

# EMBODIED CARBON ACTION PLAN

SEPTEMBER 2021



**McNAMARA · SALVIA**  
STRUCTURAL ENGINEERS

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## SE 2050 COMMITMENT

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### SUMMARY

McNamara · Salvia, Structural Engineers is a 170-person firm located in Boston, New York, Miami, Orlando and West Palm Beach. We are fully committed to reducing the carbon impact of our structures and know we have a significant role to play in creating a sustainable future. We work to reduce embodied carbon by using new technologies, design optimization methods, construction methods and materials and have signed on to the SE 2050 Commitment in order to advance this goal across the industry. We recognize sustainability is a holistic goal and are dedicated to working with our clients to achieve it on each project.

The SE 2050 Commitment is multifaceted with focus areas in education, reporting, reduction, and advocacy. It challenges engineers across the industry to join in reducing embodied carbon in our structures in order to be carbon neutral by the year 2050. This Embodied Carbon Action Plan (ECAP) lays out our first steps in meeting the goals of the SE 2050 Commitment.

### EDUCATION

- On July 9<sup>th</sup>, 2021 we announced to all employees our pledge to the SE 2050 Commitment and summarized the program intent and requirements.
- In the announcement, we encouraged employees to continue educating themselves on SE 2050 and embodied carbon by directing them to the numerous resources on the SE 2050 website. We already presented on the topic in our January internal education session, McSal.EDU, and plan to present one additional time in the coming year.
- We have created a working library of resources on our network that is accessible to all employees and will be updated regularly with new research, reduction techniques, and miscellaneous tools related to calculating and reducing embodied carbon in structures. Finally, we created and distributed a short memo summarizing embodied carbon and what we can do to reduce it. We plan to distribute subsequent memos as we continue to learn and apply different reduction techniques to our buildings.
- We have nominated AJ Unander, P.E., S.E. and Justin Kordas, P.E. as Co-Embodied Carbon Champions.
  - AJ is a Project Manager working in Denver, Colorado and has had an interest in embodied carbon since studying at MIT under one of the leading researchers in the topic.
  - Justin is a Project Manager in our Boston, Massachusetts office and is actively engaged in the local AEC community to push the industry, particularly those involved with concrete production, to be more sustainable.
  - In addition, Dan Wilcoxon, Patricia Aguiar and Astrid Matheus have joined the team to represent our New York and Florida offices.



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- We presented the first Embodied Carbon 101 webinar from the Boston Society of Architects on September 14<sup>th</sup>, 2021 and add the videos as a resource in our internal library.
- We plan to share and/or present the following documents with our staff and have already uploaded links of them to our Embodied Carbon resource folder:
  - SE 2050 Library of Resources
  - Top 10 Carbon Reducing Actions for Structural Engineers
  - How to calculate embodied carbon from IStructE
- Finally, we are engaging our five current offices by creating an internal SE 2050 team comprised of members from each office. This team will meet regularly to ensure we are in sync on embodied carbon reduction at each office.

## REPORTING

- The two main components in measuring embodied carbon are the material quantities and the Embodied Carbon Factor (ECF), found in Environmental Product Declarations (EPD). We plan to engage our MACRO group to create convenient macros, add-ins and spreadsheets for engineers to extract material quantities from our various models.
- We will create an internal database for tracking aggregate project information, from which we can report specific buildings to SE2050. We are also working with industry suppliers to include EPD submittals as part of the construction administration process. We are limiting our scope to the A1-A3 life cycle stages. When EPD submittals are not available we will use industry average ECFs based on the material and region.
- Once the quantity measurement tools are in place, we will perform an education session with engineers and drafters at each office to train them on the new workflow. In the design phase, ECFs will be assumed until they can be verified by the specific subcontractor, at which point the central database will be updated.

- We will submit a minimum of five (5) anonymous projects per year to the SE 2050 Database.
- We intend to engage in dialogue with our clients about embodied carbon in early project stages to understand sustainability goals and offer strategies to reduce embodied carbon.

## EMBODIED CARBON REDUCTION

- For the first year, we plan to educate our staff so that 100% of engineers know about and can explain embodied carbon to another engineer or client. We will also begin to create tools that will allow us to extract material quantity information quickly and efficiently throughout the evolution of design. This will allow us to create baselines and understand where we currently stand, what types of buildings have the most embodied carbon and how we can engage our clients in various reduction strategies.
- For the second year we will build on what we learned in the first and reevaluate our processes to make sure they are both accurate and efficient.
- We will complete an embodied carbon comparison study during the project concept phase of an upcoming project.

## ADVOCACY

- To accelerate adoption of embodied carbon reduction we first need to educate our staff and share the results of our reporting so they can understand the impact we have. As they learn more we expect them to share knowledge about embodied carbon reduction with our clients.
- We are already having conversations with clients who are interested in embodied carbon either as a way to gain LEED v4 points or to fulfill commitments they have made in reducing embodied carbon. We will continue to educate design team members on the topic, ways we can reduce, and the value of the SE 2050 Commitment. Since most of our clients have committed to AIA 2030, we anticipate a positive response as we promote SE 2050.
- We will revise our proposal language to include our commitment to SE 2050.
- We have added a [webpage](#) dedicated to sustainability and our pledge to the SE 2050 Commitment that will be visible to all who visit.