

SE2050

**2022 Embodied Carbon
Action Plan**

June 24, 2022



STRUCTURAL
ENGINEERING
INSTITUTE



JIRSA | Hedrick

STRUCTURAL ENGINEERS

DELIVERING COLLECTIVE INGENUITY

JIRSA HEDRICK 2022 EMBODIED CARBON ACTION PLAN

Pt 1. Commitment Letter

Part 1 – COMMITMENT LETTER

Jirsa Hedrick Structural Engineers, an 18-person firm located in Denver, Colorado is hereby signing on to the SE2050 Commitment Program. We support the vision that all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050.

Jirsa Hedrick is committing to the SE2050 initiative because we believe in taking measurable steps towards embodied carbon reduction in our projects. We feel that the goals and actions of SE2050 will help produce meaningful data that can be used by design professionals, policy makers, and building owners to be better informed for making Global Warming Potential based material selections. We strive to *deliver collective ingenuity* in our projects and look forward to incorporating data-based climate sensitive initiatives into our designs to bolster a consideration of design – sustainability – that we had previously struggled to address. Above all, Jirsa Hedrick recognizes that importance of participating in the SE2050 database compilation to maximize and accelerate the incorporation of a quantifiable, sustainable design methodology.

We therefore commit Jirsa Hedrick Structural Engineers to take the following steps, which are part of the SE2050 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 SE2050 website.
- ✓ Within one year and annually henceforth, we commit to submit data to the SE2050 project database in a collaborative effort to understand embodied carbon in structural engineering projects and to set attainable targets for future projects.
- ✓ Complete all recommended number of SE2050 Elective actions for all 4 tracks including Education, Reporting, Reduction, and Advocacy.

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Pt 2. Internal Announcement

Part 2 – INTERNAL ANNOUNCEMENT

INTRODUCING SE2050!

As of today, Jirsa Hedrick is a signatory firm of SE2050!

Simply put: We are committing to removing net embodied carbon in our projects by 2050.

There is much more to it than that, of course, and I hope to help explain it to everyone over the course of the next year. In the meantime, I have attached a few documents that explain the basics and the following links to helpful online resources:

10 things structural engineers should know about embodied carbon: <https://se2050.org/resources-overview/embodied-carbon/top-10-things-every-structural-engineer-should-know-about-embodied-carbon/>

SE2050 resource library : <https://se2050.org/resources-overview/>

Embodied carbon resources: <https://se2050.org/resources-overview/embodied-carbon/embodied-carbon-resources/>

EC3 Carbon calculator: <https://buildingtransparency.org/ec3>

If this sounds interesting to you and you want to get involved more, please let me know!



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Pt 3. Education Plan

Part 3 – EDUCATION PLAN

Overview:

The Jirsa Hedrick embodied carbon education plan is intended to provide all Jirsa Hedrick employees with the necessary information to make informed embodied carbon design decisions. The embodied carbon education initiative will be accomplished through an inaugural Embodied Carbon 101 presentation and multiple carbon-focused office technical meetings. Our assigned carbon champion will lead these meetings and provide information from research, webinars, and interaction with other Denver area SE2050 signatory firms who have shared their lessons learned. Jirsa Hedrick currently holds technical meetings every Thursday for discussing miscellaneous technical topics; we anticipate the embodied carbon education initiative will take place during these technical meetings roughly once every few months. At the end of each year of participation, engineers will be given an Embodied Carbon Quiz.

Plan:

- *Embodied Carbon 101*: A 1-hour technical presentation to be given to all Jirsa Hedrick employees during a weekly technical meeting. The intent of the *Embodied Carbon 101* is to provide all engineers with a working knowledge of embodied carbon environmental hazards, terminology, calculation, and reduction strategies. This presentation will be recorded and provided to all future new engineers during onboarding and orientation.

- **Recurring Technical Meetings**: A follow up series will be presented roughly once every few months. Each technical meeting is 1 hour long and will cover an array of embodied carbon related topics including:
 1. Embodied carbon LCA tools
 2. Carbon reduction in concrete construction
 3. Carbon reduction in steel construction
 4. Carbon offset strategies
 5. Embodied carbon legislation
 6. Local Colorado embodied carbon resources and EPDs

- Embodied Carbon Quiz: Engineers will be quizzed at the end of each year of participation. The results of the quiz will be used to verify that the embodied carbon education initiative is adequately informing our engineers, and adjustments will be made in subsequent years as needed.

Goals:

The primary goal of the Jirsa Hedrick embodied carbon education plan is to ensure all engineers have the knowledge necessary to make informed carbon reduction decisions in design. The success of our education initiative will be measured by our ability to achieve the following goals:

1. All engineers pass the end of year Embodied Carbon Quiz
2. All engineers have attended *Embodied Carbon 101* and at least 3 subsequent carbon reduction technical meetings
3. If applicable: All engineers have the knowledge to discuss and explain carbon reduction strategies with clients in a persuasive and informative manner

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Pt 4. Knowledge Sharing Narrative

Part 4 – KNOWLEDGE SHARING NARRATIVE

Overview:

Jirsa Hedrick is eager to face the challenge of spreading awareness of embodied carbon reduction initiatives in the local Denver and greater Colorado area. We hope to spread awareness in as many ways possible as outlined below by utilizing face to face client communication, social media posts, business development networking, and policy creation/support.

Plan:

- **Client interaction:** One of the most impactful means of knowledge sharing is in the early planning stages of a project through persuasion of architects and owners to the value of carbon reduction in material selection. By explaining the possible strategies for embodied carbon reduction early in a project the design team has the best chance of incorporating sustainable design features early on and designing within those constraints.
- **Social Media Posts:** Jirsa Hedrick typically posts project updates, local building coverage, company events and exciting news on a weekly basis to multiple social media accounts. As part of the SE2050 knowledge sharing initiative, we will post about sustainability related news and products at least once per month.
- **Business Development Networking:** Jirsa Hedrick typically attends monthly business development meetings with local industry professionals. As part of the SE2050 knowledge sharing initiative, Jirsa Hedrick will engage in embodied carbon reduction discussions and work to grow the knowledgebase in the local market.
- **Policy Support:** Jirsa Hedrick has several employees who serve on local associations and committees that help develop building code policies for the Denver area. As part of the SE2050 knowledge sharing initiative, Jirsa Hedrick employees serving on policy committees will support policies that they feel bring embodied carbon awareness and carbon reduction to local or national building policies.

Goals:

The primary goal of the Jirsa Hedrick embodied carbon knowledge sharing initiative is to grow the awareness and understanding of embodied carbon reduction in the local market with the hope that such awareness spreads nationally. The annual goals for external knowledge sharing are as follows:

1. Discuss and explain possible carbon reduction strategies with clients during early project planning
2. Persuade the design team to incorporate embodied carbon reducing materials on a project
3. Post sustainability related information to social media accounts
4. If applicable: Employees serving on committees responsible for code adoption and policy change during active years shall support sustainable policy proposals where possible

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Pt 5. Reduction Strategy & Reporting Plan

Part 5 – REDUCTION STRATEGY & REPORTING PLAN

Overview:

Jirsa Hedrick will use this first year of SE2050 involvement to develop a baseline understanding of the embodied carbon for a typical project. Jirsa Hedrick will focus on concrete structures for the first year of participation with the intent to add other building types in future years. We expect to use readily available life-cycle assessment (LCA) software to analyze data from past or current projects.

Plan:

- Life-Cycle Assessments: Use entry-level embodied carbon life-cycle assessment software, such as EC3, to develop an LCA for 2-5 concrete structures. Embodied carbon will be tabulated by entering Revit-generated gross building material quantities into the EC3 (or similar) calculator. LCA's will be built from locally available EPD data for Denver area concrete suppliers. The scope of our analysis will be lifecycle analysis stages A1-A3 primarily focused on the building materials.

Goals:

The reduction strategy and reporting plan goals for the first year of participation are simple:

1. Gain access and familiarity with embodied carbon LCA software
2. Generate an LCA with embodied carbon data for 2 projects minimum
3. Develop an internal project baseline for embodied carbon
4. Upload embodied carbon LCA data to the SE2050 database

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Pt 6. Elective Documentation

Part 6 – ELECTIVE DOCUMENTATION

Overview:

In addition to the internal goals listed in the previous sections, Jirsa Hedrick intends to complete the following electives in the between June 2022 and June 2023:

Education

- Distribute ECAP within firm upon publishing
- Make (1) webinar focused on embodied carbon available to employees
- Share the SE2050 library of resources with technical staff
- Present the document “How to calculate embodied carbon” to all technical staff

Reporting

- Submit a minimum of 2 projects per U.S. office with structural engineering services to the SE2050 Database
- At the project kickoff meeting, ask the Architect or Owner if the project has a carbon budget or if there are established project sustainability goals

Reduction

- Project case study sharing embodied carbon reduction successes and lessons learned
- 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

Advocacy

- Describe the value of SE2050 to clients
- Declare your firm as a member of the SE2050 Commitment with proposal language
- Share your commitment to SE2050 on your company website
- With the owner or client, discuss a facility- or product-specific EPD requirement for structural materials