

A dark blue background on the left side of the slide, featuring a faint, light blue wireframe architectural drawing of a multi-story building structure.

2024 EMBODIED CARBON ACTION PLAN

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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.

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.

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.
- ✓ Incorporate biogenic materials on at least one project annually.

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 educating the staff about the impact of this movement. We were able to incorporate sustainable design practices in our projects for the previous years and will still 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.

On our upcoming technical discussions, we will discuss the Top Carbon Reducing Actions for Structural engineers and present the Embodied Carbon Calculations prepared by The Institution of Structural Engineers. These learnings are to be integrated in our structural design process to further improve our progress on this cause.

ECAP CHAMPION CONTACT DETAILS

Maria Geralda S. Bacalla

+63 032 415 1481

gbacalla@ai-alt.com

www.ai-alt.com

REPORTING

Our process begins with the creation of a plan or a preliminary structural design. Subsequently, we generate initial material take-offs and schedules to quantify the building materials and components and then manually input the data in the EC3 Building Transparency website. From there, we establish the project specific GWP reduction target and select the appropriate EPDs for every category. The generated result of the original design will be used in the team's discussion to further enhance the schematic design and improve the selection and assessment of the project's building materials.

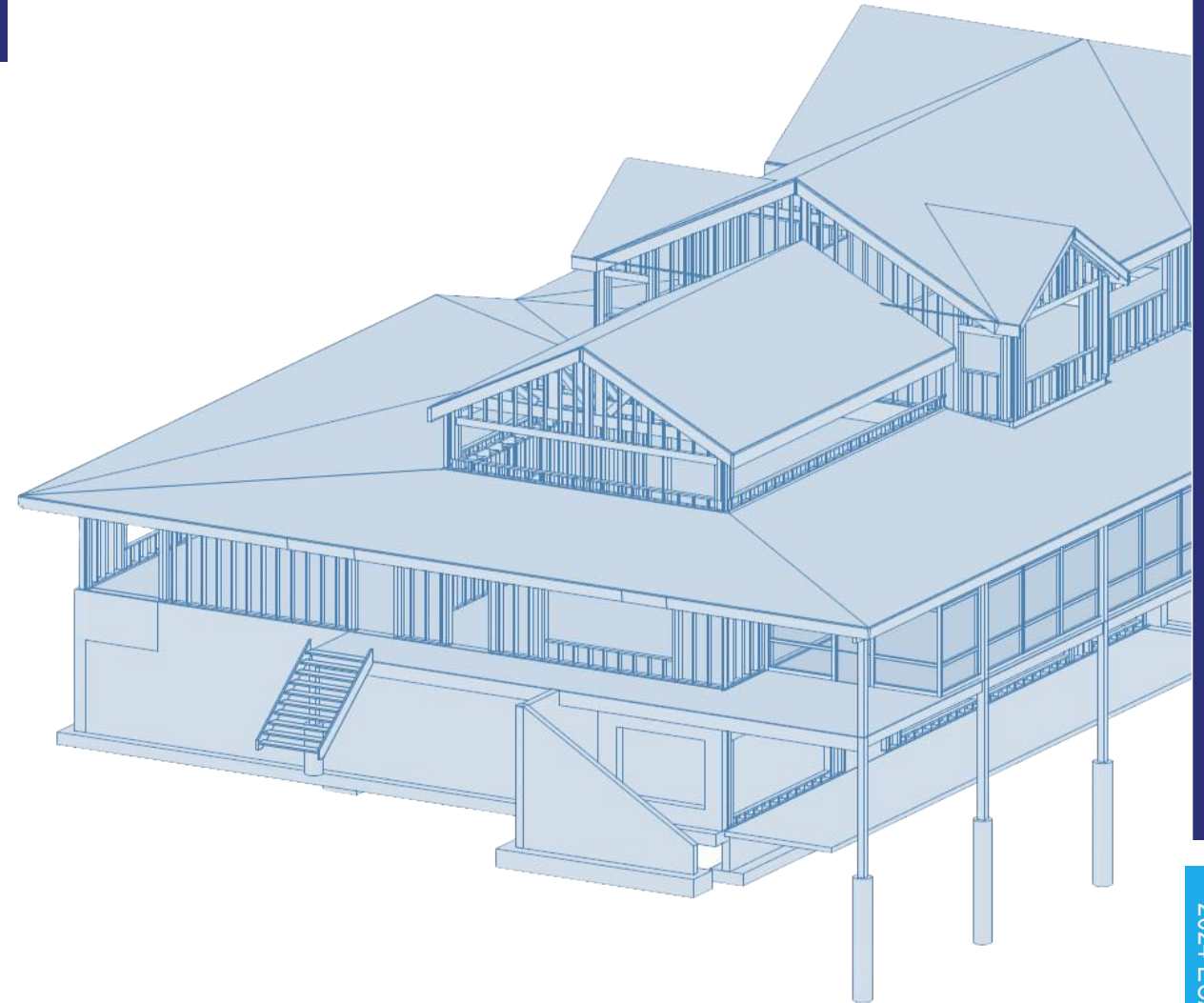
For the past years, Ai-Alt began incorporating SE 2050's goal of working towards a Net Zero Structural Embodied Carbon community. One of our projects had a significant reduction of around 50% for the total building's embodied Carbon compared to the 2021 CLF Baseline as programmed in the EC3 website.



REDUCTION STRATEGIES

On this year, our team aims to further strengthen our action by carefully choosing the building materials with better equivalent EPDs and strategically consider the distance of the suppliers to the project site. We also intend to provide safe and less impactful structural design options to our clients starting from our Schematic Design phase. For projects with renovation scope, we would optimize our options to produce less construction waste and make use of the existing framework and materials.

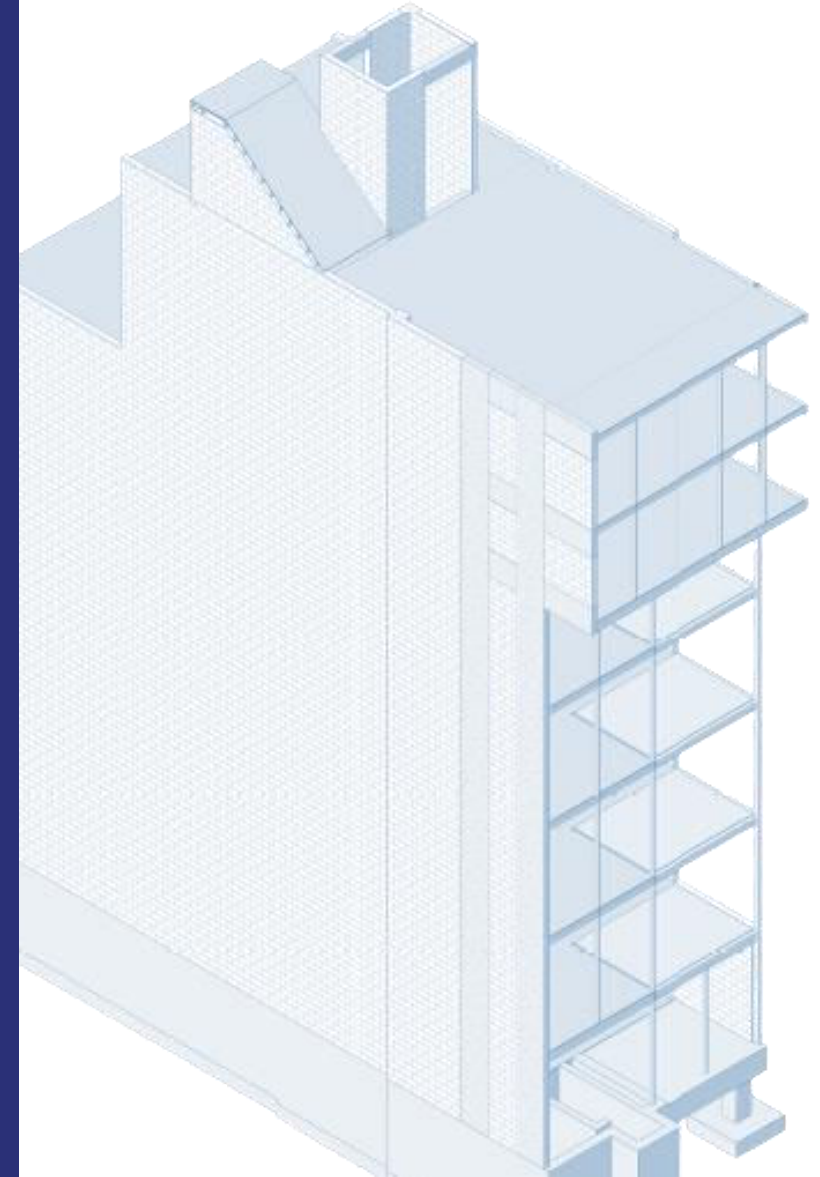
To shift towards a sustainable construction industry, incorporating biogenic construction materials could play a big role. As we try to integrate biogenic materials in our projects, the team would like to study and have a more in-depth understanding of the efficiency and possibilities of utilizing more biogenic materials in building construction. The efficiency of these materials will be evaluated through a BIM-based life-cycle assessment (LCA), which will help the team in the design phase of the projects.



Lessons learned:

Last year, we were able to learn how to use the readily available LCA tools specifically EC3 and started integrating them in our projects. The conscious decision to reduce the overall embodied carbon of our projects' life cycle led us to these realizations:

- It is equally necessary to consider the carbon footprint on every stage of the building construction from structural design, to manufacturing of specified building materials, transportation, installation, and disposal of construction waste.
- It is critical to use the correct EPDs and carbon emission data of every building material to achieve a more accurate Global Warming Potential (GWP), and data-driven report of the project.
- Working towards Net Zero Embodied Carbon of the structural systems by year 2050 will be achieved with a collaborative effort from the clients, designers, manufacturers, suppliers, and the contractors.
- Specifying safe and efficient material specifications and designing the structural members with its environmental performance consideration can significantly reduce the overall carbon emissions.
- Concrete and wall insulation are major contributors of carbon emissions in our environment. Usage of less impactful structural materials and minimizing the volume of concrete should be proposed by the designer to the clients.



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 self-improvement 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.

