SEMBODIED CARBON ACTION PLAN 2025

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O1 Education

Walter P Moore's Sustainable Design Community of Practice convenes designers from across our firm who are passionate about sustainable design. Members share knowledge, engage with their local offices, and advocate for more sustainable building practices both internally and externally.



MATERIALS & ENVIRONMENTAL QUANTITIES TRAINING

In Fall 2024, our experts in quantity tracking led a training series for Walter P Moore's Materials and Environmental Quantities (MEQ) initiative consisting of seven unique training sessions. The MEQ initiative creates and maintains the ability for our teams to properly identify, associate, and track materials and their environmental impacts through the life of the project. Training sessions consisted of virtual meetings, some of which involved the whole group of trainees and others were broken out by region. By the end of the training, over 50 people in the firm comprising individuals from every region of Walter P Moore offices, many of which are members of the Sustainable Design Community of Practice, were introduced to our internal tools and workflows used for MEQ tracking.

Our firm is filled with people who are passionate about making the buildings they design sustainable and staying current on the latest methods and technologies. To ensure our senior leaders remain aligned on our sustainability goals, we hold annual updates and workshops at our Stockholder and Structures Group Operations meetings, plus weekly Managing Director meetings on initiatives. Local sustainable design leaders host lunch-and-learns to educate office leaders on WPM's best practices and emerging technologies.







During 2025, we are continuing to refine and develop our carbon tracking process. Our data tracking includes projects with embodied carbon assessments calculated in a variety of ways. Some are the results of Whole Building Life Cycle Assessments (WBLCA's) based on Construction Document level quantities with life cycle phases and impact information from Athena Impact Estimator or Tally. Others are based on cradle-to-gate environmental impact data from industry average and supplier specific EPD's and early-stage quantity estimates. For all data, we are tracking the project phase as well as the source of both the bill of materials and impact data.

We submitted five projects to the SE2050 database this year, and plan to submit a minimum of five more projects during the coming year.

IMPROVING EMBODIED CARBON ASSESSMENTS WITH FIDELITY

When it comes to model fidelity, the accuracy of your output is directly tied to the quality of your input. This means that if an embodied carbon assessment is done from a low or high-fidelity model, its results are only as accurate as the estimates made for quantities that aren't visually captured. Estimating allowances for concrete volume or rebar tonnage tends to be more straightforward than for structural steel, largely because steel fabrication is more prone to variation. Final steel tonnage extends beyond just member sizes and by not considering factors like connection fabrication methods, the final tonnage can sometimes miss a significant portion of the weight, and by extension, a large portion of the carbon impact. For example, transitioning from a low to a high-fidelity model on this project, led to a 10% increase in concrete volume, which resulted in a 5% rise in total GWP. However, a 30% increase in structural steel tonnage, driven by adjustments in allowance for miscellaneous steel and connections, led to a 15% increase in total GWP. Prioritizing high fidelity models allows for more precise accounting of material variations and tolerances, leading to more reliable embodied carbon assessments in projects.



03 Reduction

This year, we reached our goal of tracking embodied carbon for projects that account for over 50% of our 2024 revenue. In fact, we've exceeded our goal and tracked up to 75% of our 2024 revenue. This data, combined with our in-house tools, has enabled us to monitor internal embodied carbon trends. Looking ahead, we plan to strengthen this goal by maintaining the volume of project data we're collecting while adding more detail. By expanding the data for projects we're already tracking—such as including project changes and updating for as-builts—we aim to use more sustainable materials and continue working toward carbon reductions.

As a short-term goal, continue to track embodied carbon for projects representing 50% of our structural engineering group new design revenue for the year 2025.

Continue to require a Type III product specific EPD, a letter from the product manufacturer stating its participation with an industry-wide Type III EPD, or a letter from the product manufacturer stating that the product does not have a product specific or is part of the industry wide EPD in our material specifications.

Continue to incorporate our data visualization capabilities during early project conversations to advocate for embodied carbon reductions.

Continue to use new and innovative materials,
and use lessons learned from using Portland Lime Cement and SCM's from previous projects on new projects.

Lessons Learned: PLC Mixes also display comparable durability properties in freeze-thaw cycling, salt-scaling resistance, and rapid chloride permeability testing.



INTUIT DOME Inglewood, California

Intuit Dome is an 18,000-seat arena designed to maximize the fan experience and deliver the most intense home-courtadvantage for the Los Angeles Clippers. A major goal for Intuit Dome was—in the words of the Clipper's owner Steve Ballmer— to "create the greenest arena in the NBA." He challenged the team to reduce embodied and operational carbon emissions throughout the project. This process started early in the design process and Walter P Moore delivered the structural design and performed the WBLCA of the project's core and shell. This led to GWP goals for ready mix concrete to be included in the Construction Documents. Walter P Moore then collaborated with concrete supplier Catalina Pacific and concrete contractor Largo Concrete to focus on lower carbon mix designs. Intuit Dome was among the first large scale projects in the region to use 1L cement and provide product and facility specific EPDs for all concrete mixes. The delivered mixes used a combination of CalPortland's' C595 Advancement 1L-HS, high quality Orca aggregate, optimized grading, and fly ash as a SCM. The project used over 84,000 YD³ of lower carbon concrete and the average embodied carbon of all concrete used in Intuit Dome was reduced by over 20% compared to the NRMCA Pacific Southwest benchmarks.

04 Advocacy & Knowledge Sharing

Walter P Moore is committed to sharing knowledge and data to accelerate embodied carbon reduction throughout the design and construction industry. We remain in the leadership of SE 2050 as well as many industry organizations advocating for reductions in embodied carbon.

We are continually championing conversations around embodied carbon reduction through the harvesting and sharing of our experiences. We share our stories through conference presentations, webinars, articles and project case studies.

We have sponsored the Carbon Leadership Forum (CLF) since 2014 and actively participate in our local hubs. Our team members are also advocating for and starting local Structural Engineer Association Sustainable Design Committees.

We provide educational presentations to our clients about embodied carbon, life-cycle assessment and the importance of collaboration in reducing embodied carbon in our projects.

Our team actively participates in industry-wide events and leads embodied carbon round tables.





ADVOCACY HIGHLIGHT

In the fall of 2024, Walter P Moore released the latest edition of our stewardship report, **Embodied Carbon: Insight for Industry Impact.** This report highlights our efforts to address embodied carbon through interventions, applications, and challenges. Our goal is to foster collaboration, promote collective action, and advocate for materials that support lower carbon solutions. We are also committed to investing in data methodologies that quantify and reduce embodied carbon, enabling informed decisions based on supply chain-specific information. By embedding these practices into our processes, we aim to create a future where innovation and sustainability thrive together.

Below is a partial list of embodied carbon presentations and publications by our experts in 2024:

Sustainable Design & Embodied Carbon: What Structural Engineers Need to Know, SEAoT Houston, February 2024

Harnessing Computation for Tracking and Reducing Embodied Carbon, Advancing Computational Building Design, February 2024

Rethinking Materials: Embodied Carbon & Beyond, The University of Texas at Austin Energy Institute - Energy Week 2024, March 2024

The Future of the Structural Engineering Profession and Embodied Carbon: Making the Commitment with SE 2050, SEICon 2024 / NASCC 2024 March 2024

Lunch Think: Material Innovation and WBLCA, AIA Los Angeles COTE 1.5° C Symposium, April 2024 Low Carbon Materials, AIA COTE Charlotte, July 2024

Establishing Effective Baselines for Embodied Carbon Reduction: Insights for CALGreen's WBLCA Pathway, NetZero Conference, September 2024

Embodied Carbon, the Crucial but Often Overlooked Performance Metric in Healthcare Facility Design, Virginia Society of Healthcare Engineers, October 2024

Office Conversations and Building Systems: Value Add or Money Pit, ULI National Fall Conference, October 2024

Low Carbon Concrete: Benchmarks and Thresholds, American Concrete Institute Fall Convention, Nov 2024

Engineering Insights Podcast, ACEC National, Dec 2024

05 INDUSTRY INVOLVEMENT

Our plans for the next year involve continued involvement in the Carbon Leadership Forum and SE 2050 and continue to educate and advocate on the importance of embodied carbon reduction to our clients and our peers in the industry.

Experts from Walter P Moore are leaders in these industry organizations and committees:

- Carbon Leadership Forum (CLF) Board of Directors
- CLF Los Angeles HUB Founding Co-Chair
- CLF Atlanta HUB Founding Co-Chair
- CLF Dallas HUB Founding Co-Chair
- CLF Houston HUB Founding Co-Chair
- NCSEA Sustainable Design Committee Founding Chair
- SEI Sustainability Committee Founding Chair, Current member
- SE 2050 Leadership Group
- SE 2050 Advisory Council
- ACI318N Sustainability
- AISC Sustainability Committee
- USGBC Materials and Resources Technical Advisory Group
- USGBC Georgia Market Leadership Advisory Board
- AIA COTE Atlanta Steering Committee
- Lifecycle Building Center Advisory Board
- Facade Tectonics Institute Embodied Carbon Working Group
- AIA COTE



BEST IN ADVOCACY

In 2024, SE 2050 launched its inaugural Recognition Program, aiming to both educate and celebrate the work and insights of its signatory firms. Out of 24 nominations from 14 firms, Walter P Moore was recognized for our advocacy efforts in last year's ECAP. With our team members participating in the development of state and local embodied carbon policy, green building rating systems, and taking on leadership roles in AEC industry organizations, we are continually championing conversations around embodied carbon reduction. Our advocacy has brought mix-specific concrete EPD's to new markets including the first in the Houston metro area and first in the state of Alabama. Thank you to SE 2050 for this recognition, and congratulations to all the participating firms!

06 **OUR EXPERTS**

"Our sustainable design experts and engineers have tremendous opportunity to creatively develop early design options that create high leverage opportunities to meaningfully reduce embodied carbon in building structure and enclosure systems."



Ryan Seckinger (Regional Director - Northeast)

ECAP AUTHORS



DANIELLA BLYAKHMAN, PE

Daniella Blyakhman is an Engineer with Walter P Moore's Washington D.C.'s Office. She is a member of the firm's Sustainable Design Community of Practice and is the SE 2050 Signatory Champion. She is also a founding member of the SEA-MW Sustainable Design Committee and a member of the NCSEA Sustainable Design Committee.

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DEREK RIZZI

Derek Rizzi is a Graduate Engineer with Walter P Moore's Atlanta Office. He has been a part of the Sustainable Design Community of Practice since he's joined the firm, and this is his second year helping to write the ECAP.

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EMBODIED CARBON REDUCTION CHAMPION





Dirk Kestner, a Senior Principal and Director of Sustainable Design at Walter P Moore, is our Embodied Carbon Reduction Champion. He is based in Austin and was previously a structural designer and project manager. In his current role he works with all our offices across North America with a focus on structural design and leveraging whole building life cycle assessment to reduce embodied carbon. He is a member of SEI's Sustainability Committee, a member of the SE 2050 leadership group, a current board member of The Carbon Leadership Forum, and was previously Chair of the USGBC Materials and Resources Technical Advisory Group.

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STRUCTURAL ENGINEERING



ENCLOSURE ENGINEERING



KELLY ROBERTS, PE, SE, LEED AP BD+C

Kelly Roberts is a Principal and Managing Director of the Atlanta Walter P Moore Office and co-chairs Walter P Moore's Sustainable Design Community of Practice. She is the founding chair of the NCSEA Sustainability Committee as well as a founding board member of the Lifecycle Building Center, co-chair for Atlanta CLF HUB, an AIA Atlanta COTE steering committee member, and on the SE 2050 Advisory Council. She is also an immediate past committee member of the USGBC MR TAG and ACI 318N - Sustainability.

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LAURA KARNATH, AIA, NCARB, LEED AP BD+C

Laura Karnath is a Principal and Senior Enclosure Technical Designer in Walter P Moore's Los Angeles office. She co-chairs Walter P Moore's Sustainable Design Community of Practice for Structures and leads the embodied carbon efforts for Enclosure. She is a founding co-leader of the Carbon Leadership Forum Los Angeles Hub and a member of the AIA LA Committee on the Environment.

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WHO WE ARE

Walter P Moore is an international company of engineers, architects, innovators, and creative people who solve some of the world's most complex structural, technological, and infrastructure challenges. Providing structural, diagnostics, civil, traffic, parking, transportation, enclosure, technology consulting, and construction engineering services, we design solutions that are cost- and resource-efficient, forwardthinking, and help support and shape communities worldwide. Founded in 1931, our 1000+ professionals work across 24 U.S. offices and eight international locations.



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