

2022 Embodied Carbon Action Plan

June 30, 2022

Introduction

There has never been a time when committing to sustainable practices has been more important. As structural engineers our design choices have a huge impact on carbon emissions, and we have a responsibility to do our part in reducing the impact of the built environment. Our industry can and must make changes in our practice to help avoid the continued devastating impacts of climate change on our planet. Structural Focus is proud to have joined the SE 2050 Commitment – a stepping stone for our industry to begin changing the way the design of buildings is approached to reach the goal of net zero embodied carbon structures. With the strategies outlined in this report, we are committed to continually learn the best methods to reduce embodied carbon and implement these changes along the way.

Education

Required Electives:

- Distribute firm-wide announcement of your firm’s pledge to join the SE 2050 Commitment.
 - [An email announcement of our pledge was sent to the firm on January 26, 2022.](#)
- Distribute ECAP within your firm upon publishing.
 - [The ECAP was distributed internally via email upon publishing on June 30, 2022.](#)
- Make (1) webinar focused on embodied carbon available to employees.
 - [A Sustainability Webinar including new knowledge gained from the SEAOSC Sustainability Summit is going to be presented in the fourth quarter of 2022.](#)

Additional Electives:

- Have one representative of your firm (any employee) attend quarterly external education programs (e.g. webinar, workshop) provided by SE 2050, Carbon Leadership Forum (CLF), or other embodied carbon resources.
 - [Structural Focus will attend quarterly external education programs. Generally, Michael Daciolas-Semon \(embodied carbon champion\) will attend virtual events, and Gabriela Pascualy will attend in-person events.](#)
- Share the SE 2050 library of resources with technical staff.
 - [Resources will be shared with the company and explained at the upcoming Sustainability Webinar.](#)
- Share embodied carbon reduction strategies with your firm as outlined in Top 10 Carbon Reducing Actions for Structural Engineers document produced by SE 2050.
 - [Reduction strategies will be shared with the company and explained at the upcoming Sustainability Webinar.](#)
- Present the document, “How to calculate embodied carbon” to all technical staff.
 - [The document will be shared with the company and explained at the upcoming Sustainability Webinar.](#)

Electives for Future Consideration:

- Nominate a minimum of (1) employee per office to participate in a CLF Community Hub and/or task force.
- Provide narrative outlining plans for minimum (2) firm-wide presentations per year on the topic of embodied carbon.
- Minimum (1) employee attends a presentation or demo of an LCA-based tool used to calculate embodied carbon, such as Tally, Athena IEB, or One Click LCA.

- Initiate an embodied carbon interest group within your firm and outline their goals.
- Propose other actions promoting embodied carbon education and describe their value.

Reporting

Required Elective:

- Submit a minimum of (2) projects to the SE 2050 Database.
 - We can commit to submitting (2) projects this year to the database. Our goal is to learn from the submission of these first (2) projects and work to develop an efficient process of embodied carbon calculations and analyses that can be easily implemented on a higher percentage of projects moving forward.

Electives for Future Consideration:

- For a project submitted to the database, ask the Architect or Owner if the project has a carbon budget or if there are established project sustainability goals at the project kickoff meeting.
- Report a greater percentage of projects than you did the previous year.
- Propose other actions that promote the reporting of embodied carbon data and describe their value.

Embodied Carbon Reduction Strategies

Required Elective:

- Communicate the embodied carbon impacts of different design options to clients with creative data visualization. Include these visualizations in your Elective Documentation.
 - Structural Focus is working on a visualization of the impact of different design options and plans to begin sharing it with clients in the fourth quarter of 2022.

Additional Electives:

- Calculate your firm average benchmark for embodied carbon.
 - Structural Focus will begin to track embodied carbon this year and will be able to obtain an average benchmark of those projects by the end of the year.
- Integrate embodied carbon mitigation strategies in your General Notes.
 - Carbon mitigation strategies will be added to the General Notes. Strategies include alternate cements and supplementary cementitious materials in concrete.

Electives for Future Consideration:

- Project case study sharing embodied carbon reduction successes and lessons learned.
- Create a project-specific embodied carbon reduction plan.
- Complete an embodied carbon comparison study during the project concept phase.
- Participate in a LEED, ILFI Zero Carbon, or similar project design charrette and speak to potential design considerations impacting embodied carbon.
- Update your specifications to incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.
- Collaborate with your concrete supplier to reduce embodied carbon in a mix design.
- Work with a contractor during material procurement to meet an embodied carbon performance criteria on at least (1) project.
- Have an Environmental Product Declaration (EPD) created for a project.
- Incorporate biogenic materials on at least one project.
- Submit a Circular Economy Narrative describing how the project supports the circular economy. This can be done by incorporating re-use or design for deconstruction into at least one project.

- Report weight and method of transportation of structural material. Track how much is processed for recycling/salvage and sent to landfill, including material generated during demolition and construction activity. Include at least four material streams (e.g. concrete, metal, wood, gypsum wallboard, paper and cardboard, plastic).
- Propose other embodied carbon reduction strategies and describe their value.

Advocacy

Required Electives:

- Describe the value of SE 2050 to clients. How can your design teams collaborate to reduce embodied carbon?
 - [At the beginning of new projects, we will educate clients on the SE 2050 commitment and discuss setting project specific embodied carbon goals.](#)
- Declare your firm as a member of the SE 2050 Commitment with boilerplate proposal language.
 - [We will develop language to be added to project proposals declaring Structural Focus as a member of the SE 2050 Commitment, where appropriate.](#)

Additional Electives:

- Share your commitment to SE 2050 on your company website.
 - [By the end of the year, we plan to share our commitment on our website and through our social media outlets. This will help to spread awareness of the importance of embodied carbon reduction to our clients and our community.](#)
- Start an embodied carbon community of practice or mentorship program in your office.
 - [We will create an internal Structural Focus Sustainability Committee to focus on learning and implementing embodied carbon reduction strategies, educating other engineers within our office, and reporting projects to the SE 2050 Database.](#)

Electives for Future Consideration:

- Give an external presentation on embodied carbon that demonstrates a project success or lessons learned.
- With the owner or client, discuss a facility- or product-specific EPD requirement for structural materials.
- Share education opportunities with clients.
- Encourage industry and policy change by promoting and using low-carbon and carbon sequestering materials.
- Mentor a firm new to the embodied carbon space.
- Propose alternative methods for advocacy and describe their value.