EMBODIED CARBON ACTION PLAN

2025

Wight & Company.

Embodied Carbon Action Plan (ECAP)

Wight & Company's award-winning structural design team is ready to take on the industry challenge of eliminating embodied carbon in buildings.

Stevenson High School Patriot Wellness Center and Fieldhouse

Wight & Company is an integrated delivery firm comprised of design and construction professionals and has offices in Darien, IL, Chicago, IL, and Denver, CO. As an industry leader in sustainable design and zero energy buildings, we support the vision that our staff must become well-versed in reducing the carbon impact of our projects – both from operational energy as well as embodied carbon

Having reached many sustainability milestones including one of the first LEED certified project in the world, multiple PHIUS+Source Zero and ILFI Zero Energy projects, and the first verified net zero energy building in Illinois, the natural progression of our practice is to take a proactive and intentional approach to reducing the embodied carbon in our projects. As an integrated design and delivery firm, we are uniquely positioned to address embodied carbon through both design and construction specifications and processes. Led by our structural engineering team, we intend to continue to learn, grow, and reduce the embodied carbon impact of all of our projects.

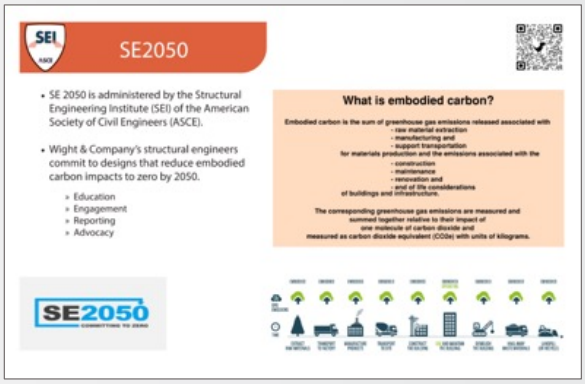
This Embodied Carbon Action Plan is the trail map for our structural engineers, as well as other staff, to understand, reduce, and ultimately eliminate embodied carbon in our projects by 2050.

Education

Understanding the problem and our role in a solution

SE 2050 Commitment

Wight & Company has made public our commitment to SE 2050 through social media posts and internal communications. We regularly share information to reinforce our SE 2050 pledge with staff using multiple mediums and touchpoints including email, weekly announcements, and in-office posters.



This poster explaining SE 2050 is among several Wight & Company industry commitments displayed in our office.

Promoting a firm-wide education program for embodied carbon reduction

Education of staff is an important element of our commitment to sustainability and carbon reduction. We host regular opportunities for staff to learn about sustainability, with carbon reductions being a major driver. Trainings include internal topical and project presentations, tours of projects, speaker series presentations, and 3rd party vendor lunch n' learns. A sustainability training calendar is maintained by the sustainability team and includes training on embodied carbon and LCA tools.

We are actively in the process of growing our structural engineering and sustainability teams. All new structural engineers are required to view the Embodied Carbon 101 webinar upon joining Wight as part of our on-boarding process.

Embodied Carbon Reduction Champions

Matt Aquino PE, SE is Vice President and Director of Building Engineering for Wight & Company. As the leader of our structural design department, Matt serves as a primary champion for Embodied Carbon in the firm. He is supported by John Mlade, Director of Sustainable & Healthy Environments.

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Education (Cont.)

Understanding the problem and our role in a solution

Presentations & Webinars

As part of our regular sustainability programming, we provide frequent webinars to our team, and invite outside speakers to elevate our collective understanding around the urgency of operational and embodied carbon reductions and further our technical knowlege these topics. The following is a list of some of the presentations/webinars we've held in the past in our office.

2021:

- Covetool - Embodied Carbon Module
- AIA 2030 Embodied Carbon Reporting
- Using the EC3 tool - The Why and How
- Wight Climate Summit

2022:

- Ozinga - Low-Carbon Concrete
- Nucor Steel - Econiq: The World's First Net-Zero Steel
- WholeTrees Structures
- In-house Mass Timber Structures presentation
- Lessons learned from attending Mass Timber Conference
- Various Woodworks Webinars

2023:

- Greenbuild Carbon Recordings
    - The Carbon Balance: Harmonizing Operational and Embodied Carbon
    - Moving from "Net Zero Energy" to "Grid Adaptive"
- St. Mary's Cement - Top 10 Ways To Reduce Embodied Carbon in Concrete

2024:

- Beyond Skin and Bones - The Beating Heart of Whole Life Carbon Buildings
- Embodied Carbon Benchmarking - The Prerequisite to Making Impactful Reductions
- The [Carbon] A Team: tying it all together from A1 to A5
- Catalysts for Broad Scale Decarbonization: How Schools Can Transform the Climate Movement
- 5-part Summer Carbon Reading Series (LMN architects)

Embodied Carbon Interest Group

Our emobdied carbon champion is engaged with Carbon Leadership Forum (CLF) and reports back to our embodied carbon intrest group. This group includes our structural engineers, mechanical engineers, civil engineers, architects, and BIM managers. The group meets on a regular basis to share resources and new learnings, case studies, project updates, and other technical resources.

LCA Tools

In the past year we have we have transitioned from using One-Click LCA to using EC3 and EC3 Tally CAT plugin for Revit for quantifying and reporting embodied carbon of our structures. We have also hired a dedicated person to do full building LCAs using Tally. Additionally we have developed an internal spreadsheet for quantifying embodied carbon of the structural systems on our projects in early design development stages, giving us oportunity to make impactfull changes leading to carbon reduction.

Education Goals for the Coming Year

This coming year we plan to continue hosting speakers and showing webinars to staff in our office. We plan to continue to train our structural engineers in the core concepts and skills to measure, reduce and report embodied carbon, which will help us in increasing the number of projects we report. Our goal this year is to increase the number of projects we measure and report from the minimum requirements. We also plan on continuing to be engaged with Carbon Leadership Forum and to meet regualrily with our internal embodied carbon interest group.

Reporting

Measuring to Manage

Measuring, tracking, and reporting

We currently use EC3 coupled with Tally CAT revit plugin to measure embodied carbon in our buildings. We are maintaining an internal database of local material EPDs. We've developed an internal spreadsheet to help us with early estimates of structural quantities and by extension embodied carbon quantities. We've also developed tools to quickly pull material takeoffs from Revit, allowing us to quantify and visualize the embodied carbon contributions from the different structural elemets on the project. Having access to this information in the early stages of projects will help us make informed decisions on choice of structural materials, and where to focus our reduction efforts.

Also, through our specifications we ask for all project partners, subcontractors and vendors to provide product specific environmental and health documentation, including EPDs. We keep collecting product specific EPDs for local materials and keep our assumptions about global warming potential numbers in our early calculations up to date.

Reported Projects

Projects reported for 2021

- Lincoln Elementary School
- Field Elementary School

Projects reported for 2022

- Rhodes Elementary Classroom Addition
- Stevenson High School Fitness Addition

Projects reported for 2023/2024:

- Naper Settlement - Ag Center
- Naper Settlement - Innovation Gateway Center

Projects reported for 2024/2025:

- FDK Center at Churchill
- Willowbrook Wildlife Center

Lessons Learned and Goals for the Coming Year

In this past year we have gained some more traction in and proficiency in using the EC3 and TallyCAT LCA tools. We decided to develop a simple spreadsheet tool to help us keep track of embodied carbon in our structures. We've learned that it is much easier an quicker to do simple carbon accounting using spreadsheets, especially when it comes to early design stages. This year we plan to track the embodied carbon on all of our larger projects through the use of interally developed tools and spreadsheets, begining at the Design Development stage to allow us to make more definitive design decisions to help reduce the carbon footprint of our structures.

Naper Settlement - Birck Family Innovation Gateway

Reduction

Making a plan to implement

Reduction Strategies

The following are the carbon reduction startegies we currelty implent in our design:

- We have included “directional reductions” in our base project specifications including the use of Alternative Cementitious Materials (ACMs) and CO2 infusion in the concrete mixes we specify. For all concrete mix classes on all our projects we require a mininimum of 10-15% reduction from regional NRMCA baselines.
- This year we plan to shift from prescriptive concrete specifications to performance based specifications, removing the limits placed on ready-mix providers for supplementary cementitions materials and others items. This will give the contractors flexibility in achieving lower carbon concrete while ensuring that the required performance of the concrete in-situ is met.
- We specify regional steel that utilizes electric arc furnaces to reduce the embodied carbon in our steel structures.
- We continue to work with our architects and designers to program and layout spaces that reduce structural materials quantities.
- We continue to look for opportunities to utilize biogenic carbon in the form of sustainably harvested heavy timber or glulam structural members. Recently we have completed a wildlife hospital project for the DuPage County Forest Perserve, that utilized a hybrid structual system which included sustainably harvested glulam roof beams.

IBEW Local 9 Crane Training Facility

Lessons Learned and Goals for the Coming Year

Use of comercially available sofware requires a very rigorous process for embodied carbon calculations care must be taken to ensure there are no erros in quantities imported. This year we have switched over to the use of EC3 and TallyCAT plugin for Revit to do embodied carbon calculations on projects we report. We continue to look for efficents ways to introduce embodied carbon calculations into our workflow to help with evaluating best strategies for carbon reduction.

We’ve developed an internal spreadsheet to help us with early estimates and tracking of structural quantities(and thus embodied carbon) prior to having anything modeled in Revit. We’ve also developed tools to quickly pull material takeoffs from Revit, allowing us to quantify and visualize the embodied carbon contributions from the different structural elemets on projects. This year we plan to utilize these tools on every new construction project our engineering team is involved in. We plan to track embodied carbon starting early in design development and following through to completion of the structure. This will allow us to better understand how effective our design changes are in reducing embodied carbon.

Advocacy

Building a culture to bring change to the AEC industry

Knowledge Sharing

Wight will report embodied carbon to SE 2050 and AIA 2030 for applicable projects. Our team, apart from sharing information, is a participant in the Chicago Decarbonization Working Group, Chicago Building Decarb Advocacy Group, and also the GSA's Green Building Advisory Committee (GBAC) currenty producing a recommendation on decarbonizing the federal portfolio. Our work with local and national organizations will help us leverage influence for smart decarbonization policies.

As our structural engineering team becomes more fluent in embodied carbon modeling, we will expand the group to include additional architects, interior designers, construction professionals, and other disciplines. As a Design Led-Design Build firm, Wight & Company is uniquely positioned to address carbon across all disciplines and in all stages of design and construction.

We continue to educate partner design and construction firms on ways to reduce embodied carbon in buildings and also our clients on the value of reducing embodied carbon in addition to operational carbon. Additionally, were also comitted on educating young students on the topic. This year engineers from our structural department and our sustainability group gave a "Getting to Zero" presentation to students at Northwestern University on embodied carbon and strategies our firm uses to reduce the carbon footprint in our building desings.

Client Outreach

When speaking to clients, the conversation is more fully about sustainable and healthy design. As an integrated firm, our architects are able to support the SE 2050 banner as it closely relates to other sustainability commitments our firm has made including Architecture 2030 and AIA Materials Commitment. In addition, we have developed the Wight Sustainability Standard, in-house baseline requirements for all projects. Following our in-house standard, Wight considers and implements practices in structural design that are beyond industry standards.

The success of carbon reductions in projects is celebrated in our marketing material, although we are careful not to greenwash our progress. This is a work in progress and we hope to have a clear message to more effectively market this aspect of sustainable design in the coming year.

Wight & Company will include a declaration of our commitment to SE 2050 on associated structural engineering proposals. Depending on the specific project pursuit, we may also leverage this ambitious commitment on our architectural and construction projects.

Material Supplier Engagement

We continue to stay engaged with the local ready-mix concrete suppliers, discussing most effective ways of specifying low-carbon concrete on our projects. In the comming year we plan to check-in with Ozinga, one of the larger local ready-mix concrete suppliers and review revisions to our concrete specifications. We also aim to reach out to other suppliers to maintain the momentum.

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