



FORELL | ELSESSER

EMBODIED CARBON ACTION PLAN
SE 2050 / 2026 Edition

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2026 Edition

FORELL ELSESSER

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SE 2050 COMMITMENT

The mission of the SE 2050 Commitment is to support the SE 2050 Challenge and transform the practice of structural engineering in ways that are holistic, firm-wide, project based, and data-driven. By prioritizing the reduction of embodied carbon through the use of less and/or less impactful structural materials, participating firms can more easily work toward net zero embodied carbon structural systems by 2050.



60+

Years of Resilient, Sustainable & Climate Conscience Design

At the core of our profession is improving and protecting the communities we live in. The far-reaching effects of climate change are just as much a threat to our communities as the earthquakes and other natural disasters we have focused on for so long.

If we are to continue preserving the past and building towards the future, we must consider how our actions now will affect the generations to come.

For us, joining the SE 2050 commitment is the perfect way to help lead the change we want to see. Over the past year we've worked to implement our prior SE 2050 goals and have used lessons learned to inform our focus areas and goals as a company for the 2026 year.

FOCUS AREAS

EDUCATION

**EMBODIED CARBON
REDUCTION STRATEGIES**

REPORTING

ADVOCACY



EDUCATION

At Forell Elsesser we have created an internal education program to integrate the goals of SE 2050 and our Carbon Neutral Initiative with all our employees.

The focus of these goals include:

- Importance of sustainable design
- Incorporation of embodied carbon reduction strategies into the design process
- Sustainability literacy
- Life Cycle Analysis

Presentations & Workshops: We host an annual series of presentations and workshops centered around Earth Day where we engage with external speakers, explore new technologies, discuss when key design decisions can be made on projects for significant embodied carbon reductions, and host brainstorming sessions and hands-on workshops for the staff.

Bringing Awareness: Monthly updates on sustainability happenings occur throughout the year at staff meetings to continue to bring awareness and specifically target our primary focus areas noted above. Our Carbon Neutral Initiative also tracks local, state, and federal policy related to sustainable design in the building industry and provides input to various relevant policy initiatives.

External Education Opportunities: We have also expanded our external education outreach presenting at Greenbuild, SEI and SEA events, and local Architect's and General Contractors' offices.

Firm Alignment & New Processes: We continue to onboard and train new staff in performing LCA's, and are working to align our office-standard LCA with the SEI Prestandard. Additionally, we have implemented a QA/QC sustainability matrix that tracks milestones and sustainability goals for all current projects and assigns a liaison from the Carbon Neutral Initiative to assist the project team.



EDUCATION

Looking forward, Forell Elsesser is curating and maintaining relationships with local Universities, industry organizations, trade partners, and start-ups to bring to market rapidly emerging technologies and enable integration into our design and specifications.

Our areas of focus for this coming year include:

Low Carbon Concrete: Building on our success in this area, we will continue to look for areas to push the envelope on embodied carbon reductions in concrete through existing technologies and finding opportunities for implementation of new technologies. We are actively partnering with new technologies and suppliers to bring these into our projects.

Research Partnerships: The area of embodied carbon is a quickly changing landscape. In recent years, Forell Elsesser has partnered with local universities to bridge the gap between research and implementation. A current university research project is with UC Berkeley, looking at the seismic performance and carbon reductions of using local California-harvested wood for dowel-laminated timber floor systems. We also work with emerging technology companies and suppliers to accelerate implementation on our projects

External Education: We will continue to work with Architects, Owners, and Contractors with sustainable structural design education and streamlining the process for embodied carbon reduction goals on projects. We're also taking an active role on design project teams in evaluating and complying with CalGreen requirements and projects pursuing LEED v5.



EMBODIED CARBON REDUCTION STRATEGIES

Sustainable Design Practice: While Forell Elsesser has long been an advocate for sustainable design, our commitment to SE 2050 has pushed us to formally pursue specific goals that enable us to more directly contribute to our projects' sustainability goals. To that end, we have focused on electives that work to improve the foundation of our sustainable design practice.

Incorporating Carbon Reduction Goals: One strategy has been to incorporate carbon reduction goals into our specifications. For our concrete specifications, we developed a tool that not only determines a target GWP but allows for the user to evaluate the practicality of that target by comparing it to several different national and local benchmarks. We use this tool to collaborate with local concrete suppliers and reduce the embodied carbon on our projects below the regional baseline.

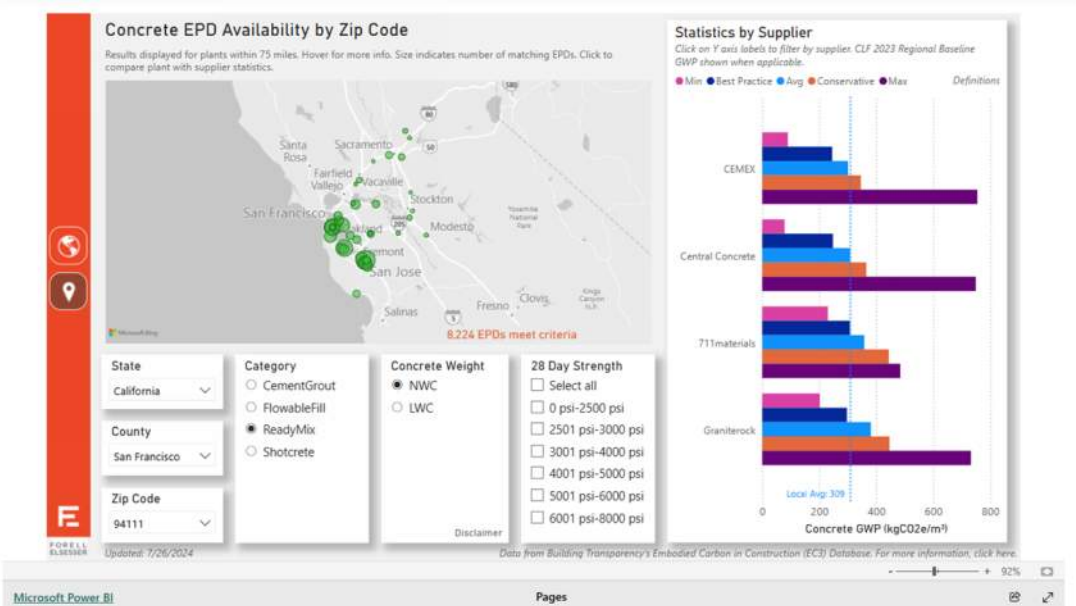
For our steel specifications, we require facility-specific or industry average EPD's for all projects. Looking forward, we plan to further refine our steel specifications to reduce embodied carbon on our projects.

Tool Development: This year, we continued to expand and formalize tools that we use internally to track embodied carbon on projects, as well as published "Embodied Carbon Data Visualizations" on our website for concrete (see right) and mass timber.

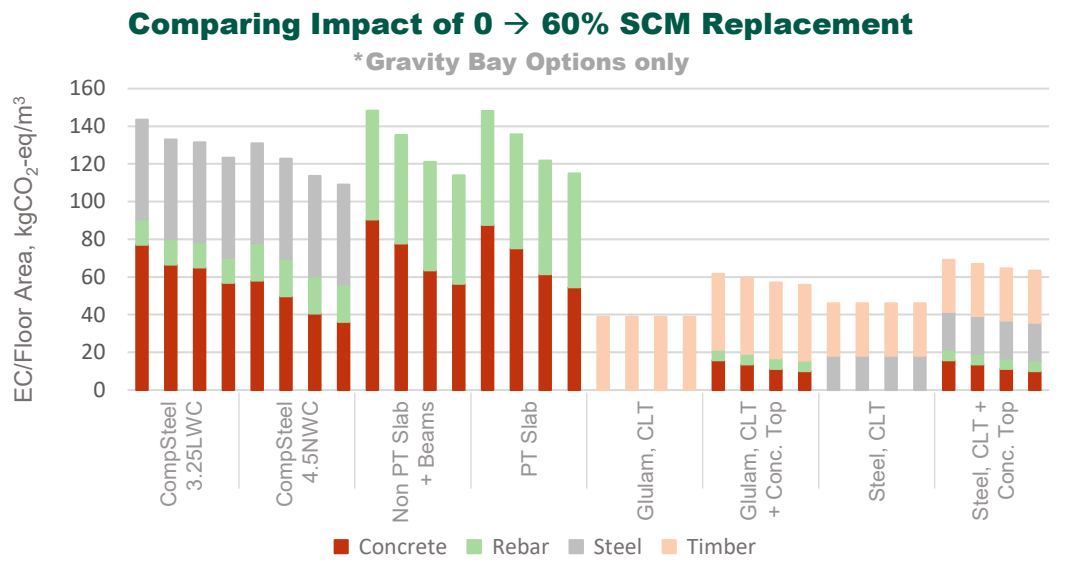
Mass Timber Initiative: In recent years, our office implemented a mass timber initiative to encourage and promote the use of mass timber on local projects to significantly reduce embodied carbon on projects. Looking forward, we're exploring the use of California-sourced dowel-laminated timber (DLT) to reduce the embodied carbon associated with shipping larger mass timber products like CLT from outside of the state.

Next Steps: To put these tools to use on projects, the next step has been to work with project managers across our firm to educate them on how to recognize opportunities for contributing to a project's sustainability goals. Over the past year, we implemented a standard sustainable design QA/QC process for projects across our office.

Concrete EPD Availability forell.com/concrete-epd-availability



Comparing Impact of 0 to 60% SCM Replacement Gravity Bay Options



EMBODIED CARBON REDUCTION STRATEGIES

Our Goal: The overall goal for this year is to focus on utilizing the knowledge and tools that we have developed to inform the decisions we make on projects.

This coming year, our goals are to:

- Continue to develop visualizations that communicate embodied carbon metrics to our staff and our clients.
- On a minimum of five (5) projects, we are committed to establishing a concrete GWP target in our specifications below the regional average. Looking forward, our goal is to make this standard practice across all applicable projects over the next five years.
- Consulting with representatives from the steel industry, update our steel specifications to effectively target embodied carbon reductions.
- Continue to implement our sustainability QA/QC process on projects in the office and work with project managers to set progressive embodied carbon reduction targets.



REPORTING

Forell Elsesser has invested time and resources to develop tools and standards for tracking and reporting embodied carbon on past and present projects. Along with contributing to SE 2050's LCA database, we aim to increase staff familiarity with embodied carbon metrics and use LCA results to inform sustainable design choices.

LCA tracking at Forell Elsesser utilizes:

- Tally REVIT plug-in
- Internally developed embodied carbon calculator tools
- Internal database of projects with comparisons based on materials, lateral system, foundation type, and site class

LCAs: Similar to LEED standards, we use tools that reference the TRACI methodology in our project LCAs. The scope focuses on product manufacturing to transportation stages. We also include end-of-life scenarios when the project information is available. In the coming year, we plan to evaluate and update our standard LCA methodology based on the latest tools available and the SEI Prestandard.

Forell Elsesser commits to report LCA results and associated structural material quantities (SMQs) from at least three anonymous projects on an annual basis.

Total GWP Comparison By Material

27 projects meet criteria



Embodied Carbon by Material

Embodied Carbon totals for FE projects broken down by different project attributes



ADVOCACY

Forell Elsesser recognizes our role in reducing the embodied carbon of our projects and advocates for a range of reduction strategies to our clients. We are a leader in the structural engineering community for sustainable design strategies and share our expertise with the wider AEC industry on our website, LinkedIn, and at industry events.

Internal Reference Guide: We created an internal reference guide that outlines questions to ask during schematic design regarding a project's sustainability goals for engineers and firm leaders.

Marketing Materials: Marketing materials for project pursuits include a brochure and a slide deck highlighting our firm's expertise in sustainable design strategies.

Sharing Our Commitment: We highlight our commitment to SE 2050 to our clients, market our Carbon Neutral Initiative on LinkedIn, and maintain a sustainability section of our website.

Active Participation at Events & Conferences: Forell Elsesser engineers have presented at AEC events and conferences regarding our sustainable design practices.

Knowledge Sharing with Industry Leaders: We invite industry partners and leaders in the academic space to present their work and research to our staff on reducing embodied carbon in structural design (e.g. ArcelorMittal, Prometheus, Mass Timber Industry Partners).

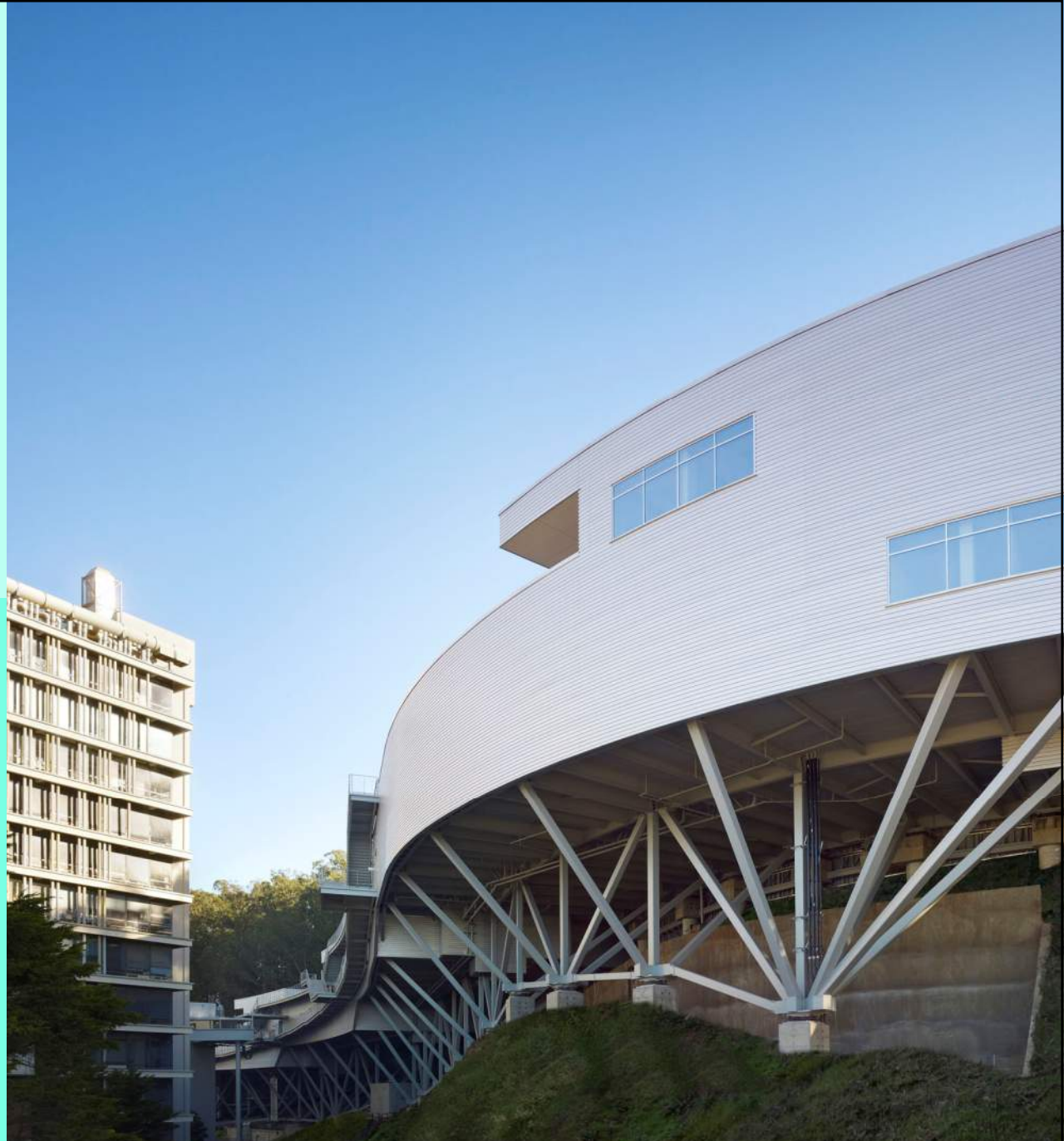
Engineering Community Involvement: Forell Elsesser engineers are involved in organizations such as SEAONC Sustainable Design Committee, AIA SF's Committee on the Environment, Carbon Leadership Forum, ACI local chapters, and SEI's Sustainability Committee.

SE 2050 Outreach Strategy

The value of SE 2050 is conveyed to clients in marketing materials and our commitment has been highlighted on LinkedIn. FJE staff have presented at SEAONC and AIA meetings and events and at GreenBuild on embodied carbon.

2026 Advocacy Goals

This year, we will focus on marketing the sustainability services we have been developing in the past few years. We want to convey to our clients that, as a firm, we are designing with a sustainable perspective. This includes studying design options in early project phases, tracking sustainability targets at major milestones, and collaborating with the larger project team on sustainable solutions.



UCSF, Regeneration Medicine Building, San Francisco, CA / First LEED Innovation & Design Credit for an Innovative Seismic System



CSU Monterey Bay, Arts, Humanities, & Social Sciences Building, Monterey, CA / 56,000 SF / LEED Platinum

ELECTIVE DOCUMENTATION

Education:

- Provide a narrative of how the Embodied Carbon Reduction Champion will engage embodied carbon reduction at each office. *(Required)*
- Present at least (1) webinar focused on embodied carbon and make a recording available to employees. Include this resource in your orientation and on-boarding program. *(Required)*
- Incorporate embodied carbon education in your onboarding process for all new employees.
- Train all of your firm's structural engineers on the core concepts and skills required to measure, reduce, and report embodied carbon.

Reduction:

- Set clearly stated, firm-wide reduction targets in the short-term (1 year) and long-term (5 years). *(Required)*
- Develop and implement a workflow that makes it easier to make early design decisions based on embodied carbon.
- Update your specifications to incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.
- Communicate the embodied carbon impacts of different design options to clients with creative and effective data visualizations.

Advocacy:

- Describe the value of SE 2050 to clients. *(Required)*
- Publicly declare your firm as a member of the SE 2050 Commitment. *(Required)*
- Engage with structural material suppliers in your region to communicate the importance of Environmental Product Declarations (EPDs) and low-carbon material options.

Reporting:

- Submit 3 projects per U.S. office with structural engineering services to the SE 2050 Database. *(Required)*
- Compare the embodied carbon emissions from multiple projects across your firm

