# DESIMONE

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Sustainable Design Team

# Embodied Carbon Action Plan

The Largest Passive House Commercial Building in the World-Winthrop Center

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## 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 third year, beginning January 1, 2025.

Our strategy is to enable 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 engage in sustainable design discussions focused on embodied carbon, provide internal webinars, and grow our sustainable design team.
Reporting	We will perform five Life Cycle Assessments, report the results to SE2050, and engage clients in embodied carbon goals for their projects.
Reduction	We will develop an embodied carbon-based workflow for early design decisions and collaborate with concrete suppliers to reduce embodied carbon for mix designs.
Advocacy & Knowledge	We will engage with clients in discussions about SE2050 and advocate for including embodied carbon reduction as one of the project goals.

## The Embodied Carbon Action Plan

DeSimone is committed to reducing the carbon footprint of the built environment and believes that it is an additional lens through which all projects should be viewed. Together with cost and constructability, sustainability must be included to form the basis by which to judge all future successful projects. We envision a firm-wide movement and body of expertise but recognize that a gap exists in formal education for sustainable design in structural engineering. To this end, we have created this Embodied Carbon Action Plan to guide our firm's adoption of these principles.

Phase I of New York's First Net-Zero Community—Arverne East Welcome Center In recognition of regional differences in material availability, construction workforce, and policy landscapes, our main goal is to provide all engineers with the tools and resources necessary to make sustainable design decisions in their fields of expertise and regions. Only through mobilizing all sectors and regions will we, as engineers, be able to meet a goal of net-zero embodied carbon.

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 aesthetics while minimizing environmental and financial costs, among other factors. Our strategy focuses on resourcing our engineers and partners to make win-win sustainable design decisions.

#### The Sustainable Design Team

The Sustainable Design Team advances the sustainability of structures by curating resources that guide designers to select both sustainable materials and design techniques. The team's focus purpose is multifaceted and aims to achieve the following:

- Promote sustainable design practices to achieve meaningful embodied carbon reduction in accordance with the SE2050 Challenge.
- Stay informed about the latest innovations in the world of sustainable design.
- Engage stakeholders to collaborate and share knowledge.

## Four Initiatives

Over three years with SE2050, we have made strides in reducing embodied carbon and understanding industry challenges. Through knowledge sharing and growing client interest, more DeSimone employees recognize the urgency of reduction efforts. Our sustainable notes and specifications are used on multiple projects, sharpening client discussions on cost-effective methods.

As our expertise grows, challenges remain—slow client adoption, limited green building certification focus, and cost concerns. Despite this, momentum is building, and industry interest is rising.

### 1. Education

Engineers are equiped with tools to understand, measure, and reduce embodied carbon across all project aspects. The sustainable design team oversees education, implemented as follows:

#### **Office Engagement**

Project team engagement around embodied carbon reduction through educational webinars and performing LCAs on select projects.

#### **Internal Webinars**

Release of at least one webinar focused on embodied carbon to employees covering sources, measurement, and reduction.

#### **Embodied Carbon Digital Resource**

Curation, maintenance, and promotion of internal resource page including presentations and discussion forums.

#### **CLF Regional Hub**

Engagement of the sustainability team with local regional hubs.

## 2. 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 SE2050. 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**

Submittal a total of five projects across our firm to the SE2050 Database in 2025.

#### Compare

As our database of LCAs grows, creation of a dashboard highlighting and comparing the differences between projects regions, and offices while targeting means of improvement.



## 3. Reduction

From infancy, past due diligence, our team's goal is to fast-track our embodied carbon reduction as follows:

#### **Reduction Targets**

Referencing our database to add embodied carbon benchmarking to our standard QA/QC process to identify projects needing reduction strategies.

#### Workflow for Early Decisions

Developing a workflow that makes it easier to make early design decisions based on embodied carbon.

#### **Compare Options**

Including embodied carbon assessments in our early concept designs in addition to traditional metrics (cost, weight, depth, etc.)

#### Research

Research emerging sustainability technologies, covering material science (concrete, wood, steel, composites), optimized structures, biophilic design, and carbon sequestration.

## 4. Advocacy and Knowledge

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. Over the past year, we developed outward-facing documents that describe our capabilities in measuring and reducing embodied carbon, and we continue to share them with our clients. For the coming year, we aim to achieve the following:

#### **Client Engagement**

We will engage with clients and describe the value of SE2050 and the importance of reducing embodied carbon. Our team will aim to collaborate with other project stakeholders to include reducing embodied carbon as one of the project goals.

#### SE2050

We will declare ourselves an SE2050 member in our boilerplate qualifications and invite conversation about making low carbon design part of the project goals.

# DESIMONE



### **North America**

Vancouver, CA Boston, USA Chicago, USA Dallas/Fort Worth, USA Foxborough, USA Houston, USA Las Vegas, USA Miami, USA New Haven, USA New York, USA San Francisco, USA

## **South America** Medellin, COL Santiago, CHIL

**Europe** London, UK Manchester, UK Asia Abu Dhabi, UAE Dubai, UAE Chennai, IND Kolkata, IND Mumbai, IND Manila, PHIL