



HKS

EMBODIED CARBON ACTION PLAN 2026

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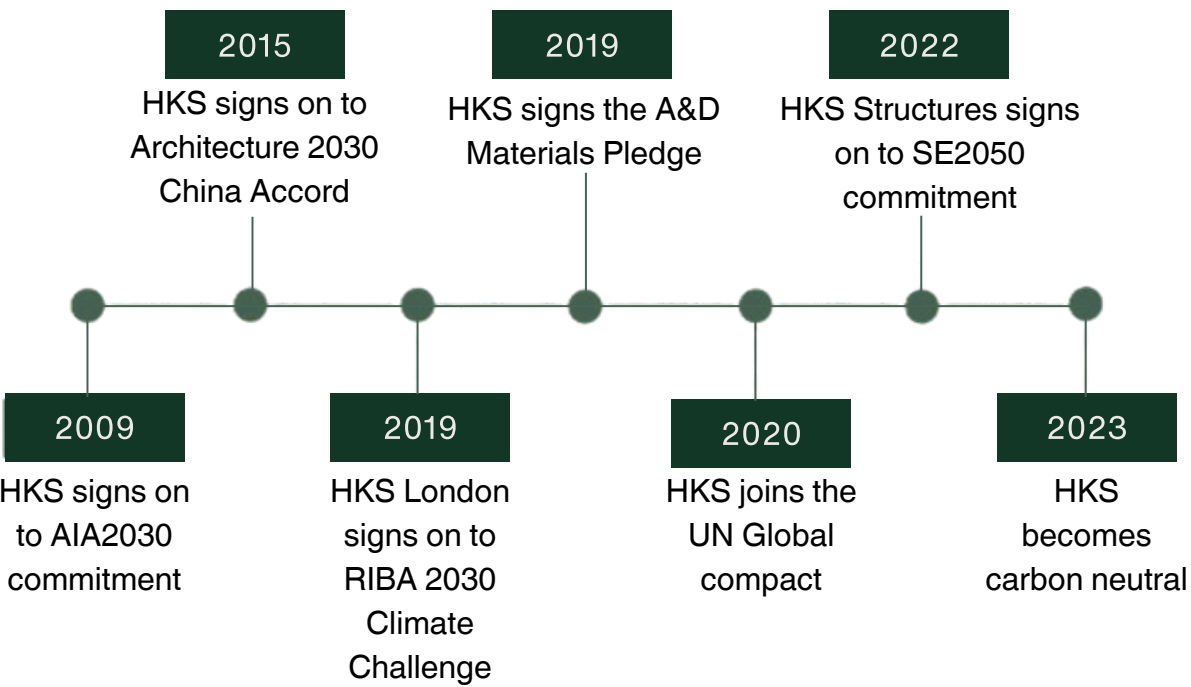


HKS' Journey to Net Zero

As HKS continues our journey toward a low-carbon future, this year’s Embodied Carbon Action Plan (ECAP) builds upon the momentum of our previous plans, becoming carbon neutral in 2023, and advancing HKS’s broader regenerative design strategy. This strategy moves beyond carbon reduction, focusing on systems that restore environmental and social health.

HKS has achieved operational carbon neutrality across our offices and global business operations, including energy use, travel, commuting, and other material activities. This milestone reinforces our broader climate commitments—such as AIA 2030 and SE 2050—and strengthens our credibility as we advance project-level decarbonization. Our intent is to look beyond individual buildings and consider the broader impact of our work on the built environment.

As a signatory of the SE 2050 Commitment, we recognize that embodied carbon plays a critical role in achieving long-term carbon reduction goals, and we are committed to being part of the solution. Through this ECAP, we evaluate our progress at this point in time and provide transparency into the next steps of our strategic plan as we continue to advance meaningful reductions in embodied carbon.



This year’s ECAP continues to focus on four key areas:

- Education: Expanding industry and firm-wide awareness through training, presentations, and resources for every office.
- Reduction: Embedding a “carbon-first” mindset into design decisions, from early concepts through construction.
- Reporting: Strengthening our data collection and increasing the number of projects submitted to the SE 2050 database.
- Advocacy: Leveraging our carbon-neutral platform to create an alignment in values and serve as a conduit for lower-GWP solutions—fostering relationships, connecting relevant stakeholders, and influencing industry change.



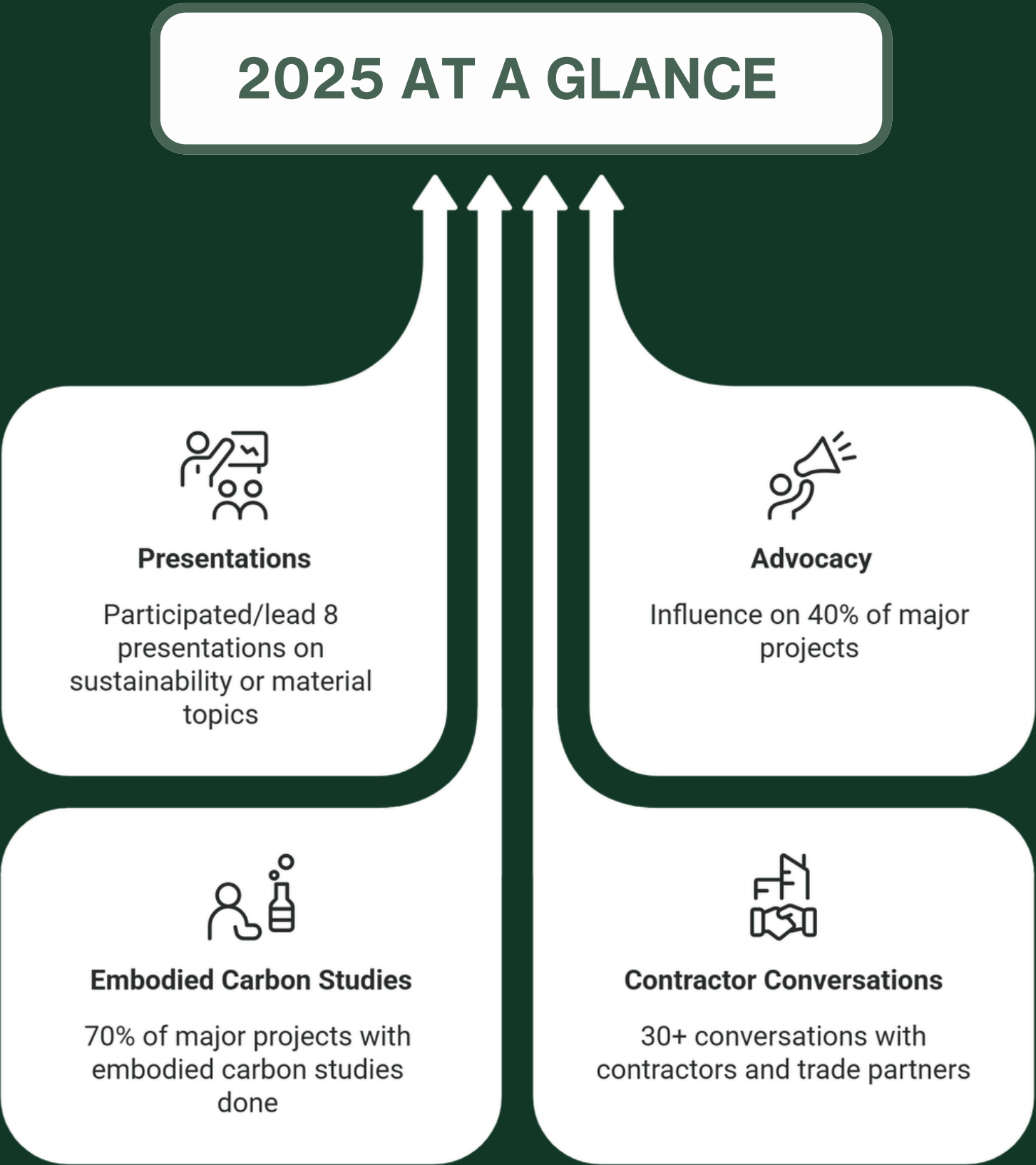
UW Health Eastpark Medical Center

Reflections

As we enter our fifth year as a signatory of the SE 2050 Commitment, HKS continues to refine our approach to embodied carbon reduction through strategic planning, collaboration, and goal setting. The past year has provided valuable insight into how we can strengthen our impact and better align our goals across projects and disciplines.

In 2025, our focus was on upskilling our teams and the broader industry through education, advocacy, and early design engagement, while also advancing internal workflows to improve consistency in reporting. These efforts extended beyond project work, as HKS Structures submitted for the SE 2050 Best in Advocacy Award, reflecting our commitment to sharing knowledge, influencing industry conversations, and driving action beyond our own projects. Together, these initiatives helped build a stronger foundation for tracking and transparency, while also highlighting the need to establish clear baselines and intentional reduction targets across our project types. Defining these baselines will allow us to set aggressive, data-driven goals that align with both the SE 2050 Commitment and HKS’s firmwide sustainability objectives.

Looking ahead, our next five years will focus on defining and achieving project-specific Global Warming Potential (GWP) targets across our portfolio. Treating embodied carbon as a design metric—alongside cost, schedule, and performance—will help us make more intentional design choices, measure progress consistently, and demonstrate real results. As we reflect on our progress, the lessons learned from 2025 guide our path forward, helping us strengthen partnerships, refine our strategies, and advance our ambition to be one of the most influential regenerative design firms shaping a lower-carbon built environment by 2028.



LESSONS LEARNED



US Air Force Academy Falcon Stadium

Challenges

Over the past year, HKS focused on scaling embodied carbon efforts beyond our core sustainability group and projects with explicit sustainability targets. As we expanded this work, we conducted a critical evaluation of our existing processes to identify barriers to broader adoption and consistent implementation.

Through this assessment, several key challenges emerged. Material takeoffs remain time-intensive, particularly when applied across a large and diverse project portfolio. This often results in embodied carbon analyses being performed later in the design process—typically after key structural decisions are already established—limiting opportunities to influence high-impact outcomes. In addition, existing LCA software does not always align seamlessly with current BIM modeling practices, creating inefficiencies and increasing the potential for inconsistent results. These limitations, combined with varied workflows across teams and offices, can reduce the number of analyses performed and limit our ability to use embodied carbon as a proactive design driver rather than a reactive check.

Beginning in the third quarter of 2025, we initiated targeted efforts to address these challenges by improving workflows, aligning modeling practices, and investing in tools that support more efficient analysis. These steps are intended to enable consistent LCA implementation and embodied carbon reduction efforts across all projects, with the long-term goal of running LCAs and pursuing reductions on every project by 2027.

Opportunities

Identifying these challenges also revealed meaningful opportunities to strengthen our approach. To expand our capabilities beyond the sustainability group, we engaged team members with expertise in programming and BIM modeling to develop more efficient, scalable solutions. This collaboration led to the development of an internal program designed to evaluate and compare multiple conceptual design options, perform material takeoffs more efficiently, and integrate directly with existing BIM workflows. While this tool remains in development, early implementation has already resulted in noticeable gains in efficiency and consistency.

In parallel, we adopted a two-pronged strategy to improve workflows and broaden team participation. First, we developed standardized checklists and process flow diagrams to support project teams, prompt critical conversations, and reinforce consistent decision-making. Second, we focused on upskilling teams across the department to increase familiarity and comfort with embodied carbon concepts. Together, these efforts reduce reliance on a centralized sustainability review process, allowing the sustainability team to focus on complex, high-impact challenges while empowering project teams to advance embodied carbon goals more independently.

Education Plan

Our Team - Structures

At HKS, education is the foundation of our embodied carbon strategy. We believe that meaningful change starts with knowledge—empowering our team to understand, measure, and reduce the environmental impacts of our work. Within our structural engineering department, a network of Sustainability Champions leads our embodied carbon initiatives. These individuals serve as local resources, team and project guides, and advocate for best practices, helping integrate sustainability plans into daily design decisions. Working alongside our firmwide sustainability group, DesignGreen, and regenerative designers, technical resource team, and leadership we ensure that the structural sustainability efforts align with HKS's broader commitments.



Dan Getz, PE
Global Practice Director, Structures



Erin Winston, PE
Sustainable Design Leader & Project Manager, Structures



Briana Piña, PE
Embodied Carbon Specialist, Structures
(Dallas)



Trista Gerner, PE
Embodied Carbon Specialist, Structures
(Dallas)



Kariem Hashem
Embodied Carbon Specialist, Structures
(Chicago)



Saurav Sagar Ray
Embodied Carbon Specialist, Structures
(Dallas)

Mission

Our education mission focuses on both internal and external engagement. We aim to educate our staff, clients, owners, general contractors, and trade partners on the importance of embodied carbon and the role each plays in achieving lower-carbon outcomes.

Internal Education Initiatives

- ✳ Embodied Carbon 101 Training: New engineers complete a new-hire onboarding training to build foundational knowledge in embodied carbon, LCA stages, basic reduction strategies, and available resources.
- ✳ Digital Resource Hub: An internal Embodied Carbon page on the HKS network provides resources, EPD links, and contact information for architects and engineers seeking guidance from our embodied carbon team.
- ▲ Submittal Review Training: Ongoing sessions to teach engineers how to review submittals for embodied carbon requirements.
- ▲ Internal Presentations: Company-wide presentations that highlight sustainability goals, project case studies, lessons learned, and quarterly updates on standards, tools, and resources.
- ▲ Quarterly Knowledge Sharing: Host quarterly updates featuring new standards, research, and reduction strategies.
- ◆ Innovative Material Research: Actively engage in research and conversations to educate ourselves and our team on emerging lower-carbon materials to support informed and forward-thinking design decisions.

External Education & Collaboration

- ▲ Client Education: We help host eco-charrettes with clients early in design to review project requirements, establish project-specific reduction targets, and discuss the benefits of lower-carbon materials and systems.
- ▲ General Contractor & Trade Partner Engagement: Regular collaboration meetings promote shared understanding of carbon reduction strategies, constructability options, and material sourcing opportunities.
- ◆ External Presentations: Our teams present at conferences, sustainability forums, and industry panels to share best practices and expand awareness across the AEC community. We aim to help close the gap between all members involved in the building process and educate others on what progress is being made.
- ◆ Industry Collaboration: We have collaborated with software developers to refine low-carbon workflows. Our goal is also to collaborate with mass timber supplies to find optimal solutions on projects. This leads to education opportunities for both internal and external teams on biogenic materials, such as Glubams.

- ✳ Foundational
- ▲ Applied Actions
- ◆ Advanced



Reduction Strategy

Our reduction strategy for 2026 focuses on consistently converting awareness into measurable, project-level impact. Over the past year, we strengthened our approach through training, early design integration, and closer collaboration with clients, contractors, and suppliers. These efforts highlighted the need for a more consistent, data-driven framework—one that sets clear expectations for every project and charts a defined path toward long-term reductions.

This year, we are prioritizing the development of project-type baselines and specific Global Warming Potential (GWP) targets that guide decisions from the earliest stages of design. As we refine our internal baselines by market sector, we are applying a straight-line interim baseline of **297 kg CO₂e/m²** across all structural projects with no project more than 350 kg CO₂e/m² (SE2050 80th percentile).

This baseline allows us to:

- (1) Consistently evaluate performance while we refine our internal baseline
- (2) Moves the conversation beyond reductions with consistent baselines
- (3) Encourages better decisions earlier in design
- (4) Have a feedback loop for projects

The baseline established will continue to be lowered year after year as we get closer to 2050.

In order to achieve this target, embodied carbon analysis must be integrated into every project's design process through carbon budgeting, collaboration, lower embodied carbon specifications and enforcement through construction. We must continue to scale these efforts and upskill our team so each member is conversational on the topic with some experts within our structural office. We will use our experts to become champions within the HKS and industry by continuing to grow our involvements, out network and our partners within the industry to ensure we understand new technology and new trends. Finally, we will continue advancing tools to allow us to evaluate carbon more efficiently and at every stage of a project's life.

Together, these efforts create a consistent and predictable framework for lowering embodied carbon across HKS projects. The lessons learned over the past year continue to guide our direction as we refine baselines, strengthen partnerships, and work toward meaningful and measurable reductions.



Reduction Strategy

Short Term Goals (1-2 Years)

- On-going:
 - Align reduction strategies across HKS sustainability teams by continuing close coordination with DesignGreen and Regenerative Design, ensuring embodied carbon efforts support broader firmwide sustainability and climate commitments.
 - Establish a clear workflow for early goal setting that enables project-specific Global Warming Potential (GWP) targets to be defined during master planning, concept design, and schematic design, and carried through subsequent phases.
 - Embed carbon-conscious decision-making into the design process so embodied carbon is considered on all projects, regardless of an owner's initial sustainability goals or requirements.
 - Leverage certification-driven opportunities by capitalizing on embodied carbon reductions for projects pursuing LEED, Green Globes, and other sustainability rating systems.
 - Facilitate industry collaboration and knowledge sharing by engaging owners, clients, general contractors, trade partners, and innovators to expand access to embodied carbon resources and help drive new low-carbon successes.
 - Formalize embodied carbon as a core design parameter by developing and utilizing internal tools that allow teams to compare embodied carbon impacts across multiple conceptual design options.
 - Streamline material takeoff workflows through continued development of internal tools that improve efficiency, consistency, and accuracy in embodied carbon analysis.

Long Term (3+ Years)

- On-going:
 - Implement LCAs on 100% of structural projects at defined design milestones to ensure consistent evaluation and long-term tracking of embodied carbon performance.
 - Advance research and implementation of innovative materials and processes, with a focused emphasis on biogenic materials and the identification of opportunities for structural steel reuse across applicable project types.
 - Establish firmwide GWP targets by project type, refining baselines over time by further developing CLF sector baselines into relevant subcategories and implementing these baselines consistently across the firm as additional project data becomes available.

Case Study: Precast Embodied Carbon Reduction



Project Identification

A project in New England identified precast concrete as a key opportunity for embodied carbon reduction.



Team Coordination

HKS facilitated coordination between the owner, design team, and precast supplier to establish project-specific Global Warming Potential (GWP) targets.



Work Sessions

The team evaluated baseline conditions, explored lower-carbon concrete mix options, addressed schedule constraints, and identified strategies to overcome implementation barriers.



Carbon Reduction

The project achieved a 13% reduction in precast embodied carbon compared to business-as-usual benchmarks.



Standard Development

These efforts also informed the development of owner precast standards, with the 13% reduction adopted as a target GWP reduction for precast wall systems on two additional projects.

Reporting Strategy



Accurate and consistent reporting is essential to understanding our progress and identifying opportunities for improvement. In 2026, our focus is on strengthening data quality, expanding firmwide participation, and improving the tools and standards that support reliable embodied carbon tracking. By refining our internal workflows and enhancing coordination across offices, we aim to create a clear, repeatable system that supports transparent SE 2050 reporting and informed design decisions.

Reporting Tools & LCA Workflow

- Embodied Carbon Software: Consistently utilize multiple software platforms (OneClick LCA, Tally, C.Scale, SE 2050's ECOM Tool, and EC3) to run embodied carbon analyses at key design decisions and project milestones, ensuring embodied carbon remains part of core design conversations
- External Tool Development: Continue to beta test and provide feedback on developing industry software to help advance tools that better capture the full carbon story
- Internal Tool Development: Develop an internal tool that enables embodied carbon analysis at all design phases, supports rapid comparison of conceptual options, streamlines early decision-making, and integrates directly with project models
- Phase-by-Phase Tracking: For 1/3 of major projects, track embodied carbon after each major design phase
- Scope Coverage: Consistently evaluate A1–A3 emissions and continue gathering data to improve understanding of A4–A5 impacts as modeling capabilities and contractor coordination mature

Data Collection & Material Transparency

- We are actively requesting EPDs for primary structural materials on all projects and building a long-term internal EPD database to support baseline refinement, material selection, benchmarking, and to confirm reductions made during design. Consistently requesting EPDs on projects continues to establish the industry expectation and help create awareness in regions of the country that may be behind
- Improved EPD collection also strengthens our specifications, submittal requirements, and overall material transparency

Improving Consistency & Standardization

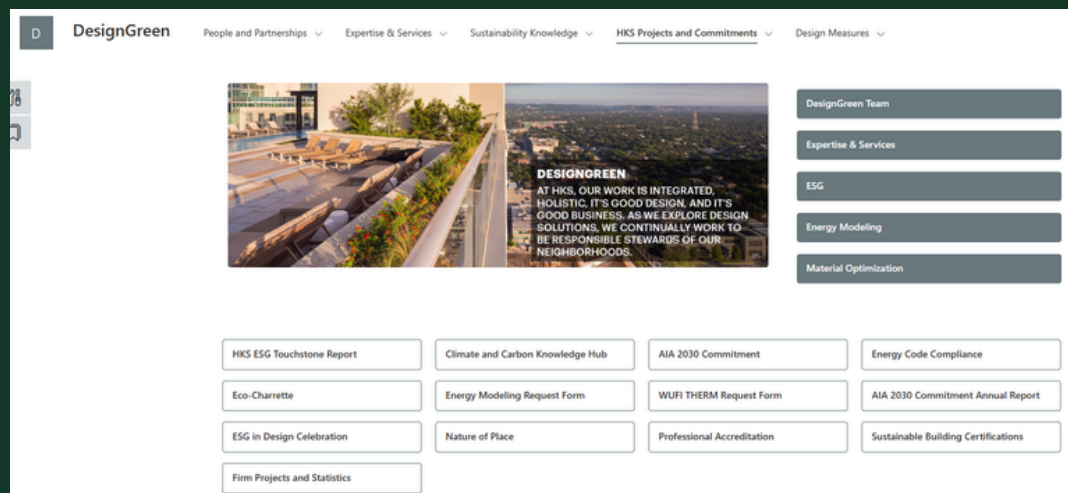
- Standardized SMQs (Structural Material Quantities): Improve material takeoff processes and workflows across offices and project teams to reduce effort and increase adoption of embodied carbon analysis
- Embodied Carbon Submittal Reviews: Implement consistent review checklists and workflows to verify that reduction targets established during design are maintained through construction administration
- BIM Standards for Embodied Carbon: Develop unified BIM modeling standards that improve accuracy in quantity takeoffs and streamline embodied carbon tracking across projects

ADVOCACY IN ACTION



Children's Health Medical Center Plano

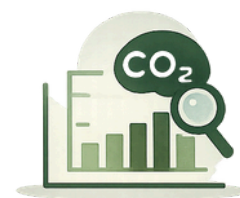
“The Source” - Tool used for internal knowledge sharing



Internal Advocacy

HKS amplifies internal advocacy by aligning closely with firmwide sustainability teams, including DesignGreen and the Regenerative Design group. This coordination strengthens consistency across all groups and ensures that embodied carbon goals are embedded into broader sustainability efforts throughout the firm.

Our internal advocacy is grounded in open knowledge sharing. Through presentations, casual discussions, and the use of internal platforms, we foster a culture that encourages conversation at all experience levels of the HKS organization. These interactions create opportunities to share resources, clarify embodied carbon goals, and support intentional design decisions that lead to meaningful reductions.



We also use embodied carbon analysis as a teaching tool—highlighting the direct relationship between structural design choices and embodied carbon outcomes. By discussing cause-and-effect relationships early, including during proposal development and concept design, we help our project and sustainability teams better understand how decisions impact embodied carbon and where opportunities for improvement exist.



In addition, we actively introduce and advocate for innovative materials and processes to broaden awareness across the firm. Our goal is to influence at least five project teams to seriously consider and investigate emerging materials, such as lower-carbon concrete and structural steel reuse. In one recent example, internal knowledge sharing directly led to the investigation of structural steel reuse on an active project—demonstrating how internal advocacy can translate into tangible design action.



Industry Advocacy

(Organizations, General Contractors, and Trade Partners)

As noted in our previous ECAP, we recognize that meaningful change requires collective effort. Advancing embodied carbon reduction depends on industry-wide involvement, acceptance, and implementation across the AEC community. HKS has embraced this responsibility by actively contributing to and helping amplify the voices driving this movement forward.

We strategically engage with organizations at the local, state, and national levels, with the goal of being active, contributing members rather than passive participants. Through this involvement, we work to advance industry knowledge sharing, advocate for embodied carbon considerations to become standard practice, and emphasize the critical role structural engineers play in achieving low-carbon outcomes.

One of the primary ways we extend this advocacy is through presentations. We intentionally seek opportunities to present beyond traditional structural engineering and sustainability forums, sharing embodied carbon strategies at conferences and events with broader AEC audiences. By reaching across disciplines, we help break down silos, encourage alignment, and accelerate progress toward a more unified industry approach to carbon reduction.

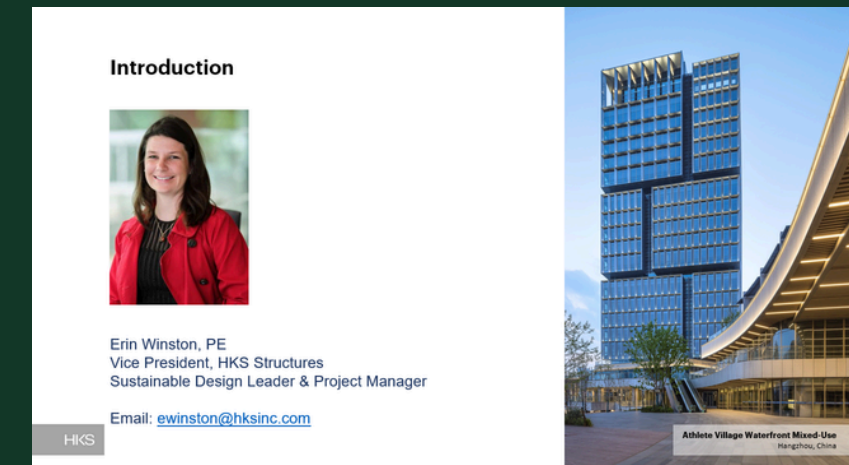
We also recognize that embodied carbon outcomes are only as reliable as the data and tools used to evaluate them. HKS actively participates in beta testing and feedback loops for both emerging and established embodied carbon analysis tools. This collaboration helps ensure software platforms respond to real industry needs, produce meaningful outputs, and support greater consistency across workflows.

Finally, while staying informed of emerging materials and processes, we actively facilitate partnerships throughout the industry. By connecting product manufacturers, contractors, owners, and designers, we help create clear lines of communication that turn innovative ideas into practical, real-world solutions.

INDUSTRY ENGAGEMENT & PRESENTATIONS

- SE 2050 Summit
- CSI Dallas Chapter
- TACA Conference
- CEMEX Client Conference
- Greenbuild 2025

- AIA COTE Dallas
- SEAOt
- Green Alliance - Chicago Chapter
- SE 2050 Committee



Client Advocacy



Socorro ISD Student Activities Complex

Owner commitment sets the tone for every project and plays a critical role in the success of sustainability measures. We support clients by tailoring firmwide sustainability goals into clear, project-specific targets that are practical and actionable. Through this process, we have learned the importance of early advocacy—establishing alignment at project outset to ensure sustainability goals are understood, supported, and carried through all phases of design and construction.

We focus on serving as a conduit between an owner's vision and a contractor's implementation. Where appropriate, we facilitate connections between owners, contractors, trade partners, and innovators to help bridge knowledge gaps and support the successful execution of embodied carbon reduction strategies.

For clients interested in reducing embodied carbon but without established standards, HKS helps develop owner-provided sustainability requirements that may be tailored to project goals. We also create resources that enable sustainability directors and client representatives to effectively advocate for these measures within their own organizations and leadership teams.

Regardless of a client's starting point, our goal is for every client and project to include a baseline set of sustainability expectations. By establishing consistent requirements and providing the necessary tools to support them, we help extend embodied carbon strategies to a broader range of projects and advance low-carbon design as a standard practice across the industry.

Case Study: Innovative Materials

A project in the New England region explored efficient and innovative strategies to reduce embodied carbon. HKS proposed and facilitated coordination between the owner, contractor, and Prometheus—an alternative supplementary cementitious material (SCM) replacement.

Through targeted discussions, the team evaluated key considerations including structural performance, constructability, workability, and finishing requirements. As a result, the use of Prometheus concrete achieved a 49.8% reduction in Global Warming Potential (GWP) compared to the project baseline.