

Embodied Carbon Action Plan

March 2026



Methodist Olive Branch Hospital
DeSoto County, Mississippi



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Our Commitment



“Preparing for an uncertain future is becoming increasingly important to our clients. We are deeply aware of our ability and responsibility to educate our clients and communities about vulnerabilities and risks related to climate change and other factors, and to provide workable, holistic solutions that address current needs and reduce future impacts.”

– Randall Gibson, SE, PE, Assoc. AIA
Gresham Smith Senior Advisor, Former Chief Strategy Officer

The Plan

Gresham Smith has embedded embodied carbon reduction into the firm's Environmental, Social and Governance (ESG) commitments. Project level embodied carbon education, focused design reduction strategy trainings, and SE 2050 reporting support activities are facilitated through Gresham Smith's Sustainability and Resiliency Center. Employees have access to a dedicated internal portal page co-locating embodied carbon resources, including preferred software analysis tools. Education is both on demand and technically focused to accommodate varying engineer and architect needs.





Houston Sheffield III, PE

Houston Sheffield III, a structural project engineer, is the current Embodied Carbon Champion for SE 2050. He leads the Gresham Smith structural engineering team to prioritize efficient methods of life cycle assessment and evaluating designs that reduce embodied carbon in structural systems.



Lauren Seydewitz, LEED AP BD+C

Lauren Seydewitz, an environmental scientist, leads Gresham Smith's Sustainability and Resiliency Center (SRC). The SRC focuses on expanding the value and impact of integrating sustainability and resiliency into projects, including embodied carbon reduction. Lauren coordinates SE 2050 action items with Houston Sheffield.



Sharing Knowledge

As part of Gresham Smith's Annual Firm Profile publication, ESG commitments, including decarbonization client-focused and firm-focused activities, is issued. Design projects completing lifecycle assessments integrate findings into design deliverables for client awareness and adjust material use selections, where feasible. In addition, building certification projects selecting lifecycle assessment credits document embodied carbon in structural materials as part of credit records.



Reduction Strategies

Gresham Smith continues to integrate embodied carbon throughout structural design processes. Reduction strategies planned for 2026 include:

Adjusting concrete and steel specifications to reduce embodied carbon within projects. Steps to achieve this involve:

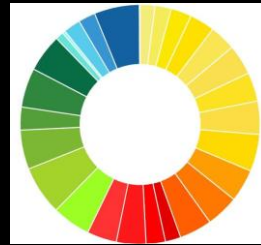
- Requesting environmental product declarations (EPDs) from suppliers in both the concrete and steel specifications;
- Requesting better aggregate material and increased use of supplemental cementitious materials (SCMs) within the concrete specifications; and
- Exploring the implementation of carbon sequestration methods on a project-specific basis within the concrete specifications to integrate into the project specification.

Conduct lifecycle assessments in early and late design phases of 2 minimum projects to inform material selection and structural design that reduces embodied carbon.



Reporting

In 2026, Gresham Smith will utilize the following lifecycle analysis tools to determine the embodied carbon, or global warming potential (GWP), of early phase and late phase designs:



SE 2050 Embodied Carbon Estimator (ECOM)

Structural design methods using Autodesk Revit –Dynamo are being developed to source a complete structural building material takeoff to allow engineers to record data into the ECOM tool more efficiently. Preliminary level of effort estimates are 30 minutes or less for a mid sized commercial building, a metric that can be readily integrated into the existing design process.



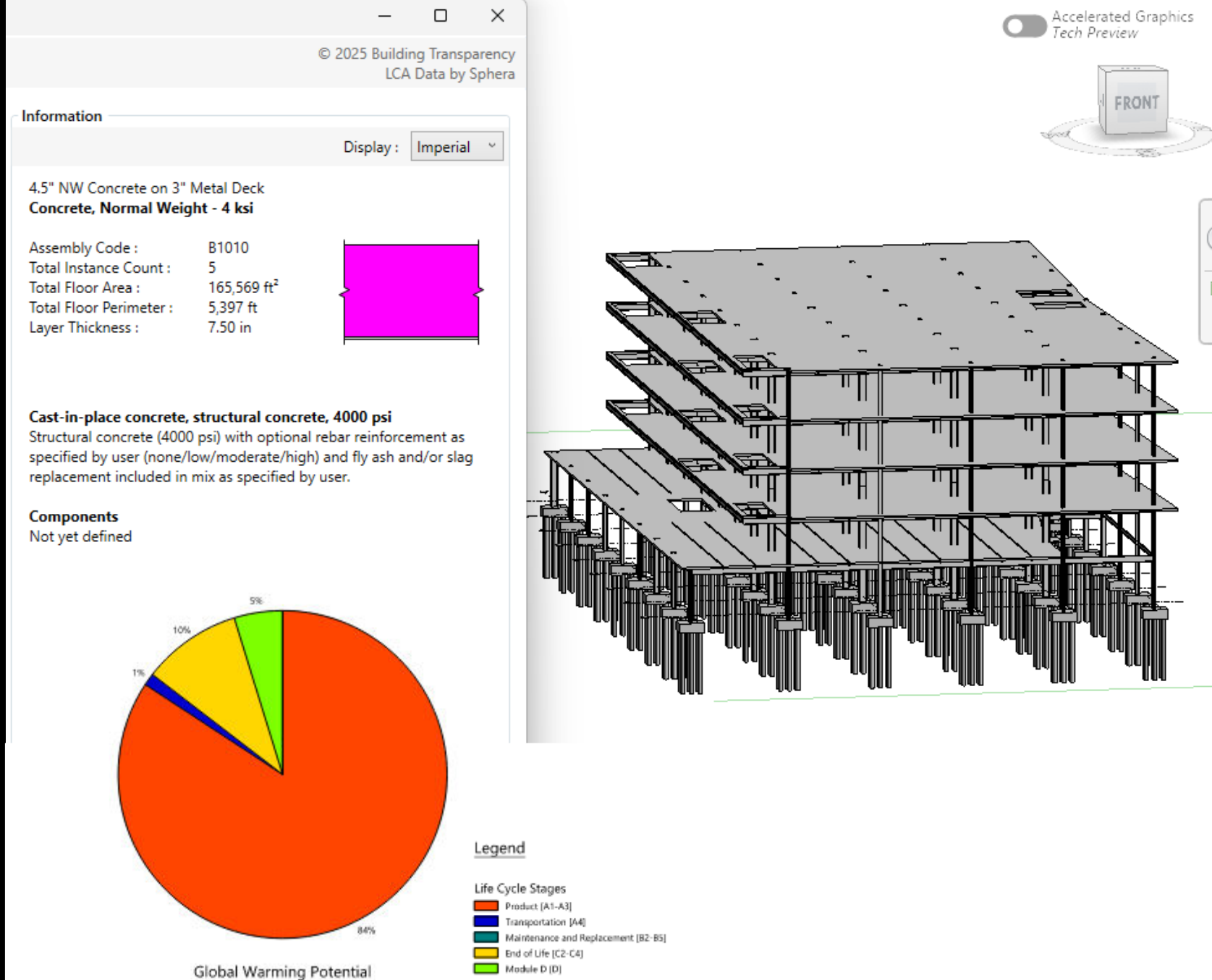
Tally™

Use of Tally™ for late phase design analysis or whole building lifecycle assessment (WLBCA) design option comparisons is planned for a minimum of 2 projects in 2026.



Data from our annual embodied carbon observations and lifecycle assessments results will be used to establish future criteria for our tracking process, including calculating our firm average benchmark.

In mid-2026, presentations will be given to technical staff on SE 2050 annual report findings and communicate lessons learned. A live demonstration of Dynamo and the ECOM tool for quick, approximate global warming potential calculations for ease of use by all structural engineers will be conducted. Tally™ will also be introduced to the structural team as a design assessment tool throughout project phases.



Elective Documentation

1

During early design, the structural team will advocate to assess and select materials with reduced global warming potentials. For example, design options that prioritize brace frames over moment frames, may result in reduced embodied carbon.

2

Proposal language will be developed and used to reflect SE 2050 and the priority to reduce embodied carbon within structural designs.

3

Gresham Smith employee portal page will be updated with recent resources describing how to incorporate lifecycle assessments to reduce embodied carbon emissions.

4

Gresham Smith will identify a repeatable process to simply explain to clients the associated embodied carbon of each structural material to inform final selection.

5

Gresham Smith will determine the embodied carbon average by one or more project types.

6

Gresham Smith structural engineers will update concrete and steel specifications to reduce embodied carbon while meeting project performance criteria.



Lessons Learned

Research on structural systems and processes in 2025 found to contribute to reduced embodied carbon include:

- Use of an efficient system: 30-foot spans with camber, one-way composite slab design
- Braced frames versus moment frames
- Considerate of maximum span for unshored deck or composite slab – beam spacing
- Provide grade 65 steel in high demand areas
- Standardize steel shapes and connections to reduce waste
- For clients focused on embodied carbon, prefer steel mills with published environmental product declarations to inform lifecycle assessments
- Use bolted over welded connections for ease of future reuse
- Calculate all superimposed dead loads – live load reductions to avoid conservative designs
- Consider modular assemblies for mechanical system openings (e.g., Simpson quick frames)

