

EMBODIED CARBON ACTION PLAN



2025 Embodied Carbon Action Plan

Education

- ✓ Distribute firm-wide announcement of Ai-Alt's SE 2050 Commitment as a signatory firm.
- Provide a brief narrative describing how Ai-Alt promotes a firm-wide education program for embodied carbon reduction and commitment to SE 2050.
- Nominate Ai-Alt's Embodied Carbon Reduction Champion.
- Present "Embodied Carbon 101" webinar to all Ai-Alt employees and incorporate this information during orientation/ on-boarding programs.
- Share the SE 2050 library of resources with Ai-Alt technical staff.
- Discuss the Top Carbon Reducing Actions for Structural engineers.
- Present the Embodied Carbon Calculations prepared by The Institution of Structural Engineers.

Reporting

- Provide a narrative on how Ai-Alt measures, tracks, and reports embodied carbon data.
- Describe the internal training for embodied carbon measurement Ai-Alt provides.
- Submit three (3) structural projects to the SE2050 database for March 2024-2025 period using the LCA EC3 Tool.
- ✓ Maintain the firm's goal of minimum 50% Reduction percentage of the realized embodied carbon from the EC3 Baseline and 2021 CLF Baseline.
- Achieve a greater percentage of embodied carbon reduction and number of projects reported from last year.



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Reduction Strategies

- ✓ For 2nd year's ECAP and beyond, describe Ai-Alt's successes and misses to help the program improve.
- ✓ For 2nd year's ECAP and beyond, provide a narrative on Ai-Alt's learnings about embodied carbon reduction in the past year.
- Research about biogenic materials and its proper incorporation to structures.
- Carefully choose building materials with better declared equivalent environmental performance and suppliers located closer to the project site.
- Minimize the volume of concrete with high carbon as much as possible.
- Reuse or optimize the existing framework and materials to produce less construction waste.
- Inform clients about our advocacy to reduce embodied carbon on each of our projects.

Advocacy

Provide a narrative on how Ai-Alt shares knowledge and data to accelerate adoption of embodied carbon reduction.

Describe the value of SE 2050 to clients.

Declare Ai-Alt as a member of the SE 2050 commitment on boilerplate proposal language.



EDUCATION

Ai-Alt is committed to promote the vision and principles of SE2050 by consistently educating the staff about the impact and motivation of this movement. We were able to incorporate sustainable design practices into our projects for the past years and continue to uphold this advocacy in our future and upcoming contracts and negotiations.

Education is the primary key in our effort towards the promotion of Sustainable Design. We were able to disseminate the vision of the movement by continuously educating our employees through the exchange of ideas during our team meetings, member onboarding, and the provision of SE 2050 library and other sustainability resources that are made accessible as references for the firm's projects.

In the past year, we were able to discuss the Top Carbon Reducing Actions for Structural engineers and present the Embodied Carbon Calculations prepared by The Institution of Structural Engineers on our technical discussions. These learnings were integrated in our structural design process to further improve our impact for this cause.

On the upcoming year, we aim to research and incorporate more sustainable practices into our design process.

ECAP CHAMPION CONTACT DETAILS

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REPORTING

Ai-Alt is committed to promote the principles of SE 2050 by incorporating sustainable design practices in our projects. Our efforts in reducing the embodied carbon in structural systems start with the assessment of building materials during the preliminary design stage alongside construction cost, time, and quality. Using the LCA tool, EC3 Building Transparency website, we establish the project specific GWP reduction target and select the appropriate EPDs for every building material. The generated result of the initial design will be used in the team's discussion to further assess our sustainable design advocacy and make critical and necessary improvements to our structural components and materials to achieve the firm's reduction goal.

For March 2024-2025 period, the team was able to submit three projects and maintain the firm's goal of minimum 50% Reduction percentage of the realized embodied carbon from the EC3 Baseline and 2021 CLF Baseline.



REDUCTION STRATEGIES

In the past year, we have greatly reduced the carbon footprint of each building material in our multiple projects. Not only that we were below the 2021 CLF Baseline and EC3 Baseline, but we were also able to actualize embodied carbon below than the Achievable target. This shows an effective reduction in embodied carbon and a positive impact to the environment.

One of our strategies was to minimize the volume of concrete in our projects, as we have concluded in our collected data that concrete embodies higher global warming potential. Utilizing steel and engineered wood panels as main framing in our building design minimizes the overall embodied carbon of our projects from raw material extraction to product manufacturing. The team was also able to reduce more carbon by carefully strategizing the supplier's proximity to the project site.

The table below shows positive results of reduction strategies effectivity; hence, we will continue to implement and strengthen these actions.

Project	Reduction Percentage	Reference
Office	54%	2021 CLF Baseline
Dining Hall	67%	2021 CLF Baseline
Residential	52%	EC3 Baseline (1.2x Achievable)



LESSONS LEARNED:





Excluded collections with negative GWP: MassTimber: Jurisdiction - USA;, MassTimber: Jurisdiction -

Shown above is the graphical presentation of the GWP Savings of one of our submitted projects, a multi-story dining hall – as seen on the right graphic.

We were able to reduce 67% of embodied carbon on this project, and listed below are few of the realizations and learning of this specific project .

- Even a small volume of concrete takes a bigger portion of the building's overall carbon, which is
 represented by the thickness of the bars. Therefore, a conscious decision to minimize the
 amount of concrete during the design process can largely impact the realized total GWP of the
 building.
- Specifying efficient material specifications and suppliers with great consideration of the EPD of the wood members and wood panels, which are abundantly used in this project, lessens the project's total GWP.





ADVOCACY

We have announced our pledge for SE 2050 in our company's website and started offering Energy compliance related services to our clients. We aim to maintain this pursuit towards Sustainable Design in the coming years through continuous education of our employees, distribution of marketing materials, active conversation with suppliers and clients for potential Carbon reduction opportunities, and the meticulous integration of biogenic materials in our structural designs.

As advocates of the movement, our mission for selfimprovement also continues. We strive to further enhance our knowledge through research on LCA tools, Carbon diminution methodologies, and other available sustainability software and equipment that could aid us in identifying adversities and developing our current strategies.

