

Embodied Carbon Action Plan 2024



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Commitment Letter

To: Structural Engineering Institute
SE2050 Commitment Program Team

Re: Letter of Commitment to the SE2050 Program

Dear Team,

We are excited to share with our continued dedication to the SE2050 Commitment Program. At Stone Fleet, we remain steadfast in our commitment to advancing sustainable practices within our industry, and SE2050 stands as a cornerstone of our efforts.

We initially announced our commitment to the SE2050 program in October of 2022. Since then, our resolve to uphold sustainability principles has only strengthened. As we navigate through our growth trajectory, it becomes increasingly evident that initiatives like SE2050 are not just important but imperative. We recognize the significance of structural engineers' role in shaping a more sustainable future and reducing the embodied carbon footprint of our projects.

The vision of SE2050, where all structural engineers comprehend and actively work towards reducing embodied carbon, resonates deeply with our values and aspirations. We wholeheartedly support this vision and are determined to contribute to its realization.

Our ultimate objective aligns seamlessly with SE2050's overarching goal: eliminating embodied carbon in projects by the year 2050. This ambitious target serves as a guiding light for our endeavors, propelling us to continuously innovate and push the boundaries of what is achievable.

In our pursuit of sustainability, we are committed to expanding our knowledge base and enhancing our capabilities concerning the reduction of embodied carbon. Through ongoing research, collaboration, and implementation of best practices, we aim to drive tangible progress towards a more sustainable built environment.

We are excited about the journey ahead and the opportunities for collective action that SE2050 presents. Together, we can effect meaningful change and pave the way toward a more sustainable future for generations to come.

Respectfully,



Justin A. Kordas, P.E.
President
Stone Fleet, Inc.

Introduction

Stone Fleet is a structural engineering firm that was founded in 2022. Shortly after our establishment, we committed to SE 2050, an initiative that aims to eliminate embodied carbon on all projects by the year 2050.

Our commitment to SE 2050 is rooted in our belief that structural engineers must find innovative ways to reduce structural systems' environmental impacts. As a firm, we are committed to optimizing our designs, enabling contractors to optimize their materials, and leveraging new technologies that support us in this mission.

The SE 2050 challenge was issued by the Carbon Leadership Forum, a network of academics, industry professionals, and policymakers committed to reducing the carbon footprint of the built environment. In response to this challenge, structural engineers in the Sustainability Committee of the Structural Engineering Institute of the American Society of Civil Engineers developed the SE 2050 Commitment Program.

The SE 2050 Commitment Program is a voluntary initiative that encourages structural engineers to understand embodied carbon and how it can be reduced in their projects. The program provides tools, resources, and guidance to support structural engineers in reducing embodied carbon, with the ultimate aim of eliminating embodied carbon on all projects by 2050. As a firm committed to SE 2050, Stone Fleet is dedicated to promoting the goals of this program and reducing the carbon footprint of the built environment.

Firm Champions

Justin A. Kordas, P.E. | President

Justin Kordas is a Marine Corps veteran who has made a name for himself in the Architecture, Engineering, and Construction sectors. Passionate about sustainability, he leads initiatives to reduce embodied carbon in structural systems. Justin serves as a voting member of ACI Committee 377 and is an associate member of ACI Committees 355 and 315, positioning him as a leader in innovation. Additionally, he teaches Analysis and Design of Steel Structures at the University of Massachusetts Dartmouth. He serves on the board of directors for the Structural Engineers Association of Massachusetts (SEAMass) and the American Institute of Architects (AIA) Rhode Island.

Education

- Introduction to the SE2050 Initiative
 - Provide an overview of the SE2050 initiative, its goals, and its significance within the structural engineering profession.
 - Explain how the initiative aims to reduce the embodied carbon emissions of structural engineering projects and contribute to mitigating climate change.
- Fundamentals of Embodied Carbon
 - Conduct training sessions to educate staff on the concept of embodied carbon and its implications for structural engineering.
- Materials Selection and Specification
 - Educate staff on sustainable materials selection criteria, including embodied carbon content, recycled content, and environmental certifications.

Knowledge Sharing

- Discussing Best Practices
 - Share examples of successful projects and initiatives that have effectively reduced embodied carbon emissions.
- Learning from Challenges
 - Discuss the obstacles we encounter and the solutions we develop for each unique challenge we encounter.
- Engaging with Industry Partners
 - Actively engage with industry partners, suppliers, and other SE2050 participants to exchange ideas, share resources, and collectively address the challenges of reducing embodied carbon emissions.
- Promoting Open Dialogue
 - Encourage open dialogue and participation from all team members, regardless of their role or level, to discuss sustainability.

Reduction Strategy

- Material Selection Optimization
 - Develop guidelines for selecting materials with lower embodied carbon content, focusing on factors such as carbon intensity, recycled content, and local sourcing.
 - Explore innovative materials and construction techniques that offer sustainable alternatives to traditional high-carbon materials.
 - Collaborate with suppliers to identify and source low-carbon materials and encourage the adoption of sustainable practices.
- Design Efficiency Enhancement
 - Implement design optimization strategies to minimize material use and reduce embodied carbon emissions without compromising structural integrity.
 - Embrace lightweight construction methods and advanced engineering techniques to maximize structural efficiency and minimize environmental impact.
- Continuous Monitoring and Improvement
 - Establish a system for monitoring and reporting embodied carbon emissions on our projects, tracking progress towards our reduction targets.
 - Regularly review and update our reduction strategy based on lessons learned, technological advancements, and evolving best practices.

Reporting Plan

- Update Reporting Framework
 - Update key performance indicators (KPIs) and metrics for measuring embodied carbon emissions and tracking progress towards our reduction targets.
 - Update the standardized reporting template as needed.
- Data Collection and Analysis
 - Implement systems and processes for collecting data on material quantities and embodied carbon.
- Reporting Frequency and Format
 - Continue a regular reporting schedule, with updates provided as required using the appropriate format.
- Stakeholder Engagement and Communication
 - Engage with internal and external stakeholders to communicate our progress, share insights, and gather feedback on our sustainability efforts.
 - Provide opportunities for stakeholders to participate in discussions, workshops, and events focused on embodied carbon reduction and sustainable design.

Elective Documentation

Education

- Distribute ECAP within Stone Fleet upon publishing.
- Embodied Carbon 101 video series is available for all Stone Fleet employees.
 - [Embodied Carbon 101 Video Series](#)
- SE2050 library of resources is available for all Stone Fleet employees.
 - [SE2050 Library of Resources](#)
- Top 10 Carbon Reduction Actions for Structural Engineers is available for all Stone Fleet employees.
 - [Top 10 Carbon Reduction Actions](#)
- How to calculate embodied carbon PDF is available for all Stone Fleet employees.
 - [How to Calculate Embodied Carbon](#)

Reporting

- Submit a minimum of (2) projects per U.S. office with structural engineering services to the SE2050 Database.

Reduction

- Collaborate with your concrete supplier to reduce embodied carbon in a mix design.

Advocacy

- Describe the value of SE2050 to clients.
- Declare Stone Fleet as a member of the SE2050 Commitment.

Lessons Learned

It can be challenging to collect embodied carbon data accurately and efficiently. It is best to consider information gathering from the beginning of the project. However, utilizing sustainability consultants may not be financially feasible for every project. While collecting data directly from concrete and steel suppliers can provide valuable input for data submission, not all suppliers are tracking this information. Adapting to this new approach will require time and effort, but collaboration with industry peers, stakeholders, and plate number 1 participants is crucial for driving meaningful change in sustainable structural engineering. Integrating sustainability considerations at the early stages of project planning and design is critical to maximize impact and minimize costs. Embracing innovation and exploring new technologies and materials is key to driving progress in sustainable structural engineering. Sustainability is a continuous journey, and achieving long-term goals requires continuous improvement.