains and relationships with their partners.

In the building sector, prioritising responsible sourcing of building materials provides benefits to the environment, the supply chain, and contractors. It is also rewarded in most green building certifications such as Passivhaus, BREEAM and LEED.

Responsible sourcing in construction involves a commitment to considering the impacts of the entire supply chain, from raw material extraction to end of life, including assessing the circularity of products.

The key principles of responsible sourcing include:

Social responsibility

- Ensuring ethical labour practices – fair wages, safe working conditions, and human rights compliance
- Stakeholder engagement – involving local communities and workers in the decision making process

Environmental impact

- Minimising environmental impact through sustainable practices
- Reducing carbon footprint and waste generation
- Promoting resource efficiency

Materials sourcing and management

NetRegs

sepa

ROBERTSON

Other guidance notes within this series:

- Silt management
- Surface water management
- Cement, concrete and grout
- Waste duty of care
- Fuels and oils
- Air quality and nuisance
- Decarbonisation on site
- Ecology and biodiversity

Scan the QR code to view the guidance notes and associated animations on the NetRegs website



Further information

Materials sourcing guidance on NetRegs



Scan (or click) the QR code to view the buying eco-friendly goods and services guidance on the NetRegs website.

These guidance notes have been developed by NetRegs in partnership with:

sepa

ROBERTSON