

# DeSimone Embodied Carbon Action Plan, 2023

## Prepared for

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And the Structural Engineering Institute  
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# DESIMONE

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## Executive Summary

DeSimone recognizes the importance of reducing the carbon footprint of the built environment and supports the goal to reach net zero structural designs by 2050. To this end, we have created this embodied carbon action plan for our second year, beginning January 1, 2023.

Our strategy is to resource project teams to make win-win sustainable design decisions. Our plan is outlined according to the four initiatives below. DeSimone has created a Sustainable Design Team to take primary responsibility for implementing these initiatives.

- **Education** – We will share educational resources with our firm as well as provide webinars.
- **Reporting** – We will perform five Life Cycle Assessments and report the results to SE 2050 and engage clients in embodied carbon goals for their projects.
- **Reduction** – We will draft sustainable specifications and general notes, and research reduction strategies.
- **Advocacy and Knowledge Sharing** – We will prepare client facing material for education and for proposals.

Finally, we have learned that through increased education and collaboration internally and with our clients we can move forward towards our embodied carbon reduction goals.

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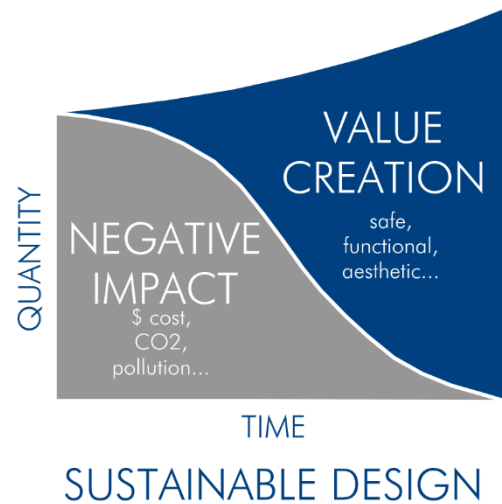
## Why Sustainable Design

DeSimone recognizes the importance of reducing the carbon footprint of the built environment and believes that this should no longer be handled on a project-by-project basis. We envision a firm-wide movement and body of expertise. To this end we have created this Embodied Carbon Action Plan.

Our plan is informed by a positive view of humanity and the future. We believe that engineers can achieve net zero structural designs and will further innovate to create a world where humans and the biosphere flourish in harmony.

We define sustainable design as a process that maximizes value for all while minimizing negative impacts. In the context of our structures, this involves improving safety, adaptability, durability, functionality, and aesthetic while minimizing environmental and financial cost, among other factors.

Our strategy focuses on resourcing our engineers and partners to make win-win sustainable design decisions.



## The Sustainable Design Team

DeSimone has created a Sustainable Design Team to advance the sustainability of DeSimone structures by curating resources that guide designers to select both sustainable materials and design techniques. Our initial focus is to reduce embodied carbon in accordance with the SE 2050 challenge.

The team meets bi-weekly and is responsible for implementing the plan outlined in this document. Current team members are shown below.



Tarek Abdallah  
San Francisco



Houman Hadad  
Miami



Solomon Ives  
Las Vegas



Jarret Johnson  
Boston

## Four Initiatives

Our action plan is laid out according to the following four initiatives:

### Education

We aim to arm all our engineers with the tools necessary to understand the sources of embodied carbon as they apply to all the different aspects of their projects, as well as tools to measure and reduce them. Our Sustainable Design Team is responsible for education implemented as follows:

- **Sharing ECAP** – We will distribute ECAP within our firm upon publishing and inform our staff of our goals for the next year.
- **Internal Webinars** – We will provide a minimum of (1) webinar focused on embodied carbon to employees covering the sources, measurement, and reduction.
- **SE 2050 Library** – We will share the SE 2050 library of resources with our firm.
- **SE 2050 Reduction Strategies** – We will share the embodied carbon reduction strategies produced by SE 2050 with our firm.

### Reporting

Our path to net zero will require consistent reductions in embodied carbon to be achieved every year. To track our progress towards net zero, we will measure the embodied carbon of our projects and report the results to SE 2050. Additionally, we believe it is essential to get our clients onboard with carbon reduction. For the next year, our reporting goals will be as follows:

- **Project Submissions** – We will submit (5) total projects across our firm to SE 2050 Database.
- **Engaging Clients** – We will ask architects and owners about project carbon budgets or sustainability goals for a submitted project and explore alternatives for carbon reduction.

### Reduction

Over the last year we have determined a first approximation of our benchmark carbon footprint per square foot and have created reduction aids and have distributed them internally and externally. We have learned that the next key initiative is helping our clients see how sustainable goals can serve the project. This next year, our reduction strategy is as follows.

- **Specifications** – We will revise our boilerplate specifications to include optional sections on embodied carbon reduction for easy implementation by engineers on projects.
- **General Notes** – We will integrate carbon reduction strategies in our typical general notes to be available for use company-wide.

- **Research: Materials and Structural Systems** – We will research innovative and emerging technologies with regard to sustainability. We will keep the scope of our studies broad: material science of concrete, wood, steel, and composites; optimized structural systems; biophilic design; and carbon sequestration techniques, to name a few!

## Advocacy and Knowledge Sharing

We recognize that embodied carbon reduction must be a universal goal within the industry, and to that end, we plan on sharing our knowledge outside of our firm in the following ways:

- **Marketing Outreach** – We will prepare a one-pager and powerpoint presentation for clients highlighting the benefits of carbon reduction and offering our capabilities to this end.
- **SE 2050 in Proposals** – We will declare ourselves an SE 2050 member in our boilerplate proposal language and invite conversation about making low carbon design part of the project goals.

## Lessons Learned

Our journey towards reducing carbon emissions of structures taught us that knowledge is key and prerequisite to taking any meaningful action. We tasked a talented group of engineers to fully understand the carbon footprint associated with structures. Our in-house sustainable design team spent well over two years researching and studying different material systems from a sustainability standpoint. The acquired knowledge was transferred from our sustainability group to teammates at our firm, and to our collaborating architects and clients. This was a giant stride towards achieving more in our sustainable projects.

Another lesson learned was the importance of teamwork within the design team, including ownership in the sustainability conversations, and more importantly, closely collaborating with the contractors and concrete providers.

Finally, we at DeSimone found that integrating the LCA process with our BIM modeling process facilitates the measuring, benchmarking, and reducing of the embodied carbon footprint of our buildings. Additionally, through performing LCAs we were able to identify typical embodied carbon hotspots and key strategies for reduction.

Please reach out to us if you have any questions or ideas that can help.

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