

# Perkins&Will Vancouver Studio

## Tenant Improvement



Perkins&Will relocated its Vancouver Studio and approximately 145 employees to the 22nd floor of Arthur Erickson Place in the spring of 2024. The design of the new workplace offered a unique opportunity to showcase its values and a commitment to reduce embodied carbon.

### Carbon Reduction Strategy

To have the greatest embodied carbon impact, the project team used an embodied carbon reduction hierarchy known as reuse, reduce, specify.

- 1. Reuse:** existing materials and products are used instead of constructing with new materials, preventing the need to extract raw materials from the earth and manufacture new building products, both of which are carbon intensive processes. Through reuse of an existing building or building component's upfront carbon (life cycle stage A) is reduced.
- 2. Reduce:** efficient design limits material volume and waste—reducing the quantity of products and material required to design and construct a building.
- 3. Specify:** Selection of low carbon material alternatives manufactured to reduce carbon and the impact the material has on Global Warming.

### Project Overview

#### Location

Vancouver, British Columbia

#### Project Type

Office Tenant Improvement

#### Gross Floor Area

1,288 square metres

### Project Team

#### Owner

Perkins&Will

#### Architect

Perkins&Will

#### Contractor

Turner Construction



Quantifying Embodied Carbon



Embodied Carbon Approach

A life cycle assessment (LCA), using TallyCAT, was completed by Perkins&Will in Schematic Design phase, based on a combination of the City of Vancouver Embodied Carbon Guidelines and the Carbon Leadership Forum’s benchmarks. This acted as a baseline.

Embodied carbon was tracked and reduced throughout the design and construction phases using the principles of the Carbon Reduction Strategy. A proposed LCA was built in the Construction Phase, representative of the final built project.

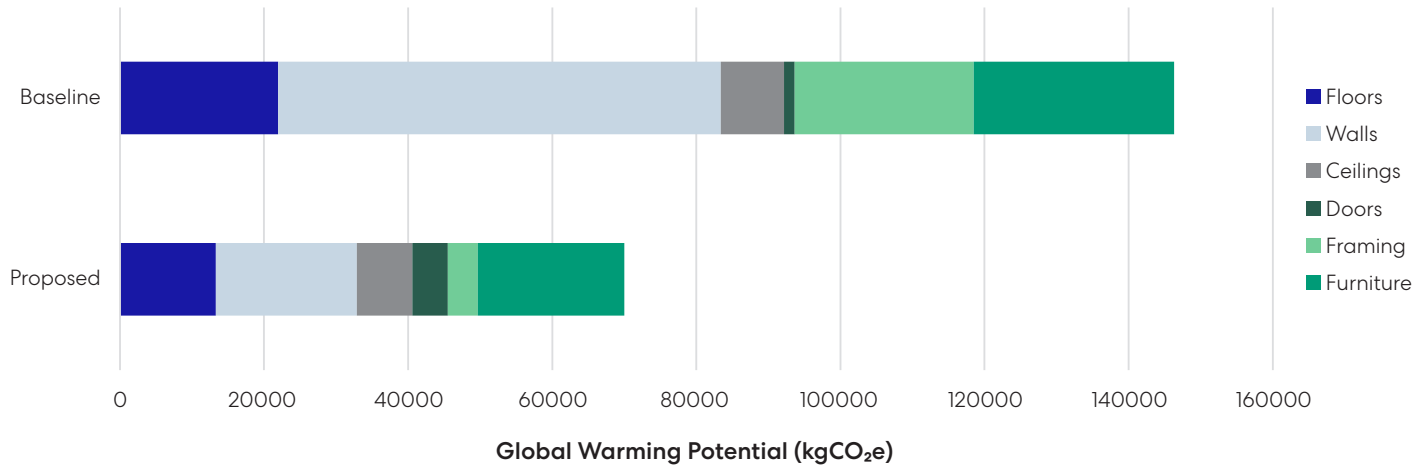
The baseline and proposed LCA calculates the life-cycle equivalent carbon dioxide emissions (i.e., global warming potent (GWP) impact, or embodied carbon) for modules A to C. The LCA results for the proposed model projected 54 kgCO<sub>2</sub>e/m<sup>2</sup> for modules A-C, resulting in a 52% reduction in embodied carbon from the baseline LCA.

Embodied Emissions

54 kgCO<sub>2</sub>e/m<sup>2</sup>

52% Reduction

**Embodied Carbon Assessment:** This graph shows the project’s total carbon reduction and the embodied carbon reductions by material group.



## Carbon Reduction Strategies

### Walls

Within the walls category, steel stud and gypsum wall board were identified as the highest contributors to embodied carbon. As a result, the project team reduced steel stud spacing within partition walls from 450mm to 600mm on center. Different types gypsum wall board were compared using EC3 and the final product installed was selected for its low carbon and durability profile. Through these measures, a 68% reduction in GWP was realized for the *Walls* category.

### Floors and Ceilings

Carpet tile and resilient floor were identified as the highest contributors to embodied carbon in these categories. Low carbon floor and ceiling finishes were explored using EC3 and installed. Through specification and procurement of low-carbon products, a 39% reduction in GWP was realized for *Floors* and a 12% reduction for *Ceilings*.



#### Salvaged Material

Salvaged chairs, marker boards, lockers, textile wall panels, modular desk systems, green wall, shelving.



#### Less Material

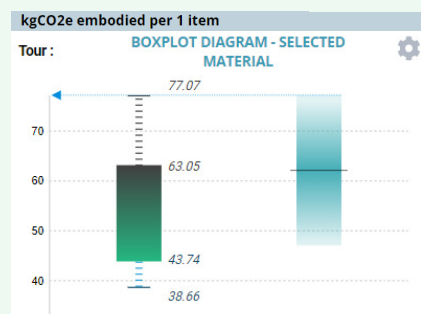
Increased stud spacing from 450mm to 600mm typical.

Exposed structure wherever possible. Celebrate “imperfections” inherent in heritage building.

Achieving design intent using the least amount of material possible.

#### EC3

Selection of low carbon materials using EC3 and TallyCAT.





## Carbon Reduction Strategies

### Framing and Furniture

The project salvaged maker boards, lockers, and furniture including desks, chairs, and millwork. The leaves of the salvaged desks were cut to size and repurposed into conference room tabletops and sit-stand desks. The project team decided to reduce the quantity of wall finish leaving the concrete structure bare of finishes to reduce the amount of material and celebrate “imperfections” inherent in a heritage building. Through these measures an 83% reduction in GWP was realized for the category *Framing* and a 27% reduction for the category *Furniture*.

### Doors

Doors made up the smallest portion of the baseline embodied carbon profile, representing 1% of the total GWP. The majority of existing doors in the new space were salvaged and reused.

Through the design team’s willingness to embrace and tangibly advance an approach to material circularity, embodied carbon was significantly reduced by 52% in the new workplace design.

