

SE 2050 EMBODIED CARBON ACTION PLAN

2022



walter
p moore

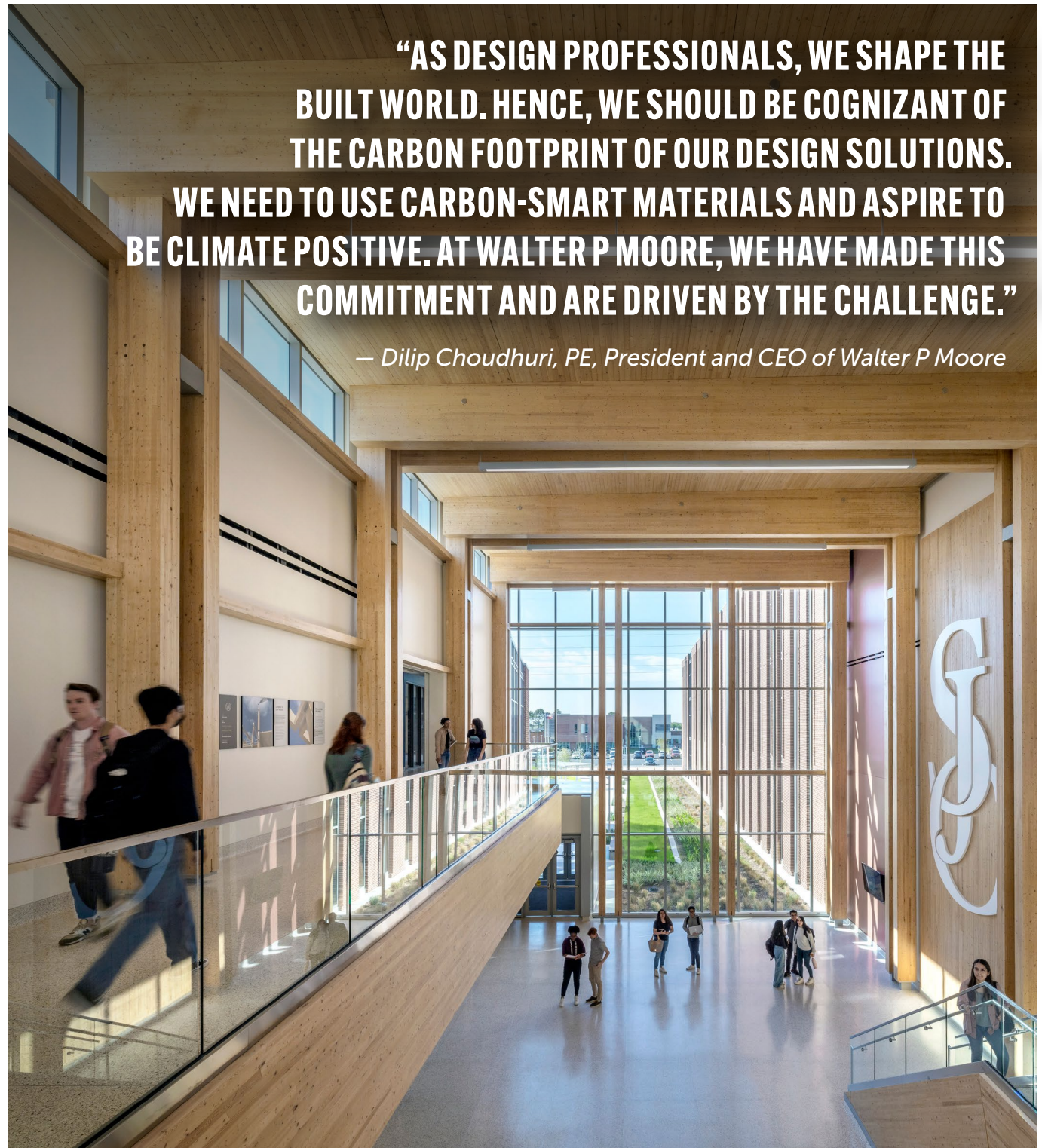
01 EDUCATION

Over the past year, we worked to ensure that we met the goals established in our 2021 Embodied Carbon Action Plan and continued to educate our employees and our clients about embodied carbon.

- 1** We trained project managers and BIM leads in each of our offices to track material quantities and embodied carbon throughout the project lifecycle.
- 2** We shared the SE 2050 library of resources with the staff of all our Walter P Moore offices.
- 3** We are committed to having a member of each office involved with their local Carbon Leadership Forum (CLF) community (HUB), as well as attend quarterly seminars provided by SE 2050. The office champion will then present a brief summary of the event back to the team.
- 4** FastStart, our company-wide onboarding program, exposes all new engineers at Walter P Moore to sustainable design and embodied carbon within their first year at Walter P Moore.
- 5** As part of Better Practices, Walter P Moore's firm-wide education presentation series, we presented embodied carbon tracking and reduction best practices to the entire firm. We are committed to giving an updated embodied carbon tracking presentation annually.
- 6** Our Sustainable Design Community of Practice establishes best practices for embodied carbon tracking and shares knowledge across the firm.

“AS DESIGN PROFESSIONALS, WE SHAPE THE BUILT WORLD. HENCE, WE SHOULD BE COGNIZANT OF THE CARBON FOOTPRINT OF OUR DESIGN SOLUTIONS. WE NEED TO USE CARBON-SMART MATERIALS AND ASPIRE TO BE CLIMATE POSITIVE. AT WALTER P MOORE, WE HAVE MADE THIS COMMITMENT AND ARE DRIVEN BY THE CHALLENGE.”

— Dilip Choudhuri, PE, President and CEO of Walter P Moore



02 REPORTING

2021 EMBODIED CARBON QUANTITY TRACKING



During 2022, we are continuing to refine and develop our carbon tracking process. We are developing a taxonomy of tracking methodologies to define the detail of the bill of materials and embodied carbon numbers for assemblies.

Our initial SE2050 data tracking includes projects with embodied carbon numbers calculated in a variety of ways. Some are the result of Whole Building Lifecycle Assessments (WBLCA) performed for the LEED Building Lifecycle Impact Reduction Credit and were based on Construction Document level quantities with life cycle phases and impact information from Athena Impact Estimator or Tally. Others are based on early stage project estimates and impact data from industry average and supplier specific EPD's and contain only cradle to gate impact data. For all data, we are tracking the project phase as well as the source of both the bill of materials and impact data.

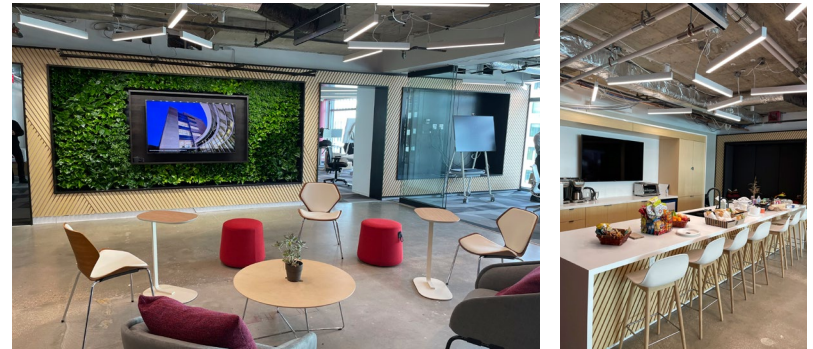
We submitted five projects to the SE2050 database during 2021, and plan to submit five more projects in 2022.

« We tracked carbon for 50% of our projects by 2021 revenue, and incorporated data visualization into our tracking, giving us a clearer picture of embodied carbon across our projects.

PROJECT HIGHLIGHT

WALTER P MOORE WASHINGTON, DC OFFICE

In 2021, Walter P Moore became a hybrid-remote firm, significantly reducing the carbon emissions associated with our commutes. As part of this transition, we are also moving to redesigned office spaces with a focus on collaboration and sustainability. Our Washington, DC office, our first office to be completely built out to support our new hybrid remote operations, achieved LEED v4.1 Gold for Commercial Interiors. To support the LEED pursuit we requested product-specific EPDs for materials and furniture and performed a life cycle assessment for our new office. In comparison to the baseline study, our interior space achieved reductions of 25% or more in five impact categories including Global Warming Potential



03 REDUCTION

This year we successfully tracked embodied carbon for projects representing 50% of 2021 revenue. We plan to continue with the following strategies to track and reduce embodied carbon over the next year:

- 1 Continue to track embodied carbon for projects representing 50% of our structural engineering group new design revenue for the year 2022.
- 2 We plan to continue incorporating data visualization into our 2022 and 2023 embodied carbon tracking, for the purpose of helping our team understand the embodied carbon hot spots as well as trends across our projects and to communicate them to our clients.
- 3 We have incorporated embodied carbon limits into our general notes and our classes of concrete matrix.
- 4 We collaborated with a project owner to require mix specific EPD's in Houston, Texas. This spurred the first supplier in the Houston market to develop on-demand Mix Specific EPD's. The project, currently under construction, is the first in the city to use the service.



« PROJECT HIGHLIGHT

Q2 STADIUM

Austin, Texas

The new stadium for Austin FC was delivered with Walter P Moore's multi-discipline service approach, complete with structural engineering, enclosure engineering, water proofing consulting, construction engineering, and whole building life cycle assessment (WBLCA). Q2 Stadium was the first MLS stadium to use WBLCA, and the analysis contributed to the project's LEED v4 Gold certification. The WBLCA, initiated during Schematic Design, highlighted not only the environmental savings of lower carbon concrete, but also the environmental savings of the cable supported roof, the first and only cable supported MLS stadium in the US, instead of the originally proposed planar truss system.

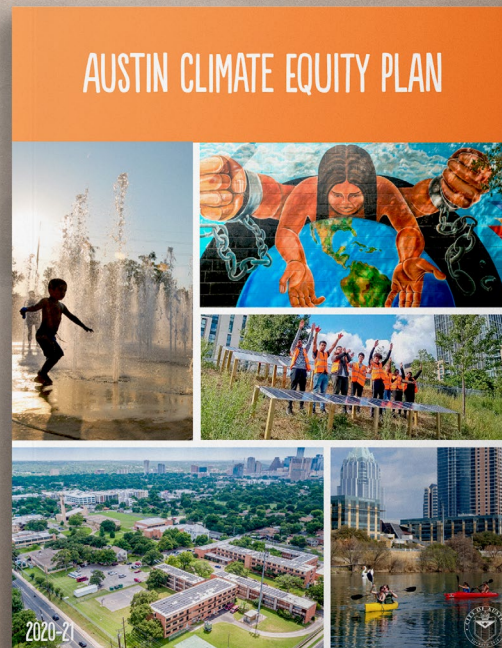
04 ADVOCACY

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

- 1 We announced our commitment to SE 2050 on our website on Feb 1, 2021:
[View Our Announcement Here](#)
- 2 In 2020, we published our stewardship report **Embodied Carbon: A Clearer View of Emissions**, a resource that communicates the importance of addressing embodied carbon, provides a variety of perspectives on the topic, and details essential measures the AEC industry can incorporate to ensure near-term reductions in GHG emissions. We plan to continually harvest and share our Embodied Carbon stories to help advance market transformation.
- 3 We have sponsored the Carbon Leadership Forum (CLF) since 2014.
- 4 We have included language identifying our firm as a member of the SE2050 Commitment on our boilerplate proposal language.
- 5 We provide educational presentations to our clients about embodied carbon and lifecycle assessment.

ADVOCACY HIGHLIGHT

Dirk Kestner, Walter P Moore's Director of Sustainable Design, engaged in the 2021 update to the Austin Climate Equity Plan. The plan includes the bold and aggressive goal of equitably reaching net-zero community-wide greenhouse gas emissions by 2040 with a strong emphasis on cutting emissions by 2030. Dirk led the building materials working group of the Sustainable Buildings Advisory Group. This update to the plan is the first time it includes a goal focused on embodied carbon reduction. The plan aims that by 2030 the embodied carbon footprint of building materials used in local construction will be 40% lower than a 2020 baseline.



Below is a partial list of embodied carbon presentations and publications by our experts in the second half of 2021 and the first half of 2022:

Low Carbon Building Footprints, ACE Mentor Passion Behind Design, June 2021

SE 2050 – Firm Experience, Carbon Leadership Forum Austin, September 2021

Tomorrow's LCA Practices Today, Greenbuild 2021, September 2021

Embodied Carbon & Concrete, American Concrete Institute Fall Convention, Architect's Day Lunch, October 2021

California Material Selection: Embodied Carbon + WBLCA, California AIA Climate Action Webinar, October 2021

Sustainable Design & Embodied Carbon: What Structural Engineers Need to Know, SEAOG, November 2021

Sustainability in Civil Engineering, University of Northern British Columbia, November 2021

Exploring Embodied Carbon in Building Enclosures, Facades+ Panel Discussion, November 2021

Life Cycle Assessment: Level Up Low-Carbon Facade Design, Facades+ Workshop, November 2021

Sustainable Civil and Structural Design, Sowing the Seeds of Sustainability: Indo-American Chamber of Commerce, November 2021

Introduction to Embodied Carbon, Carbon Leadership Forum Dallas, February 2022

Embodied Carbon and the Building Enclosure, Boston Building Enclosure Council, March 2022

Embodied Carbon Updates - The SE2050 Commitment Program, AIA COTE Atlanta, March 2022

Embodied Carbon Roundtable -The Most Important Metric of Efficiency, Structures Congress 2022, April 2022

A Sustainability Awakening – Changing Trajectories of the Building Sector – Life Cycle Assessment, Structures Congress 2022, April 2022

The Economics of Embodied Carbon: Driving Change Quickly, 2022 Joint Engineer Training Conference & Expo, May 2022

Decarbonize Now: The Next Frontier in Glass Facade Innovation. IGS Magazine, Spring 2022

05 OUR EXPERTS

Our plans for the next year involve continued involvement in the carbon leadership forum and expanded advocacy 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
- NCSEA Sustainable Design Committee — Founding Chair
- SEI Sustainability Committee — Founding Chair, Current member
- SE2050 Leadership Group
- SE2050 Advisory Council
- ACI 318N — Sustainability
- USGBC Materials and Resources Technical Advisory Group
- USGBC Georgia Market Leadership Advisory Board
- AIA Committee on The Environment Georgia Steering Committee
- Lifecycle Building Center Advisory Board
- Façade Tectonics Institute Embodied Carbon Committee

EMBODIED CARBON REDUCTION CHAMPION



DIRK KESTNER, PE, SE, LEED AP BD+C, ENV SP

Dirk Kestner, a 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



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

Kelly Roberts is a Principal and leads Walter P Moore's Sustainable Design Community of Practice for Structures. She is a founding board member of the Lifecycle Building Center and current Advisory Board member. Kelly is a Market Leadership Advisory Board member of USGBC Georgia, USGBC Materials & Resources Technical Advisory Group member, co-chair for Atlanta Carbon Leadership Forum HUB, and AIA Atlanta COTE Steering Committee member. She is a member of ACI 318N Sustainability, founding chair of the NCSEA Sustainability Committee and SEI Sustainability Committee SE 2050 Advisory Council member.

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ENCLOSURE ENGINEERING



LAURA KARNATH, AIA, NCARB

Laura Karnath is a registered architect and a Senior Enclosure Technical Designer at Walter P Moore's Los Angeles office. She is a leader in computational design and holds broad global experience in the organizational models and technical challenges involved in the delivery of large international projects. Having overseen the delivery of highly complex building envelopes on four continents, Laura applies her knowledge and experience to using data to address embodied carbon in the built environment. An impassioned advocate for computationally driven building data management and for high performance facades, she believes both to be central in the ultimate decarbonization of the built environment. She is co-founder of the Los Angeles chapter of the Carbon Leadership Forum.

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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, forward-thinking, and help support and shape communities worldwide. Founded in 1931 and headquartered in Houston, Texas, our 750+ professionals work across 23 U.S. offices and six international locations.

www.walterpmoore.com

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