

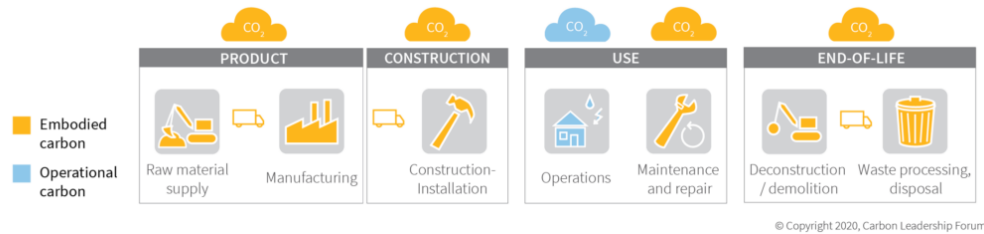
Low Carbon Materials Fact Sheet

Climate leadership is one of Metro’s desired outcomes for the region. One strategy to achieve this is to choose materials for our facilities that have the lowest possible contribution to climate change. These low carbon materials are an important part of the Sustainable Buildings and Sites Policy.

What is embodied carbon?

When we talk about low carbon materials, we are referring to the embodied carbon of materials. Embodied carbon refers to the greenhouse gases produced during the creation, transportation, maintenance, and disposal of a material. It is all of the carbon pollution associated with a product or material other than pollution from the energy used to operate it.

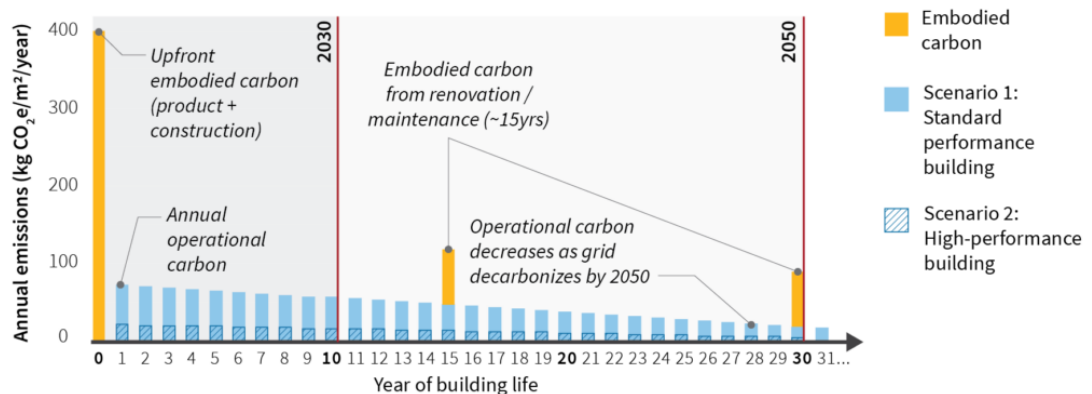
Before a person even steps foot into a new or renovated building, the materials in the building have already had a big impact on the planet. Choosing low carbon materials lessens the climate and environmental impact experienced by communities where the materials are harvested, manufactured, transported, installed, and disposed.



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What are operational vs. embodied carbon emissions?

While embodied carbon emissions occur before and after a building is occupied, operational emissions result from the ongoing operation of a building through the onsite heating, cooling, lighting, and other power usage. As the energy for those operations becomes cleaner from the transition toward renewable energy, and as buildings become more efficient, the impact of operational emissions decreases, while the embodied carbon of a building’s materials carries more impact over time.



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How to evaluate low carbon materials?

Design and construction firms working towards Core certification for a project will need to evaluate building materials to meet certification requirements. Many open-source tools, databases, and resources exist to identify, calculate, and source low carbon materials based on a material's life cycle analysis, environmental product declaration, or whole building life cycle analysis. Tools such as Athena, One Click LCA, or EC3 can be used by contractors, architects, consultants, and design professionals to evaluate specific materials compared to an average baseline.

Low carbon materials strategies

When approaching projects, teams should consider the following:

- Don't overdesign a project – projects can use up to 30% more concrete or materials than necessary.
- Reuse existing structures, buildings, and materials as appropriate – the lowest impact choice is to reuse a building or not build at all. If you build, build less, and build smart.
- Choose natural materials over synthetic components – natural materials such as wood store carbon and require less intensive energy for production.
- Source materials locally or regionally to reduce the transportation related emissions impact.
- Use cross laminated timber (CLT), a recycled composite material – CLT provides an excellent prefab structure and cuts construction time through easy assembly.
- Choose products and materials with low global warming potential (GWP) by utilizing free resources like the free [Mindful Materials](#) database or the [EC3 Embodied Carbon in Construction Calculator](#).
- Ask questions of your materials providers. Low carbon materials are often cost neutral or cost less. Shop around and compare impact using available tools and resources.