



2026

Embodied Carbon Action Plan

Introduction

This document contains WHM's updated short- and long-term action plans for pursuing sustainability and educating our team members and partners to purposefully incorporate more sustainable design practices. WHM supports SEI's vision that "all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050."

As structural engineers, we play a crucial role in developing greener built environments. Incorporating sustainable strategies at the structural level contributes to a reduced ecological footprint and enables us to drive meaningful change from the ground up. We understand that, as members of the engineering community, it is our responsibility to design and construct safe, sustainable, and efficient structures for our communities. Having witnessed both the benefits of Net Zero and Passive House buildings, as well as the consequences of failing to address environmental issues, we are committed to advancing more efficient and sustainable design practices.

WHM continues to implement carbon reduction strategies and recommendations during the design development of our projects and we continue to explore how we can further reinforce our commitment to the SE2050 program.

Summary of SE 2050 Deliverables

- **Education Plans**
- **Knowledge Sharing Narrative**
- **Reporting Plans**
- **Embodied Carbon Reduction Strategies**
- **Advocacy Plans**
- **Lessons Learned**

Sustainability Team

WHM's Sustainability Team is continuing to recruit new members following a period of staff reductions due to current market conditions. In the meantime, we remain confident that our existing team will continue to share valuable resources and expertise with both our staff and clients.



Jordan Ju, EIT



Kurt Quines, P.Eng
Embodied Carbon Champion



Andrew Kim, Proposal
Coordinator and
Marketing Specialist



Stephen Oord, EIT



Monica Candy, BSc

Inspired team that is passionate about sustainable design and efficient structures



Education Plan

Creativity and innovation are at the heart of WHM’s corporate values. The company has always promoted those values by providing its team members with opportunities for growth in knowledge and experience through mentoring and regular professional development programs. As part of the SE 2050 commitment, WHM will provide resources and learning opportunities to raise awareness and teach about embodied carbon.

Committed Tasks	Status	Implementation
<u>Elective</u> Tiered Training Framework	Ongoing	Provide ongoing training to all WHM staff as follows: Level 1 (All Staff): Fundamentals of embodied carbon Level 2 (Design Staff): How to use tools (ECOM) Level 3 (Project Leads): Making carbon-informed decisions at concept stage
<u>Elective</u> Staff Targets	Ongoing	100% of technical staff complete at least 2 hours of embodied carbon training annually At least 50% of Project Engineers trained in LCA tools by end of 2026
<u>Elective</u> Tool Training	Ongoing	Formal training sessions on the following: - LCA tool - ECOM - Revit workflow for quantity takeoffs
<u>Elective</u> Internal Carbon Playbook	Ongoing	Create a “WHM Low Carbon Design Guide” - Typical slab spans vs. carbon impact

		- Concrete mix benchmarks - Timber vs. concrete vs. steel comparison
<u>Elective</u> Project-based learning	Ongoing	Review 1 project per quarter related to embodied carbon - “What we tried” - “What worked” - “Carbon impact delta”

Knowledge Sharing Narrative

Part of our knowledge-sharing strategy is to develop an Education Influence System (EIS) to engage our clients, industry partners, and the rest of our community for deeper conversations about carbon reduction strategies and how to implement them. Spearheaded by the De-Carbonators, WHM will facilitate research on various construction materials and distribute and discuss findings through round-table meetings, shared portals and online channels.

Committed Tasks	Status	Implementation
<u>Elective</u> Develop and implement a workflow that makes it easier to make early design decisions based on embodied carbon.	Started	A workflow will be formalized in a reference document that addresses embodied carbon reduction strategies during the different stages of the project.
<u>Elective</u> Communicate the embodied carbon impacts of different design options to clients with creative and effective data visualization.	Ongoing	We continue to utilize software, such as Revit, AutoCAD, and Excel, to visualize the impact of sustainable design decisions.
<u>Elective</u> Compare different design options with embodied carbon as a performance metric during the project concept phase.	Ongoing	We have used and will continue to use SE 2050's ECOM (Embodied Carbon Estimator) in our pursuit of institutional projects.

Elective Incorporate sustainably harvested biogenic materials in at least one project.	Ongoing	We are currently working on several wood-frame and mass timber buildings, including SFU Residence Phase 3 and 351 W 3 rd Ave.
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Reduction Strategies

One of the key factors in reducing embodied carbon in our future building projects is promoting sustainable options in collaboration with external consultants, as well as enhancing in-house design efficiency. We will continue to work closely with clients and architects to incorporate more sustainable materials; such as mass timber and low carbon concrete - and to recommend additional strategies wherever possible.

We are also committed to continually improving our structural designs to optimize material use. In addition, we will engage with contractors to collect relevant data and build a comprehensive embodied carbon database, enabling us to further refine and optimize our design approach moving forward.

Committed Tasks	Status	Implementation
Elective Project Carbon Budgets	Ongoing	Set kgCO ₂ e/m ² targets at conceptual stage
Elective Minimum Strategy Checklist (apply to every project)	Ongoing	Concrete: - Use SCMs where feasible - Target % cement replacement Structural Efficiency - Span optimization - Grid rationalization Material Selection: - Evaluate timber option at concept stage
Elective Typical Design Benchmarks	Ongoing	Create internal benchmarks for each material (kgCO ₂ e/m ²): - Wood-frame residential - Concrete residential

<u>Elective</u> Optimization of Standard Details	Ongoing	Reduce overdesign: - Slab thickness library optimization - Rebar optimization - Connection standardization
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Reporting Plan

WHM will utilize existing software, such as Revit and embodied carbon calculators, to measure, track, and report embodied carbon. For projects requiring life-cycle assessments or embodied carbon calculations for third-party standards; such as LEED, the Canada Green Building Council's (CaGBC) Zero Carbon Building Standard, and/or the City of Vancouver, we will utilize the OneClick Life Cycle Assessment tool.

Committed Tasks	Status	Implementation
<u>Elective</u> Project submission targets	Ongoing	Submit minimum 2 projects to SE2050 database in 2026 cycle
<u>Elective</u> Clearly defined workflow	Ongoing	At each stage of the project: - SD: estimate using ECOM - DD: refine material quantities - CD: finalize with specs and assumptions
<u>Elective</u> Minimum reporting requirements	Ongoing	% of projects reporting embodied carbon Report the following: - Total kgCO₂e - kgCO₂e/m² - Structural system type
<u>Elective</u> Internal dashboard	Ongoing	Track the following: - Average carbon intensity per project type - Year-over-year improvement

Advocacy Plans

While efficient and sustainable structural design is paramount, our efforts alone are not sufficient to significantly reduce embodied carbon in our projects. Achieving meaningful progress will require the collaboration and support of fellow consultants, project partners, government agencies, and the broader community to accelerate the transition toward more sustainable practices.

Committed Tasks	Status	Implementation
<u>Elective</u> Client facing actions	Ongoing	Include embodied carbon discussion in 100% of proposals Provide carbon comparison options at concept stage
<u>Elective</u> Industry engagement	Ongoing	Attend local events and information sessions on embodied carbon especially the ones where a deciding stakeholder will be involved Meet other professionals with the same embodied carbon goals
<u>Elective</u> Collaboration with Architects	Ongoing	Propose “Low Carbon Kickoff Meetings” for key projects
<u>Elective</u> Public Thought Leadership	Ongoing	Share LinkedIn posts about the goals of SE2050 and how WHM is currently working towards them Review case studies quarterly
<u>Elective</u> Policy and Standards	Ongoing	Engage with municipal policies (Vancouver embodied carbon requirements) and provide feedback when possible.





Lessons Learned

We continue to recognize the challenges of implementing the goals of SE2050, particularly in regions where embodied carbon calculations are not mandatory. However, we are beginning to see sustainability consultants become more actively involved in recent projects, and we look forward to collaborating with them in the future.

We also understand that the most impactful decisions occur during the conceptual stage of a project. Therefore, our goal is to initiate the embodied carbon conversation as early as possible; ideally during the proposal stage.