



EMBODIED CARBON ACTION PLAN



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SUMMARY

This document is meant to serve as Hollingsworth Pack's Embodied Carbon Action Plan (ECAP), which will list the practices for 2022 in our efforts to meet the goals set by the SE 2050 program that include the following:

- **Education:** Understand the materials we use in our structures, such as steel and concrete, can affect carbon emissions and how we can reduce those emissions through our designed structural systems.
- **Reporting:** Create tools, programs, and benchmarks for embodied carbon to reach the collective reduction goals by 2050.
- **Embodied Carbon Reduction Strategies:** Create strategies in which we can reduce embodied carbon through our design practices.
- **Advocacy:** Advocating the importance of SE 2050 to our offices in North America, to our clients, and educating our offices in embodied carbon and reduction practices.

INTRODUCTION

Founded in 1995, Hollingsworth Pack strives to be the preferred local engineer with a global outlook.

In our Austin office, our Structural Engineers bring vision and inspiration to our structural design.

Our office has employed professionals who are committed to excellence in our work and success with our clients here in Central Texas.

We recognize the responsibility we must address with climate change and issues in our environment. Hollingsworth Pack – Austin will help reach collective sustainability goals through our structural design, and we support the SE 2050 Initiative by Structural Engineering Institute and Carbon Leadership Forum. Our firm will work toward the goal of net-zero embodied carbon by 2050.



Education

Requirements

- **Distribute a firm wide announcement of your firm's pledge to join the SE 2050 Commitment**
 - Hollingsworth Pack sent the commitment letter to office staff about our SE 2050 Commitment. (Included in appendix, pg.8)
 - Add to firm qualification statement and verbally discuss program with existing clients.
- **Provide a brief narrative describing how your firm is promoting a firm-wide education program for embodied carbon reduction and the firm's commitment to SE 2050.**
 - Provide E-Opportunities, such as short training videos, on how to use or how to do EC calculations.
 - Offer video recording of training sessions of information on embodied carbon reduction.
 - Incorporate the use of Revit extensions such Tally and Dynamo into the design process.
- **Nominate an Embodied Carbon Reduction Champion for your firm.**
 - Chris Hewitt, located in our Austin office, has been nominated as our embodied carbon reduction Champion.
 - Responsibilities include:
 - Submitting an updated ECAP each returning year to the E 2050 Program.
 - Submitting project data to the SE 2050 database.
 - Setting new embodied carbon reduction goals within each year.
 - Setting dates to hold webinars for the office and educating and advocating the SE 2050 program to current and future office staff and clients.
- **Set a date within the first year to present an "Embodied Carbon 101" Webinar to your firm**
 - A lunch and learn will be held in December of a condensed version of the "Embodied Carbon 101" Webinar to those here in the office.

Electives

- Have one representative of your firm (any employee) attend quarterly external education programs (e.g., webinar, workshop) provided by SE 2050, Carbon Leadership Forum (CLF), or other embodied carbon resources.
- ✓ Share the SE 2050 library of resources with technical staff.
- ✓ Share embodied carbon reduction strategies with your firm as outlined in Top 10 Carbon Reducing Actions for Structural Engineers document produced by SE 2050.
- Nominate a minimum of (1) employee per office to participate in a CLF Community Hub and/or task force.
- Provide a narrative outlining plan for minimum (2) firm-wide presentations per year on the topic of embodied carbon.
- ✓ Present the document, "How to calculate embodied carbon" to all technical staff.
- Attend a presentation or demo of an LCA-based tool used to calculate embodied carbon.
- Initiate an embodied carbon interest group within your firm and provide a narrative of their goals.
- Provide a narrative of how the Embodied Carbon Reduction Champion will engage embodied carbon reduction at each office.

Reporting

Requirements

- **Provide a narrative on how your firm plans to measure, track, and report embodied carbon data**
 - Use LCA tools, such as Tally and Dynamo, to measure embodied carbon over the lifetime of the buildings during the design phase.
 - Report thorough evaluations of A1-A3 LCA post design and A4+, with general contractor support, during the construction phase in our SE 2050 data submittal.
 - Use Tally and Dynamo to calculate embodied carbon through Revit and of course provide handwritten calculations from sources such as, How to Calculate Embodied Carbon (HTCEC).
- **Describe the internal training for embodied carbon measurement you provided or will provide.**
 - Provide handwritten calculations during the design phase of projects of embodied carbon produced from materials.
 - Hold different trainings for a chosen LCA tool that will be used when designing our buildings.
 - Hold meetings to understand how embodied carbon can be produced from different materials and building functions.
- **Submit an annual minimum of (2) projects per U.S. structural firm.**
 - Submit 2 projects for this coming year. Also, use an LCA tool on all projects to provide understanding of embodied carbon and cross reference between projects.
 - Submit one more project from the year before but no more than maximum of five projects.

Electives

- Submit all projects to the SE 2050 database.
- Meet your target average embodied carbon reduction from the previous year.
- Report a greater percentage of projects than the previous year.
- For a project submitted to the database, ask the Architect or Owner if the project has a carbon budget or if there are established project sustainability goals at the project kickoff meeting.

Embodied Carbon Reduction Strategies

Requirements

- **Set an EC reduction goal for the coming year and an implementation narrative. Qualitative goals focused on education are appropriate for the first year.**
 - Within the first year educate the office on embodied carbon and different tools to measure it and have a better understanding on LCA measuring tools.
 - During the second year, have an embodied carbon reduction goal, and have some projects meet this goal or produce less than the goal set.
 - Compare our findings and compare the data to the projects that are on the database and CLF (Carbon Leadership Forum).
- **For second year's ECAP and beyond, provide a narrative about what you have learned about embodied carbon reduction in the past year. Describe successes and misses to help the program improve.**
 - For the second year ECAP, a narrative about our learnings and ways we use to improve our carbon reductions goals. Updates will also be made to reflect to the ECAP to reflect our improvements and findings.
 - Each year after, a new version of this document will be submitted into SE 2050 program.
- **Minimum (1) additional elective you undertook to reduce embodied carbon in your designs, why you chose the elective and its significance.**

Electives

- Incorporate data visualization into your ECAP. How are you looking at data to make informed design decisions and communicate design options to your clients?
- Provide a project case study in your ECAP sharing embodied carbon lessons learned.
- Create a project-specific embodied carbon reduction plan.
- Complete an embodied carbon comparison study during the project concept phase.
- Participate in LEED, ILFI Zero Carbon, or similar project design charrette and speak to potential design considerations impacting embodied carbon.
- Calculate your firm average benchmark for embodied carbon.
- Update your specifications and incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.
- Collaborate with your concrete supplier to reduce embodied carbon in a mix design.
- Work with a contractor during material procurement to meet an embodied carbon performance criteria on at least (1) project.
- Have an Environmental Product Declaration (EPD) created as a result of a project.
- Incorporate biogenic materials on at least one project annually.
- Provide a narrative of how circular economy has been used on your projects. Incorporate re-use or design for deconstruction into at least one project.
- Quantify construction waste reduction on a project and the impact to embodied carbon.
- Integrate embodied carbon mitigation strategies in your general notes.
- Additional Elective: Work with the General Contractor to get A4+ assessments during the construction phase of a project. (In Progress)

Advocacy

Requirements

- **Provide a narrative about how you plan to share knowledge and data to accelerate adoption of embodied carbon reduction.**
 - Share our commitment to clients so that way we can inform those of our goals and design strategies. With a growing company, we will communicate our commitment to get other offices involved in the commitment as well.
 - The firm has shared the commitment on networking platforms such as LinkedIn, as well as on our company website.
- **Describe the value of SE 2050 to clients. How can we collaborate to drive adoption? At your option, attach any associated marketing materials.**
 - The firm will engage in EC reduction conversations with clients as well as other organizations that focus on reducing embodied carbon. We will also communicate goals for every 5 or 10 years.
 - The firm will have presentations to show the importance of SE 2050 and see if other share the same goals.
 - The firm will have meetings to prior to finalizing projects of the importance of improving building design and construction practices.
- **Declare your firm as a member of the SE 2050 commitment on boilerplate proposal language.**
 - The firm will declare their participation in the SE 2050 commitment during project proposals so that we can work to find more opportunities to reduce embodied carbon as well as make decisions for other sustainability goals such as MEP.
 - The firm will set EC goals in the early stages of projects and find opportunities to use programs to help find the life cycle assessment of different materials used in the project.

Electives

- ✓ Share your commitment to SE 2050 on your company website.
- Give an external presentation on embodied carbon that demonstrates a project success or lessons learned.
- Discuss with the Owner / Client the option of requiring that some of the structural materials come with facility-specific or product-specific EPDs.
- Share education opportunities with clients.
- Provide a narrative of how you have encouraged industry and policy change incentivizing availability of low-carbon and carbon sequestration materials.
- Start an embodied carbon community of practice or mentorship program within your office.
- Mentor a firm new to the embodied carbon space.

Appendix

Embodied Carbon Champion: Chris Hewitt PE, SE, Partner



Chris is responsible for starting the Hollingsworth Pack office here in Austin, Texas and currently manages and oversees all structural engineering work in the firm. Graduating from The University of Texas at Austin with a B.S. in Architectural Engineering, he has extensive knowledge of construction materials and methods. Chris has nearly 20 years of experience performing structural design and is a member of the NCEES, Model Law Structural Engineer, National Council of Structural Engineers Associations, Structural Engineering Association of Texas, and a Certified Windstorm Inspector. Chris actively supports the local engineering community and will spear head the SE 2050 operations here at the firm.

Laura Champion, Director
Structural Engineering Institute
American Society of Civil Engineers

30 January 2022

■ **Letter of Commitment to the SE 2050 Program**

By Hollingsworth Pack
Austin, Texas

Hollingsworth Pack Austin, a 20-person office located in Austin Texas 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.

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Climate change threatens the survival of humankind by destabilization of the environment and there is scientific consensus that the emission of greenhouse gases such as carbon dioxide are causing the earth's climate to change rapidly. The production, transportation and end-use of structural building materials represent a significant percentage of Global CO₂ emissions.

We therefore commit Hollingsworth Pack Austin to take the following steps which are part of the SE 2050 Commitment Program:

- Within six months and annually henceforth, we commit to reporting an Embodied Carbon Action Plan (ECAP) and permit the ECAP document or form be made public on the SE 2050 website.
- 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.



Chris A. Hewitt, PE, SE, Partner
Hollingsworth Pack