MHP
STRUCTURAL ENGINEERS

EMBODIED CARBON ACTION PLAN

2026

2050

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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.

SEI ASCE STRUCTURAL ENGINEERING INSTITUTE | SE2050 COMMITTING TO NET ZERO

MHP SUSTAINABILITY COMMITTEE

Michael Daciolas-Semon, 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 SE2050 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

Dan Fox, S.E.
Committee Member

Nick Coburn, P.E.
Committee Member

Shawn Alvira
Committee Member

MHP
STRUCTURAL ENGINEERS

EDUCATION PLAN

MHP is committed to continuous learning and sustainability in structural engineering. As part of our SE 2050 efforts, we have completed the following:

- **Sustainability Committee Formation**
  - Promoted the MHP Sustainability Committee.
  - Reviewed and affirmed goals for embodied carbon reduction and education.
  - Held quarterly meetings to discuss initiatives and industry advancements.
- **ECAP Report Distribution**
  - Shared last year's ECAP report with our Long Beach and San Diego offices.
  - Reviewed key takeaways and next steps.
- **Employee Education**
  - Presented an internal seminar on embodied carbon reduction in early 2026.
  - Integrated sustainability training into employee onboarding process.
  - Attended webinars and events:

- SEAOSC Policy to Practice: Is Your Building Carbon Compliant? (10/07/2026)
- SEAOSC Sustainability Summit (02/11/2026)
- Carbon Leadership Forum-Los Angeles Establishing Effective Baselines for EC Reduction: Insights for CALGreen's WBLCA Pathway Webinar (01/27/2026)
- Carbon Leadership Forum (CLF) Embodied Carbon Video Training Series (Modules 1-5) (10/02/2025)
- MHP Internal Office Presentation Introduction to Sustainable Design Internal (02/19/2026)
- SEAOSC Sustainable Design & Resilience Committee We have members on this committee and regularly attend meetings

EDUCATION PLAN CONTINUED

- **CARBON ANALYSIS TOOLS REVIEW**
  - **SE 2050 ECOM:** Entered project data to establish baseline embodied carbon conversion factors and compare results with other life-cycle assessment (LCA) tools.
  - **bimCAT:** Linked Revit models to the bimCAT platform and manually assigned materials to environmental datasets to evaluate the impact of material selections on global warming potential (GWP), acidification, and ozone depletion.
  - **EC3:** Used the EC3 database to review Environmental Product Declarations (EPDs) and compare embodied carbon intensities for common structural materials, including concrete and steel.
  - **WoodWorks Carbon Calculator:** Entered project data to test the tool's approach for estimating carbon sequestration associated with timber structural systems.
  - **Equilibrium CLT Carbon Calculator:** Downloaded and reviewed the spreadsheet for potential use in analyzing embodied carbon impacts on upcoming cross-laminated timber (CLT) projects.

FUTURE GOALS FOR CONTINUED EDUCATION

As we continue advancing our SE 2050 Commitment Program efforts, we plan to expand our internal knowledge and industry engagement through the following actions:

- **Annual internal presentations** covering current embodied carbon reduction strategies and analytical methods.
  - Concrete General Notes & Specifications (how to establish a weighted average target, how to get firm target for non-typical mix designs)
  - Deep Dive into Embodied Carbon Policies (e.g. CALGreen)
  - Incorporating LCAs into Design Workflow
- **Development of written best-practice guidance** for reducing embodied carbon in structural design.
- **Training and demonstrations** of life-cycle assessment (LCA) software to increase staff proficiency in embodied carbon analysis.
- **Broader industry participation** through sustainability discussions with clients and attendance at related events.

These efforts support MHP's ongoing goal of integrating embodied carbon reduction strategies into everyday engineering practice and contributing to measurable industry-wide carbon reductions.

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.
- **Compare and Contrast:** We were able to compare the embodied carbon impact of one of our reported projects this year, which has updated CALGreen specifications, with a very similar project from last year to evaluate the impact.
- **Tool Exploration:** We continued evaluating more detailed LCA tools, including bimCAT, 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
   - 148,600 sq. ft.
   - LCA evaluated during CD phase

2. **EDUCATIONAL BUILDING IN SOUTHERN CALIFORNIA**
   - 2-story, steel construction
   - 47,800 sq. ft.
   - LCA evaluated during CD phase

3. **RETROFIT OF COMMERCIAL BUILDING IN SOUTHERN CALIFORNIA**
   - 5-story, non-ductile concrete construction
   - 55,000 sq. ft.
   - LCA evaluated during CD phase

4. **CAMPUS STUDENT HOUSING BUILDING IN NORTHERN CALIFORNIA**
   - 2-story, wood shear wall construction
   - 36,000 sq. ft.
   - LCA evaluated during CD phase

FUTURE GOALS

- Refine and streamline our embodied carbon analysis process while evaluating additional LCA tools.
- Track embodied carbon at multiple design phases on selected projects, building on our current practice of reporting results at the construction documents phase.
- Compare embodied carbon data across projects and design phases to better inform design strategies that reduce overall building carbon impacts.

REDUCTION STRATEGY

Our reduction strategy focuses on improving material specifications, reducing structural material quantities through efficient design, and integrating embodied carbon analysis into project workflows.

STRATEGIES IMPLEMENTED IN THE PAST YEAR

- Transitioned from prescriptive to performance-based concrete and shotcrete specifications by updating our structural concrete general notes to allow mix optimization, including the use of supplemental cementitious materials (SCMs), later testing ages where appropriate, and EPD-verified GWP tracking.
- Established firm-wide GWP targets for all major concrete and shotcrete strength classes to guide mix design development and support embodied carbon reductions.
- Educated clients on the embodied carbon impact of structural materials and collaborated to establish project-specific reduction goals.
- Advocated for advanced analysis and innovative structural solutions to minimize strengthening scope and reduce material usage in retrofit and adaptive reuse projects.

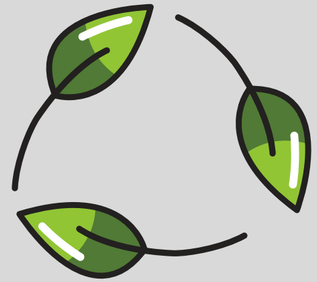
REDUCTION STRATEGY CONT.

SHORT TERM GOALS

- Expand low-carbon material provisions within our standard specifications, notes, and details for major structural material types.
- Reassess and refine firm-wide concrete and shotcrete GWP targets annually based project outcomes, supplier feedback, and updates to industry benchmarks.
- Track project-specific embodied carbon intensity and compare results with industry benchmarks for similar building types to evaluate performance and identify opportunities for improvement.
- Collaborate with contractors and suppliers to review mix designs, EPDs, and material options that meet structural requirements while achieving embodied carbon reduction targets.

LONG TERM GOALS

- Integrate LCA tools into project workflows to evaluate embodied carbon at multiple design phases.
- Expand embodied carbon tracking to an increasing percentage of projects each year.
- Develop structural material efficiency metrics (e.g., embodied carbon or material quantities per square foot) to better understand how design decisions influence embodied carbon.
- Promote reuse-first structural design strategies that prioritize retrofit and adaptive reuse where feasible.



ADVOCACY PLAN

KNOWLEDGE SHARING

We continue to advance advocacy and external knowledge sharing efforts to promote embodied carbon reduction in structural engineering, including:

- Publicly declared our SE 2050 Commitment and maintain a dedicated sustainability webpage, with periodic LinkedIn updates to increase awareness of embodied carbon in structural engineering and highlight ongoing efforts.
- Communicate the value of embodied carbon reduction to clients early in project development, incorporating carbon considerations into project goals and identifying opportunities for cost savings through efficient design.
- Engage with contractors, suppliers, and project teams to evaluate low-carbon material options, including EPD-informed concrete mix designs, and support implementation of performance-based specifications.
- Participate in industry organizations, including SEAOSC, AIA Committee on the Environment (COTE), and the Carbon Leadership Forum (CLF), to stay engaged with evolving best practices and contribute to broader industry efforts.

LESSONS LEARNED

- Achieving lower-carbon concrete mixes requires close collaboration with contractors and suppliers to balance structural performance, constructability, schedule constraints, and material availability.

- Integrating life-cycle assessment tools into design workflows requires significant effort to validate quantities and organize data, highlighting the need to streamline workflows as embodied carbon analysis expands.

- Reducing the quantity of structural materials through efficient design can have an equal or greater impact on embodied carbon than selecting lower-carbon materials alone.