SE 2050 Commitment Program

2024 Annual Report

2024 Year in Review

4

YEARS

SE 2050 launched four years ago

155

FIRMS

Proud to have 155 firms committed to the program

254

ECAPS

Number of Embodied Carbon Action Plans created

950+

PROJECTS

Submitted projects to the SE 2050 Database

Contents

Letter from the Chairs

The past year has seen significant strides in building decarbonization and the mission of the SE 2050 Commitment Program. At a federal level, we've seen funding through the Inflation Reduction Act to support emerging low carbon technologies and Environmental Product Declaration (EPD) development, as well as advancements in low carbon material public procurement policy. The momentum has spread across states as embodied carbon policies are proposed, adopted, and implemented. As of July, both public and private projects in California are required to reduce their embodied carbon impact to comply with the state building code, CALGreen. This year, the American Concrete Institute (ACI) published its first low carbon concrete code (ACI 323), enabling future adoption by jurisdictions and public agencies. Going one step further, some jurisdictions are working towards a localized circular economy, with steel from an old hospital being repurposed in Boulder and new circular design guidelines being implemented in New York City. These milestones mark continued progress towards a more sustainable future.

As members of SE 2050, we recognize that structural engineers must own our role in this transition. This is our moment. While interest in the topic of embodied carbon grows and the industry shifts from commitments to implementation, it is important to reflect that this transition relies on collective impact. We are successful only when we are all successful. It is in this spirit that we have aimed to shape SE 2050 with the flexibility to meet Signatory Firms where they are when they join. Progress towards our goal of net zero is achieved by measures both large and small as demonstrated by the achievements of our Signatory Firms within this past year, some of which are highlighted in this report.

It has been a year of transition and recognition for SE 2050. Previously a subcommittee of the SEI Sustainability Committee, the SE 2050 Commitment Program has now become a standalone committee within the Technical Community of SEI and was selected as one of four Focus Initiatives of SEI. In 2024, Program leadership also transitioned to co-chairs Lauren Wingo and Luke Lombardi, with Genevieve Graham stepping into the role of vice chair. With great regard, we thank Mike Gryniuk and Frances Yang whose leadership has guided SE 2050 to achieve remarkable growth and impact since its inception. Their dedication, vision, and commitment has been invaluable in shaping the program. We also welcomed Erin Winston and Charlotte Ochoa into leadership roles as Program Secretary Task Group Lead and Policy Task Group Lead, respectively. We have made updates and additions to highly valued resources available on our website, launched a Recognition Program, and published our first data analysis report from the SE 2050 Database, amongst other accomplishments.

With the coming year, we welcome a new chapter, one in which we continue to build a resilient program that empowers all engineers to engage and take action. We have graduated from a small group advocating for the attention the embodied carbon challenge deserves to a respected program sharing impactful resources. As the conviction of our coalition grows, we aim to reinforce and expand our network of engagement and establish clear operational practices that support the longevity of SE 2050.

We are extremely proud of the contributions and outsized impact of the SE 2050 Commitment Program and welcome you in celebrating the work of our Signatory Firms and volunteers in progress towards net zero embodied carbon structural systems.

Sincerely,

Luke Lombardi & Lauren Wingo
Co-Chairs, SE 2050 Commitment Program

Thank you, outgoing Chair and Vice Chair

It is with gratitude that we recognize the achievements of Michael Gryniuk and Frances Yang, whose vision and personal initiative took a 2019 SEI Futures Fund Workshop and made it into a functioning program. SE 2050 has since grown into a movement with over 150 committed firms and hundreds of dedicated volunteers, all aligned to support structural engineers in the mission to reduce the climate impact of their designs.

From strategic partnerships to the foundational community of Signatory Firms, today's success is a testament to their hard work, grit, and persistence. We will continue to build off this work to make their vision of the Program reach its full potential. Mike and Frances, thank you for your volunteerism in service to the building industry.

Figure 1: Slides from the program's originating presentation, "SE 2050 Introduction", given on January 29, 2020.

Figure 2: Former Chair and Vice Chair, Mike Gryniuk and Frances Yang, received at the White House by invitation with Kate Simonen of the Carbon Leadership Forum.

Committee Charge

MISSION

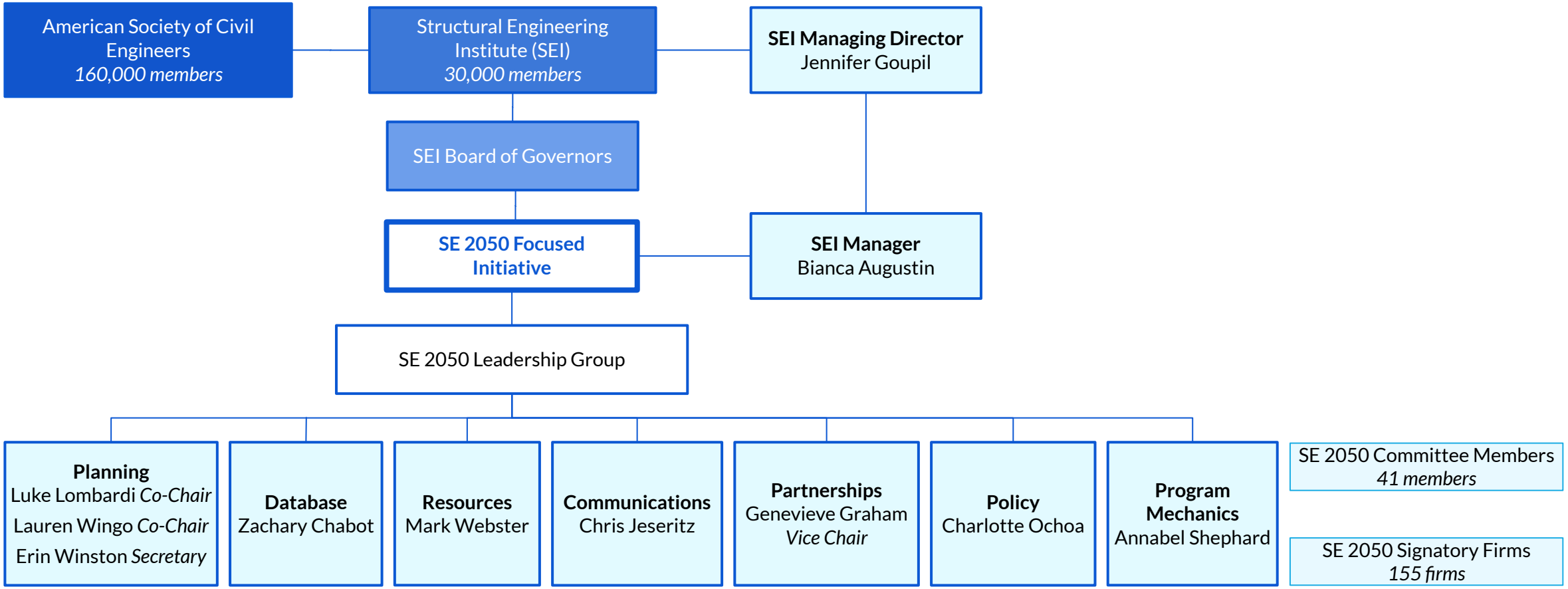
The mission of the SE 2050 Commitment is to support the SE 2050 Challenge by working toward net zero embodied carbon structural systems by 2050 through transforming the practice of structural engineering in a way that is holistic, firm-wide, project based, and data-driven. The program aims to support participating firms to successfully reduce embodied carbon through strategies where structural engineers have the greatest agency -- use of less and/or less impactful structural materials.

Figure 3: SE 2050 Signatory Firm 2025 Badge

VISION

Lead the United States' structural engineering profession in its transition to net zero embodied carbon structural systems by serving as the primary source of embodied carbon benchmarking and reduction targets, resources and education, advocacy, and community.

Organization Chart



SE 2050 Committed Firms

The mission of SE 2050 will only be achieved through a diverse, populous body of signatory firms engaging in unified action.

Since our founding in 2020, we have continuously received sign-up submissions from firms in North America and Internationally (Figure 4, Figure 5). These firms represent tens of thousands of practicing engineers pursuing embodied carbon reduction in their design (Figure 6). Our commitment program was founded to serve as a tool for the structural engineering community. The growth in number of active signatories and new sign-ups to the program keeps us positive that we are continuing to be a useful resource. We strive to grow the number of committed signatory firms, increase small firm participation, and perform outreach in unrepresented states.

Thank you to our active signatory firms for your work. We are grateful for your participation and support.

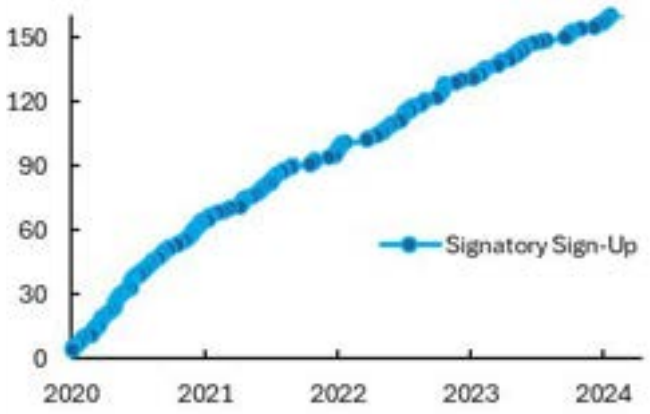


Figure 4: SE 2050 Signatory Firm Count

Figure 5: Location of Embodied Carbon Champions by State

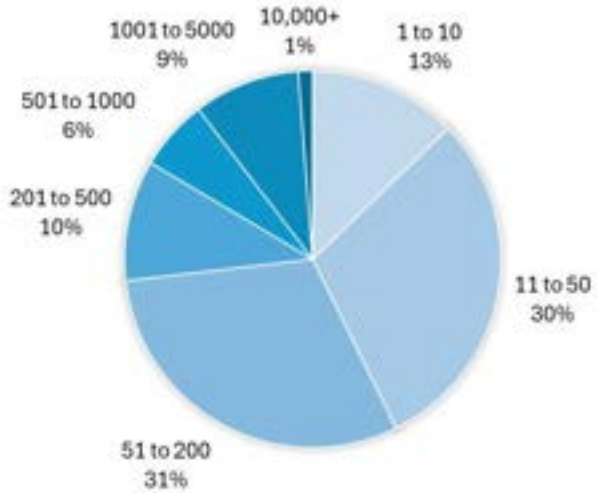


Figure 6: SE 2050 Signatory Firm Size Distribution

Embodied Carbon Action Plans

Embodied Carbon Action Plans (ECAPs) are central to firm engagement with SE 2050 and the path to net zero embodied carbon structures. The ECAP articulates how a firm will *educate*, *advocate*, *report*, and *reduce* the embodied carbon of structures. More specifically all firms must:

- Provide an outline of the firm's strategy to **educate** employees about embodied carbon and **advocate** for net zero embodied carbon structures
- Provide an outline of the firm's commitment to **report** project embodied carbon data to the SE 2050 Database
- Specify measurable goals to assess your firm's progress in **reducing** embodied carbon in project work

These are plans submitted in the first year of joining and updated annually as firms continue to develop in their character and brand. This year, the SE 2050 Committee reviewed nearly 100 ECAPs. Through this review, there is clear industry progress being made with broader understanding of embodied carbon and best practices. Subsequent pages provide a summary of notable takeaways from a comprehensive review of the ECAPs submitted in 2024.

	KNOWLEDGE SHARING	DATA
INTERNAL	**Education** Building understanding.	**Reporting** Measuring to manage.
EXTERNAL	**Advocacy** Building a culture of change.	**Reduction** Strategies making an impact.

ECAPs - Educate

Education remains a cornerstone of the work of Signatory Firms as we prepare practitioners to understand and make carbon reductions on their projects. Signatories continue to emphasize the importance of embodied carbon education and training. Companies are developing tools and webinars with many developing EC 101 and 201 presentations and incorporating these into onboarding resources. Other notable initiatives include promoting the value of attending SE 2050 quarterly calls, attending sustainability summits, and developing internal sustainability resource pages.

Concerning SE 2050's other crucial goals, resource development and knowledge sharing, signatories are actively creating resources that range from baseline databases to expansive digital forums on embodied carbon. ECAPs talked about sharing practical tools, guidelines, and educational content to ensure a uniform, company-wide understanding and approach. Several firms have developed or are using internal tools to calculate embodied carbon and perform LCAs, writing sustainability wikis, and material-specific newsletters.

Signatories reflect on how their efforts aligned with their goals by sharing lessons learned. The primary medium for sharing remains webinars. These presentations offer both educational and hands-on experiences, turning theory into practice, underscoring the progress of the Program as Signatories upskill staff. One key to success seems to be the availability of a forum for engineers to exchange ideas in a fun and engaging atmosphere, often with an enticing free lunch.

Over the course of a total of 14 lunch & learns across 11 offices, over half of RJC's ~700 employees watched the video at scheduled "Viewing Parties"

Figure 7: Educate Spotlight on RJC Engineers 2024 ECAP

ECAPs - Advocate

SE 2050 offers specific advocacy electives to establish a framework for participants to engage with clients, material suppliers, and policymakers, helping to elevate the conversation around sustainable design.

This year, SE 2050 introduced firm badges to recognize active Signatory Firms. These badges were prominently displayed on websites and shared across social media platforms like LinkedIn and Instagram. These seemingly small actions have created a ripple effect, inspiring other firms to take notice and join the movement. In addition to policy and code support and client engagement, advocacy efforts to expand SE 2050's influence aid the collective momentum toward a carbon-conscious industry.

We encourage all to explore the ECAPs of Signatory Firms to discover specific advocacy initiatives. From mentoring firms new to the embodied carbon space to advocating for low-carbon policies at the local, state, and federal levels, SE 2050 participants are reshaping the industry. By leveraging tools, data, and expertise, they lead by example—showcasing project successes, advancing material transparency, and driving policy innovation. These efforts extend beyond technical solutions, fostering a culture of accountability and collaboration essential for achieving net-zero embodied carbon by 2050.

Figure 8: SE 2050 Signatory Firm 2024 Badge

ECAPs - Report

Reporting data is integral to the success of SE 2050. The whole building LCA tools used most frequently by Signatory Firms are primarily tally LCA, EC3 and One Click LCA, followed by Beacon, SE 2050's ECOM tool, and Athena Impact Estimator. Similar to previous years, about a quarter of firms report using their own in-house LCA tools. Compared to last year, the percentage of firms tracking embodied carbon at earlier design stages has increased from 20% to 40%, showcasing increased efforts by signatory firms to track embodied carbon during design. McNamara Salvia for instance recently developed a new in-house Timber Massing Tool (Figure 9), to provide real-time design and optimal layouts using biogenic products at early design phases.

Figure 9: Report Spotlight on McNamara Salvia's 2024 ECAP

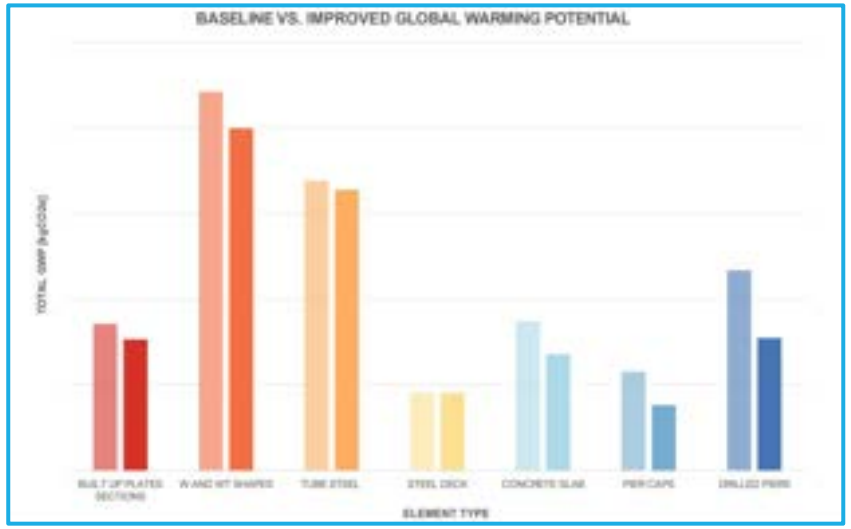


Figure 10: Report Spotlight on Walter P Moore's 2024 ECAP

Walter P Moore highlights that embodied carbon tracking through different stages of design requires refining the EPD data used, showing that variability on material impacts can arise when using national or regional EPD averages compared to product specific EPD data (Figure 10).

Compared to previous years, reported LCAs still focus primarily on stages A1-A3. Overall, only 5% of signatory firms report limited resources to conduct whole building LCAs, compared to 11% last year, which suggests running LCAs is becoming more accessible for Signatory Firms compared to previous years.

ECAPs - Reduce

It is exciting to see Signatory Firms continuing to expand the number of embodied carbon reduction strategies being implemented and their willingness to share this information with others. Similar to previous years, almost all ECAPs mentioned carbon savings within concrete mixes, and several ECAPs specifically called out the importance of having suppliers and contractors with aligned sustainability goals.

While there appears to be variance from region to region, more and more concrete suppliers are beginning to provide mix designs with significant embodied carbon reductions. HOK stated that after specifying a 25% reduction from a 2018 SEAONC mix design survey, their supplier provided a mix with 70% cement replacement for their 5'0" thick basement mat slab. Similarly, Forell-Elsesser performed a study to show the scale of impact of cement replacement for different structural systems (Figure 11).

In addition to requesting higher cement replacements in specifications, other firms have tried using 56- or 90-day concrete mixes as alternatives to the conventional 28-day mixes, 3000 psi mixes for slabs on deck instead of the typical 4000 psi, and 4-inch thick typical slabs on grade as an alternative to the conventional 5 or 6-inch designs when possible.

Figure 11: Reduce Spotlight on Forell-Elsesser's 2024 ECAP

ECAPs - Reduce

Beyond embodied carbon reduction strategies related to concrete, some Signatory Firms are opting to use hot-rolled W-shapes instead of HSS for steel members to reduce the embodied carbon of the steel structures they design. Firms are also specifying steel production in facilities with electric arc furnaces by setting recycled content requirements (see SE 2050 Specification Guidance).

There was an increase in the number of case studies included in ECAPs, rising from 17% to 27% - many of which emphasized the importance of **mass timber, adaptive reuse, and circular design**. In addition to the case studies included in ECAPs, the SE 2050 website now features a webpage that will house case studies submitted by Signatory Firms.

One especially impressive case study from KL&A highlighted a circular economy project with the City of Boulder. A 250,000 sf hospital was sustainably deconstructed and 93.5% of all materials were diverted from a landfill, including 584 wide flange and HSS members which were stockpiled for structural reuse (Figure 12).

Finally, there was a significant increase in the number of firms with specific near-term goals (from 11% to 22%), but still well short of a majority. Such intermediate goals will likely be very important as we all target net-zero structural embodied carbon by 2050.

Figure 12: Reduce Spotlight on KL&A Case Study

Database

The SE 2050 Database is the repository for Signatory Firms to submit structural embodied carbon data, as measured in units of global warming potential (kgCO2e). The data submitted to the SE 2050 Database is being used to provide insights to inform actionable improvements by Signatory Firms, with a longer term goal of using the data to inform industry benchmarks and targets.

The primary function of the SE 2050 Database is the collection of Signatory Firm data. In 2024, the number of projects in the SE 2050 Database nearly doubled with over 950 projects currently in the database.

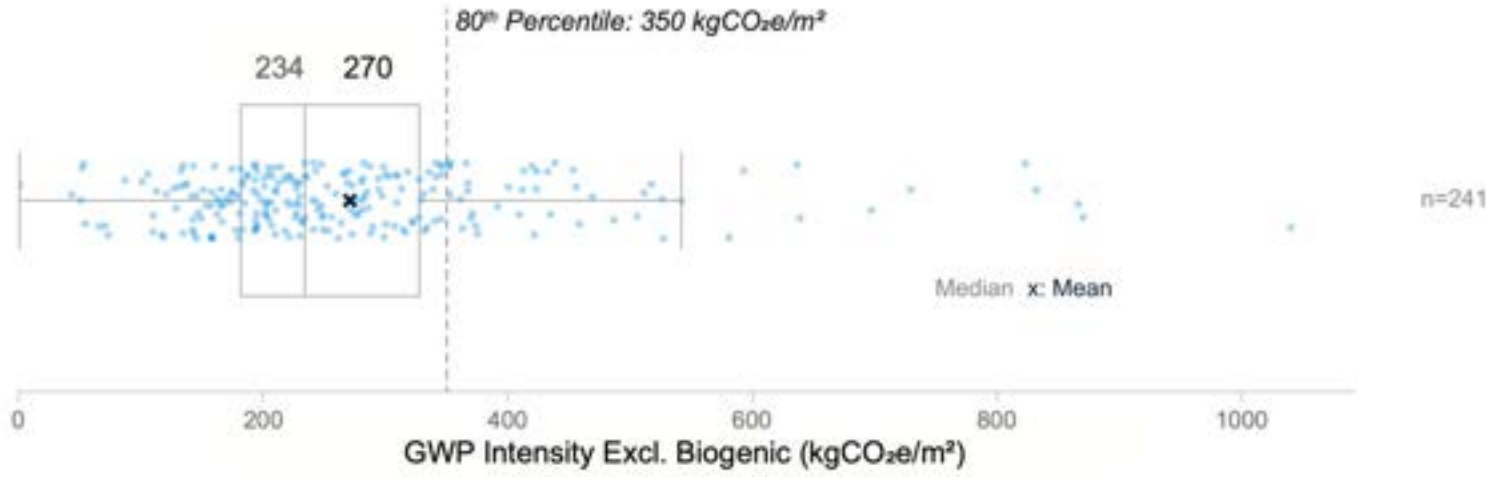


Figure 13: Distribution of GWP Intensity (excluding biogenic carbon) from SE 2050 data analysis (Data: 11/1/2023)

Database

The Database Team has had an active year analyzing the data from 2023, presenting the analysis findings at conferences like SEICON 2024 and AIA 2024, and developing the inaugural ***SE 2050 Commitment Program 2023 Data Analysis and Findings Report***, which will be available through ASCE Publications in the coming year. The executive summary of this report is currently available through the SE 2050 website and highlights key findings from the report. Figures 13 and 14 show key box-and-whisker plots developed from the initial dataset with the 80th percentile value noted as the recommended limit for upfront (A1-A5) structural embodied carbon: 350 $kgCO_2e/m^2$.

The Database Team is also actively working with a developer team to develop a new SE 2050 Database to improve the experience for users and quality of data collected. The new database is expected to launch in 2025 and will include new functionalities like expanded structural material quantity data collection, integration of SE 2050's ECOM tool, and improved data visualization.

Looking ahead to 2025, the Database Team looks forward to launching the new database and continuing to analyze the growing amount of data to expand the initial findings and continue to inform structural engineers and the wider decarbonization community.

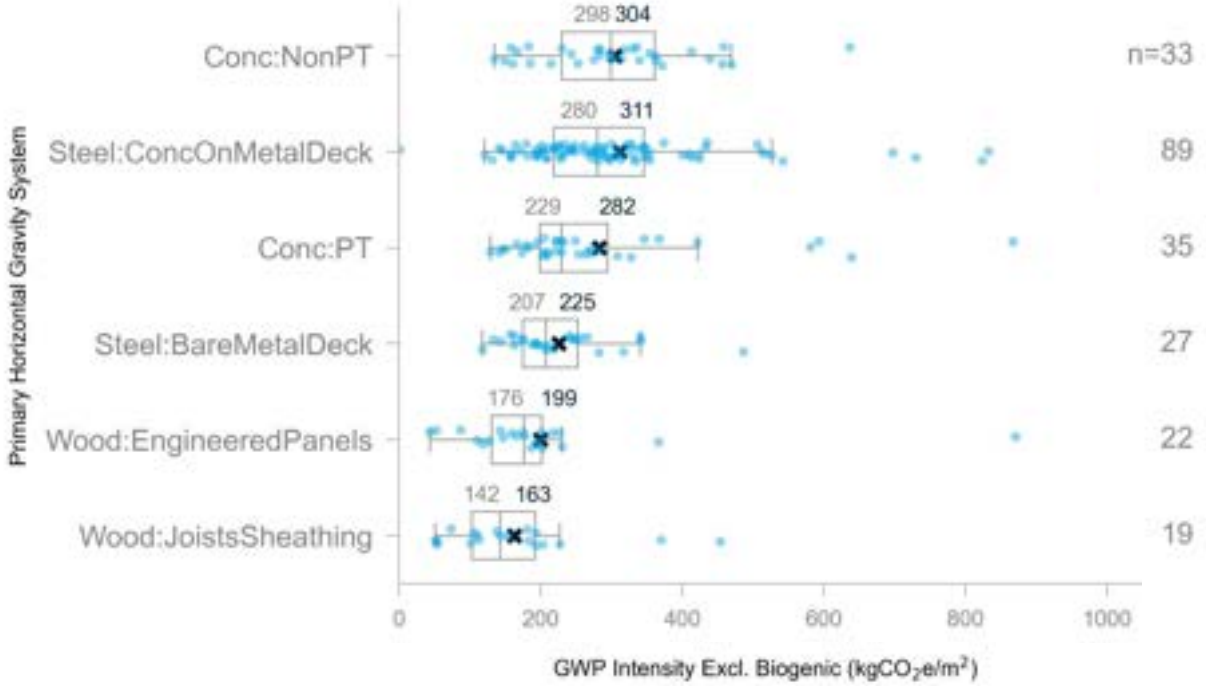


Figure 14: Distribution of GWP Intensities by primary horizontal gravity system from SE 2050 data analysis (Data: 11/1/2023)

Recognition Program

2024 is the inaugural year of the SE 2050 Recognition Program, which aims to share and celebrate the many accomplishments of signatory firms. Signatory Firms could nominate themselves or other companies in the four categories corresponding to the four main sections of ECAPs. There were 24 nominations in total across 14 different firms. Thank you to all who participated through nominating or voting and congrats to the four winners below!

Best in Education:

Degenkolb

Our sustainability committee's education wing has been very active this year! We've led company-wide presentations through our Embodied Carbon Interest Group (ECIG), revamped the sustainability page on our intranet to improve access to resources and references, attended external presentations, and added an Embodied Carbon 101 session to our new hire training.

ECIG serves as the platform for our committee to engage with the rest of the firm. We invite the entire company to our quarterly presentations, where we share updates on the committee's work and dive into a specific sustainability topic. This year's topics included biogenic carbon, sustainable specs, and sustainable policy.

Best in Reduction:

HKS

Achieved 7 of 10 goals, including engaging with precasters and concrete mix designers to explore lower embodied carbon products. Actively participated in sustainability design charrettes, focusing on design options, project targets, and sustainability strategies for projects seeking various certifications. Contributed to the development of project-specific EPDs in regions previously lacking such data. Updated company specifications to mandate low embodied carbon measures and the submission of EPDs during construction. Led discussions and provided reports to owners on Module D, addressing potential end-of-life scenarios, deconstruction, and the reuse of building materials.

Recognition Program

Best in Reporting:

HOK goes above and beyond the requirements of SE 2050's Reporting pillar. Our firmwide policy requires that an LCA be conducted on all new building projects—regardless whether HOK is the structural engineer. This approach has allowed us to collect emissions data on over 80 projects and develop an in-house dashboard that project teams can use to benchmark their building against. As a signatory firm of SE 2050, HOK has contributed well over the minimum number of projects required to the database each year and will continue to do so. The need for reliable data to set embodied carbon targets and benchmark-modeled carbon assumptions for specific projects and at specific intervals has brought value to our clients and more rigor to our practice.

Best in Advocacy:

Walter P Moore is a passionate leader and strong advocate for embodied carbon reduction. With team members participating in the development of state and local embodied carbon policy, green building rating systems, and taking on leadership roles in AEC industry organizations, we are continually championing conversations around embodied carbon reduction. Our advocacy has brought mix-specific concrete EPDs to new markets including the first in the Houston metro area and first in the state of Alabama. Walter P Moore's newly published report, Embodied Carbon: Insight for Industry Impact (linked in the form), shares insights from across the firm's practice areas to inspire our clients and peers and drive further conservations toward a sustainable future.

Future of SE 2050

In 2024, the SE 2050 Commitment Program became a standalone committee within SEI's Technical Community, and one of only four Focus Initiatives of SEI. This promotion in standing represents the immense impact of SE 2050. As part of this development, the SE 2050 Committee formalized a Committee Charter, Strategic Plan, and Operational Manual. The intent of these documents is to provide clear and transparent direction for the organization as well as define an organizational structure that ensures resiliency of membership and to meet long-term goals.

The Committee Charter lays out goals and deliverables over the next three years with the following charge:

> *Lead the United States' structural engineering profession in its transition to net zero embodied carbon structural systems by serving as the primary source of embodied carbon benchmarking and reduction targets, resources and education, advocacy, and community.*

With the recognition from SEI as a Focus Initiative, the Program receives resource support in the form of staff time and the pursuit of additional funding to fulfill this charge.

Committee goals are characterized into five categories within the Strategic Plan: Operations, Resources and Education, Benchmarks and Targets, Advocacy, and Community. In the first year, we have achieved the major goals including development of a Signatory Recognition Program, authoring initial findings from the SE 2050 Database, and publishing this annual report.

In the next year, the SE 2050 Committee is tasked with:

- Publishing data analysis and assess viability of target setting
- Developing outreach, partnerships and policy stances
- ECOM tool update
- A minimum (10) industry presentations
- Publishing an annual report

Beyond the near-term horizon, the Strategic Vision also outlines long term goals, including elevating the SE 2050 to an operational unit within SEI to access additional resourcing, establishing funding sources, and achieving industry-wide adoption of key sustainability principles and embodied carbon reduction strategies.

While the Program is advancing in formal structure, SE 2050 leadership recognizes the value and importance in maintaining flexibility to adapt. We commit to stay true to the spirit of the Program, which aims to leave no firm behind.

Goals of SE 2050

After **four** years of operation, the SE 2050 Commitment Program and building industry is continuing to develop to meet the "embodied carbon challenge." In the coming years, the Program aims to:

- Maintain the commitment to ECAPs and submission of projects to the SE 2050 Database
- Support development of standards and data efficacy, **and socialize the implementation of these resources**
- Align with and encourage members to contribute to other industry efforts such as ECHO and the CLF Benchmark Study V2.0.
- Continue to adapt the commitments of the Program aligned with the goal of Net Zero by 2050.

The Program continues to reflect on how to adapt to best serve the needs of Signatories and meet the Committee Charge. This year, feedback from Signatories made clear that firms were not ready for significant change. Nearly half of poll respondents stated no capacity to take on additional requirements. We continue to listen to feedback and balance growth and development with the aches and pains of adaptation.

Between now and 2050, we anticipate a need to:

- Increase percentage of projects providing material quantity data on projects submitted to the Database. [Pending program requirement]
- Focus on enhancing the accuracy and comprehensiveness of whole-building LCAs, making them an integral part of a larger percentage of projects over time. [Supported by development of SEI Prestandard]
- Work towards the progressive Global Warming Potential (GWP) reduction goals set for each milestone year. This is with the understanding that benchmark data is eminent and will continue to develop in specificity and accuracy.
- Actively increase the adoption and integration of carbon-sequestering materials in design practices, aiming for more significant usage in projects each year and reporting on these advancements.
- Actively encourage and integrate circular economy principles in structural design, aiming to extend the lifespan and reuse of building materials. Amongst these strategies, develop and implement design strategies that prioritize disassembly and reuse, working towards incorporating a higher percentage of reused structural materials in new construction as well as consideration of deconstruction at end-of-life.

** **Denotes a change from past issuance** or [commentary].*

Lessons Learned

SE 2050 Committee review of ECAPs provides crucial insight into Signatory Firm progress and status. In the past year, firms continue to expand their understanding and move the needle on building decarbonization while also facing industry roadblocks. The following summary points highlight how these ideas have been further developed and refined:

- **Accuracy of data**: Standardization in carbon accounting methods and reporting is essential for producing consistent and trustworthy data to develop meaningful benchmarks. SEI expects to publish the "Prestandard for Assessing Embodied Carbon of Structural Systems for Buildings" in early 2025.
- **Structural Material Quantities:** While the last year yielded advancements in data collection, including the first published data analysis results from the SE 2050 Database, this progress also identified the growing need for material quantities to improve data quality and encourage material-efficient designs.
- **Importance of Early Conversations with Clients**: Clients are interested in sustainability, but remain conscious of budget constraints. Conversations with clients during early design can achieve reductions with no- or low-cost implications.
- **Industry Readiness for Strategic Changes**: There was a shift in the industry from recognizing openness and readiness for change to actively implementing diverse strategies, material choices, and collaborative efforts. Reduction strategies available today are being directly implemented on projects.

There were also several **new and noteworthy themes** in the ECAPs, reflecting a rapidly changing landscape. Whether from emerging policies, research from the Carbon Leadership Forum and other industry organizations, or project experience, the insights from Signatory Firms represent the state of the industry. Key new themes are:

- **Call for an Industry Roadmap**: With growing momentum from industry sentiment, commitment programs like SE 2050 and local and state policy platforms have raised the question of 'how do we get there'. As we look to 2025, SE 2050 will focus efforts on establishing tangible steps to move the market together.
- **Deconstruction and Reuse:** Promoting deconstruction and reuse of materials through circular design principles received growing interest. We saw precedent for steel deconstruction with the Boulder Community Health hospital building and new Circular Design and Construction Guidelines published by the New York City Economic Development Corporation.
- **Contractor Collaboration:** Contractor push-back came up repeatedly as a barrier to reduction strategy implementation. Firms noted added costs to sustainable design options due to unfamiliarity with new materials and practices. Designers need to work with contractors to understand which costs are real versus perceived risk.
- **Setting High Standards:** Setting high targets for sustainability, even if not always achieved, is better than doing nothing.

Acknowledgement–Signatory Firms (Page 1 of 8)

Firm Name	Embodied Carbon Champion	Start Year
Advanced Structural Engineering, Inc.	Michael Puhlmann	2024
Ai-Alt Structural Engineering	Alvin Tabar	2021
Anthem Structural Engineers	Sheela Vedula	2024
Arup (North America)	Genevieve Graham	2020
Aspect Structural Engineers	Rachel Kazaka	2021
Bala Consulting Engineers	Elizabeth Larsen	2022
Ballinger	Brent Ellmann	2022
BASE	Christian Jones	2023
Bennett & Pless	Corey Rice	2024
Blackwell Structural Engineers	Simon Rayment	2023
Bliss & Nyitray, Inc.	Lazaro Alfonso	2024
Britt, Peters and Associates Inc.	Mohit Srivastava	2024
Buehler	Ryan Miller	2021
Buro Ehring	Holger S. Schulze-Ehring	2024
Buro Happold	Fraser Reid	2021
BVH Integrated Services	Aleene McHugill	2024
BWE	Dane Hansen	2023
CannonDesign	Julie Shaw	2021

Acknowledgement–Signatory Firms (Page 2 of 8)

Firm Name	Embodied Carbon Champion	Start Year
Clark Nexsen	Bethany Whitehurst	2021
Clayco Design & Engineering	Anthony Augustine	2024
Coughlin Porter Lundeen	Laura Lindeman	2021
Coffman Engineers, Inc.	James Conley	2021
Cora Structural	Michael Gryniuk	2023
COWI North America	Palak Kamdar	2023
Daedalus Engineering	Marisa Nolasco	2024
DATUM ENGINEERS, INC.	Swarna Karuppiah	2021
Davies-Crooks Associates	Don Davies	2023
DCI Engineers	Jessica Martinez	2021
Degenkolb Engineers	Elena Good	2021
Dekker Perich Sabatini	Patience Raby	2022
DES	Kenny W. Hung	2024
DeSimone Consulting Engineers	Tarek Abdallah	2021
DIALOG	David Pesta	2021
DLR Group	Murad Hamdallah	2021
Eckersley O'Callaghan	Ashley Reed	2023
Ehlert Bryan	Chris Heckmann	2023

Acknowledgement–Signatory Firms (Page 3 of 8)

Firm Name	Embodied Carbon Champion	Start Year
Element Structural Engineers, Inc.	James Enright	2023
Engineering Ventures, PC	Russ Miller-Johnson	2021
Entuitive	Oscar Valdes	2022
EQUILIBRIUM Consulting	Tom Place	2020
EwingCole	Colleen Blackwell	2021
Fast + Epp	Olivia Healy	2022
Flad Structural Engineers	Tim Liebhold	2021
Forell | Elsesser Structural Engineers	Lindsey Maclise	2021
Fortis Structural, LLC	Michael Gritzmacher	2022
Gemini Structural	Chris Vaught	2024
Glotman Simpson Consulting Engineers	Rory Roberts	2021
GRAEF	George Carr	2023
Gresham Smith	Allison Hampton	2021
Grimm & Chen Structural Engineering, Inc.	Sitanan Tanyasakulkit	2021
Harriott Valentine Engineers	Kevin Tsuchida	2023
HGA	Ethan Fogle	2020
HKS, Inc.	Erin Winston	2022
HOK	Jaclyn Lee	2021

Acknowledgement–Signatory Firms (Page 4 of 8)

Firm Name	Embodied Carbon Champion	Start Year
Hollingsworth Pack, Austin	Chris Hewitt	2022
Holmes	Megan Stringer	2021
Hope Furrer Associates	Nicole Baer	2022
IMEG Corp.	Laura Hagan	2021
Integrus Architecture	Morgan Wiese	2022
Jablonsky, Ast & Partners	Igor Smith	2024
Jacobs	Clint Townsend	2023
Jirsa Hedrick Structural Engineers	Austin Reese	2022
John A. Martin & Associates	Raven Odian	2023
JVA Inc.	Jarod Concha	2023
KAI Hawaii	Ryan Hobson	2022
Keast & Hood	Lauren Schmitz	2021
KL&A Engineers and Builders	Alexis Feitel	2020
Klein & Hoffman	Nathan Barry	2023
Klepper, Hahn & Hyatt	James A. D'Aloisio	2022
KPFF Consulting Engineers	Shana Kelley	2021
Kurt Fischer Structural Engineering	Carl Kloos	2022
LaBella Associates, DPC	Kevin DeRoller	2024

Acknowledgement–Signatory Firms (Page 5 of 8)

Firm Name	Embodied Carbon Champion	Start Year
LeMessurier	Suzanne Robinson	2021
LEO A DALY	Jacob Zach	2022
LERA Consulting Structural Engineers	Carrie Villani	2021
Linchpin Structural Engineering	Eric Rademacher	2021
Lionakis	Matthew Melcher	2024
Little Diversified Architectural Consulting	Sina Flynn	2021
LPA Design Studios	Aron Tezveren-Johnson	2023
Lund Opsahl	Jeremiah Walter Bowles	2023
Mackenzie	Jo Ann Offill	2023
Maffei Structural Engineering	Sarah Chen	2022
Magnusson Klemencic Associates	Catherine Cai	2021
Martin/Martin, Inc.	Michael Lyons	2021
Martinez Moore Engineers	Kate Tomlinson	2021
McNamara Salvia Structural Engineers	AJ Unander	2021
Mead & Hunt	Victoria Herrero Garcia	2023
Meyer Borgman Johnson	Catherine Lumitap	2020
MHP Structural Engineers	Dan Fox	2024
NORR	Hassan Saffarini	2021

Acknowledgement–Signatory Firms (Page 6 of 8)

Firm Name	Embodied Carbon Champion	Start Year
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O'Donnell & Naccarato, Inc.	Scott Bauer	2020
One Hermitage	James Richardson	2022
PCS Structural Solutions	Chris Jeseritz	2020
PES Structural Engineers	Ryan Krusko	2022
Pierce Engineers	Ezra Hilton	2023
Professional Engineering Consultants, PA	Zach Bowden	2021
Reaveley Engineers + Associates	Jacob Linford	2022
Rutherford + Chekene	Erin Maulhardt	2023
RJC Engineers	Dominic Mattman	2022
Saiful Bouquet Structural Engineers	Nofel Teldjoune	2021
Schaefer	Lara Stroup	2023
Schemmer	Elena Hoff	2023
Siegel Structural Engineers	Allison Olinsky	2022
Silman	Jessica Haberstock	2020
Simpson Gumpertz & Heger, Inc.	Julia K. Hogroian, Michael A. Tecci	2021
SK&A Structural Engineers	Sara Zaman	2022
Skidmore, Owings & Merrill LLP	Matthew Streeter	2021

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Firm Name	Embodied Carbon Champion	Start Year
SLAM Collaborative	Jamie Littlefield	2022
SMBH Inc.	Ebiji Akah	2023
SmithGroup	Andrea K Reynolds	2021
Snell Engineering Consultants	Stephen Rauch	2023
Stanley D. Lindsey and Associates, Ltd.	Kyle Fleming	2024
Stantec Architecture Inc	Robby Vogel	2022
Structural Focus	Gabriela Pascualy	2021
StructureCraft	Leif Johnson	2021
Studio NYL Structural Engineers and Facade Designers	Julian Lineham	2021
Taylor Timber	Chad Taylor	2023
STV	Lauren Alger	2023
Thornton Tomasetti	Patrick Kenny	2020
Tipping Structural Engineers	Bruce Danziger	2021
TLC Engineering Solutions	Rebecca Cegelis	2023
Uzun+Case	Thomas Trotter	2022
Verdant Structural Engineers	Nora Murray	2021
Walter P Moore	Dirk Kestner	2020
Wicke Herfst Maver Consulting, Inc.	Kurt Quines	2023

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Firm Name	Embodied Carbon Champion	Start Year
Wight & Company	Matthew Aquino	2021
ZFA Structural Engineers	Lindsey Broderick	2022

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