



Flad

Flad Structural Engineers SE 2050 Embodied Carbon Action Plan

Flad Structural Engineers are pleased to submit the following Embodied Carbon Action Plan outlining our commitment to achievement of net-zero embodied carbon in structures by the year 2050. As outlined in the guidance documents provided by the SE2050 committee, there are four components to our plan: **Education, Advocacy, Reporting, and Reduction Strategy.**

Education

Distribute firm-wide announcement of your firm's pledge to join the SE 2050 Commitment. After the first year, make an announcement sharing your ECAP from the previous year.

Flad has already made both internal and external announcements of our SE 2050 Commitment. Internally, we have posted notices on our intranet page, as well as given program background at monthly all-staff meetings. Externally, we have posted to various social media platforms (Facebook, LinkedIn, etc.), and our client-facing website (www.flad.com).

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.

Flad has an established framework for sustainability education. Our firm is also a signatory to AIA 2030, and requires substantiality credentialing for staff in project leadership roles. We include embodied carbon quantification and impacts in internal education sessions and provide opportunities for staff to attend both internal and external educational events.

Set a date within the first year to present an "Embodied Carbon 101" Webinar to your firm (present your own or use an existing from BSA or equivalent). Include this resource in your orientation/on-boarding programs.

Flad will hold an introductory webinar early in the 3rd quarter of 2021 as part of our ongoing sustainability education series.

Minimum (1) additional elective to educate your firm about embodied carbon and a narrative of its significance.

Flad encourages staff to attend quarterly Embodied Carbon educational programming and the SE 2050 library of resources is available to all technical staff through our internal sustainability intranet page.

Nominate an Embodied Carbon Reduction Champion for your firm. Include a brief profile (name, office, title, optional picture, and bio) in your ECAP.

Embodied Carbon Reduction Champions



Tim Liebhold PE, LEED AP
Structural Engineer, Madison office

Tim has 15 years of engineering experience working on new and existing facilities in corporate, research, healthcare, and academic markets. Tim is dedicated to improving sustainability in structural design and leads Flad's SE 2050 efforts.



Kimberly Reddin AIA, LEED AP, WELL AP
Director of Sustainability, Madison office

Kimberly has 15 years of design experience spanning the academic, science and technology, corporate, and healthcare markets. The driving force behind her work is the belief that good design improves communities and helps both current and future generations to flourish.

Advocacy

Provide a narrative about how you plan to share knowledge and data to accelerate adoption of embodied carbon reduction.

Flad has made a firm-wide commitment to net zero carbon through the AIA 2030 and SE 2050 initiatives for our Architectural and Structural practices respectively. We provide ongoing education related to these initiatives, and we will report out our SE 2050 results and lessons learned along with our AIA 2030 results each year.

Describe the value of SE 2050 to clients. How can we collaborate to drive adoption? At your option, attach any associated marketing materials.

Many of our clients have ambitious carbon reduction goals, but they aren't always aware of the impact of structural materials on carbon. The SE 2050 provides us with a tool to educate our clients and ourselves, and to take action to reach zero by 2050.

Declare your firm as a member of the SE 2050 commitment on boilerplate proposal language.

We have enhanced our standard proposal language to include our SE 2050 commitment and overall commitment to a net zero carbon future.

Reporting

Provide a narrative on how your firm plans to measure, track, and report embodied carbon data.

Flad uses an array of commercially-available software to track and submit embodied carbon data. Tally, OneClickLCA, and Athena are three tools we have been reviewing to date, in combination with Revit. Depending on project needs and database requirements, we may decide on a specific tool and process, but they all include industry average, product specific, and regional average EPDs. Materials specified and analyzed for each project will be carefully considered based upon the available data.

Our plan is to report on all life cycle stages and modules for which we have a reasonable level of confidence in the data. Early reporting will likely not include some of the modules that are difficult for us to ascertain as an independent AE firm, such as A5, but as industry partners are able to provide data and more EPDs become available, we will endeavor to include all stages and modules in our analyses. At a minimum, we will always include modules A1 through A3, and we will separate reporting values by stage and modules for clarity and ease of data analysis.

In the first year of our commitment to SE 2050, we plan to select projects based upon completeness and appropriateness for inclusion. Initially our goal will be to extract data on projects at the midpoint (DD) of design and again at the completion of construction documents. The deltas we see between these two project phases will allow us to understand where our baseline embodied carbon quantities are and how they evolve during design. After accruing data over several projects, we feel we will then be able to provide appropriately aggressive goals for reduction.

Describe the internal training for embodied carbon measurement you provided or will provide.

The Embodied Carbon Reduction champions will lead the measurement efforts for projects, and as the process and data become more refined, additional staff will be trained. Numerous engineers have already expressed an interest in helping to achieve our carbon reduction goals.

Submit an annual minimum of (2) projects per U.S. structural office but need not exceed (5) total projects for the firm to the SE 2050 Database.

Two projects which have had their construction documents completed in 2021 will be submitted by January of 2022.

Reduction Strategy

Set an EC reduction goal for the coming year and an implementation narrative. Qualitative goals focused on education are appropriate for the first year.

First year goals at Flad will be geared towards establishing a baseline for our project types and construction methods. As baselines are established, we will work with stakeholders (architects, planners, engineers) to understand the how different building designs and layouts can impact the embodied carbon footprint.

Minimum (1) additional elective you undertook to reduce embodied carbon in your designs, why you chose the elective and its significance.

Flad has already begun the process of evaluating specifications and typical detailing practices for efficiencies and reduction of embodied carbon. We have updated our concrete specifications to include embodied carbon performance and to allow alternative technologies and concrete suppliers to optimize mix based on performance characteristics rather than prescriptive requirements. We chose this elective because we feel it signals the industry that we are paying attention to embodied carbon, and it has already led to some productive conversations with industry leaders in our area.

Further, as part of our ongoing sustainability efforts, we will include structural carbon impacts as a discussion point among both Flad staff and project owners, allowing for a decision-making process that considers carbon impacts alongside other key project metrics.