

EMBODIED CARBON ACTION PLAN

2026



McNAMARA · SALVIA
STRUCTURAL ENGINEERS

mcsal.com

COMMITMENT

OUR COMMITMENT

McNamara ▪ Salvia, Structural Engineers is a 170-person firm located in Boston, New York, Miami, Orlando, West Palm Beach, Denver, and Pune. We are fully committed to reducing the carbon impact of our structures and understand that we have a significant role to play in creating a sustainable future.

Since joining SE 2050 in 2020, the embodied carbon landscape has already shifted and we are already seeing the implementation of multiple strategies to reduce. This includes creative low-carbon concrete options, Type IL cement becoming widely available and used, an emphasis on adaptive reuse in major cities, and projects utilizing wood structures more regularly. We continue to work with our clients to improve and with the data collection done by SE 2050 to date, we are encouraged entering the next phase of the program by trying to beat benchmarks.

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



South Station
Boston, MA

TEAMWORK

McSAL SE 2050 TEAM



AJ UNANDER, P.E., S.E.
EMBODIED CARBON CHAMPION
DENVER OFFICE



KATHLEEN TEER, P.E.
SE 2050 COMMITTEE MEMBER
BOSTON OFFICE



RYAN SULLIVAN, P.E.
SE 2050 COMMITTEE MEMBER
BOSTON OFFICE



FRANCESCO COLOMBO
SE 2050 COMMITTEE MEMBER
MIAMI OFFICE



TYLER NORMAN, P.E.
SE 2050 COMMITTEE MEMBER
NEW YORK OFFICE

EDUCATION

EDUCATION GOALS

Our 2026 goal at McNamara ▪ Salvia is to continue championing our climate initiatives and educating our engineers on the importance. In addition to having a full understanding of embodied carbon and its implications, we will continue to educate our clients and other project stakeholders on key tenets. Educating our staff starts from their time of hire and escalates from there, leveraging our vast knowledge base and disseminating vital resources throughout the company and offices.

Internal presentations, emphasis from leadership, and deliberate sharing of ideas are critical in maintaining our latest education goals. We continue to educate staff on our impact on sustainability and role in implementing carbon reduction techniques as structural engineers. We will follow up on past internal surveys to gauge employees' understanding and progress towards the implementation of techniques.

"We must all be individual advocates for sustainability. However, as Structural Engineers our daily decisions can have over-sized impacts on the environment. It is our responsibly to continually affect change in our Industry through innovation and education."

– Kathleen Teer, P.E. | Associate Principal



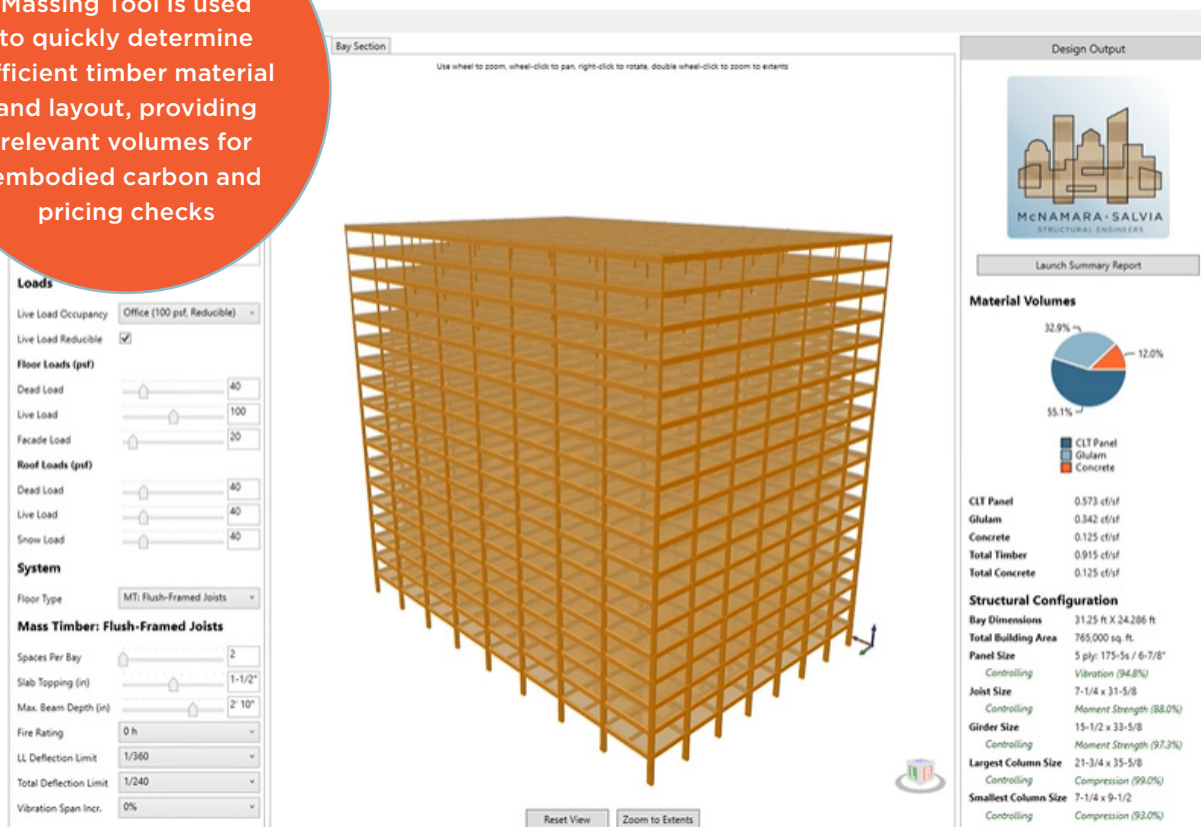
SHARING KNOWLEDGE

The knowledge and understanding of embodied carbon as part of the construction process continues to vary geographically across the companies' different locations. There is a much stronger acceptance of its importance and impact in Boston and Denver regions, where governmental regulations are changing to emphasize embodied carbon as a factor in design. This allows us to stand out and share our learned strategies with clients to target reductions and push our goals to meet these new requirements.

In regions where embodied carbon is still emerging, we continue to educate our clients on its benefits and use efficient structural design to keep the impact low where practical. Internally, we still hold yearly meetings to update the company on changes and updates on the topic, as well as training newly hired staff on understanding embodied carbon and how to implement strategies into their design.

As structure plays such a significant part in the embodied carbon value, we have begun to offer performing structural LCA as part of design services. This enables seamless integration between the structural design and the embodied carbon output, which can be easily shared and tracked throughout the design to meet prescribed goals and highlight ways to increase reductions as the design progresses.

The McSal Timber Massing Tool is used to quickly determine efficient timber material and layout, providing relevant volumes for embodied carbon and pricing checks



REDUCTION

REDUCTION STRATEGY

We continue to gather project information from all new projects and even through review of past projects to build a database of embodied carbon information. Through collection, we can enhance our understanding of the reduction strategies we apply and focus on improving them where we can. The following data will continue to be used to track improvements in GWP reduction in 2026:

- Projects requiring a minimum reduction in GWP. What percentage is tied to concrete?
- Collection of EPD submittals, including concrete mixes.
- Collection of WBLCA reports, whether by us or by a third-party consultant.

During the concept phase, we look to complete an embodied carbon comparison study that is presented in conjunction with studies for structural system selection. This allows us to bring forward the importance of this criteria to be included when making these early decisions. Recently, a full review of all project specifications has begun with an emphasis on adding language targeting sustainability and embodied carbon reduction. We continue to collaborate with local concrete suppliers to ensure our performance-based criteria are updated to reflect current material variabilities, markets, and technologies.

Finally, an emphasis early on is determining if buildings can be reused, repositioned, or if mass timber can be incorporated into the design. Recently, we have been doing studies to determine if CLT on CFMF is a viable option for some of our dormitory, multifamily, and hospitality projects. Eliminating the concrete slab on deck in the typical CFMF system can lead to a 60% decrease in embodied carbon even before accounting for biogenic carbon.

“The greatest contribution to sustainability that a structural engineer can make is to do his or her job exceptionally well. A more efficient structure is a more sustainable structure.”

– Bart Sullivan, P.E. | Principal

ADAPTIVE REUSE



REPORTING PLAN

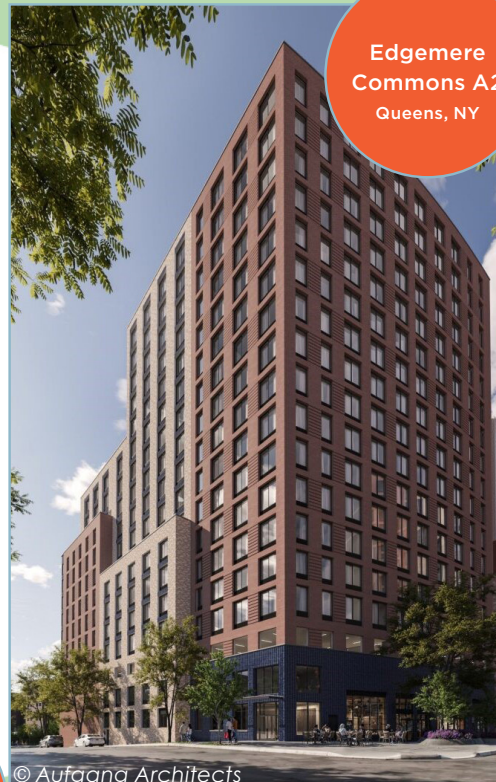
Since Embodied Carbon is a conversation on many of our larger projects, we take a combined approach of compiling this data. On some jobs we are the consultant requested to perform an LCA and will do so utilizing Tally in combination with our Revit models. On other projects, there is a third-party sustainability engineer contracted to perform an LCA and we have utilized their findings in our reporting as well.

We request EPDs for the structural steel and concrete on our projects through our Baseline Specifications. When these are not available (ie. during design) we utilize the EC3 Tool, NRMCA Regional Averages, AISC Industry Averages, and defaults in Tally to assign material GWP. Generally, our LCA scope is limited to A1-A3 to align with the EDP's we obtain. During design, we find that later stages of the LCA have significant assumptions associated with them and aren't always correlated to the impact structural engineers can have.

100 South
Campus at
Harvard
Allston, MA



Edgemere
Commons A2
Queens, NY



The Ursa
Miami, FL



ELECTIVE DOCUMENTATION

EDUCATION:

- We encourage employees to continue educating themselves on SE 2050 initiatives and embodied carbon reduction techniques by directing them to the numerous resources on the SE 2050 website. SE 2050 resources have been integrated within our existing knowledge-sharing education network, thereby expanding the reach of these topics company-wide. The next internal presentation (McSal EDU) is planned for late Spring 2026. Our goal is to address any knowledge gaps highlighted by our internal embodied carbon survey, and ensure that engineers have a full toolbelt of expertise to practice and implement SE 2050 ideals.
- The McSal SE 2050 Network Library 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.
- AJ Unander, P.E., S.E. will continue this year as Embodied Carbon Champion. AJ is an Associate and Office Director working in Denver, Colorado and has had an interest in embodied carbon since studying at MIT under one of the leading researchers on the topic. He is acquainted with the leaders of each office and will continue to engage company leadership in reducing embodied carbon. The remaining members of the team can be found in the Teamwork section of this report.

REPORTING:

- McNamara ▪ Salvia has submitted five anonymous projects this year to the SE 2050 Database.
- McNamara ▪ Salvia continues to highlight projects exemplifying sustainable principles through prominent display on company websites, social media platforms, and marketing materials.

ADVOCACY:

- Our staff has engaged in Embodied Carbon Charettes with Architectural Clients to brainstorm ways to improve sustainability while maintaining architectural vision. SE 2050 is highlighted as a driving force in the conversation.
- Sustainability Services have been added to our website, with our SE 2050 Commitment prominently displayed. Enhanced services include material tracking directly through BIM models formatted to preferred Global LCA tracking software. The website also highlights the environmental impact of building materials and their proportion of global CO2 emissions.
- Many employees attend annual industry conferences and events, representing carbon reduction commitments while also championing our own campaign as an SE 2050 signatory.
- Each office participates in regular programming by structural product and material suppliers to expand industry knowledge and better understand regional trends. Environmental product declarations (EPDs), sustainability features, and carbon reduction techniques are featured prominently in each discussion.

ELECTIVES (CONT.)

REDUCTION:

Below are a few of the of internal changes implemented in 2025:

- We will strive to reduce the embodied carbon of comparable structures this year by 5% and 20% by 2035.
- The baseline Cast-in-Place Concrete Specification includes a minimum 20% reduction in GWP from the current NRMCA Cradle-to-Gate Life Cycle Assessment of Ready-Mixed Concrete Regional Average.
- Beyond our concrete specification, we have begun to implement performance-based specifications into other cementitious specifications such as shotcrete, precast concrete, post-tensioned concrete, and load-bearing concrete masonry units.
- We've updated our typical details to encourage Expanded Polystyrene (EPS) for overbuild slabs in lieu of Extruded Polystyrene (XPS) as EPS has an embodied carbon of up to 10 times less than XPS.
- EPDs are required for all concrete mixes and structural steel products in our current baseline specification. Early discussion with Contractor and Concrete Supplier is encouraged to ensure testing and EPDs will be available in a timely manner not affecting the construction schedule.
- We continue to collaborate with Sublime Cement in New England to advance adoption of their cement manufacturing technique.

SPOTLIGHT ON:

585 Kendall

Cambridge, Massachusetts



585 KENDALL CONCRETE

- Required submission of EPDs for each concrete mix used.
- Variable thickness foundation mat reduced total concrete volume by targeting thicker zones only where required by analysis.
- Embodied carbon footprint reduction for total project = 20%
- Embodied carbon reduction for concrete from NRMCA V3 benchmark = 20%

585 KENDALL OPTIMIZATION

We worked closely with our Vibrations Group to limit the amount of additional steel needed for the typical laboratory floors and also to limit vibrations from the first floor theater propagating up into the lab floors above.

LOOKING BACK

LESSONS LEARNED

Our fifth year of the SE2050 Commitment was marked by more education, more advocacy, and a lot of planning during a time of subdued construction starts across the country. There was a shift away from embodied carbon funding and research at the federal level that demonstrated itself in some of the materials technologies we are eager to use being delayed. With other construction cost pressures and an eagerness for affordability, embodied carbon has seemingly become one of many conversations rather than at the forefront of design.

However, we are encouraged that the foundation of education and enthusiasm for progress early in this program has set it up to withstand these shifts and reducing embodied carbon will continue to be an imperative world-wide. The SE2050 Towards Zero summit in the Summer of 2025 was especially motivating as engineers from around the country gathered to continue the movement.

We move into our sixth year with renewed energy and concern around reducing overall embodied carbon and a need to continue to educate our staff, clients, and other stakeholders about the impact structural engineers can have.

