

SE 2050

EMBODIED CARBON ACTION PLAN



LeMessurier.

2026

INTRODUCTION



**All structural engineers shall understand,
reduce and ultimately eliminate embodied
carbon in their projects by 2050.**

- SE 2050 CHALLENGE



Suzanne Robinson, P.E., LEED AP
Director of Sustainability

A holistic approach to sustainable construction in today's world will require a new level of participation and expertise from the structural engineer. Our approach to embodied carbon reduction at LeMessurier is to equip all our engineers to be sustainable design leaders. Our Director of Sustainability, Suzanne Robinson, acts as our embodied carbon champion. She works behind the scenes to integrate sustainability into the engineer's daily practice.

At LeMessurier, our approach is to find solutions. We go beyond analysis and optimizing designs. We work with the project design and construction teams, local suppliers, and manufacturers to remove obstacles and change what is considered "business as usual."

EDUCATION

Engineers that speak the language of sustainability.

At LeMessurier, education is a critical step towards our goal of having every engineer speak the language of sustainability. Going beyond answering questions to evaluating design and material options to proposing ideas, engineers are at the forefront of integrating embodied carbon reduction strategies throughout the project. The following are core education approaches carried out throughout the company reaching all engineers.

INTERNAL CONTINUING EDUCATION SESSIONS.

We have integrated sustainability sessions into our weekly continuing education and lunch & learns for the entire company. Sessions are recorded and available on our internal wiki.

ANNUAL SUSTAINABILITY STATE OF THE UNION. Starting in 2022, we've provided an internal presentation that takes a look back at what we've accomplished, a look forward at our sustainability goals for the year and how they fit into our SE 2050 Commitment and long term goals to integrate sustainability into our daily practice and projects. We also take a look at new sustainability topics and upcoming policy that is on the horizon.

SUSTAINABILITY WIKI. We have set up a sustainability section in our internal wiki that is continuously added to and curated. It includes resources, presentations/recordings, analysis tools, and posts.

ON-BOARDING. We have developed a curated collection of resources for new staff to learn about embodied carbon. Periodically we will provide an in person embodied carbon presentation and will invite co-ops and interns to participate as well. After staff have gotten up to speed, we have them take part in learning how to perform an LCA on a project they are working on.

ENGAGE WITH SUSTAINABILITY GROUPS. We are active in national and regional organizations that work towards market transformations:

- + SEI Sustainability Committee
- + Carbon Leadership Forum
- + SE 2050
- + CLF Northeast Hub
- + CLF Northeast Low-Carbon Concrete Group
- + CLF Northeast LCA Hub
- + Built Environment Plus
- + Northeast Bio-Based Materials Collective



REDUCTION

Net zero carbon requires a holistic approach to sustainable construction.

Fenway Center, Boston MA

As we work towards the SE 2050 Challenge of eliminating embodied carbon on our projects by 2050, we recognize we will not achieve this goal without collaboration with others in the AEC industry and suppliers. Our goal this year is to continue to collaborate with adjacent professions that affect this goal which include: architects, MEP engineers, contractors, sub-contractors, suppliers, manufacturers, and owners.

- + **Low-Carbon Concrete Tech Review Group.** An internal initiative started in 2023 that researches new to market products that contribute to low-carbon concrete. Looking at strategies that reduce, readjust, reformulate and innovate concrete production that has scalability potential.

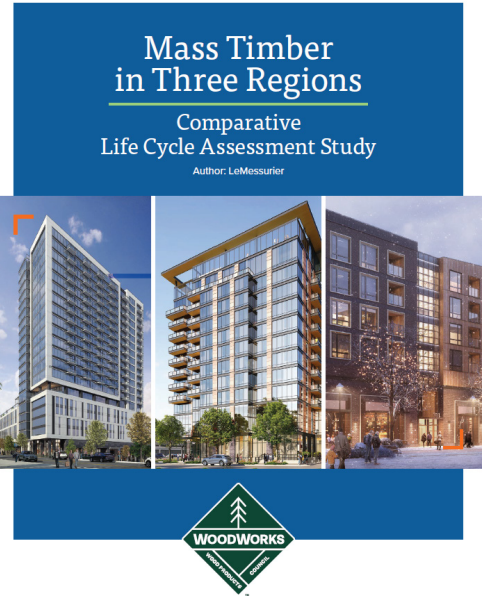
- + **Early-Stage Analysis.** We continue to evaluate embodied carbon alongside different design options at the start of a project, exploring different structural framing and material options.
- + **Mass Timber.** We consistently use mass timber on projects and are exploring mass timber on more projects each year.
- + **Green Building Certification.** We participate in numerous LEED and ILFI Core project design charrettes and suggest embodied carbon reduction strategies.
- + **Material Specification.** We've updated our specifications to request EPDs and target lower embodied carbon materials that are available to the project.



LeMessurier.



KNOWLEDGE SHARING



MASS TIMBER MULTIFAMILY: CARBON, COST, AND CONSTRUCTABILITY

LeMessurier participated in a two-year project led by Olifant, “Advancing mass timber as a climate solution in three U.S. cities to scale up its use and encourage long-term investment in new domestic manufacturing,” with support from the US Forest Service. We redesigned buildings in Minneapolis, Denver, and Atlanta; revealing cost differences, schedule savings, global warming potential savings, and design considerations of each. Building studies were complemented by comprehensive mapping of the mass timber supply chain, with a focus on its potential impact on forests in the United States.

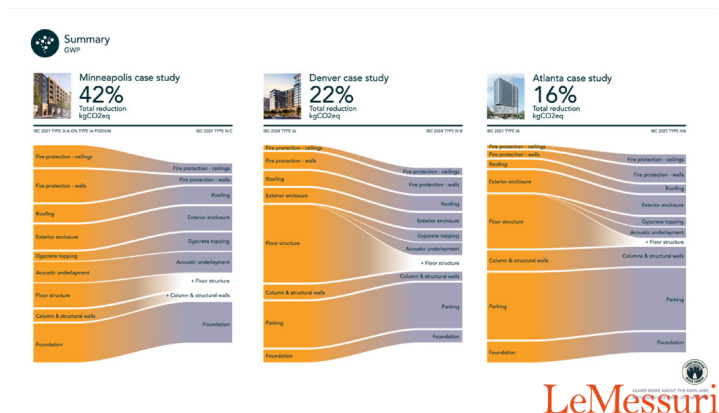
In 2025, we developed a case study that is published by **Woodworks**, and presented the material at **Mass Timber+** conference and other regional and national webinars. The study is available to be used by owners/developers, architects, engineers, construction managers, city planners, and others to advance mass timber.

www.woodworks.org/resources/mass-timber-in-three-regions-comparative-lca/

MASS TIMBER CONSTRUCTION: An Economic Study of Supply, Best Use, and Implementation in Three North American Regions



Harvard University, American Repertory Theater



REPORTING

Engineers that are trained in the language of LCAs

Measuring the embodied carbon on projects is the first step to meeting the SE 2050 Commitment goals of embodied carbon reduction. LeMessurier uses the SE 2050 project reporting for two purposes:

EMBODIED CARBON DATABASE. As an industry we have limited project data for structural embodied carbon to use as benchmarks. We are committed to contributing to the SE 2050 database. Each year, LeMessurier is committed to submitting at least five projects to the SE 2050 Database.

LCA TRAINING. Our goal is to have every engineer be proficient in performing LCA on our projects. As part of the SE 2050 reporting, each cycle of reporting we have a new group of engineers perform a Life Cycle Assessment (LCA) on a current project.

To inform concept/schematic design decisions we use an early-stage analysis tool we developed in-house (A1-A3 scope) and are exploring other tools shared by our peers. For our projects that have a developed Revit model, we use Tally which is a software tool that performs a full building LCA (A-D scope). We have included EPD requests in our specifications.

By performing LCAs, engineers are familiar with the process and are able to oversee others to ensure a high quality of analysis, whether working with sustainability consultants, architects or colleagues at LeMessurier that are performing the LCA for a project. This builds our understanding and intuition of embodied carbon for our designs.

In 2025, we reached a milestone of having every engineer, excluding principals, perform an LCA on a current project of theirs. We achieved this by targeting two cycles of SE 2050 reporting and training each year. We have developed the following resources/processes:

- + **INTRO TO TALLY TRAINING.** Each cycle of reporting, an engineer from the previous cycle provides a demonstration of Tally and the process of performing an LCA, sharing their main takeaways.
- + **TALLY BEST PRACTICES.** We have developed a resource to provide guidance and best practices when using Tally. Each cycle of reporting, we add new information from our lessons learned.
- + **PROJECT STANDARDS.** We have updated our Revit project standards to make performing LCAs using Tally more efficient and accurate.
- + **COMPARATIVE STUDY.** We have several projects each year where we compare independent LCAs done by different individuals. This includes internal staff working in parallel or comparing our LCA with an LCA performed by another company. We explore the differences and add the discoveries to our best practices.

For 2026, we've developed an LCA Lite training module that will allow principals at LeMessurier to perform an abbreviated LCA to understand the key concepts and approaches to modeling different components of the structural system.

For 2025, LeMessurier has reached a training milestone - Every engineer has performed an LCA on a current project.





Reaching beyond any single project, making meaningful contributions to our profession and continuing our growth as a team is central to our mission. We build upon the creativity, expertise, and initiative of individual team members past and present.



Professional Development Webinar Series Opportunity


EMBODIED CARBON:
3 Key Topics for Structural Engineers
WEBINAR SERIES - 3 Consecutive WEDNESDAYS:
MARCH 5, 12, 19 | Noon - 1 p.m. ET
3.0 SEAMASS or NCSEA Diamond-Certified PDHs

MARCH 5: Embodied Carbon 101 for Structural Engineers
MARCH 12: Measuring Embodied Carbon for Structures
MARCH 19: Specifying Low Carbon Materials for Structure





SERIES OVERVIEW:
The structural system can contribute over half of a building's embodied carbon impact. In the northeast, architects, owners, and government officials are growing aware of structural engineers' key role in achieving sustainability goals for low-carbon buildings. Join us for a three-part series to explore embodied carbon, what other firms are doing, and how to access tools, guidelines, and best practices.

Graphic/Photo Credits: ArchDaily.com | BNP Media | BigStockPhoto

Can't make the LIVE presentations? Register to receive the webinar recordings.
"Live" attendees receive PDH credits.

We recognize that meeting the climate goals of different institutions, companies, and professional organizations, including SE 2050, requires dialogue, collaboration and information sharing. We continually educate owners, the AEC community, and students about what the SE 2050 Commitment is and the significance of structural engineering in finding solutions for climate change. We share we are a member of the SE 2050 Commitment on our website.

A culture of collaboration is fundamentally required; together we can do so much.



SEAMASS EMBODIED CARBON WEBINAR SERIES

Inspired by the discussions from the SEI Towards Zero Carbon workshop in 2024, LeMessurier took the lead to organize a three part webinar series with engineers from leading structural engineering firms in the region to share their knowledge and approach to reducing embodied carbon in their projects. The 2025 series included:

- + Embodied Carbon 101
- + Measuring Embodied Carbon
- + Specifying Low Carbon Materials

Each session started with local policy and regulations to frame why it's important for structural engineering firms to invest in learning about embodied carbon. After each presentation, the session concluded with a panel discussion of local engineering firms discussing how their companies have evolved to meet current and future market demands.

SUSTAINABILITY IN UNIVERSITY CURRICULUM

An initiative started in 2022, the young engineers at LeMessurier continue to advocate for the acceleration of embodied carbon into the core curriculum for structural engineering at their alma maters. For 2026, we plan to continue to collaborate with schools to develop materials for teaching embodied carbon so that new graduates are versed in the language of embodied carbon that they can apply on their projects and share with their colleagues in the industry.

Adams House Renovation, Harvard University

Complex problems inspire ingenious solutions.

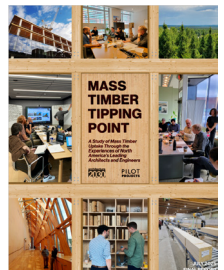
Princeton University, Racquet and Recreation Fieldhouse

As engineers we appreciate a good challenge. At LeMessurier, we foster a culture of collaboration and as a result have a long legacy of innovation. As we work towards meeting the SE 2050 Challenge, it is even more vital to expand collaboration to all players of the AEC industry.

- + **Learning a New Language.** As structural engineers learn the language of sustainability, there are new concepts, terminology and products. We've found the most effective approach is repetition of information in different formats and finding active ways to apply the new knowledge.
- + **Early EPD Requests.** Due to the nature of project schedules, specifying EPDs is not enough. For example, suppliers don't always have the EPDs for the low-carbon concrete mixes on file and there isn't enough time prior to concrete placement for the proper testing. Reaching out to the regional suppliers early (before they are on the team) helps the success rate of building with low-carbon concrete and provides a signal boost to the industry. Early engagement is critical and we've found appreciated by the suppliers.

- + **Maximizing BIM Workflows.** There is a gap in conventional modeling practices and what is needed for LCAs. Spending time up front on better Revit modeling best practices improves efficiency and in turn allows more time for further analysis on projects to inform design.
- + **Functional Equivalency Beyond Borders.** When we evaluate different material options, we need to recognize functional equivalency may go beyond our scope of the structure. For example, with mass timber, the acoustic performance of the floor needs to be taken into account when making comparisons with a concrete or steel structure, which includes architectural components.
- + **Mass Timber Tipping Point.** We contributed to Architecture 2030's report, published in 2025, that unpacks the challenges of scaling up mass timber in North America.

www.architecture2030.org/mass-timber-tipping-point/



Wellesley College,
Science Complex,



BOSTON. PORTLAND. PHILADELPHIA.

LeMessurier.