



2024

EMBODIED CARBON ACTION PLAN

MBJ

STRUCTURE THAT SHAPES



OUR COMMITMENT

Integrate sustainability practices into MBJ's design culture.

We believe that creative design practices, in conjunction with innovations in material manufacturing and sourcing, make zero carbon structural systems a feasible achievement by the year 2050. We are committed to making changes within our walls and influencing others outside of our walls to make this future a reality.

As a signatory to the SE 2050 Commitment Program, MBJ is committed to doing our part in this effort by measuring, reducing, and ultimately eliminating embodied carbon in the structures we design.

Since joining SE 2050, we have partnered on projects and within our communities with architects, owners, and material suppliers to include new technologies and intentional design approaches to reduce embodied carbon across our portfolio of work.

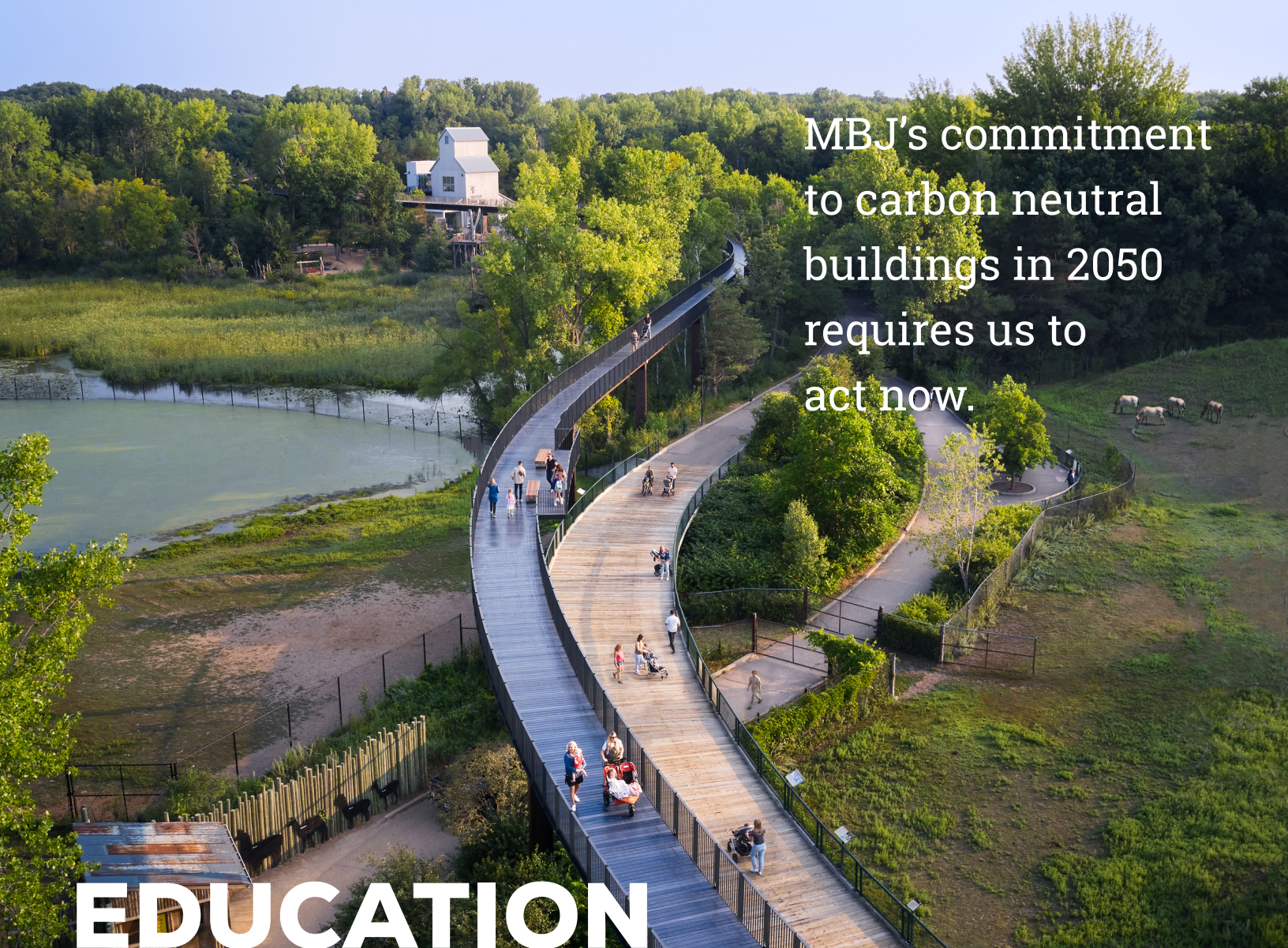
Our actions as structural designers play an outsized role in the global climate crisis.



MBJ SUSTAINABILITY KNOWLEDGE COMMUNITY (SKC)

The Sustainability Knowledge Community is open to all MBJ employees and meets to share knowledge and advance our capabilities to track and reduce embodied carbon. The group has practical working sessions for members to practice and understand how to incorporate embodied carbon accounting into component and system design.

Additionally, there are member presentations and project updates on successes and challenges toward reducing embodied carbon. Subgroups for Education, Reporting, Reduction, and Advocacy are responsible for developing and carrying out the actions set forth in MBJ's Embodied Carbon Action Plan.



MBJ's commitment to carbon neutral buildings in 2050 requires us to act now.

EDUCATION

MBJ is committed to providing firmwide education on embodied carbon reduction and on our involvement with SE 2050 through several methods of recurrent communication.

MBJ's Sustainability Knowledge Community is responsible for disseminating sustainability education materials and ensuring that MBJ is informed of the latest sustainability news, methods, and trends from leaders across all relevant industries.

Firmwide sustainability education is a keystone of achieving our overall goal to integrate sustainability into MBJ's design culture. Education will be provided in a multifaceted approach aimed at engaging the maximum number of employees.

Last year, the SKC hosted a presentation to educate employees on developer driven passive house construction. We invited the developer for one of our multi-family projects, which successfully achieved passive house certification, to share their perspective and motivations for pursuing transit-oriented, passive house multi-family projects with low embodied carbon. Highlighting engagement with like-minded professionals aids in broadening our understanding of the sustainable objectives achievable within a project.

Minnesota Zoo Treetop Trail, Minneapolis MN - Adaptive Reuse of Existing Structure

2024 ECAP GOALS

Provide Internal Education

- Present 1 internal sustainability tech talk webinar
- Host an external expert speaker quarterly for a firmwide presentation open to our industry partners
- Curate 1 intranet post per month
- Incorporate embodied carbon education in onboarding materials
- Provide all interns with embodied carbon in structural engineering education culminating in the completion of a mini research project

Engage in External Education

Engage with CLF Minnesota, Phoenix, and San Francisco hubs by attending presentations and working sessions

- Participate in sustainable design conferences through attendance, peer review, and proposals

A LOOK BACK AT EDUCATION IN 2023

11 / 

External
Presentations
Attended

2 / 

Sustainability
Seminar Series
Speakers

1 / 

Summer
Sustainability
Series

1 / 

Sustainability
Vendor
Presentations

REPORTING

MBJ is committed to leveraging effective data reporting tools and our decades of experience in structural design to track and report embodied carbon data for the benefit of the profession and our own design process.

To broaden our tracking experience and seed the database with useful inputs, we will measure and report embodied carbon for projects reflecting a range of material types, end uses, and scale. By developing standards and providing training, we will reduce the effort required to produce quality embodied carbon data; thereby, making this data more accessible to all staff with the intention that embodied carbon consideration will influence decisions throughout the life of a project.

Over the past year, we continued to find it challenging to extend our Tally user group and incorporate LCA processes on a broader spectrum of projects. This year, we intend to prioritize involvement with the BIM specialist group by ensuring that LCA and Tally are regular topics of discussion during our weekly meetings. We view this as a crucial step towards integrating LCA into our project workflow.

2024 ECAP GOALS

Internal Database as a Decision Making Tool

We will continue to develop our database tool that allows for efficient and adaptable comparison of the embodied carbon emissions of multiple projects. We intend to use these data comparisons to recognize potential trends and begin to understand the impact of early design decisions.

LCA Standardization and Quality Initiatives

As the number of MBJ employees performing LCAs and our contributions to the SE 2050 database increase, we will continue to improve our initiatives towards quality assurance and quality control. This will involve a more streamlined process for selecting material definitions to use in our LCA process as well as more oversight and review of completed LCAs prior to submission. Not only does this ensure that better data is provided for the SE 2050 database, but it also provides value by encouraging more review and mindful decision making in our carbon tracking strategies.

Reporting Targets

MBJ will report 15 projects to the SE 2050 database, with the following project parameters represented:

- 3 projects with custom mix designs used in the LCA
- 15 projects with design started or completed in 2024
- At least 4 different major structural material systems
- 7 different building uses
- At least 1 project from each MBJ office



A LOOK BACK AT REPORTING IN 2023



6
Projects
Submitted
to SE 2050
Database



2
US States
with
Reported
Projects



4
Primary
Gravity
Materials



6
Building
Use Types



MBJ's Sustainability Knowledge Community is actively working to update standards, modify specifications, and develop design tools aimed at capturing carbon reduction in structural components.

We will embrace a mantra that design and material strategies for reducing embodied carbon can be incorporated into all our projects today regardless of building type, sustainability requirements, or ownership structure.

Eyeing the future, MBJ will also actively participate in research geared towards carbon reduction to help identify and create the technologies needed to reach net zero embodied carbon.

Over the past year, MBJ has reduced embodied carbon at a project level by engaging with clients and owners in system selection, optimizing structural design and working with construction partners on material specifications and sourcing. Some specific project successes include performance based concrete specifications with GWP targets, deconstruction and reuse of existing steel beams and delayed stressing times for PT where appropriate to schedule.

By pursuing project specific embodied carbon reduction strategies, we have cultivated a method to receive reliable partner and contractor feedback prior to creating firmwide embodied carbon reduction resources.

2024 ECAP GOALS

Pursue Reduction Strategies in all Project Stages

Early Engagement

Communicate the embodied carbon impacts of different design options to clients on at least four projects. Compare different design options with embodied carbon as a performance metric during the project concept phase on at least four projects.

Developing Design

Incorporate material reuse into at least one project and submit a Circular Economy Narrative Participate in LEED design charrettes and speak to design considerations impacting embodied carbon on at least one project.

Shepherding Construction

Collaborate with a concrete supplier to reduce embodied carbon in a mix design below their standard provided mixes. Discuss and distribute results within our firm. Facilitate the creation of a new EPD for a project.

Be a Research Catalyst

Reaching net zero embodied carbon necessitates new materials and methodologies in structural design. MBJ will sponsor a research intern and collaborate on a sustainability design project with the Consortium for Research Practices at the University of Minnesota in addition to funding internal research projects of multiple scales related to strategies for reducing embodied carbon in the built environment to be shared at several conferences throughout the year.

The Dayton's Project, Minneapolis, MN - Energy Efficient Building Systems | Green Roof | Adaptive Reuse of Existing Building

A LOOK BACK AT REDUCTION IN 2023



Projects with
State Mandated
Sustainability Goals



Project Reusing
Structural Steel



Component
Design
Reduction



Mini Research
Studies

ADVOCACY

MBJ recognizes that the path forward for all structural engineers to eliminate embodied carbon in their projects by 2050 requires impactful collaboration.

We are pushing forward on our commitment to eliminate embodied carbon on our projects by making communication a priority in our client relationships. We believe that we have an impactful position in our industry, and we are using our position among architects, owners, and industry partners to escalate the need for action.

In the past year, we accelerated our impact on the industry by engaging in more conversations with our partners regarding the reduction of embodied carbon. We expanded our dialogue with concrete suppliers about their production capabilities. Additionally, we delivered a presentation to fellow structural engineers through SEA of Arizona highlighting our initiatives and the significance. Looking ahead, our goal for the upcoming year is to further cultivate and create opportunities for these conversations.

2024 ECAP GOALS

Embodied Carbon Reduction in Public Policy

We will continue to engage in public policy conversations via participation in forums such as the Carbon Leadership forum hubs and state Structural Engineer's Association Sustainable Design Committees. Through these, we are seeking to influence local policies and upcoming revisions. We plan to connect local municipalities and policy leaders to the existing carbon reduction tools/strategies such as the CLF Owner and Policy toolkits.

Owner and Client Advocacy

We will foster opportunities at the onset of projects to offer Life Cycle Assessments as part of project scope by educating our project managers and team members about these services. We will educate ourselves on deconstruction and salvage methods and advocate for these strategies with clients/owners. We will continue to communicate with our clients and project owners about our sustainability goals and our capabilities to help them achieve theirs.

Incentivizing Facility or Product Specific EPDs

On a minimum of two projects, we will discuss with the client/owner regarding requiring a facility or product specific EPD for at least one structural material for which only industry average EPDs are commonly available to incentivize the market toward improved carbon data. At least one of these will be completed in a region/market in which EPD discussions have not yet taken place.



We are committed to sharing our knowledge with our industry partners to raise awareness of the need for immediate action across disciplines.

**A LOOK
BACK AT
ADVOCACY
IN 2023**

3 / 

External
Presentations
Given

2 / 

Projects with
LCA Goals at
Onset

4 / 

Projects with
Owner Participation
in Requiring
Concrete GWP
Limits

6 / 

Projects
with EPD
Requirements

MEYER BORGMAN JOHNSON

is a multi-specialty structural design practice structuring places that shapes lives. We lead with curiosity and perform with quality to create innovative solutions for our clients. Whether designing a place for people to live, work, heal, travel, play or learn, we create structures that shape our cultures and communities.

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MBJ

It's the human
impact of our
work that
matters.



STRUCTURE THAT SHAPES