



# 2025

## Embodied Carbon Action Plan

# Introduction

This document contains WHM's 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 the development of greener built environments. Incorporating sustainable strategies at a structural level contributes to a lighter ecological footprint overall and allows us to affect change at a base level. We understand that, as members of the engineering community, it is our duty to build safe, sustainable, and efficient structures for our community. We have witnessed the benefits of constructing Net Zero and Passive House buildings, as well as the consequences of neglecting to address environmental issues, and thus, we commit to contributing to more efficient and sustainable designs.

WHM has already been implementing carbon reduction strategies during the design development stage of certain projects, such as systematic exploration of design possibilities and material selection to maximize structural efficiency. As we join the SE 2050 Commitment Program, we will endeavour to further develop more detailed and project-specific strategies that will help reduce environmental impact for a more sustainable future.

## 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 was formed in the summer of 2023. Calling themselves The De-Carbonators, this team of inspired and passionate engineers will intensify WHM's sustainability efforts by leading the charge and facilitating the sharing of knowledge and resources with the team and our external partners.



Jordan Ju, EIT



Kurt Quines, P.Eng  
Embodied Carbon Champion



Amr Abdallah, PhD, EIT



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
Distribute an Internal Announcement announcing your firm's pledge to join SE 2050 along with embodied carbon resources.	Complete	A SharePoint folder has been created for the WHM team to access information and resources on embodied carbon and sustainability strategies.
Select and nominate an internal embodied carbon champion.	Complete	Kurt Quines has been appointed as WHM's Embodied Carbon Champion.
<b><u>Elective</u></b> Provide a narrative of how the Embodied Carbon Reduction Champion will engage in embodied carbon reduction at each office.	Ongoing	WHM remains committed to self-education, research, resource gathering, and knowledge sharing. The Embodied Carbon Champion will lead company-wide education initiatives and drive sustainability efforts forward.

<b><u>Elective</u></b> Incorporate embodied carbon education in your onboarding process for all new employees.	Ongoing	WHM has integrated webinar content with Continuing Education (CE) plans. WHM has planned webinar content two times per year.
<b><u>Elective</u></b> Present at least (1) webinar focused on embodied carbon and make a recording available to employees.	Started	WHM plans to incorporate webinars into the onboarding process for new employees.
<b><u>Elective</u></b> Train all of your firm's structural engineers on the core concepts and skills required to measure, reduce, and report embodied carbon. (Ref. SE 2050 Resources)	Ongoing	WHM will make carbon reduction a core value, integrating it into CE plans and webinar content. We will invite industry professionals and the De-Carbonators to present at Lunch and Learn sessions. Additionally, the SharePoint folder is now accessible to the entire WHM team as a resource.
<b><u>Elective</u></b> Initiate an embodied carbon interest group within your firm and outline their goals. This group may more broadly address sustainability, but they must include embodied carbon.	Ongoing	A shared portal containing carbon-related data and sustainability resources has been created for the WHM team. Interested groups may also be engaged to address alternative design challenges of specific projects to improve sustainability.
<b><u>Elective</u></b> Create an Embodied Carbon digital resource wiki and/or forum on your firm's internal website for staff to create, share, and discuss Embodied Carbon educational resources.	Started	In addition to the SharePoint folder, WHM will create a Team Chat or internal forum for team discussions on research findings and case studies.
<b><u>Elective</u></b> Provide narrative outlining plans for minimum (2) firm-wide presentations per year on the topic of embodied carbon	Ongoing	De-Carbonators have coordinated with the Lunch and Learn coordinator/Professional Committee to engage with industry professionals on embodied carbon to deliver at least 2 presentations per year.



## 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.

# Reduction Strategies

One of the key factors in reducing embodied carbon in our future building projects is to promote sustainable options with external consultants and to increase in-house design efficiency. We will continue to work with clients and architects to incorporate more sustainable materials, such as mass timber, low carbon concrete, and suggest other strategies, whenever possible. We will continue to improve our structural designs to optimize material use. We will also engage contractors to collect data to build our database for embodied carbon resources to further optimize our design approach moving forward.

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.
<u>Elective</u> Incorporate sustainably harvested biogenic materials in at least one project.	Ongoing	We are currently working on several wood-frame and mass timber buildings, such as a commercial building on 101 West 6 <sup>th</sup> , West Kelowna City Hall, SFU Residence Phase 3 and 351 W 3 <sup>rd</sup> Ave.



# 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 analysis or embodied carbon calculations for third parties, such as LEED, CAGBC's Zero Carbon Building Standard and/or the City of Vancouver, we will refer to OneClick Life Cycle Assessment tool.

Committed Tasks	Status	Implementation
<u>Elective</u> Submit a minimum of (2) projects per U.S. office with structural engineering services to the SE 2050 Database.	Complete	WHM will continue supplying project data in the coming years.
<u>Elective</u> Describe how different project teams or managers are measuring and reporting embodied carbon.	Ongoing	WHM now measures and reports embodied carbon using specialized software and collaboration with contractors and developers.
<u>Elective</u> Compare the embodied carbon emissions from multiple projects across your firm. Analyze and document what data or pieces of information are most important and communicate the findings to your firm.	Ongoing	We designed a sample concrete structure to compare one-way and two-way designs. We will continue to prepare detailed designs for both in the upcoming year to compare the embodied carbon data from each system.
<u>Elective</u> Propose other actions that promote the reporting of embodied carbon data and describe their value.	Not Yet Started	We will provide case studies to peers to show the significance of tracking.



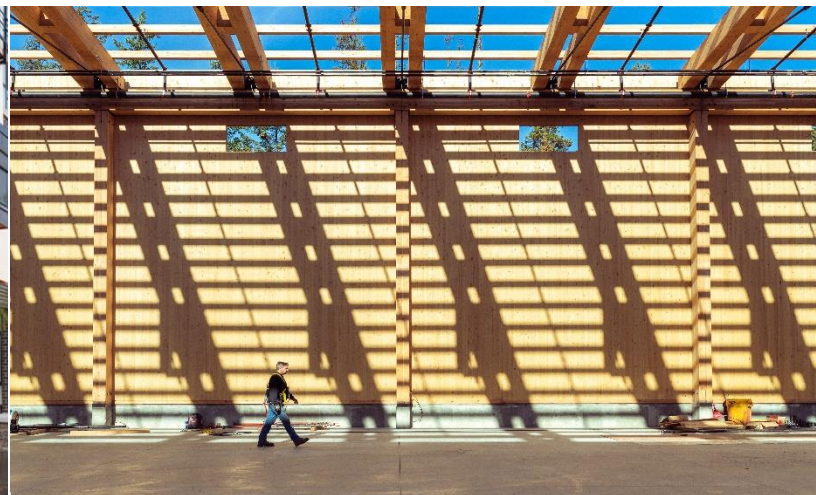
# Advocacy Plans

While efficient and sustainable structural designs are paramount, our efforts alone will not be enough to reduce embodied carbon in our structures. We will need the help and support of other consultants, our partners, the government, and the rest of the community to accelerate the shift to more sustainable practices.

Committed Tasks	Status	Implementation
<u>Elective</u> Describe the value of SE 2050 to clients and partners.	Complete	We have officially announced our SE 2050 commitment to our clients and have incorporated it into our email signatures.
<u>Elective</u> Publicly declare WHM as a member of the SE 2050 Commitment.	Complete	WHM's SE 2050 commitment is prominently featured on our website and integrated into our marketing materials.



We anticipate the road to embodied carbon reduction will be long and filled with many challenges, but the opportunity to make a difference is greater, and we are looking forward to the progress our collective efforts will achieve.





## Lessons Learned

This year, we saw firsthand how sustainability can make a tangible impact on winning project proposals. More clients are prioritizing low-carbon solutions, and to stay competitive, we need to be on par with other firms leading the charge in sustainable design.

To further advance our expertise, we will continue our detailed design studies on one-way and two-way concrete systems to determine their embodied carbon. Additionally, we will expand our firm-wide education and knowledge-sharing initiatives and build on the initiatives we introduced last year through podcast, social media and client presentations.