

SE 2050
**Embodied
Carbon
Action
Plan**

2025

July 11, 2024

Jennifer Goupil
Managing Director
Structural Engineering Institute

RE: Letter of Commitment to the SE 2050 Program

Dear Jennifer Goupil:

Bennett and Pless, a 165-person firm with offices in Atlanta, GA, Chattanooga, TN, Charlotte, NC, Knoxville, TN, Loudoun, VA, Nashville, TN, Orlando, FL, Raleigh, NC, and Sarasota, FL, 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.

The SE 2050 program and its goals align with several of our company's core guiding attitudes.

Through **innovation, there is always a solution**. As a company, we believe that by **embracing changes** to our typical ways of thinking about materials and design, we can analyze carbon output of our past and current designs and **develop ourselves** by learning ways in which we can reduce the output. As we move into the future, we will **honor our commitment** to the SE 2050 Program and **be relentless about continuous improvement**. We look forward to **celebrating the successes** that will come along with working towards net zero.

We therefore commit Bennett & Pless 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 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 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,



William "Bill" Brown, P.E.
Chief Operating Officer

Leadership Team



Corey Rice
Embodied Carbon Champion



Chad Corkern
Project Engineer



AJ Mazzone
Project Engineer



Caroline Stanton
Design Engineer



Phil Lombardo
Principal



Jennifer Zabik
Principal

Executive Summary

Bennett & Pless is committed to reducing embodied carbon in structures to zero by 2050. We've developed—and continue to refine—action plans focused on educating our structural engineers and informing the broader community about the urgent need for all structures to achieve net zero embodied carbon. Our goal is to help prevent irreversible environmental damage. The Bennett & Pless Embodied Carbon Action Plan (ECAP) outlines our specific steps and goals to educate our team, advocate for SE 2050 in the industry, and consistently report our progress in reducing embodied carbon.

Introduction

Embodied carbon in building structures is the amount of greenhouse gas (GHG) emissions from the structural material production, shipping, construction, maintenance, and end of life cycle disposal. Per the US Department of Energy, building construction and renovations account for 10% of global carbon emissions.

SE 2050 is the structural engineering community's focus to eliminate all embodied carbons in new & renovated structures by 2050 to avoid irreversible damage to the environment. The goals of the SE 2050 initiative is to educate structural engineers, create a carbon tracking program, report embodied carbon impacts and trends of structural systems throughout various regions, and advocate for zero carbon emissions within the building industry community.

Bennett & Pless's Embodied Carbon Action Plan (ECAP) will strive to lower embodied carbons in structural materials by educating design structural engineers who determine the structural material to be used in new building construction and renovations. The ECAP will implement life cycle assessments (LCA) which measures embodied carbon in structural materials by units of kilograms or metric tons of carbon dioxide equivalents. LCAs are being tracked for select projects by using Tally, an Autodesk Revit add-on. Bennett & Pless will track the LCA's and share results with employees and the community with reducing all embodied carbon emissions to none by 2050.

- 1 **Educate** Structural Engineers
- 2 **Create** a Carbon Tracking Plan
- 3 **Report** Embodied Carbon Impacts & Trends
- 4 **Advocate** for Zero Carbon Emissions

Education

At **Bennett & Pless**, we know that making real progress on reducing embodied carbon starts with education. Our team is committed to ensuring that every structural engineer understands what embodied carbon is, why it matters, and how we can reduce it in our designs.

Our SE 2050 Committee leads this initiative with dedicated Committee Champions in each of our office locations. Their role is to provide resources, answer questions, and keep our embodied carbon reduction efforts moving forward.

1

Onboarding & Training for Every Employee

2

Live Training & Learning Sessions

3

Easy to Find Information

4

Community & Engagement

How We're Educating Our Team

We don't want embodied carbon education to feel like another mandatory corporate training. It should be practical, engaging, and useful. Here's what we're doing to make that happen:

1. Onboarding & Training for Every Employee

Starting in Q3, 2025, all new engineering employees will learn about SE 2050 on their first day. They'll get an overview of our commitment, why it's important, and how they can contribute. We developed a recorded webinar titled "An Introduction to SE 2050: What it Means for Structural Engineers?"—originally presented in November 2024—and plan to include it in both our new employee onboarding and our annual Bennett & Pless University (BPU) series.

2. Live Training & Learning Sessions

Each year, we aim to host a minimum of two structured webinars focused on embodied carbon reduction and the latest sustainability developments. These will be recorded. Upcoming sessions include:

- Introduction To Tally, A Life Cycle Assessment (LCA) Revit Tool
- How To Discuss Embodied Carbon LCA's with Architects
- What Sustainability Means for Structural Engineers: Concrete Materials
- Low-Carbon Concrete per ACI 323-24
- What Sustainability Means for Structural Engineers: Steel Materials
- What Sustainability Means for Structural Engineers: Timber Materials

3. Making It Easy to Find Information

Bennett & Pless provides a comprehensive intranet that serves as a convenient platform for employees to access guides, articles, and tools at any time. We will develop, produce, and include the following resources:

- A step-by-step guide on Life Cycle Assessment (LCA) using Tally in Autodesk Revit.
- Access to SE 2050 reports, industry research, and best practices from the Carbon Leadership Forum.
- Access to AIA 2030 yearly reports for collaborative knowledge base understanding across our industry.

4. Community & Engagement: Learning from Each Other

We believe the best way to create lasting change is through open conversations and real collaboration. That's why we're encouraging engineers to engage with their local ASCE Structural Engineering Institute (SEI) and/or Structural Engineers Association (SEA) chapters and participate in Sustainable Design Committees to stay connected and engage in sustainability efforts throughout our industry. We will begin by tracking how many of our employees are involved in each professional organization and striving to grow this number.

Reporting

To achieve our commitment to the SE 2050 initiative, **Bennett & Pless** will employ a comprehensive strategy for measuring, tracking, and reporting embodied carbon data. This approach ensures accuracy, consistency, and alignment with industry's best practices.

Tools and Methodologies

- **LCA Tools:** We will utilize the Tally Revit add-on and the SE 2050 Embodied Carbon Order of Magnitude (ECOM) tool to calculate embodied carbon quantities across our projects. By leveraging both tools, we aim to enhance data accuracy and ensure compliance with SE 2050 reporting requirements. Tally will facilitate detailed project-specific analyses, while ECOM will provide generalized cradle-to-gate embodied carbon estimate for projects processed with Tally to understand Tally's accuracy and adjust if needed.
- **Data Sources:** Material quantities will be extracted from BIM models and material specific GWP values will be cross-referenced with regional Environmental Product Declarations (EPDs) using EC3. This integration allows us to refine our calculations and develop a robust internal baseline for benchmarking and future comparisons.

Database Development

- **Centralized Data Management:** To manage the large volume of data generated, we are developing a centralized database to store and analyze embodied carbon metrics. This platform will serve as a repository for project data enabling us to identify trends, set benchmarks, and track progress over time.
- **Standard Operating Procedure (SOP):** By the end of 2025, our SE 2050 Committee will finalize a Standard Operating Procedure (SOP) for managing and analyzing embodied carbon data. This SOP will standardize practices across all offices and include training resources to ensure every team has a Tally expert capable of performing Life Cycle Assessments (LCAs) with minimal oversight.

Baseline Development and Analysis

- **Establishing Benchmarks:** Since we committed to SE 2050 in Q3, 2024, our initial focus is on calculating Global Warming Potential (GWP) for 5 notable projects from different offices and different industry sectors to meet SE 2050 requirements. This effort will help establish an initial internal baseline across various project types, sizes, and materials, allowing for meaningful comparisons and measurable reductions in future projects.
- **Design Option Analysis:** Once a thorough baseline is developed, we will integrate Life Cycle Assessments into schematic design workflows to evaluate alternative structural systems and materials and present this information to the client for sustainable decision making. These analyses will enable data-driven decisions that prioritize embodied carbon reductions in our structures in the future.

Collaboration and Expansion

- **Interdisciplinary Efforts:** We are collaborating with our sister company, BPL, which specializes in enclosure consulting, to expand the scope of LCAs. This partnership will allow us to perform LCAs on a variety of different project types.
- **New Projects:** Bennett & Pless plans to perform LCA's on minimum of five (5) new projects over the next year, enhancing our ability to study our current performance and optimize future designs for sustainability.

Continuous Improvement

We are committed to refining our methodologies and tools based on lessons learned and advancements in technology. By integrating embodied carbon considerations into every stage of the project lifecycle, Bennett and Pless aims to be one of the many leaders in the industry in sustainable structural engineering practices.

Advocacy

Bennett & Pless is committed to advocating for sustainability and plans on promoting the reduction of embodied carbon in structures, both internally and externally.

As a signatory firm of the SE 2050 Commitment, we actively work to integrate sustainable practices into our designs and educate our teams on strategies to minimize embodied carbon. Our SE 2050 Committee, supported by dedicated Committee Champions in each office, drives these efforts by providing resources, fostering discussions, and ensuring we make meaningful progress toward a more sustainable built environment.



Internal Advocacy

- Introduce regular internal newsletters and present our sustainability progress in company-wide quarterly meetings
- Require all new employees to undergo sustainability orientation to bring them up to date on Bennett & Pless's efforts and progress, while offering a spot in our sustainability committee
- Develop an Embodied Carbon Dashboard housed on our internal network where any employee can track our Embodied Carbon progress

External Advocacy

- Expand our outreach efforts by hosting industry-wide seminars to feature and include clients, owners, suppliers, and local policymakers and openly discuss embodied carbon case studies
- Present at conferences such as AIA, Greenbuild, ASCE, and SEA hosted events to show what Bennett & Pless has accomplished, and lessons learned from our sustainability efforts
- Encourage employees to join SE 2050-related organizations and participate in leadership and discussion in such organizations
- Develop a client-centric program and documentation to aid sustainability decision-making in their projects
- Encourage clients to require Environmental Product Declarations (EPDs) in structural material specifications

Reduction Strategies & Goals

Bennett and Pless remains confident that over time, we will be able to do our part in developing key strategies to reduce carbon emissions in the projects we are a part of. We believe that the first step to doing this is by furthering education for all designers as outlined in our education plan while setting measurable goals in sustainability which we can check year over year to better understand our strengths and areas needing improvement. The goals below include goals developed throughout this report as well as firm-wide reduction targets.

Our short term (<1 year) goals will include:

- Develop an onboarding video to bring new employees up to date on Embodied Carbon and Life Cycle Analysis
- Present two (2) new webinars to the entire company on Embodied Carbon and/or LCA's and upload these presentations into Bennett & Pless's internal knowledge website
- Finalize a Standard Operating Procedure (SOP) for managing and analyzing Embodied Carbon in our projects
- Update our baseline database with ten (10) constructed projects that were completed in 2025
- Update our standard specifications to include LCA's and Embodied Carbon tracking
- Strive to get our clients to require EPD's to be created on all materials for at least five (5) new projects
- Perform LCA's on at least five (5) new projects
- Attempt to compare different design options with embodied carbon as a performance metric during the conceptual phase of one (1) new project
- Reduce our average embodied carbon in our projects by 2% compared to our baseline projects and progressively work towards increasing this reduction year over year
- Reduce our average embodied carbon in our concrete in our 2025 projects by 10% compared to our baseline projects
- Develop an initial comparison tool which will allow engineers to compare design alternative in a timely manner with the goal to aid in determining the best path forward for reduction within new projects

Our long term (5+ years) goals will include:

- Grow the Bennett & Pless Sustainability Committee to have at least two (2) members from each office
- Establish a Life Cycle Analysis expert at each office to be the knowledgeable 'go-to' person for developing and discussing LCA's with other engineers and clients
- Develop a yearly report that we can present to our clients showing our progress in doing our part of reducing Embodied Carbon
- Send yearly anonymous employee surveys to get honest feedback on what resources they need in regard to LCA's and Embodied Carbon tracking
- Investigate in automatically requiring LCA's on projects based on project construction cost starting in 2026 in order to develop and promote sustainability education, advocacy, and our processes in reducing embodied carbon
- Attend and lead professional organizational conference on Sustainability
- Reduce our baseline Embodied Carbon by 25% in 5 years compared to our baseline projects



Summary

Bennett & Pless is committed to protecting the environment for all future generations. The firm is implementing an action plan to eliminate all embodied carbons in structures by 2050, and will adapt, as needed, and continue to educate our team on ways a structural engineer can have a positive impact.

We set company wide goals, in which we will track year over year and make adjustments as needed. Our initial effort is internal education and generating our internal baseline LCA database on constructed projects.

