

LONG-TERM CARE

Building materials play role in mitigating embodied carbon in healthcare facilities

By Jay Burtwistle & Éléonore Leclerc

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A health facility is designed to get the health

LIFE CYCLE ASSESSMENT

A life cycle rendering courtesy Stantec/HDR Architects

the stages of its life. The International Organization for Standards (ISO) has outlined two ways (14040 and 14044) to help define and describe LCAs consistently across all markets and applications.

ISO 14040 defines the system boundary of whole building LCAs (wbLCAs) accord

several studies relate the importance of an occupant's ability to exercise control over their own environment through operable windows or accessible thermal comfort-controls, along with having access to daylight and views. Examining this balance through the lens of embodied carbon, operable windows and more windows equate to an increase in embodied carbon, though results may vary depending on the embodied carbon intensity of the project's wall assemblies and window-to-wall ratio. To understand this impact, an embodied carbon analysis should be included as design decisions are made.

BUILDING MATERIALS

Sensitivity analysis can be used within LCAs to determine which building materials are the least impactful from an embodied carbon-perspective. However, material choices are limited in healthcare due to several reasons.

It is important to establish the classification of the project as part of its vision since this relates to functionality after an event for residents and the surrounding community. This classification has a significant impact on the structural systems and specifications, which will in turn impact the strategies to reduce embodied carbon on a project. The higher the classification,

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