Embodied Carbon Action Plan 2024

STRUCTURAL ENGINEERING INSTITUTE

SE2050 COMMITTING TO NET ZERO

Büro Ehring Engineering P.C.
45 Main Street, 9th Floor
Brooklyn, NY 11201

Our Commitment to Sustainability

Büro Ehring is committing to the SE2050 Program, joining the leading engineers of our industry in a collective effort to reduce, and ultimately eliminate embodied carbon in projects by 2050. By leveraging our expertise in building structures and thermal envelope, we aim to bring more sustainable building systems, materials, and technologies to the forefront. Through SE 2050's collaborative knowledge sharing, we aspire to foster dynamic collaboration and informed decision-making, driving the transition to a net-zero carbon built environment.

Structure
Facades
Specialty

BÜROEHRING

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Date: June 24, 2024

To: Laura Champion
Director
Structural Engineering Institute

Subject: Letter of Commitment
to the SE 2050 Program

From: Holger S. Schulze-Ehring
Dipl.-Ing., SIA, PE
Principal, Structure + Facade
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Dear Ms. Champion,

Buro Ehring Engineering P.C. is a dynamic and diversified boutique architectural engineering practice with offices in Brooklyn, 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.

Sustainable development of the built environment is the foremost challenge for our industry. As a firm specializing in both building structures and thermal envelopes, we feel a strong sense of accountability to educate project stakeholders on this unprecedented opportunity to elect for comprehensive and informed strategies that minimize the potential environmental impact of their projects.

We therefore commit Buro Ehring to take the following steps which are part of the SE 2050 Commitment Program:

- Within six months and annually henceforth, we commit to reporting an Embodied Carbon Action Plan (ECAP) and permit the ECAP document or form be made public on the SE 2050 website.
- Within one year and annually henceforth, we commit to submit data to the SE 2050 project database in a collaborative effort to understand 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.

Sincerely,

Holger S. Schulze-Ehring, Dipl.-Ing., SIA, PE
Principal

Juan M. Paulino, PE, SE
Senior Vice President

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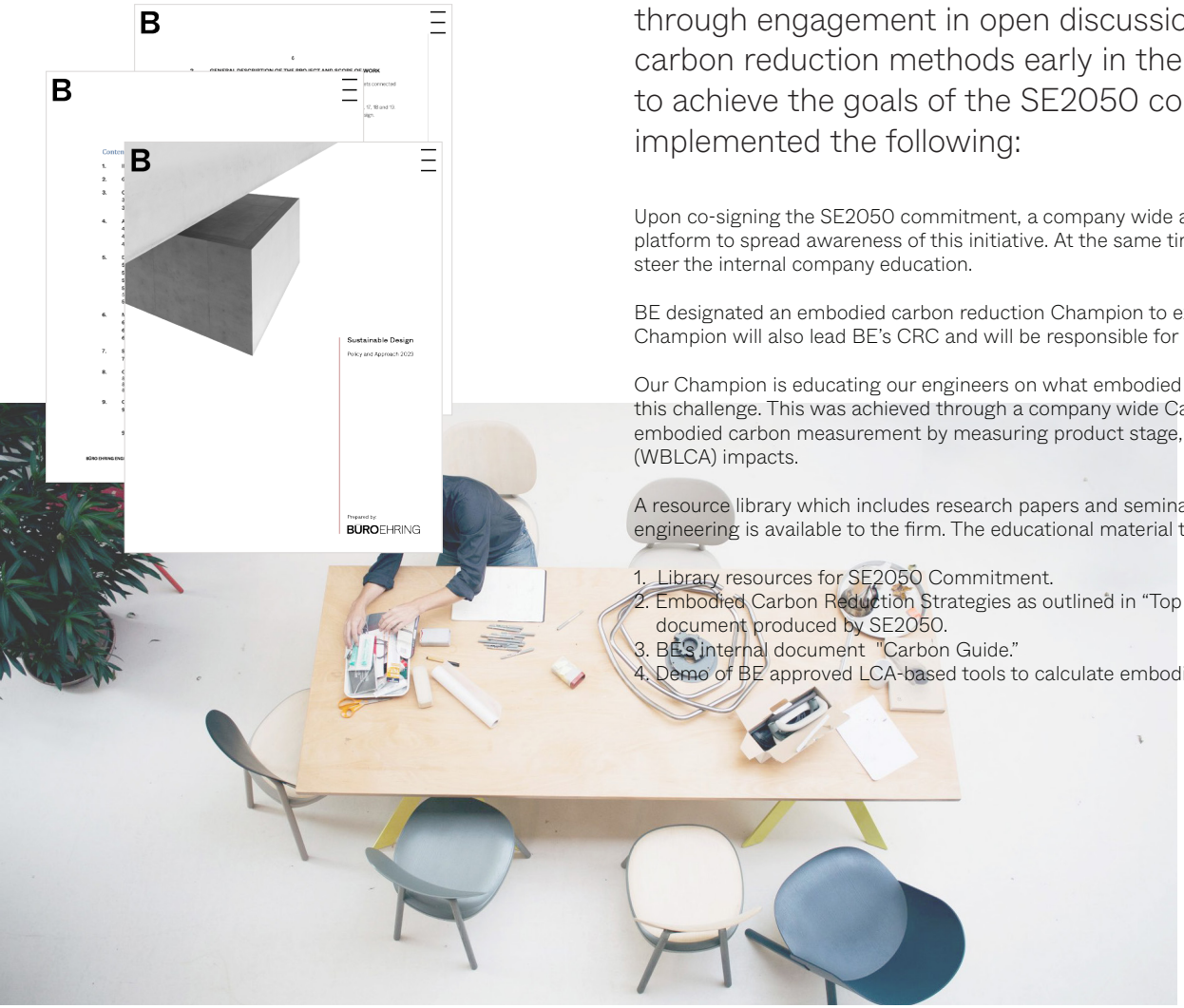
Education

BE's architectural engineering practice is committed to the acquisition and transfer of knowledge underpinning sustainable solutions for the built environment. Our education approach will not only serve to train our staff regarding our SE2050 initiatives, but also prompt staff to individually raise our peer's awareness through engagement in open discussions regarding embodied carbon reduction methods early in the project phases. In order to achieve the goals of the SE2050 commitment, we have implemented the following:



Upon co-signing the SE2050 commitment, a company wide announcement was made through intranet and social media platform to spread awareness of this initiative. At the same time, a new Carbon Reduction Committee (CRC) was created to steer the internal company education.

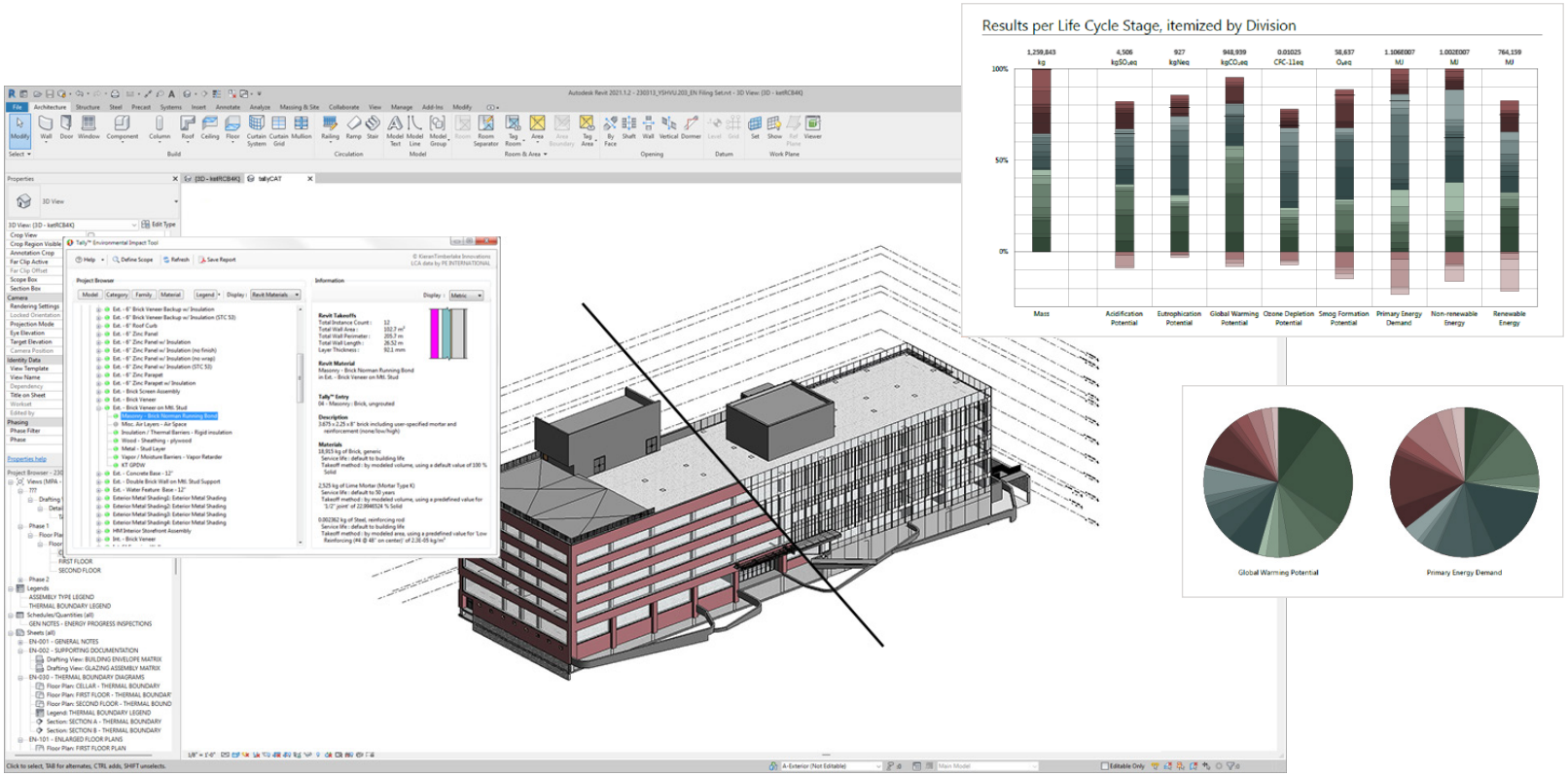
BE designated an embodied carbon reduction Champion to expand carbon reduction efforts across all firm disciplines. This Champion will also lead BE's CRC and will be responsible for ensuring BE meets its SE2050 ECAP goals and objectives.

Our Champion is educating our engineers on what embodied carbon is and what are the strategies that BE is taking to tackle this challenge. This was achieved through a company wide Carbon Guide which establish our approach and technique to embodied carbon measurement by measuring product stage, construction stage, and Whole-Building Life-Cycle Assessment (WBLCA) impacts.

A resource library which includes research papers and seminars on embodied carbon and sustainability practices in structural engineering is available to the firm. The educational material that will be the focus of our internal forums during the first year:

1. Library resources for SE2050 Commitment.
2. Embodied Carbon Reduction Strategies as outlined in "Top 10 Carbon Reducing Actions for Structural Engineers" document produced by SE2050.
3. BE's internal document "Carbon Guide."
4. Demo of BE approved LCA-based tools to calculate embodied carbon.

Reduction Strategy



BE's Carbon Reduction Committee leads the firm's carbon reduction strategy to meet both the SE2050 goals and firm benchmarks. To reach these goals the CRC has explored and subsequently developed a framework to pair BIM modeling (i.e., Revit) with developed LCA software (TallyCat) in order to quickly generate estimates of embodied structural carbon at any stage of design or construction.

Achieving significant reduction in the carbon footprint will only be possible through an efficient use of the construction materials to be used in the project. Therefore, having a rapid and flexible carbon estimator during pre-design, focused on life cycle stages A1-A3 (material supply through manufacturing), will inform the design team's strategies with the widest upfront impact as these are the most significant contributors to embodied carbon in structural systems. Later stage inputs related to LCA stages A4-A5 (transport to installation) that capture more nuanced decisions made by the construction team will be integrated in the carbon accounting processes to promote effective carbon reduction methods from cradle to gate.

BE will take the following proactive strategies to advance lower carbon design and construction:

1. Update general notes to include performance-oriented EPDs for common structural materials and pre-define specifications to allow suppliers to optimize for acceptance criteria.
2. Update Revit modeling standards to facilitate the capture of material quantities for integrated LCA tools for Revit (e.g., Tally).
3. Explore multiple schemes and materials with clients early on in the project for comparative analysis of embodied carbon intensity.
4. Optimize the usage of the materials selected and track embodied carbon intensity during the later project phases.

Reporting + Measuring

At Büro Ehring, our commitment to sustainability is deeply rooted in our dedication to tracking and reporting both the embodied and operational carbon generated by the projects we undertake. We recognize that measuring the carbon footprint of buildings is a vital step in enhancing their environmental performance, and as such, our team consistently integrates these assessments throughout the various stages of design. Utilizing tools such as TallyCat, we can pinpoint areas of improvement and potential savings, ultimately leading to more sustainable outcomes.

As a firm specializing in both building structures and thermal envelopes, we feel a strong sense of responsibility to approach carbon data collection from multiple perspectives. This includes not only material use and selection but also energy consumption and thermal performance. By doing so, we can provide our clients with comprehensive and informed strategies to minimize the environmental impact of their projects.

To further emphasize our dedication to sustainability and carbon-neutrality, Buro Ehring commits to documenting all of our BIM projects, with a goal of submitting at least two projects to the SE2050 database within the 2024 calendar year. This initiative reflects our ongoing efforts to contribute to the global dialogue on sustainable development and to demonstrate our leadership in the field.

In support of these objectives, we have also developed a sustainability dashboard that empowers our employees to set project-specific goals, compare them with previous projects, and track the firm's overall performance against various sustainability metrics. This interactive platform not only fosters a culture of continuous improvement but also encourages transparency and accountability among our team members, enabling us to collectively strive for a greener future.

Advocacy

Büro Ehring believes that education is a cornerstone of advocacy. We champion sustainability through a multifaceted approach encompassing in-house and client education, academic engagement, and industry collaboration, fostering a culture of continuous learning and innovation to build a greener future.

We recognize that our commitment to sustainability goes beyond our project work and extends into the realm of continuous learning and collaboration. Our dedication to in-house education is exemplified through regular Town Halls, where employees from different disciplines and levels of experience come together to share ideas, expertise, and best practices in structural engineering and facade design. These gatherings foster an environment of knowledge transfer, allowing us to innovate and consistently deliver high-quality, sustainable solutions.

Moreover, we understand the value of empowering our clients with up-to-date knowledge of sustainability practices in the industry. By providing them with comprehensive guidance and resources, we enable them to make informed decisions about building greener and more environmentally friendly structures. Our collaborative approach ensures that our clients are not just beneficiaries of our expertise but active participants in the quest for a more sustainable built environment.

Büro Ehring's commitment to fostering a sustainable future also extends to the academic community. Our leaders actively engage with universities, delivering lectures and sharing valuable insights with the next generation of industry professionals. By nurturing their growth and understanding, we contribute to the development of a well-informed and skilled workforce that can carry the mantle of sustainable design forward.

Finally, we recognize the importance of building strong relationships with our partners in the field. By participating in conferences and industry events, we connect with like-minded professionals, exchange ideas, and forge collaborative partnerships. These interactions facilitate the ongoing refinement of our methods and approaches, driving our mission to create better and more sustainable buildings for a greener future.

Sustainability Team

As a team of innovators, problem solvers, and craftsmen, we area commited to building a better future for the world around us. We believe in having a firm with diverse knowledge and expertise allowing us to design in a collaborative atmosphere and enable our creative minds.

Our talented and dedicated nature as individuals, along with our interdisciplinary experience, allow us to find cutting-edge solutions for our clients and collaborators.

SE2050 Embodied Carbon Champion

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Büro Ehring collaborates with architects, developers, owners, and contractors to find creative solutions for demanding projects. Since our founding, we have held firm to our defining tenets of responsive client service, practical application of engineering principles, innovative and creative problem solving, professional leadership, and commitment to quality. We support novel architectural designs with structural systems that are also constructible and reliable. Büro Ehring has a successful history of creatively collaborating with architects and owners to help them achieve visionary designs for building enclosures while providing the best solutions that are responsive to the client's budget and schedule.

United States + Overseas
East Coast & West Coast focus and presence.
Projects in most of the US States.
Overseas projects in Europe, China, Middle East.
Licenses in all US States, Switzerland, Germany.

Shape Your Vision