DLRGROUP

SE 2050 | EMBODIED CARBON ACTION PLAN

2026

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At DLR Group, sustainability is woven into the fabric of our Vision Strategic Goal to: “Advocate for our planet, climate, and community.” Our Embodied Carbon Initiative plays a pivotal role in advancing this vision.

By leveraging our superpower as an integrated design firm, we connect the dots between operational and embodied carbon to optimize building performance and drive impactful sustainability outcomes.

Our approach underscores our commitment to transparency, accountability, and continuous improvement in minimizing the environmental impact of our work.

Ismaili Center Houston
Houston, TX

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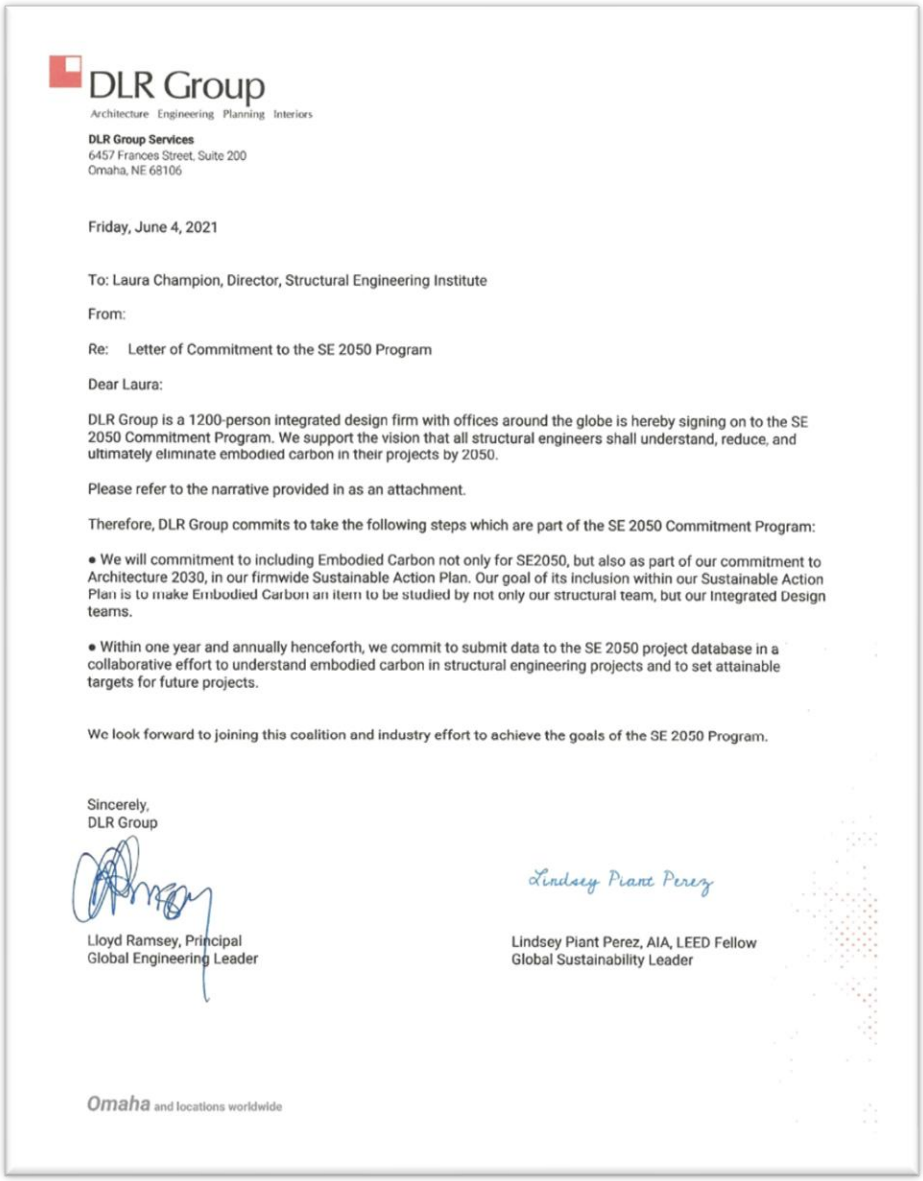
Introduction

DLR Group is proud to submit our Embodied Carbon Action Plan (ECAP) as part of our commitment to the SE 2050 program. Our approach integrates embodied carbon considerations seamlessly into the design process through a cohesive, interdisciplinary strategy. By leveraging our superpower as an integrated design firm, we connect the dots between operational and embodied carbon to optimize building performance and drive impactful sustainability outcomes.

Through innovative design solutions, knowledge sharing, and collaboration with industry leaders, DLR Group aims to significantly reduce the embodied carbon of our projects, aligning with SE 2050's goals for a more sustainable future. Our plan reflects our ongoing commitment to transparency, accountability, and continuous improvement in reducing the environmental impact of our work.



DLR Group
Architecture Engineering Planning Interiors

DLR Group Services
6457 Frances Street, Suite 200
Omaha, NE 68106

Friday, June 4, 2021

To: Laura Champion, Director, Structural Engineering Institute

From:

Re: Letter of Commitment to the SE 2050 Program

Dear Laura:

DLR Group is a 1200-person integrated design firm with offices around the globe is hereby signing on to the SE 2050 Commitment Program. We support the vision that all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050.

Please refer to the narrative provided in as an attachment.

Therefore, DLR Group commits to take the following steps which are part of the SE 2050 Commitment Program:

- We will commitment to including Embodied Carbon not only for SE2050, but also as part of our commitment to Architecture 2030, in our firmwide Sustainable Action Plan. Our goal of its inclusion within our Sustainable Action Plan is to make Embodied Carbon an item to be studied by not only our structural team, but our Integrated Design teams.

- Within one year and annually henceforth, we commit to submit data to the SE 2050 project database in a collaborative effort to understand embodied carbon in structural engineering projects and to set attainable targets for future projects.

We look forward to joining this coalition and industry effort to achieve the goals of the SE 2050 Program.

Sincerely,
DLR Group

Lloyd Ramsey, Principal
Global Engineering Leader

Lindsey Piant Perez

Lindsey Piant Perez, AIA, LEED Fellow
Global Sustainability Leader

Omaha and locations worldwide

DLR GROUP'S - SE 2050 COMMITMENT LETTER DATED JUNE 4TH, 2021

EMBODIED CARBON TASK FORCE

The Embodied Carbon Task Force at DLR Group is a key initiative that brings together a network of local champions across our offices, each playing a vital role in leading and advancing our embodied carbon efforts. Composed entirely of structural engineers with design experience across a wide variety of structural engineering systems and types, our Task Force members have been instrumental in developing a comprehensive strategy that can be adapted to the diverse sectors and projects within DLR Group's portfolio.

The Task Force has played a key role in performing Life Cycle Assessments (LCA) on all eligible projects, delivering continuous training for our structural engineers, and offering localized support to our teams. They have also been actively involved in evaluating various estimating and tracking tools to identify best practices and document effective strategies for reducing embodied carbon in future projects

Through the collaborative efforts of the Task Force, we have fostered a culture of continuous learning and improvement, ensuring that our approach to embodied carbon remains innovative, data-driven, and regionally relevant. Below, we highlight the members of our Embodied Carbon Task Force for each region, whose dedication is central to achieving our sustainability goals.

Responsibilities of a Member of the Embodied Carbon Task Force include:

1. **Advocate for Embodied Carbon Reduction and Serve as a Subject Matter Expert:** Champion the importance of embodied carbon reduction throughout the design process by ensuring project teams are equipped with the knowledge and tools to prioritize sustainability. Serve as a resource across the assigned region, offering expert guidance on best practices and communicating strategies for reducing embodied carbon.

2. **Coordinate LCA Standard Procedures:** Ensure consistency and reliability in Life Cycle Assessment (LCA) reporting across regions. Task Force members are responsible for conducting quality control on LCAs completed in their region.

3. **Develop LCA Best Practices into Design Tools:** Explore and document LCA best practices into DLR Group's ST Revit Model Template to ensure proper and consistent modeling of structural elements, families, material properties, and other key components.

4. **Submit Data to the SE2050 Database:** Submit embodied carbon data, gathered to the SE2050 Database on an annual basis (minimum of five projects per region).

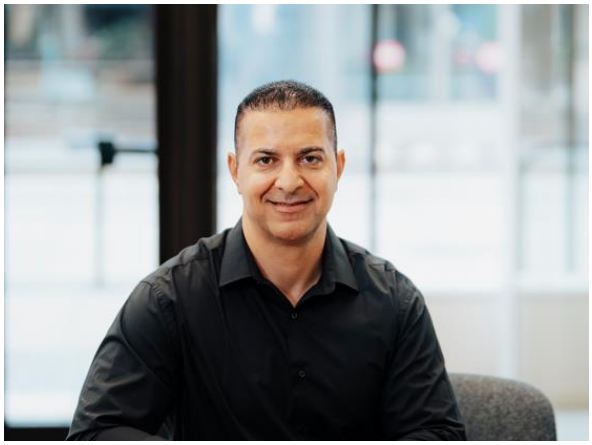
5. **Continuous Training:** Lead the LCA tool training (such as Tally, EC3, Cove Tool, and C.Scsle) for all structural engineers in the region, ensuring team members are up to date with the latest tools and methodologies.

6. **Monitor Industry Trends and Regulations:** Maintain an active presence in relevant regional and national industry committees to stay current on local ordinances and emerging sustainability policies, ensuring DLR Group is always aligned with the latest standards.

7. **Track and Measure Embodied Carbon Reductions:** Work to meet DLR Group's goal of achieving a 10% reduction in Global Warming Potential (GWP) on every project through careful material selection, specifications, and the implementation of targeted embodied carbon reduction strategies.

Cleveland Museum of Natural History Expansion
Cleveland, OH

Along with the regional representatives, the Task Force includes key contributors from the firm to facilitate the initiative's connection to other areas of the organization.



Murad Hamdallah, PE, SE

Senior Associate | SE2050 Representative & Embodied Carbon Champion, ECTF Lead | Cleveland

Diana Gonzalez, PE

Senior Associate |National Embodied Carbon Leader | Phoenix

Prem Sundharam

Senior Principal | Chief Climate Officer | Seattle

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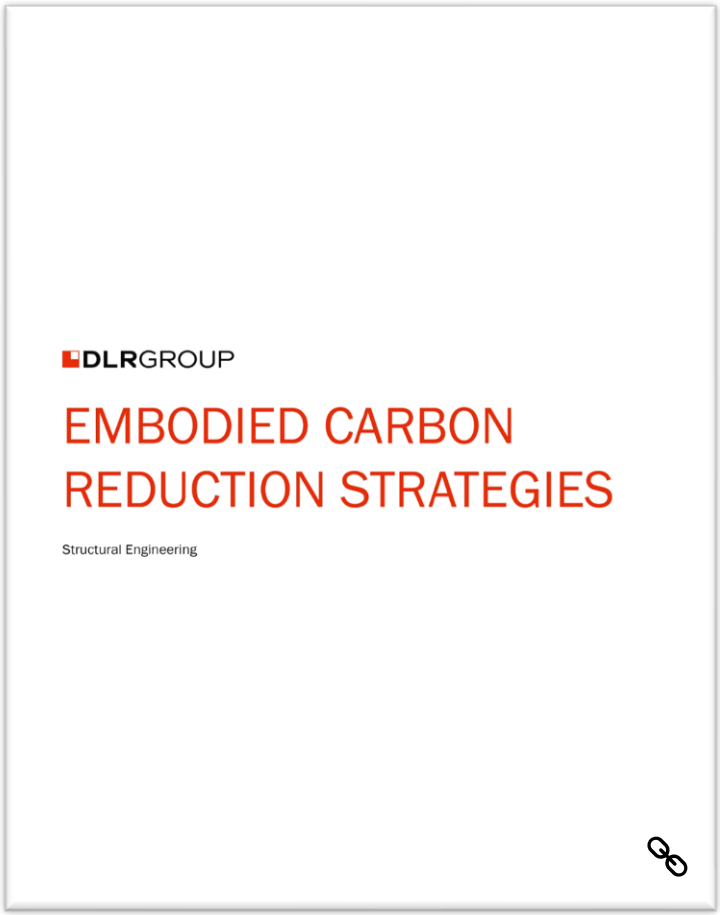
Education Plan

At DLR Group, we are committed to fostering a culture of learning and continuous improvement in the field of embodied carbon reduction. Our education strategy is designed to equip all employees with the knowledge and skills needed to integrate sustainability into their daily work and to champion embodied carbon reduction across the firm.

Our education plan focuses on a robust training program for structural engineers, equipping them with the core concepts and tools needed to measure, reduce, and report embodied carbon. This includes training on LCA tools like Tally, EC3, and Cove Tool, as well as integrating embodied carbon considerations into the design process. We host internal webinars and share external resources to keep staff informed on emerging trends, policies, and best practices in embodied carbon reduction. All related webinars, tool training sessions, and educational materials are recorded and stored on our internal learning platform, **Campus**, so employees can access them anytime for ongoing learning and reference. These efforts are further enhanced by our regional Embodied Carbon Champions, who offer local expertise and support.

In addition to training, the Embodied Carbon Task Force has published a **Reduction Strategies Guide**, offering practical advice on reducing embodied carbon for different material types—Steel, Concrete, Wood, and Masonry—throughout all project phases. This guide is a valuable resource for our interdisciplinary teams, providing actionable strategies that can be applied to real-world projects.

By prioritizing education, we empower our staff to make informed decisions and actively contribute to DLR Group's decarbonization efforts, making measurable progress toward reducing embodied carbon in our projects.



DLR GROUP'S –
EMBODIED CARBON
REDUCTION STRATEGIES
GUIDE

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Knowledge Sharing

At DLR Group, we are committed to reducing embodied carbon in our projects and sharing our efforts, successes, and lessons learned with external stakeholders. Our communication strategy aims to inspire and lead the design community toward more sustainable practices, foster collaboration, and contribute to the broader conversation on sustainability in the built environment.

Over the past year, we've focused on expanding the capabilities of our internal carbon dashboard, the **Getting to Zero Dashboard (GTZ).** This tool will track our progress in reducing both operational and embodied carbon, helping us make data-driven decisions and align with our sustainability commitments, including Architecture 2030, SE 2050, MEP 2040, and Materials Pledge.

DLR GROUP'S – GETTING TO ZERO DASHBOARD HOME PAGE

The Getting to Zero (GTZ) Dashboard is designed to clearly communicate carbon-related expectations, reporting, and performance trends across projects. Its redesign focuses on enhancing how carbon data is captured, integrated, and leveraged to support more informed decision-making.

Key improvements include better utilization of life cycle assessment (LCA) data by moving beyond project-level reporting toward broader insights, the development of a more centralized and integrated data approach to provide a comprehensive view of carbon performance, and a more holistic perspective that considers both operational and embodied carbon together.

Overall, the updated dashboard aims to strengthen visibility, unlock the full value of existing data, and support a more coordinated, strategic approach to sustainability.

Key goals of knowledge sharing include:

1. Client Engagement and Education
    - **Client Presentations and Reports:** The new Getting to Zero Dashboard will help communicate carbon trends based on sector, project type, and regions. This helps clients understand the impact of sustainable design choices on their projects.
    - **Sustainability Workshops:** We provide Values Cards and workshops to help clients navigate sustainability terminology and prioritize their goals.
    - **Collaborative Goal Setting:** We work with clients and interdisciplinary team members to set embodied carbon reduction targets ensuring alignment with their sustainability goals. Every project at DLR Group starts with a tailored Climate Strategy.

2. Industry Leadership and Knowledge Sharing
    - **Thought Leadership:** We contribute to industry publications, blogs, and speaking engagements at conferences, sharing our approach, challenges, and achievements in embodied carbon reduction.
    - **Industry Partnerships:** DLR Group participates in initiatives like SE 2050 and Architecture 2030 to collaborate with other firms and advocate for systemic change in the built environment.

3. Public Engagement and Awareness
    - **Social media and Digital Platforms:** Through social media and our website, we share updates on embodied carbon reduction efforts, project successes, and sustainability initiatives, reaching a wide audience including clients, industry peers, and the public.
    - **Community Involvement:** We engage with local communities and educational institutions to raise awareness of embodied carbon reduction and encourage sustainable design practices through events, panel discussions, and sustainability initiatives.

4. Sharing Lessons Learned and Best Practices
    - **Reduction Strategies Guide and Tools:** We share our **Reduction Strategies Guide**, offering practical advice on reducing embodied carbon for different materials—Steel, Concrete, Wood, and Masonry—across all project phases.
    - **Elevate Design Awards:** Elevate an internal award designed to bring compelling stories of projects into view and organize the process of the design. Annually, we nominate and award projects under the Performance category that showcase energy and sustainability focus.
    - **Lessons Learned Webinars and Workshops:** We host webinars and workshops to share our experiences with embodied carbon reduction, including both successes and challenges, allowing us to engage with the design community and encourage others to adopt sustainable practices.

Through these efforts, DLR Group is committed to transparently communicating our embodied carbon reduction work, inspiring others in the industry, and fostering a collaborative, sustainable future.

Knowledge Sharing – Event Highlight

DLR Group actively advocates for embodied carbon both internally and externally. This advocacy is shared through committee participation, presentations, articles, and publications, as well as through internal design shares, discussions, and articles posted on DLR's intranet.

Climate Strategy Week
A weeklong celebration to reinforce the firm's core value of Environmental Stewardship, featuring a series of virtual and in-person learning opportunities for meeting sustainability commitments and executing climate strategies on every project; Dated 2/13/2025

USVI Sprauve Embodied Carbon Reduction Strategies Charrette
Sprauve project team held a charrette to review early LCAs and brainstorm possible embodied carbon reduction strategies; Dated 02/27/2025

Advancing Construction Decarbonization 2025
Diana Gonzalez represented DLR Group as a panelist discussing how data standards are used to ensure carbon accounting meets the scrutiny from clients and regulators. Dated 06/24/2025

Towards Zero Carbon 2025: Summit & Symposium
Diana Gonzalez represented DLR Group at the SE 2050 Signatory Firm Summit, participating in a firm leader roundtable to share the firm's approach to embodied carbon, key lessons learned, and ongoing initiatives. Dated 06/26/25

Tolleson High School #8 Structural Design Charrette
Tolleson High School team held a charrette to discuss possible building gravity and lateral systems with a focus on flexibility, daylight and sustainability 07/02/2025

Centennial High School Embodied Carbon Reduction Strategies Charrette
Centennial High School project team held a charrette to align on strategies for lowering the project's environmental impact. Dated 08/14/2025

Greenbuild International Conference
Representatives from DLR Group attended the Greenbuild International Conference in Los Angeles to engage with industry leaders on advancing sustainable design practices. Dated 11/3/2025 – 11/7/2025

CSU Law Future Technologies Building Embodied Carbon Reduction Strategies Charrette
CSU project team including architecture, structure, and contractor held a charrette to review early LCAs on the structure and envelope and brainstorm possible embodied carbon reduction strategies 12/02/2025

SE2050 Signatory Call
Murad Hamdallah represented DLR Group to share our company workflow and provide perspective on the new database spreadsheet; Dated 12/11/2025

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Reduction Strategy

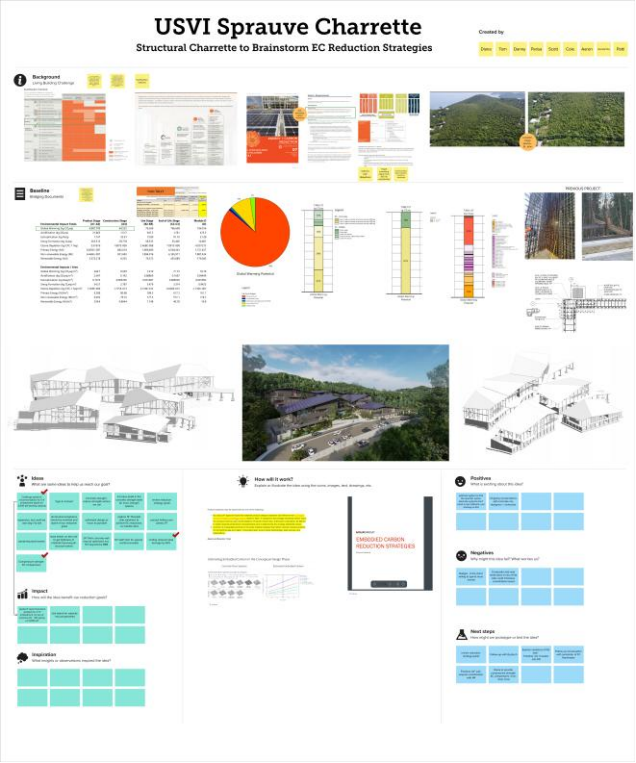
In 2026, we were honored by the SE 2050 Recognition Program with the “Best in Reduction” award, recognizing measurable impact across our portfolio. This distinction reflects our commitment to turning ambition into action—delivering real reductions through informed design decisions and shared accountability.

We believe meaningful reduction begins with measurement- we can’t reduce what we don’t measure. Structural life cycle assessments (LCAs) are standard on projects above a set fee threshold and are updated throughout design, helping us build a growing dataset across regions and project types. This information supports better decision-making and feeds into our Getting to Zero Dashboard, where we look at embodied and operational carbon together to understand overall building performance

This year, we introduced embodied carbon reduction charrettes to bring teams together early in the design process. These sessions include designers, engineers, clients, and often contractors, creating space for focused, collaborative decision-making. We’ve developed a Mural template to guide each session. Charrettes begin by establishing the project’s goals, whether that’s achieving LEED Platinum with a 20% embodied carbon reduction or setting a project-specific target like a 10% reduction. Ahead of the session, the project engineer completes a preliminary life cycle assessment (LCA) to identify carbon “hot spots.” This step is critical in helping the team focus on the areas with the greatest potential impact.

During the charrette, the LCA results are shared along with the key drivers of embodied carbon and the most promising opportunities for reduction. Participants are then given time to brainstorm ideas, followed by a group discussion to review and refine those concepts. Strategies that are both practical and impactful are carried forward into the next steps list. By the end of the session, the team has a clear set of agreed-upon reduction strategies, along with defined ownership to support implementation.

These charrettes have been well received and are already helping teams align around practical, high-impact solutions early in design. They also create opportunities to build shared understanding across disciplines, especially on projects pursuing LEED certification or meeting Buy Clean requirements.



EXAMPLE OF EMBODIED CARBON REDUCTION STRATEGIES CHARRETTE

Looking ahead, we are focused on continued, measurable progress. In the near term, our goal is to achieve a 10% reduction in global warming potential (GWP) across eligible projects by prioritizing low-carbon materials, improving structural efficiency, and continuing to strengthen how we use LCA data in our design process.

Looking toward the long-term (5+ years), we recognize that the path to significantly reducing embodied carbon requires a more transformative shift in the way we approach structural design. Over the next five years, our goal is to integrate embodied carbon considerations as a fundamental aspect of every project, making carbon reduction an intrinsic part of our design philosophy. We aim to achieve a 30% reduction in GWP across all projects by the end of this period, leveraging technological advancements, innovation in material science, and continued collaboration with industry partners to adopt best practices in carbon reduction. This will include scaling the use of carbon-neutral or carbon-negative materials, promoting circular economy principles, and investing in research to advance new structural design methodologies that prioritize environmental impact.

These long-term goals will be flexible, evolving as we continue to assess our progress and adapt to new industry developments. However, we are committed to making substantial, measurable reductions in embodied carbon and driving large-scale changes in our design processes to contribute to a more sustainable built environment. Through consistent goal setting, tracking, and collaboration, DLR Group will lead the way in reducing embodied carbon and fostering a more sustainable future in architecture and engineering.

PATH TO CARBON NEUTRALITY

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Reporting Plan

We have developed a comprehensive plan to measure, track, and report embodied carbon data, ensuring that we consistently evaluate and reduce carbon emissions in our projects. Our approach involves a detailed accounting of embodied carbon for eligible projects throughout the design and construction phases.

ELIGIBILITY AND TRACKING PROCESS

DLR Group has established a threshold to identify which projects are eligible for tracking embodied carbon. Once a project meets this threshold, we initiate a structural Life Cycle Assessment (LCA) at each design stage, starting from the early conceptual phase through construction documentation (CD). These assessments allow us to track the carbon reductions as the design progresses and benchmark the performance of each project against similar ones. We measure carbon emissions through each design iteration to understand the impact of material choices and structural optimization.

The data gathered from these LCAs, including both embodied carbon and operational carbon metrics, are collected in the Getting to Zero Dashboard. The dashboard provides a holistic view of a project's sustainability performance, allowing us to make data-driven decisions and adjust the design to achieve carbon reduction goals.

EPD DATA COLLECTION AND MATERIAL SELECTION

To ensure the accuracy of our embodied carbon calculations, we prioritize the use of Environmental Product Declarations (EPDs) when specifying materials. We are currently refining our specifications to request the appropriate EPDs for all materials that contribute to embodied carbon. This involves early communication with contractors to align on embodied carbon reduction goals and ensure that the necessary material data is available. By coordinating with suppliers and contractors early in the process, we ensure the selection of low-carbon materials wherever possible.

LIFE CYCLE ASSESSMENT (LCA) SOFTWARE

We use several industry-leading LCA tools to quantify embodied carbon throughout the design process. For early-stage design, we rely on C.Scale and Cove Tool, which allow us to perform quick carbon assessments during conceptual and schematic design phases. As the design progresses to design development (DD) and construction documentation (CD) phases, we use Tally, an LCA software integrated with Revit, to perform more detailed analyses of embodied carbon. The LCA enables us to capture the full carbon story, including the impacts of various material choices, structural systems, and design optimizations.

LCA SCOPE

The scope of our LCA covers the entire lifecycle of the building, from materials extraction through construction, operation, and eventual demolition. Specifically, we are using Tally to complete LCAs across all phases, capturing embodied carbon from A1-A3 (product stage) through A1-A5 (construction stage), and extending through A-C (use stage) and A-D (end-of-life) when possible. This comprehensive approach ensures that we account for the full environmental impact of the materials and systems selected for each project.

MATERIAL QUANTITY CALCULATIONS:

To calculate material quantities, we rely on Revit models during the Design Development (DD) and Construction Documentation (CD) phases. Revit's built-in capabilities allow us to accurately calculate the quantities of materials used in the design, providing precise data for the LCA process. This ensures that the embodied carbon calculations are based on up-to-date and accurate material quantities, which are crucial for tracking progress toward carbon reduction goals.

Summary of Reporting to SE 2050

DLR Group continues to grow and strengthen reporting through the SE 2050 Commitment Program

In the **first year**, we reported 5 projects, refining data processes along the way.

The **second year** saw an expansion to 25 projects, with Life Cycle Assessments (LCAs) conducted across different design phases.

By the **third year**, we completed LCAs on 30 projects, improving consistency and data quality.

In the **fourth year**, we completed LCAs on 48 projects, standardizing workflows and strengthening quality control.

This year, we reported 36 projects totaling over 3.2 million square feet, demonstrating the effectiveness of our processes and continued commitment to sustainable design.

Joy Evans Therapeutic Recreation Center DC- DGS
Washington, DC

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Lessons Learned

REFLECTIONS AND STRATEGIES FOR THE COMING YEAR

Over the past year, DLR Group has made meaningful progress in tracking, educating, and reducing embodied carbon across our projects. Through Life Cycle Assessments (LCAs) conducted on numerous projects, we've collected a substantial amount of data—but we realized that much of it was not being fully leveraged to support our teams or inform design decisions. Storing this information in isolation limited its impact, and recognizing this has been an important learning point.

In response, we have focused on centralizing and better leveraging our data through a revamped **Getting to Zero (GTZ) Dashboard**. Built in Power BI, this tool is currently in its pilot phase and aims to provide teams with clear, actionable insights across projects.

Another key lesson has been the value of collaboration within our industry. On multiple projects, working directly with concrete suppliers to achieve lower embodied carbon has been both productive and encouraging. It's been rewarding to see industry partners eager to learn and work together toward shared sustainability goals.

We also learned the importance of engaging the right people early in the process. Setting reduction goals at the start of a project and involving key stakeholders has proven invaluable—this is the foundation of our embodied carbon reduction charrettes. These sessions align teams around clear targets, foster early collaboration, and ensure that reduction strategies are practical and implementable.

Looking ahead, we are committed to continuing to refine the dashboard, expand its use, and identify additional ways to integrate embodied carbon reductions into our design process. These efforts will help us make measurable progress in lowering our carbon footprint across projects.


DLRGROUP