

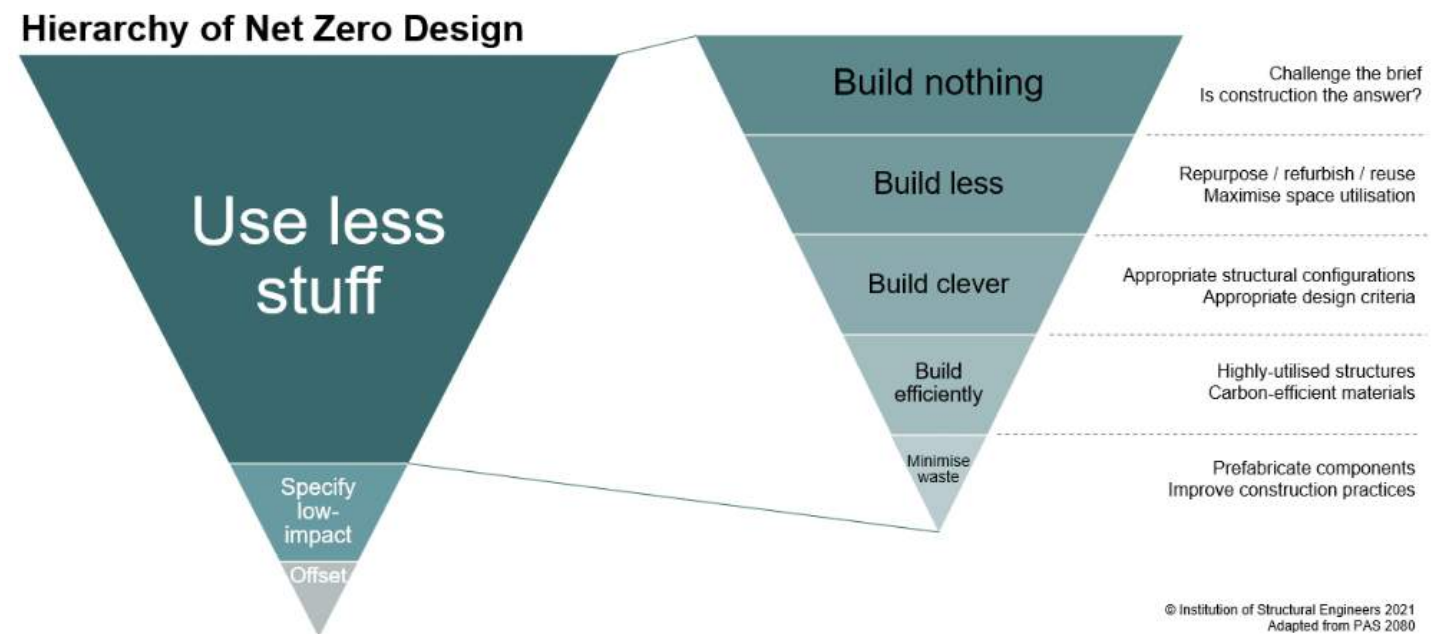
EMBODIED CARBON ACTION PLAN (ECAP)  
2024

## INTRODUCTION AND PURPOSE

Engineering Ventures, PC, a civil and structural engineering firm located in Burlington, Vermont; Lebanon, New Hampshire; and Schenectady, New York is a signatory 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.

We are committing to SE2050 to move more assuredly and deliberately in continuing our past and ongoing work practices to be responsibly accounting for, and thereby reducing, the externalities of energy use, material by-products, waste, and pollution costs. We want to lead a way to recognize these costs which are still, for the most part, implicit in the designs of this industry and practice. SE2050 is a marked path and challenging remedy to address the true costs of environmental footprint and consequences of our projects; and, also in the way we conduct our office work. As structural and civil engineers, we have endeavored to reduce material use with reliable and durable designs as a baseline practice; and, we have voluntarily conducted LCA comparisons in designs. So, joining SE2050 bolters our efforts in the marketplace with Clients to advance these holistic and mature practices. We look forward to working with this coalition and industry effort to achieve the goals of the SE 2050 Program.

Our sustainability efforts will continue with focus on the renovations and adaptations of existing buildings, improving their resiliency to environmental phenomena - significantly reducing embodied carbon effects through re-use and not new construction, as well as thermal envelope enhancements – diminishing operational energy needs; and use of low impact structural constructions – designing more efficient structures with lowered impact materials. We emphasize working to implement local materials and trades’ craft for overall project reliance on transport We consider, the IStructE’s guidance for Net Zero, as a footprint for what’s not to be left behind.



## EMBODIED CARBON ACTION PLAN (ECAP)



## SE 2050

For maintenance, tracking, and action, the following required works are identified. The Education, Reporting, Reductions, and Advocacy sections that follow include purpose and goal statements and delineate electives.

EDUCATION COMPULSORY ITEM	INFORMATION	STATUS
Distribute firm-wide announcement of your firm’s pledge to join the SE 2050 Commitment.	2021	Complete
Name of Embodied Carbon Champion (Point Person)	Transition to next firm champion & SE2050 Firm Administrator	Summer 2024
Present the “Embodied Carbon 101” Webinar to firm. Incorporate this information into your orientation/on-boarding programs	Selected. See Embodied Carbon Team section.	Complete
Incorporate “Embodied Carbon 101” Webinar information into your orientation/on-boarding programs	Signed-up, September 22, 2022.	Complete
Additional firm education about embodied carbon and a narrative of its significance.	Review & Update previous Submitted. Focus on AIA 2030 partnering & market issues	2024





SE 2050

REPORTING COMPULSORY ITEM	INFORMATION	STATUS
Submit an annual minimum of (2) projects per U.S structural office or (5) total projects for the firm to the SE 2050 Database. *	3 for 2024 submitted; see below	Complete
Provide a narrative on how your firm plans to measure, track, and report embodied carbon data	Have each Project Manager work through an LCA with EV 2050 Team; Using EC3, while on projects; BEAM added	2024
Describe the internal training for embodied carbon measurement you provided or will provide	Assign LCA experienced staff from previous projects of the last decade to assist project team.	Complete

REDUCTION COMPULSORY ITEM	INFORMATION	STATUS
Set an EC reduction goal for the coming year and an implementation narrative (Qualitative goals focused on education are appropriate for the first year.)	We commit to integrating Embodied Carbon Reduction education and project practices as SOP's, with an initial focus on reducing Portland cement quantity and promoting biogenic and recycled structural material use.	Complete
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.	We have been working on implementing intentional carbon reduction designs for a while as part of lowering design footprint. We will update and maintain a Lessons Learned and successful Tool database. 2024: Set 2-hour bullpen session w/ all PM om Lessons learned & Client uptake/wants	Complete; Summer 2024
Minimum (1) additional elective to educate your firm about embodied carbon and a narrative of its significance.	Selected. See Embodied Carbon Team section. 2024: Review ECAP w/ Staff	Complete May 2024



SE 2050

ADVOCACY COMPULSORY ITEM	INFORMATION	STATUS
Provide a narrative about how you plan to share knowledge and data to accelerate adoption of embodied carbon reduction	We have shared with Clients and published our commitment in AIA VT ( <a href="https://www.aiavt.org/news-events/news-details/post/engineering-ventures-pc-commits-to-SE2050">https://www.aiavt.org/news-events/news-details/post/engineering-ventures-pc-commits-to-SE2050</a> ). We will continue to offer and/or provide options and LCAs in Schematic Designs to show embodied carbon impacts of structural systems to Clients. 2024: List AIA 2030 member Architects; <b>encourage</b> staff to ask them on projects about its application	Complete 2024 Update
Describe the value of SE 2050 to clients. How can we collaborate to drive adoption? At your option, attach any associated marketing materials	We will publish our ECAP in an illustrated firm marketing and emphasize the ability to use Vermont as an innovative incubator for technologies and practices to Clients	Complete; Re-do 2024
Declare your firm as a member of the SE 2050 commitment on boilerplate proposal language	Situational for market concerns	Complete



EDUCATION

EV: As a combined Civil and Structural engineering firm primarily in the building market, Engineering Ventures will provide education to its entire staff. This will promote Carbon Reduction in its designs (for example using natural materials) and in its business practices (such as reducing electronic file storage loads). We have commenced with presenting past project designs, specification and LCA measure, as well as previous professional conference and client session materials for Embodied Carbon Reduction. We will present monthly to the professional structural staff and quarterly to the whole company on SE2050 initiatives. This will include project presentations by all staff; and will occasionally include examining design effects of extraction, to implementation, to end-of-life. EV will incorporate Embodied Carbon Reduction and LCA education into our standard project review lists. And, we will plan to make LCA evaluation and information a required part of all project promotional materials, so as to foster regenerative owner, design and construction work.

ELECTIVE ITEM	INFORMATION	STATUS
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.	All quarterlies attended	Ongoing/Active
Share the SE 2050 library of resources with technical staff.	Re-present 2024	Ongoing/Active
Share embodied carbon reduction strategies with your firm as outlined in Top 10 Carbon Reducing Actions for Structural Engineers document produced by SE 2050.	Selected. Re-present ECAP	Ongoing/Active
Provide narrative outlining plans for minimum (2) firm-wide presentations per year on the topic of embodied carbon	Third-party webinar offerings & all PM’s conduct one LCA	2024 upgrade



## EDUCATION (CONT)

ELECTIVE ITEM	INFORMATION	STATUS
Present the document, “How to measure and report embodied carbon” to all technical staff.	Re-present 2024 as part of all PM’s conduct one LCA	2024 upgrade
Attend a presentation or demo of an LCA-based tool used to calculate embodied carbon.	BEAM for use with Straw-Bale Panel projects	Ongoing/Active
Initiate an embodied carbon interest group within your firm and provide a narrative of their goals.	Electronic file size and waste office reductions pending 2024; fewer emails; compressed files for sending & storage	2024
Provide a narrative of how the Embodied Carbon Reduction Champion will engage embodied carbon reduction.	Participated and attended NE Bio-Materials Summit 2023; 2024 maintain activity w/ NE Bio-Materials group	Ongoing/Active
Present Carbon Reduction Strategies in Structural Designs and Materials to Clients	During Schematic Design and VE on select projects; using Athena Eco-Calculator, etc. for “quick” comparisons	Ongoing/Active



## REPORTING

SE 2050: Quality data is essential to making informed decisions and setting important benchmarks and the development of appropriate embodied carbon reduction targets. The SE 2050 database is a central component to building a successful Commitment Program and reaching our collective embodied carbon reduction goals by 2050.

ELECTIVE ITEM	INFORMATION	STATUS
Submit all projects to the SE 2050 Database	Increase 2024 reporting by having all PM's conduct one LCA	2024 upgrade
Meet your target average embodied carbon reduction from the previous year		Dormant
Report a greater percentage of projects than the preceding year.	2024: Increase reporting by having all PM's conduct one LCA	2024 upgrade
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.	Asking on several projects, specifying for EPD's to be submitted on many projects	Complete
Include Embodied Carbon Reduction in 5 (minimum) project descriptions used for proposal, business development, and/or publication on company website, LinkedIn, etc.	2024 review	Ongoing





## REDUCTIONS

SE 2050: Embodied carbon reduction of structural materials is the ultimate goal of the SE 2050 program. As a starting point, access to the SE 2050 project database and Program resources to identify and set strategies. This section also serves to share lessons learned and incite innovation. Demonstrate leadership by not only applying, but developing best practices and actively collaborating with the design community. This is our profession's opportunity to take action and make an impact.

ELECTIVE ITEM	INFORMATION	STATUS
Complete a system embodied carbon design comparison study during the project concept phase.	One in 2019	Dormant
Update your specifications and incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.	EPD submittal requirement listed in several project specifications	Ongoing
Collaborate with your concrete supplier to reduce embodied carbon in a mix design	Local suppliers' not capable; regional supplier may provide opportunities	Dormant
Incorporate biogenic materials on at least one project annually.	Several Residential and Light Commercial projects in design and built to date	Ongoing
Other Actions	See office electronic use reduction plan	2024



ADVOCACY

SE 2050: True change can only come with industry-wide adoption. This section recognizes that our impact reaches beyond any one firm. Plan opportunities to share your experience and knowledge within your firm, with your design community, and beyond. Host a webinar or lunch ‘n learn, attend a conference, connect with the SEI Sustainability Committee, or reach out to manufacturers and policy-makers

ELECTIVE ITEM	INFORMATION	STATUS
Share your commitment to SE 2050 on your company website		Complete
Give an external presentation on embodied carbon that demonstrates a project success or lessons learned (Tip: Get connected at a CLF local hub near you!)		Dormant
Discuss with the Owner / Client the option of requiring that some of the structural materials come with facility-specific or product-specific EPDs	The University of Vermont, Rutland Regional Transit	Ongoing
Share education opportunities with clients	NE Bio-materials Summit to a few Architects (w/ ASCE SEI Sustainability Committee Thermal Bridging Working Group recruiting) into 2024	Ongoing
Provide a narrative of how you have encouraged industry and policy change incentivizing availability of low-carbon and carbon sequestration materials	The University of Vermont projects list EPD submittal requirement to be compared to industry avg’s. UVM considered payment timing incentive briefly.	Ongoing
Start an embodied carbon community of practice or mentorship program in your office		Dormant
Mentor a firm new to the embodied carbon space		Dormant



2024

ADVOCACY (CONT)

ELECTIVE ITEM	INFORMATION	STATUS
Other action you feel appropriate and a narrative for why.		Dormant

