

EMBODIED CARBON ACTION PLAN DECEMBER 2021





TABLE OF CONTENTS

INTRODUCTION

2 EDUCATION

3 Measuring & Reporting

CARBODIED CARBON REDUCTION STRATEGIES

ADVOCACY









EMBODIED CARBON ACTION PLAN

INTRODUCTION

Established in 2002, FTF Engineering has offices in San Francisco and San Luis Obispo, California, and creates value for our clients and partners by designing safe and enduring structures with integrity. We recognize our responsibility to reduce carbon from our designs and so we strive to integrate sustainable design practice into our work whenever possible.

FTF is committed to take climate action and reduce Embodied Carbon from our structural designs by joining the SE 2050 Commitment. As a firm, we will learn, implement and share strategies to design structures with lower environmental impact and are proud to be a part of the movement towards a more sustainable industry.

We build in an evolving world to ensure communities are safe and businesses prosper. Our engineers collaborate to understand values and define resilience goals for safety, damage, and recovery. We provide flexible and creative solutions that are sensitive to constrained resources and changing demands. Our team is committed to be responsive, to invest in our profession, and to serve our clients, communities, and our planet in order to thrive.





EMBODIED CARBON ACTION PLAN

EDUCATION

A firm wide announcement of FTF Engineering joining the SE 2050 Commitment was done on October 18th, 2021 and subsequent announcements have gone out to our colleauges in the industry via LinkedIn. A landing page explaining our commitment will be created on our website and information will be included in our year-end newsletter.

Our Embodied Carbon Champion (ECC) will periodically hold educational sessions related to Embodied Carbon reduction and the SE 2050 Program. These sessions will be firm-wide and are planned to be held once a month. Our ECC will summarize and present the Embodied Carbon 101 series to the firm, starting on January 10th, 2022.

Electives

- Our ECC will attend quarterly external education programs provided by SE 2050, Carbon Leadership Forum (CLF), or other embodied carbon resources.
- The SE 2050 library of resources has been shared with all technical staff.
- As a part of the monthly educational sessions, Embodied Carbon reduction strategies will be presented to the firm as outlined in Top 10 Carbon Reducing Actions for Structural Engineers.
- As a part of the monthly educational sessions, the document, "How to measure and report Embodied Carbon" will be presented to all technical staff.
- The ECC has attended presentations about Tally Life Cycle Assessment (LCA) Tool.

MEET OUR EMBODIED CARBON CHAMPION (ECC) Josefine Olsson, EIT, LEED Green Associate



FTF has chosen Josefine Olsson (EIT, LEED Green Associate), as our Embodied Carbon Champion (ECC). She will be leading the firm's sustainability work by developing the education program on Embodied Carbon, be responsible for running LCA analysis of selected projects, and meet with Project Managers to share knowledge and discuss implementation of LCA and Embodied Carbon reducing methods into our processes. She will also be responsible to measure and track Embodied Carbon and report data to the SE 2050 database. Josefine received her M.S. in Structural Engineering from University of California at Davis, and her B.S. in Civil Engineering from the Chalmers University of Technology in Gothenberg, Sweden.



EMBODIED CARBON ACTION PLAN

MEASURING & REPORTING

FTF will contribute to the SE 2050 database by sharing and reporting data about Embodied Carbon from our designs. We have two offices in California and have set up a goal to submit a total of four projects to the database in 2022.

We will measure and track Embodied Carbon by performing LCA using Tally and EC3 to quantify the environmental impacts of four chosen projects during our first year. It is currently not feasible to perform LCA on all our project as not all of our projects are modeled in Revit. LCA will be performed at least twice per project: after Schematic Design and after development of the Construction Documents. Our goal will be to improve our designs between the two phases by identifying potential reduction hot spots based on the results from the Schematic Design. Our ECC will perform the LCA and share "lessons learned" with the technical staff.

Internal training will include educating staff about Tally and LCA, with the goal to eventually have all technical staff run LCAs on their projects. Engineers will be educated in Embodied Carbon measurement during the monthly education sessions.

Electives

• For a project submitted to the database, we will encourage the Architect or Owner to consider a carbon budget or ask if there are any established project sustainability goals, at the project kickoff meeting.





4

EMBODIED CARBON ACTION PLAN



EMBODIED CARBON REDUCTION STRATEGIES

Initially, FTF will be focusing on educating the staff and develop a process for measuring and tracking Embodied Carbon by implementing LCA to selected projects. As the firm gains knowledge about Embodied Carbon and what it means for our designs, we will develop reduction strategies including updating our specifications and general notes. For our second year of the program, we will start implementing the below electives.

Electives

- Incorporate data visualization into our ECAP and into our communication to clients.
- Create a project-specific Embodied Carbon reduction plan.

ADVOCACY

As a firm committed to net-zero Embodied Carbon structural systems by 2050, FTF will advocate for more sustainable structural design and guide project teams to utilize structural materials with lower environmental impact and methods to track and reduce Embodied Carbon, in order to reach this goal. Additionally, FTF plans to share gained knowledge and lessons learned as well as to advocate for the SE 2050 Commitment on our website and on our LinkedIn page. We will present our achievements in carbon reduction on our website as well as to clients.

We will be strategizing on how best to incorporate our commitment to SE 2050 and to showcase our projects where we have successfully reduced the Embodied Carbon in our marketing materials over the next year.