



EMBODIED CARBON ACTION PLAN

2025



TABLE OF CONTENTS

- Introduction
- MHP Sustainability Committee
- Education Plan
- Reporting Plan
- Reduction Strategy
- Advocacy Plan
- Lessons Learned





INTRODUCTION

In 2023, MHP pronounced our support for the SE 2050 movement and committed to taking the steps necessary to contribute to reducing the embodied carbon footprint of our built environment. Through this pledge, our MHP Sustainability Committee is leading the effort in educating ourselves on the latest carbon reduction design strategies, engaging and informing our clients on these strategies, and specifying low carbon impact materials on our projects. We support the vision that all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050. The SE 2050 Program goals align with our core values and we are passionately committed to taking the steps necessary to reduce embodied carbon emissions on our projects.



MHP SUSTAINABILITY COMMITTEE



Dan Fox, S.E.
Committee Leader



Kyle White, S.E.
Committee Member



Matt Wexler, S.E.
Committee Member

Our MHP Sustainability Committee manages our firm's participation in the SE 2050 movement and consists of a dedicated group of individuals focused on the common goal of reducing embodied carbon contained within our designs. Our team will lead our company-wide embodied carbon education program; will develop a program for implementing life-cycle assessments (LCAs) into our design projects; will gather and report the LCA results to the SE 2050 database; will update MHP typical details and specifications to implement embodied carbon reduction strategies; and will prepare and lead MHP's embodied carbon advocacy plan.



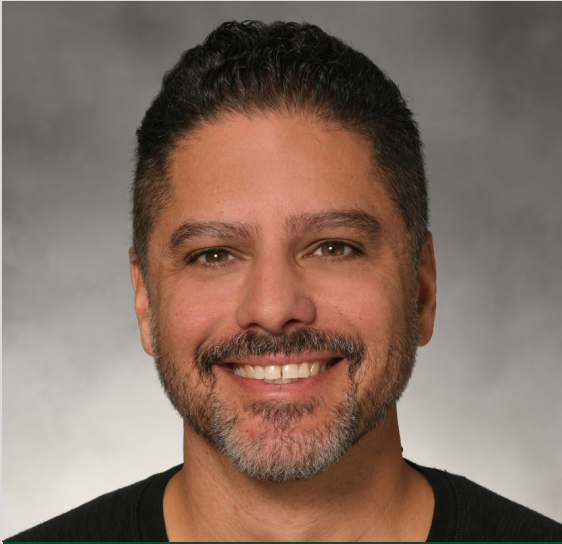
Sonia Huynh, P.E.
Committee Member



Michael Daciolas-Semon, S.E.
Committee Member



Nick Coburn, P.E.
Committee Member



Shawn Alvira
Committee Member



EDUCATION PLAN

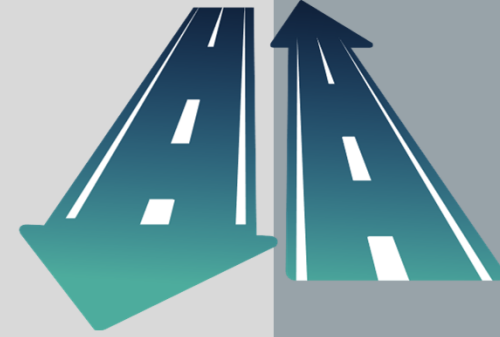
MHP is committed to continuous learning and sustainability in structural engineering. In our first year in the SE 2050 program, we completed the following:

- **Sustainability Committee Formation**
 - Established the MHP Sustainability Committee.
 - Defined goals for embodied carbon reduction and education.
 - Held quarterly meetings to discuss initiatives and industry advancements.
- **ECAP Report Distribution**
 - Shared the MHP ECAP report with our Long Beach and San Diego offices.
 - Reviewed key takeaways and next steps.
- **Employee Education**
 - Internal seminar on embodied carbon reduction scheduled for early 2025.
 - Integrated sustainability training into employee onboarding process.
 - Attended webinars and events:



- **CLF LCA Tool user group: Monthly Meetings**
- **SEAOSC Sustainable Design and Resilience: Monthly Meetings**
- **CLT Mass Timber Construction Insights Event: “42XX” Tour and Panel Discussion (06/20/24)**
- **Blueprint for Sustainability Webinar: Bluebeam: Creating Greener Buildings (06/27/24)**
- **SE 2050 Webinar: CAL Green Embodied Carbon Requirements for Wood (07/17/24)**
- **Embodied Carbon 101 Basic Literacy Webinar: BSA Boston Society for Architecture (08/01/2024)**
- **SE University Webinar: Masonry Design Efficiency (9/18/24)**
- **SEAOSC Structured Connections Event: San Luis Obispo Sustainable Design (01/31/2025)**
- **SEI North America Webinar: Structural Engineering Sustainability Symposium (02/05/2025)**

EDUCATION PLAN CONTINUED



FUTURE GOALS FOR CONTINUED EDUCATION

- **EMBODIED CARBON TOOL COMPARISONS**

- Reviewed tools for carbon analysis:
 - **SE 2050 ECOM:** *Input project data to gather baseline carbon conversion factors to compare with other LCA tools.*
 - **Tally:** *Linked projects to Revit, manually assigned materials to environmental datasets to analyze the impact of material choices on GWP, acidification, and ozone depletion.*
 - **WoodWorks Carbon Calculator:** *Input project data to test WoodWorks tool for estimates on carbon sequestration on timber projects.*
 - **Equilibrium Engineers CLT spreadsheet:** *Downloaded and analyzed spreadsheet for use on upcoming CLT projects.*

- **INDUSTRY ENGAGEMENT**

- Participated in Los Angeles CLF Hub events.
- Shared insights with MHP staff.

As we progress in our SE 2050 commitment, we aim to build upon our foundational education efforts with the following initiatives:

- **Annual office presentations** on the latest embodied carbon reduction strategies and analysis methodologies.
- **Development of written guidelines** outlining best practices for embodied carbon reduction.
- **Implementation of LCA software training and demonstrations** to enhance team proficiency with embodied carbon analysis tools.
- **Increased industry engagement** through expanded participation in sustainability-focused discussions with clients and event attendance.

By continuing to prioritize sustainability education, MHP will further integrate embodied carbon reduction strategies into our engineering practice and contribute to meaningful carbon reduction in our industry.

REPORTING PLAN

SE 2050 DATABASE CONTRIBUTIONS

Over the past year, we made significant progress toward integrating embodied carbon tracking into our practice. Our efforts focused on establishing a baseline, improving workflows, and exploring tools for more robust analysis. Key accomplishments include:

- **Project Reporting:** We reported embodied carbon data for four projects—two from each of our offices—selected to represent a range of building sizes and structural systems. This helped us begin identifying trends and set a foundation for future carbon reduction strategies.
- **ECOM Tool Use:** We used the SE 2050 Embodied Carbon Order of Magnitude (ECOM) calculator to estimate embodied carbon values based on material quantities extracted directly from our structural Revit models.
- **Workflow Enhancements:** We enhanced our Revit templates by developing and implementing material quantity schedules, streamlining future data exports for embodied carbon reporting.
- **Tool Exploration:** We began evaluating more detailed LCA tools, including Tally, to improve the accuracy and depth of our carbon assessments moving forward.



REPORTED PROJECTS

1

BIG-BOX RETAIL IN SOUTHERN CALIFORNIA

- Single-story, concrete tilt-up construction with interior steel columns and steel joist framing
- 145,800 sqft
- LCA evaluated during CD phase

2

EDUCATIONAL BUILDING IN SOUTHERN CALIFORNIA

- 4-story, cast-in-place concrete construction
- 272,800 sqft
- LCA evaluated during CD phase

3

ASSISTED-LIVING RESIDENTIAL IN SOUTHERN CALIFORNIA

- 2-story, wood frame construction
- 76,000 sqft
- LCA evaluated during CD phase

4

PUBLIC ASSEMBLY BUILDING IN NORTHERN CALIFORNIA

- 2-story, steel, moment frame construction
- 16,000 sqft
- LCA evaluated during CD phase

FUTURE GOALS



- **Look for ways to improve and streamline that process, while continuing to explore other LCA tools.**
- **Track embodied carbon on our selected projects during other design phases. Thus far, we have measured and reported embodied carbon based at the end of the construction documents phase.**
- **We will begin to compare embodied carbon from multiple projects, during multiple design phases, to better understand the design decisions we can make to reduce the overall embodied carbon footprints of our buildings.**

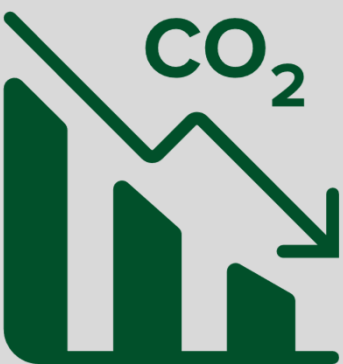
REDUCTION STRATEGY

GOALS FOR THE COMING YEAR

- Shift from prescriptive to performance-based concrete specifications to optimize mixtures, minimize overdesign, and set GWP targets verified with EPDs.
- Advocate for advanced analysis and innovative solutions to minimize strengthening scope, reducing material usage in retrofit and adaptive reuse projects.
- Educate clients on the embodied carbon impact of structural materials and collaborate to set project-specific reduction goals.

FUTURE GOALS

- Integrate an LCA Revit plugin into project workflows to track embodied carbon early and often, enabling data-driven decisions for reductions.
- Incorporate embodied carbon reduction provisions into our standard specifications, notes, and details for all material types.



ADVOCACY PLAN

KNOWLEDGE SHARING



Our first year primarily focused on internal knowledge development and solidifying our internal SE 2050 committee. We additionally achieved our Advocacy and Knowledge Sharing goals for our first year, including:

- Our company website has been updated with a page dedicated to sustainability and our SE 2050 commitment.
- Our SE 2050 committee and commitment were [announced via LinkedIn](#) on May 17, 2024.
- We are progressing toward formally incorporating SE 2050 principles into our standard project proposals through the addition of a dedicated section outlining our commitment and how it benefits all project stakeholders.
- We have continued to advocate for the use of advanced structural analysis and innovative solutions in retrofit and adaptive reuse projects to reduce new material and embodied carbon, including 4 major projects which kicked off during our first year and utilized advanced structural analysis as the engineering basis.
- We are progressing toward formally including SE 2050 principles in standard marketing collateral.
- While our engineering philosophy has always involved striving for efficient use of materials, this past year we began to call this by name, and informed and educated clients and colleagues on our SE 2050 commitment.

FUTURE GOALS

- Continue to spread the word via social media posts highlighting our commitment, efforts, and achievements in reducing embodied carbon in our projects.
- Develop a project case study presentation to accompany our marketing collateral and proposal language which demonstrates the embodied carbon reduction potential of advanced structural analysis as a design basis to current and prospective clients.

LESSONS LEARNED

- This year was our first time using an LCA tool to run life-cycle analysis. While we found the process of extracting the raw quantity data from Revit to be relatively straightforward, validating those quantities and importing the data into Tally required a significant effort.
- Even when the primary structure is timber or steel, concrete is still used for slabs, foundations, and other elements, and often makes up a large share of the project's embodied carbon. Its consistent presence makes it a key target for reduction through material specification and mix design.

