

# SE 2050 EMBODIED CARBON ACTION PLAN 2021

In March 2021, Simpson Gumpertz & Heger (SGH) signed on to the Structural Engineering Institute (SEI) SE 2050 Commitment program. As a signatory, SGH will work towards reducing the embodied carbon of its structural design projects to net zero by 2050.

We developed this Embodied Carbon Action Plan (ECAP) to summarize how we intend to fulfill the four pillars of the program: Education, Reporting, Reduction, and Advocacy.

Photo by Albert Vecerka: Olver Design Building at UMASS Amherst, Amherst, MA





# EDUCATION

Our goal is to make assessing and reducing embodied carbon a priority in all our engineering and administrative decisions. We will achieve this by providing an initial wave of educational materials and seminars, followed by regular learning opportunities to stay up to date on state-of-the-art practices. We envision embodied carbon takeoffs and tracking will be a standard element of our design projects, which will ultimately inform our long-term embodied carbon reduction strategies and design practices.

## COMMITMENTS

- | SGH announced our signing of the SE 2050 Commitment on 1 April 2021 via an internal Sustainability and Resilience Committee (SRC) firmwide newsletter.
- | The SRC at SGH is promoting a firmwide education program for embodied carbon reduction and SGH's commitment to SE 2050. We are identifying, creating, and promoting resources to help our engineers learn about embodied carbon and work to reduce our project footprints. We publish an internal quarterly newsletter and are taking the lead role in implementing many of the education initiatives detailed in this ECAP.
- | Mark Webster is our firm Embodied Carbon Reduction Champion and is leading the implementation of the program at SGH. In addition, our SGH SE 2050 Working Group has at least one liaison for each major office to promote our SE 2050 goals.
- | Mark Webster, who heads resource development for the national SE 2050 program, will give a live presentation to the entire company on Embodied Carbon 101.
- | Members of our staff regularly attend quarterly external education programs, including SEI, SE 2050, and Structural Engineers Association of Southern California (SEAOSC) sustainability committee meetings.
- | The SE 2050 library of resources, along with the documents "10 Carbon Reducing Actions for Structural Engineers" and "How to calculate embodied carbon," will be added to our internal sustainability hub, included in the next SRC newsletter, and presented during upcoming office staff meetings.



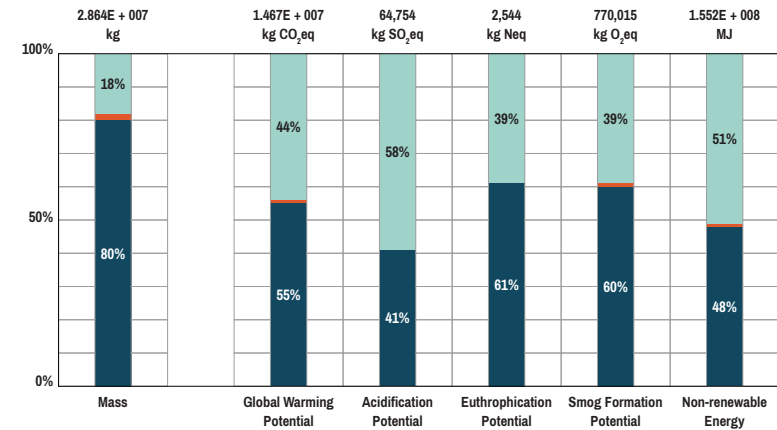
# REPORTING

Tracking the embodied carbon on our projects will help us reduce it. Contributing embodied carbon data from our projects to the SE 2050 database will help the entire industry set reduction benchmarks.

## COMMITMENTS

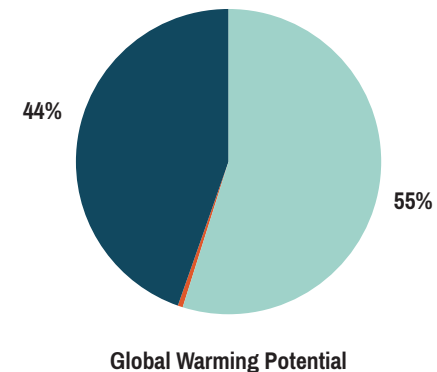
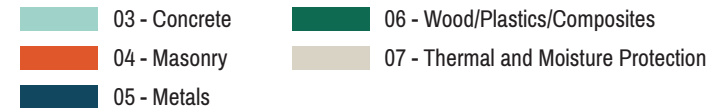
- I We will evaluate the needs of each project and determine the most suitable software for estimating embodied carbon; options include Tally, Athena, and in-house tools using Environmental Product Declarations (EPDs).
- I We are adding language to project specifications requesting project-specific EPDs for structural materials, including structural steel and concrete. When these are unavailable, SGH will use the industry-average EPDs available from resources such as the SE 2050 website and the EC3 database.
- I We will extract material quantities for submission to the SE 2050 database no earlier than the end of the construction documents phase. We will also coordinate with our clients to select certain projects to estimate embodied carbon at various stages of the design process and work to reduce it as the design develops.
- I A core SE 2050 team within SGH will develop a list of “best modeling practices” for Revit users to ensure compatibility with the selected embodied carbon estimation tool. This core team will also serve as a resource to project teams as they complete their embodied carbon calculations.
- I SGH commits to calculating embodied carbon for a minimum of five new structural design projects this year from a minimum of three offices. Our goal next year will be to include at least one project from two-thirds of our offices.
- I SGH commits to increase the target number of projects reported each year.

## Results per Division



## Legend

Divisions





# STRATEGIES

Developing effective strategies will be essential for us to meet our embodied carbon reduction goals.

## COMMITMENTS

- | During the first year of participation in SE 2050, we will analyze embodied carbon data from completed projects to set a baseline benchmark for various structural systems.
- | We will provide a narrative about what we have learned about embodied carbon reductions in the second year.
- | We will incorporate data visualization into our embodied carbon tracking to inform our team, communicate design options to clients, and educate the rest of our firm.
- | We will summarize our findings from at least one project.
- | We are including embodied carbon information in the Required Submittals sections of our general notes and specifications.





# ADVOCACY

We are using multiple channels to spread the word both internally and externally that we have signed on to the SE 2050 Commitment.

## COMMITMENTS

- | The SGH SE 2050 Working Group identifies, creates, and promotes resources to help our engineers learn about embodied carbon and work to reduce our footprint. Our team publishes an internal quarterly newsletter and is posting resources to our internal knowledge-sharing platforms. We further the initiative by recruiting colleagues in other firms to join the program.
- | We will create a one-page SE 2050 statement explaining the effort and SGH's ability to help reduce projects' carbon footprint. We will announce and promote SGH's commitment on social media channels and our external website.
- | We will create an external presentation explaining SE 2050 and its synergy with AIA 2030.
- | For our building structural design work, we have developed proposal language describing our commitment to SE 2050 and our service offerings related to life-cycle assessments (LCAs) and global warming potential (GWP) calculations.



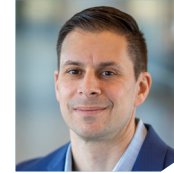


Simpson Gumpertz & Heger (SGH) is a national engineering firm committed to delivering holistic advice for our clients' most complex challenges. We leverage our collective and diverse experience, technical expertise, and industry knowledge of structures and building enclosures, advanced analysis, code consulting, and applied science & research to deliver unrivaled, comprehensive solutions that drive superior performance. With more than 600 employees in eight office locations throughout the United States, SGH's industry-leading teams constantly seek to advance the meaning of what's possible.

## SIMPSON GUMPERTZ & HEGER SE 2050 TEAM



**Mark Webster, P.E.**  
LEED AP BD+C  
*Embodied Carbon Reduction Champion*  
Senior Consulting Engineer  
Waltham, MA



**Michael Tecci, P.E.**  
LEED Green Associate  
Senior Project Manager  
Waltham, MA



**Zachary Chabot, P.E.**  
Consulting Engineer  
Waltham, MA



**Vivian Peña, S.E., P.E.**  
Senior Consulting Engineer  
Los Angeles, CA



**Lachezar Handzhiyski, S.E., P.E.**  
LEED AP BD+C  
Senior Project Manager  
Oakland, CA



**Michael Perkins, P.E.**  
Consulting Engineer  
Newport Beach, CA



**Eric Fleet**  
LEED Green Associate  
Project Consultant  
Chicago, IL



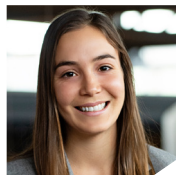
**Eamon Liu, P.E.**  
Consulting Engineer  
Washington, DC



**Lauren Feinstein, P.E.**  
Consulting Engineer  
New York, NY



**Matt Sander**  
Project Consultant  
Washington, DC



**Julia Hogroian, P.E.**  
LEED Green Associate  
Project Consultant  
Waltham, MA

