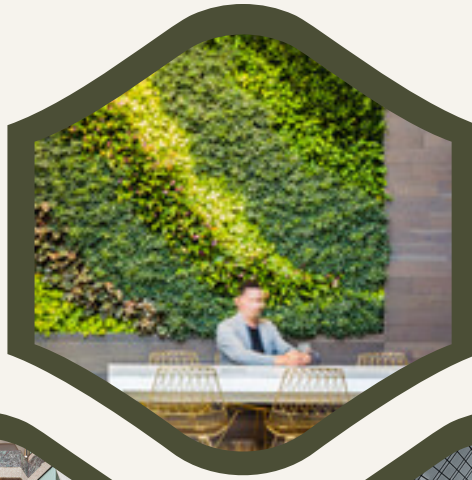


EMBODIED CARBON ACTION PLAN (ECAP)

HKS- STRUCTURES



WE AIM TO INSPIRE AND EMPOWER THE PEOPLE AND COMMUNITIES
WHO ENCOUNTER OUR WORK. TO PRESERVE AND RESPECT OUR
NATURAL RESOURCES, WE CREATE PLACES THAT CONSERVE AND
REJUVENATE OUR PLANET, TOO.



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Executive Summary

- HKS supports a culture of high-performance design with sustainable outcomes and is committed to making progress toward these goals. Addressing sustainability and climate change from myriad vantage points, HKS has long focused on energy consumption and we are now layering in the embodied carbon for the buildings we design. This will create a fuller picture of the total carbon impact of our work. HKS is committed to generate a positive impact on the environment and adapt to the changing industry.
- The implementation of embodied carbon assessment and analysis as part of the design process is a new goal for HKS and it is still in an early phase of development. The firm is coordinating and organizing around this topic and generating a standard procedure of action. The current goal is to have an established system around embodied carbon, allowing Design Green and HKS Structures to participate in more projects, reach more people, and have a bigger impact. By establishing this system, HKS will be able to integrate embodied carbon analysis as a fundamental part of the design process.
- HKS has joined the SE2050 Commitment to further our efforts in reducing embodied carbon within the industry. HKS Structures's sustainability champions have projects in various practices and regions within the country. The HKS Structures team is primarily located in Dallas, Texas and Chicago, Illinois. However, our architectural teams are in various regions in the US, as shown below. This allows us to have a diversity in our project types.



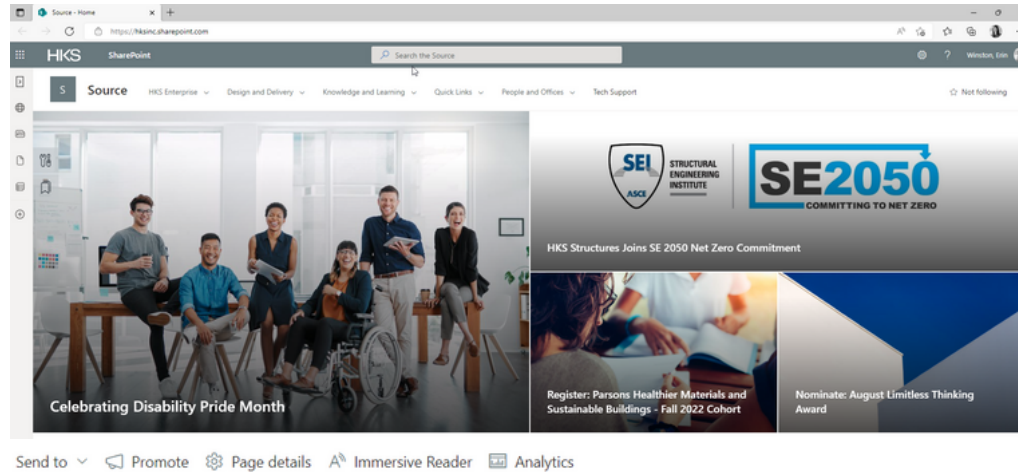
A low-angle, upward-looking photograph of several modern skyscrapers with glass facades. The image is heavily overlaid with a solid red color, creating a monochromatic effect. The perspective makes the buildings appear to converge towards the top of the frame.

HKS- STRUCTURES

INTERNAL ANNOUNCEMENTS

THE SOURCE

HKS Structures shared their commitment to SE2050 with HKS through our internal resource website. It described the value of this commitment to our clients, who are internal to the firm. This announcement also highlighted SE2050's alignment with AIA 2030.



Published 8/8/2022

HKS Structural Joins SE 2050 Net Zero Commitment!

HKS Structural is excited to announce we have joined the SE2050 challenge. Similar to the AIA 2030 Commitment, previously joined by HKS, SE2050's mission is a holistic approach to transform the practice of structural engineering as a response to the climate change by focusing on embodied carbons and working toward net zero structural systems in 2050. Since 11% of all worldwide emissions come from the building's embodied carbon and approximately 50% of that comes from the structural system, we felt it was important to join this commitment and help work towards a solution.

As many of you know, embodied carbon is the emissions' footprint that comes from harvesting, transporting, and manufacturing building materials. Since these emissions all occur prior to the building being operational, it is important we focus on ways to reduce the carbon footprint during the design and construction phases of the project. By joining SE2050, HKS Structures is committing to continuing to educate ourselves, developing an embodied carbon tracking process, reporting on our current embodied carbon trends, and advocating for sustainable structural systems to the design community. We believe through this commitment our designs can help foster a better world and a better partnership with nature. We hope you will join us in our commitment and support us as we continue working towards our goal of sustainable design.

For more information feel free to reach out to [Erin Winston](#) and [Briana Pina](#).



HKS DAILY DIGITAL DIGEST

In addition to announcing HKS Structures's SE2050 commitment on the source, it was also distributed in the Daily Digital Digest. This is done through an email that is sent directly to everyone in the firm. It provides a link that shares the full list of resources for embodied carbon from The Source.



HKS' Digital Workplace Digest compiles top enterprise and practice updates every Monday, Wednesday, and Friday.



[HKS Structures](#) is excited to announce we have joined the SE2050 challenge. Similar to the AIA 2030 Commitment, previously joined by HKS, SE2050's mission is a holistic approach to transform the structural engineering practice as a response to climate change by focusing on embodied carbons and working toward net zero structural systems in 2050. We hope with this commitment we will be one step closer to our impactful sustainability goals and a solution for the climate change occurring around us. For more information, reach out to **Erin Winston** and **Briana Pina**.



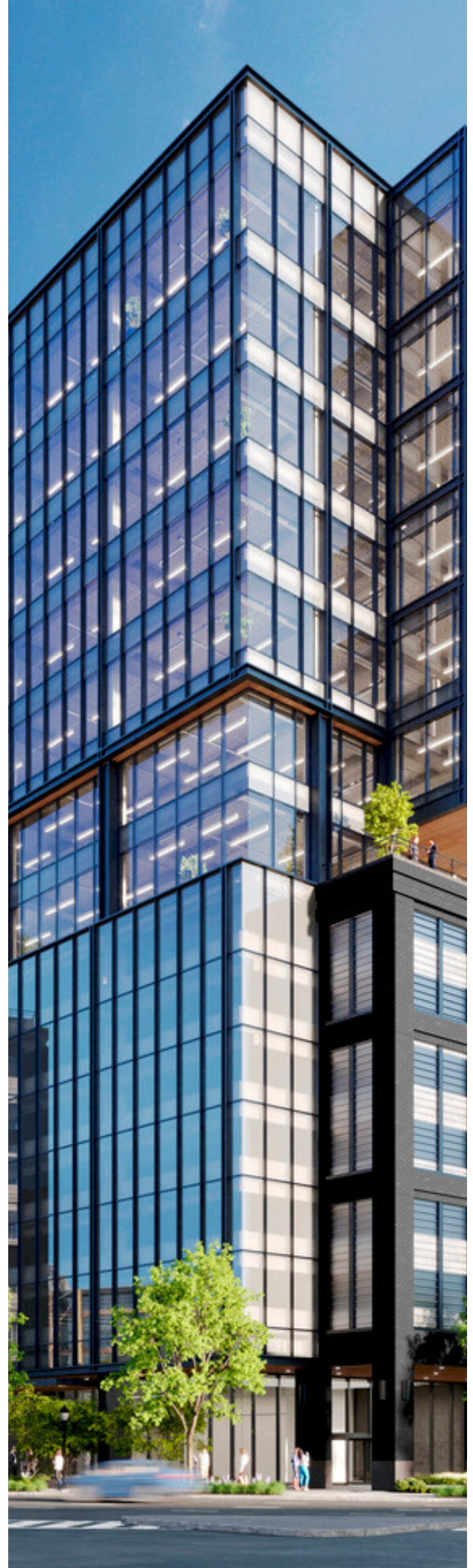
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HKS- STRUCTURES

EDUCATION PLAN

Company Engagement

- HKS Structures plans to engage our group through a series of carbon informational meetings. These informational meetings will include a general information/kickoff meeting along with LCA training. The LCA training will include overall training of the database (Tally and OneClick), explain inputs and their importance, how to interpret the results, and how can we make design improvements based on these results. These trainings will be recorded and become part of our on-boarding process for new hires.
- As HKS Structures is part of a larger architectural firm, we have begun to collaborate with HKS's internal sustainability group. This interaction will allow us to utilize resources/research that has already been done for the AIA 2030 Commitment and the UN compact. By doing so we will engage a larger portion of our firm in this conversation.
- The “Embodied Carbon 101” webinar will be presented to our internal group within the first year and made available in the onboarding process.
- In July, HKS sustainability champions distributed an email to our group, making them aware of the resources. They were then discussed during a group education meeting. These resources have also been saved to our server for easy access/reference material for current and new employees.



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HKS- STRUCTURES

KNOWLEDGE SHARING

KNOWLEDGE SHARING

As HKS Structures is part of a larger architecture firm, our clients are internal. During a project's kickoff meeting, the structural design team will initiate discussions about the project's sustainability goals and how we plan to reach these goals. In addition, we plan to push the sustainability conversation further when the Owner's company values align, at least in the early stages. As we continue our journey with SE2050, we plan to expand these conversations with the Owner in conjunction with our architectural counterpart.

HKS's internal sustainability group, Design Green, will be a vital resource in our SE2050 commitment. An internal company research project has been conducted throughout the year of 2022 between HKS Structures, Design Green, and a healthcare HKS Architectural team. This "research accelerator" is aiming to understand how to apply a whole building lifecycle analysis to help reduce a building's embodied carbon emissions.

HKS Structures is aiming to create expectations for each project phase that will initiate conversations about sustainable design options. This research accelerator will serve as a starting point for future projects that will be used as SE2050 data submissions. Ultimately, this knowledge sharing plan will assist in creating a baseline for future LCAs.



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HKS- STRUCTURES

REDUCTION STRATEGY

Reduction Strategy

Short Term Goals

Within the first year, HKS Structures will orient themselves with the SE2050 goals within a small internal committee. This committee will be responsible for running LCAs and developing the training program for the larger group on carbon emissions. They will also be the primary point of contact for SE2050 and coordination with our internal architectural sustainability group.

The goal will be to submit 3 LCAs within the first year. The projects to be submitted are within the same market sector in order to compare each of these projects. This will help us understand the effect of different inputs in the LCA programs. These projects will serve as training for our staff on the LCA programs.

Ultimately, the projects focused on will fall in two categories, the first being a project that our architectural counterparts are also running LCAs on. This will allow the design teams to accomplish embodied carbon emission reductions in the most efficient and holistic way. The second would be projects where the owner of the structure has specific sustainability goals.

Long Term Goals

Long term goals for HKS Structures include implementing strategies developed from the current research being conducted with Design Green. This research will establish check points within the various design phases. These check points serve as conversations between the design team and owner to discuss areas of opportunity for sustainable and efficient design options. Embodied carbon emissions are intended to become a primary design element of a project rather than an afterthought when construction documents have been submitted.

When conducting LCAs for projects, the inputs need to be thoroughly understood to ensure the analysis is accurate. Establishing a standard for inputs would be effective as we tend to use similar materials for various projects. Creating more consistency in our methods will exponentially



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HKS- STRUCTURES

REPORTING PLAN

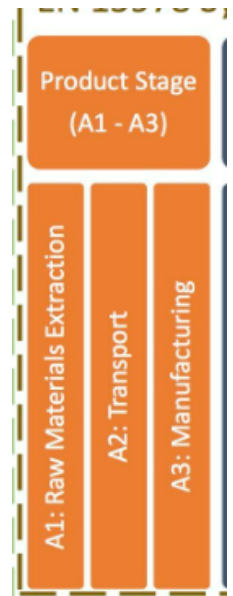
REPORTING PLAN

HKS Structures currently utilizes Tally integrated with Revit to run comparisons of structural designs and analyze the corresponding environmental impacts. More specifically, we prioritize the CO2 emissions. HKS architecture uses both Tally and OneClick, therefore the structures team plans to incorporate OneClick to our LCA process as well. Tally is expected to be used when the structural design options are still being determined or can be easily altered without drastic changes to the project deadline (i.e., SD, DD, and prior to submitting CDs). Once construction documents have been submitted, OneClick will be used to run a LCA on the entire structure. OneClick provides the user with various ways to input product or region-specific environmental product declarations (EPDs).

EPDs are not currently required in our specifications for projects. However, as many of our projects are nationwide, we aim to begin requiring EPDs on projects. This would start with regions who have more access to this information. Ultimately, this will become a standard across all of HKS Structures's projects. Tally Climate Action Tool (tallyCAT) and EC3 are currently resources we implement to our LCA process for EPDs as we work to receive this information straight from manufacturers.

LCA scopes are an important component to consider when accounting for embodied carbon among projects in different market sectors and regions. Currently, HKS Structures is considering an A1-A3. Additionally, material quantity takeoffs from Revit are useful when investigating how items modeled in different ways may influence embodied carbon emissions. A model becomes more developed during each project stage. Material quantities are the most accurate at the later stages as structural details are more defined.

Understanding architectural finishes, structural systems, and structural member sizes can all be influenced by building categories, locations, and more is important when analyzing embodied carbon for multiple projects. Comparing projects with similar purposes is a good starting point for project comparisons. Ultimately SE2050 will serve as resource to provide baselines for multiple systems.



A low-angle, upward-looking photograph of several modern skyscrapers. The image is heavily tinted with a monochromatic reddish-orange color. The perspective creates a sense of height and architectural scale, with the buildings' facades and window grids dominating the frame.

HKS- STRUCTURES

ELECTIVE DOCUMENTATION

Advocacy

HKS Structures's clients are internal to the company. Therefore, when signing onto the SE2050 commitment, we announced to our HKS firm the values we share with this committee. Sustainability and embodied carbon have played a vital part in research within HKS. The structures team will continue to partner with Design Green to educate our teams in sustainability and how our design choices can influence the intensity of carbon emissions.

Our design teams will work to initiate conversations early in design with our clients to reach sustainable and efficient solutions. As architectural decisions play a role in structural design, this created collaborative dialogue between teams to create carbon conscious decisions.

Along with the announcements shared with the firm and posted on the website, we have shared a presentation with key points to our structural department. This presentation explained operational vs embodied carbon, LCA analysis, the SE 2050 goals, and key takeaways.

Additional advocacy plans include giving an external presentation on embodied carbon that demonstrates a project success or lessons learned and sharing education opportunities with clients.

