

SE2050 Embodied Carbon Action Plan

2025

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1 Introduction

schlaich bergemann partner (sbp) in North America is proud to be a part of SE 2050. We look forward to continuing to better understand and further reduce the embodied carbon emissions of our projects to net zero by 2050. We've got some work to do!

Our internal cross-office international sustainability team has been focused on embodied carbon since 2019, led by our Stuttgart and New York offices. sbp in North America is based in New York with 15-20 staff, with a small but expanding presence in Los Angeles. At this stage, our reporting covers our work from the New York office only. We look forward to reporting independently from both offices when appropriate in future years.

sbp submitted our SE 2050 commitment letter to the Managing Director of SEI on August 20, 2024 (Appendix B).

sbp made our internal company announcement on the sbp intranet on November 26, 2024 (Appendix A).

1.1 Embodied Carbon Champion



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2 Education

sbp provides training, resources and support to our structural engineering team through the inter-office sustainability team, led by our New York office.

The sustainability team is structured around three groups:

- **Office representation:** a minimum of one engineer from each major office acts as the sustainability point-person. All the offices meet monthly to discuss projects, questions and updates from different global regions
- **Material representation:** three engineers act as point-person for timber, steel and concrete embodied carbon material questions. The material team update internal resources, prepare trainings, and respond to project-specific questions
- **Operational reporting:** one staff member from each major office is responsible for collecting office operation information on energy usage, commuting, business travel, etc. for aggregation into our internal annual report and operation review.

The sustainability team provides:

- **monthly all-office presentations** on general sustainability topics
- **quarterly in-depth training sessions** on specific topics
- **annual new staff onboarding sessions**, including an introduction to embodied carbon
- **on-demand recorded training webinars** on how to use our in-house embodied carbon calculation spreadsheet
- **up-to-date intranet sustainability page** with quick links to internal resources and calculators, past presentations, external resources, and relevant news updates

In North America in particular, our ECC provides custom internal training on using our internal embodied carbon calculation tool, and supports the teams with carbon impact factor information, interpretation and drawing conclusions for project next steps.

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2.1 Electives

	Elective options (min. 1, recommended 4)	Description/reference
<input checked="" type="checkbox"/>	Have one representative of your firm (any employee) attend quarterly external education programs (e.g. webinar, workshop) provided by SE 2050, Carbon Leadership Forum (CLF), or other embodied carbon resources	ECC participates in monthly SEI Sustainability Committee meetings
<input checked="" type="checkbox"/>	Share the SE 2050 library of resources with technical staff	Links published on sustainability intranet
<input type="checkbox"/>	Share embodied carbon reduction strategies with your firm as outlined in Top 10 Carbon Reducing Actions for Structural Engineers document produced by SE 2050	
<input type="checkbox"/>	Nominate a minimum of (1) employee per office to participate in a CLF Community Hub	
<input type="checkbox"/>	Provide narrative outlining plans for minimum (2) firm-wide presentations per year on the topic of embodied carbon	
<input type="checkbox"/>	Present the document, "How to measure and report embodied carbon" to all technical staff	
<input checked="" type="checkbox"/>	Attend a presentation or demo of an LCA-based tool used to calculate embodied carbon	
<input checked="" type="checkbox"/>	Initiate an embodied carbon interest group within your firm and provide a narrative of their goals	Goals of the sustainability team to promote and support embodied carbon calculations for all projects at each design stage
<input type="checkbox"/>	Provide a narrative of how the Embodied Carbon Reduction Champion will engage embodied carbon reduction at each office (intended for multi-office firms)	
<input type="checkbox"/>	Other actions	

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3 Advocacy

sbp in North America are involved in a range of industry movements that support further development in embodied carbon:

- **SEI Sustainability Committee:** sbp's ECC is a member of the Structural Engineering Institute's Sustainability Committee and chairs the Circular Economy Working Group (CE WG). Last year the CE WG launched a case study database hosted on the SE2050 website which shares information on successful projects in North America and beyond with the hope of accelerating material reuse and embodied carbon reductions. Our ECC has also authored two articles for STRUCTURE magazine on this topic in 2024.
- **Cornell University Circular Construction Lab:** sbp has an ongoing research partnership with the Circular Construction Lab exploring material reuse with the goal of reducing the embodied carbon impact of new construction. This partnership has led to participation in a number of industry presentations and conferences and supporting industry and academia publications.
- **IStructE Sustainability Panel:** sbp's ECC is also a member of the IStructE Sustainability Panel, acting as a liaison and information conduit between the USA and UK on structural engineering sustainability.
- **Infra2050 (Bridges WG):** sbp is supporting the development of an industry-wide embodied carbon bridge case study database as part of the Infra2050 initiative.

3.1 Electives

	Elective options (min. 0, recommended 2)	Description/reference
<input type="checkbox"/>	Share your commitment to SE 2050 on your company website	
<input type="checkbox"/>	Give an external presentation on embodied carbon that demonstrates a project success or lessons learned (CLF local hub!)	
<input checked="" type="checkbox"/>	Discuss with the Owner / Client the option of requiring that some of the structural materials come with facility-specific or product-specific EPDs	
<input checked="" type="checkbox"/>	Share education opportunities with clients	
<input checked="" type="checkbox"/>	Provide a narrative of how you have encouraged industry and policy change incentivizing availability of low-carbon and carbon sequestration materials	ECC co-founder and member of RECLAIM NYC, promoting the adoption of policy change in NYC for reused materials and deconstruction
<input type="checkbox"/>	Start an embodied carbon community of practice or mentorship program in your office	
<input type="checkbox"/>	Mentor a firm new to the embodied carbon space	
<input type="checkbox"/>	Other actions	

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4 Reduction

sbp works across a number of project typologies in different international regions. This makes tracking and comparing project embodied carbon challenging. We have implemented a set of internal guides for project typologies that follow a reduction strategy, similar to other general systems (such as the IStructE SCORS system). We target a 50% reduction in embodied carbon for estimated A-C emissions by 2030 from a 2020 baseline across our average projects.

4.1 Strategy

Due to the variation in typologies and geographies, we are continuing to improve the confidence which we set benchmarks for embodied carbon and assess an average performance. Our proposed internal strategy will track estimated embodied carbon emissions by design stage, typology and geography for new projects, and prepare a plan to expand our database of current and completed work. We hope to use this to develop more refined benchmarks for sbp's specific project types.

sbp updated our specification template to incorporate embodied carbon reduction information for steel, concrete and wood products based on a suite of project-type and location-specific options. This has helped support the wider office in successfully proposing tailored specifications for project teams.

4.2 Electives

	Elective options (min. 1, recommended 4)	Description/reference
<input type="checkbox"/>	Incorporate data visualization into your ECAP. How are you looking at data to make informed design decisions and communicate design options to your client?	
<input type="checkbox"/>	Provide a project case study in your ECAP that captures a reduction of embodied carbon or some lessons learnt	
<input checked="" type="checkbox"/>	Create a project-specific embodied carbon reduction plan	ECC developed a detailed specification plan for a local project with an engaged client
<input checked="" type="checkbox"/>	Complete a system embodied carbon design comparison study during the project concept phase	Default approach for all suitable projects in North America
<input type="checkbox"/>	Participate in a project LEED design charrette and speak to potential design considerations impacting embodied carbon	
<input type="checkbox"/>	Calculate your firm average benchmark for embodied carbon	
<input checked="" type="checkbox"/>	Update your specifications and incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements	Major specification template update completed in 2024
<input type="checkbox"/>	Collaborate with your concrete supplier to reduce embodied carbon in a mix design	

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<input type="checkbox"/>	Work with a contractor during material procurement to meet an embodied carbon performance criteria on at least 1 project	
<input type="checkbox"/>	Have an Environmental Produce Declaration (EPD) created as a result of a project	
<input checked="" type="checkbox"/>	Incorporate biogenic materials on at least one project annually	
<input checked="" type="checkbox"/>	Provide a narrative of how circular economy has been used on your projects. Incorporate re-use or design for deconstruction into at least 1 project	Our work on the Montreal Olympic Stadium roof deconstruction and reuse project has been a major opportunity to develop procedures for deconstruction and material salvage in partnership with spurring future reuse in new designs.
<input type="checkbox"/>	Quantify construction waste reduction on a project and the impact to embodied carbon	
<input type="checkbox"/>	Integrate embodied carbon mitigation strategies in your General Notes	
<input type="checkbox"/>	Other actions	

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5 Reporting

At sbp we measure and report embodied carbon data on projects using our inhouse embodied carbon calculation spreadsheet. Data is reviewed on an A1-A5 basis, as well as an A-C (+D +biogenic) basis. These calculations are initiated by both the individual project team and through the solicitation of the sustainability team. Our goal is for all structural engineers to be comfortable leading the completion of these calculations for their projects. Until this point, the sustainability team members are available to provide direct project support.

All sbp project teams are requested to submit their completed calculations to the sustainability team for aggregation in our developing internal database.

5.1 Database submissions

sbp was not mandated to submit to the SE2050 database in 2025, and is not yet registered in the database reporting workflow. We look forward to submitting to the SE2050 database as part of our first full year of SE2050 membership in the 2026 reporting cycle!

5.2 Tracking

	2024	2025	2026	2027	2028
North American offices reporting	-	-			
Projects reporting	-	-			

5.3 Electives

	Elective options (min. 0, recommended 1)	Description/reference
<input type="checkbox"/>	Submit all projects to the SE 2050 Database	
<input type="checkbox"/>	Meet your target average embodied carbon reduction from the previous year	
<input type="checkbox"/>	Report a greater percentage of projects than the preceding year	
<input type="checkbox"/>	For a project submitted to the database, ask the Architect or Owner if the project has a carbon budget or if there are established project sustainability goals at the project kickoff meeting	
<input type="checkbox"/>	Other actions	

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6 Lessons learnt

Education

- Our embodied carbon internal training has been popular. This has helped provide a basic understanding of the goals of embodied carbon calculation and methods for reduction, this has not always translated to project teams having independent comfort in completing these calculations. We have identified that additional resources need to be developed to support engineers in material value sourcing and selection, and in how to interpret, present and discuss the results with external project teams.

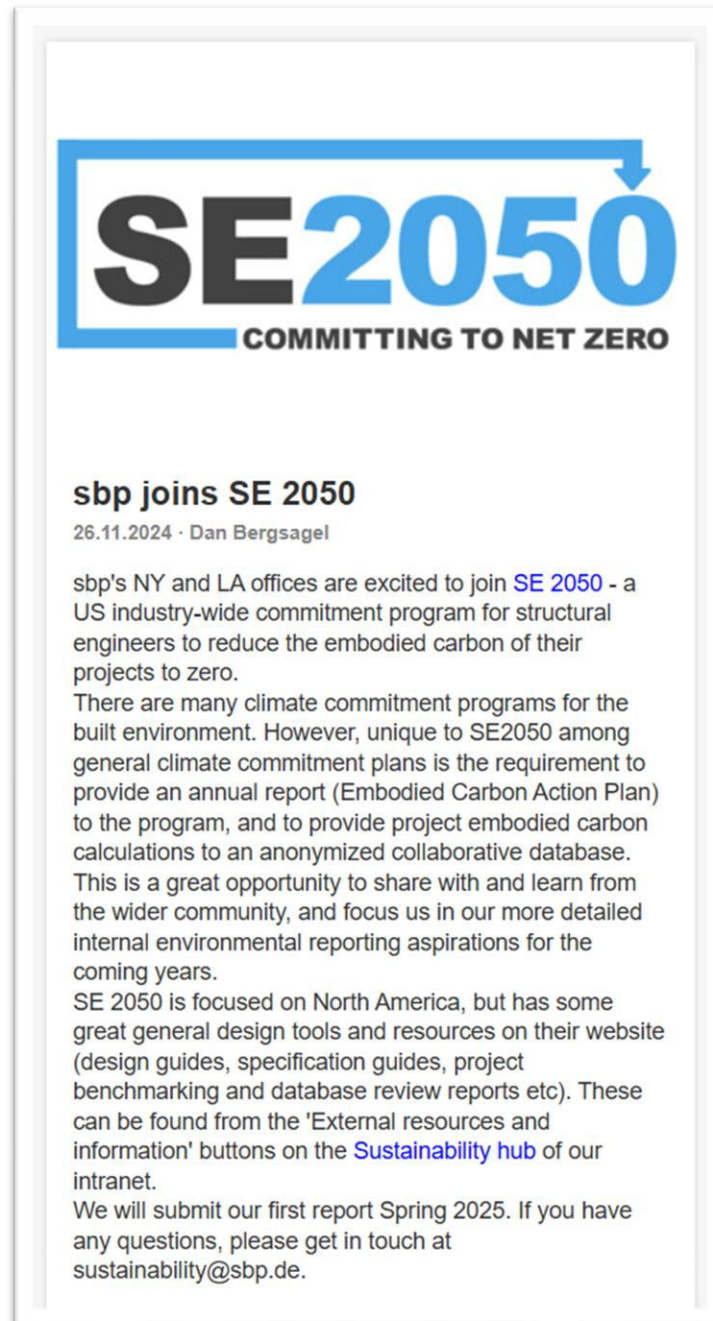
Reduction

- Embodied carbon calculations are being completed across project teams and offices, however often collecting and aggregating these calculations can be challenging. We plan to implement a simplified 'package-and-send' approach within the calculator spreadsheet to remove perceived barriers to sharing this data with the sustainability team going forward

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7 Appendix

7.1 A - Internal Announcement



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7.2 B - Commitment Letter



Jennifer Goupil, Managing Director,
Structural Engineering Institute

American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, VA 20191

New York, August 20, 2024

Letter of commitment to the SE 2050 Program

Dear Jennifer Goupil,

schlaich bergmann partner (sbp North America) - a firm of 15-20 person firm located in New York, NY and Los Angeles, CA - is hereby signing on to the SE 2050 Commitment Program. We support the vision that all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050.

sbp North America understands that to be structural engineers is to be part of an industry that contributes a large proportion of global greenhouse gas emissions. As designers with control over much of the embodied carbon of our projects, we see our opportunity to use our lever to reduce the impact of the built environment on our planet.

We therefore commit sbp North America to take the following steps which are part of the SE 2050 Commitment Program:

- By March 31st, 2025, and annually henceforth, we commit to reporting an Embodied Carbon Action Plan (ECAP) and permit the ECAP document or form to be made public on the SE 2050 website.
- Within one year and annually henceforth, we commit to submitting data to the SE 2050 Project database in a collaborative effort to understand the embodied carbon in structural engineering projects and to set attainable targets for future projects.

We look forward to joining this coalition and industry effort to achieve the goals of the SE 2050 Program.

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