SE 2050 ECAP Submission Form (No PDF)

Email *

bwhitehurst@clarknexsen.com

Firm Name *

Clark Nexsen, A JMT Company

Education

The first step to increased engagement within your firm is through education. We all should strive to understand the impacts of our design decisions and their effects on our environment.

Distribute firm-wide announcement of your firm's pledge to join the SE 2050 Commitment. *

- (●) Completed
- ( ) Not Completed

Provide a brief narrative describing how your firm is promoting a firm-wide education program for embodied carbon reduction and the firm's commitment to SE 2050. *

Each year we engage a new set of our firm's structural engineers outside of our internal SE 2050 team to perform embodied carbon (EC) calculations to spread the knowledge, targeting new hires. Over this last year we presented two firm-wide presentations on "Architectural-Structural Coordination to Reduce Carbon in Structures" and "Engineering Team Coordination to Reduce Carbon in Structures," targeting architecture and all of our engineering disciplines. These webinars are recorded and made available to employees. Our Embodied Carbon Champion gives updates on the progress of our SE 2050 Commitment goals at our firm's monthly Sustainability Roundtable meeting, with Integrated Design leaders from each office represented. Through this past year she has presented to internal groups as well as to the Charlotte Chapter of the Professional Engineers of North Carolina on a "Sustainable Design Award Case Study" as well as "Navigating Deep Energy Retrofit Assessments." She also recently presented to AIA North Carolina on "Architectural-Structural Coordination to Reduce Carbon in Structures" with another member of the SEA of NC Sustainable Design Committee.

Name of Embodied Carbon Champion (Point Person) *

Bethany Whitehurst

Email of Embodied Carbon Champion *

bwhitehurst@clarknexsen.com

Phone number of Embodied Carbon Champion *

(704) 840-1383

LinkedIn URL

https://www.linkedin.com/in/bethany-whitehurst/

Set a date within the first year to present the “Embodied Carbon 101” Webinar to your firm. Incorporate this information into your orientation/on-boarding programs. *

- (●) Committed / Completed
- ( ) Not Committed / Not Completed

Minimum (1) additional elective to educate your firm about embodied carbon and a narrative of its significance. *

- (●) Committed / Completed
- ( ) Not Committed / Not Completed

ELECTIVES (Min. (1) required, recommended to achieve (4) per year): *

- [x] 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.
- [x] Share the SE 2050 library of resources with technical staff.
- [x] Share embodied carbon reduction strategies with your firm as outlined in Top 10 Carbon Reducing Actions for Structural Engineers document produced by SE 2050.
- [ ] Nominate a minimum of (1) employee per office to participate in a CLF Community Hub.
- [ ] Provide narrative outlining plans for minimum (2) firm-wide presentations per year on the topic of embodied carbon
- [ ] Present the document, “How to measure and report embodied carbon” to all technical staff.
- [ ] Attend a presentation or demo of an LCA-based tool used to calculate embodied carbon.
- [x] Initiate an embodied carbon interest group within your firm and provide a narrative of their goals.
- [ ] Provide a narrative of how the Embodied Carbon Reduction Champion will engage embodied carbon reduction at each office. (intended for multi-office firms)
- [x] Other actions you feel appropriate and a narrative for why.

Elective Narrative (Optional):

Over this last year, our Embodied Carbon Champion presented to the Sustainable Design Committee of the Structural Engineers Association of North Carolina on tracing steel EPDs. The research from this meeting was shared with NCSEA Sustainable Design Committee members. Our Embodied Carbon Champion attends the SE 2050 quarterly meetings with one of our SE 2050 team members who is part of SEI's SE 2050 Sustainability Committee. As Clark Nexsen recently merged with JMT, our first steps will be to present to JMT's leadership about our embodied carbon commitments as well as to their structural engineers on SE 2050.

Clark Nexsen's Sustainability Roundtable was formed as a sustainable design interest group with firm employees. The goals of the Clark Nexsen Sustainability Roundtable are to:
•Create a sense of community around sustainability and industry commitments, including AIA 2030, Architecture 2030, MEP 2040, and SE 2050.
•Provide a forum for discussion about sustainability topics, including Red List materials, renewable energy, embodied carbon, operational carbon, and reporting.
•Educate firm professionals on emerging technology and software available to aid in sustainable design efforts such as energy savings, embodied carbon reduction, and alternative water.
•Develop in-house systems and tools to reduce the environmental impact of designs through collaboration, education, and iterative evaluation of best practices.

Reporting

Quality data is essential to making informed decisions and setting important benchmarks and the development of appropriate embodied carbon reduction targets. The SE 2050 database is a central component to building a successful Commitment Program and reaching our collective embodied carbon reduction goals by 2050.

Submit an annual minimum of (2) projects per U.S structural office or (5) total projects for the firm to the SE 2050 Database. *

- (●) Completed
- ( ) Committed and on track
- ( ) Need help reaching this target
- ( ) Not Completed

Number of Projects Reported Last Year (zero in first year)

4

Number of Offices Reporting Last Year (zero in first year)

2

Provide a narrative on how your firm plans to measure, track, and report embodied carbon data. *

Clark Nexsen continues to measure embodied carbon (EC) for structural materials across a targeted set of design projects. Our EC workflow primarily leverages Tally (a Revit plug-in) to quantify modeled material quantities and calculate baseline embodied carbon impacts. When appropriate, hand calculations and spreadsheet checks are used to validate quantities and confirm that results are reasonable for the building type and structural system. Our team used the SE 2050 published spreadsheet reporting tool to document project data and provide detailed material quantity breakdowns where possible. This data is tracked for us on the SE 2050 website where we can compare data across projects.

Describe the internal training for embodied carbon measurement you provided or will provide. *

We strengthened collaboration between the internal SE 2050 team and Clark Nexsen's sustainability coordinators to discuss life cycle assessment in projects already pursuing green certification. Over the past year, we delivered two firm-wide presentations introducing embodied carbon data to both architectural and multi-discipline engineering teams. In addition, we trained newly hired structural engineers to measure and report embodied carbon data.

ELECTIVES (Not required, recommended to achieve (1) per year):

- [ ] Submit all projects to the SE 2050 Database
- [x] Meet your target average embodied carbon reduction from the previous year.
- [ ] Report a greater percentage of projects than the preceding year.
- [ ] 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.
- [x] Other actions you feel appropriate and a narrative for why.

Elective Narrative (Optional):

We achieved our target for average embodied carbon reduction compared to the previous year, while continuing to collect data to refine and monitor our firmwide benchmark. Although variation remains across projects of different types and scales, we prioritized reducing embodied carbon in several projects this year by emphasizing simple, efficient framing strategies.

Embodied Carbon Reduction Strategies

Embodied carbon reduction of structural materials is the ultimate goal of the SE 2050 program. As a starting point, you will have access to the SE 2050 project database and Program resources to identify and set strategies. This section also serves to share lessons learned and incite innovation. Demonstrate leadership by not only applying, but developing best practices and actively collaborating with the design community. This is our profession's opportunity to take action and make an impact.

Set an EC reduction goal for the coming year and an implementation narrative (Qualitative goals focused on education are appropriate for the first year) *

For 2026, our goal is to select certain projects at the beginning design stages and assign them an embodied carbon target, based on our previous project data and SE 2050 database. These projects can be tracked through design evolution, with their estimated embodied carbon evaluated at different design stages. We can track design decisions or changes that may impact the embodied carbon of the project. Upon completion, we perform the final carbon calculation and compare it to our initial target. A review can be performed to learn how we were able (or unable) to meet the target.

For second year’s ECAP and beyond, provide a narrative about what you have learned about embodied carbon reduction in the past year. Describe successes and misses to help the program improve.

We've found that true embodied carbon reduction is difficult to track and assess. Design decisions on materials, specifications, and material efficiency are relatively easy to incorporate into a project, as they are very similar to the typical design process. Determining and documenting actual embodied carbon values is more difficult, requiring accurate modeling and detailed quantity take-offs in order to assign the proper embodied carbon values to each item. We also rely on EPDs that may be industry-wide and not reflective of the material used on the project. Obtaining detailed quantity information from the construction contractor has been another challenge.

Minimum (1) additional elective to educate your firm about embodied carbon and a narrative of its significance. *

- (●) Committed / Completed
- ( ) Not Committed / Not Completed

ELECTIVES (Min. (1) required, recommended to achieve (4) per year): *

- [ ] Incorporate data visualization into your ECAP. How are you looking at data to make informed design decisions and communicate design options to your clients?
- [ ] Provide a project case study in your ECAP that captures a reduction of embodied carbon or some lessons learned.
- [ ] Create a project-specific embodied carbon reduction plan.
- [ ] Complete a system embodied carbon design comparison study during the project concept phase.
- [x] Participate in a project LEED design charrette and speak to potential design considerations impacting embodied carbon.
- [x] Calculate your firm average benchmark for embodied carbon.
- [x] Update your specifications and incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.
- [ ] Collaborate with your concrete supplier to reduce embodied carbon in a mix design.
- [ ] Work with a contractor during material procurement to meet an embodied carbon performance criteria on at least (1) project.
- [ ] Have an Environmental Product Declaration (EPD) created as a result of a project.
- [x] Incorporate biogenic materials on at least one project annually.
- [ ] Provide a narrative of how circular economy has been used on your projects. Incorporate re-use or design for deconstruction into at least one project.
- [ ] Quantify construction waste reduction on a project and the impact to embodied carbon.
- [ ] Integrate embodied carbon mitigation strategies in your General Notes.
- [ ] Other actions you feel appropriate and a narrative for why.

Elective Narrative (Optional):

We continue to gather data to update and track our firm benchmark for embodied carbon. While there is still significant variation between projects of different types and sizes, we focused on reducing embodied carbon in several projects this year with simple, regular framing. These projects were able to use materials efficiently for their main structural systems, and did not require supplemental framing for architectural elements. These types of projects are also more suited for an accurate determination of materials and embodied carbon values. Performing embodied carbon calculations on these simpler projects provides us with good embodied carbon density values, and provides lessons to be applied to more complex projects.

Advocacy

True change can only come with industry-wide adoption. This section recognizes that our impact reaches beyond any one firm. Plan opportunities to share your experience and knowledge within your firm, with your design community, and beyond. Host a webinar or lunch ‘n learn, attend a conference, connect with the SEI Sustainability Committee, or reach out to manufacturers and policy-makers.

Provide a narrative about how you plan to share knowledge and data to accelerate adoption of embodied carbon reduction. *

We plan to support embodied carbon reduction by sharing project data and lessons learned with our internal Sustainability Roundtable. Data submitted to the SE 2050 database will help us compare structural systems, build benchmarks, and identify strategies that can be used earlier in design. Within the firm, we will share what we learn through presentations, project examples, and team discussions so embodied carbon becomes part of everyday design thinking. Outside the firm, our engineers will continue giving presentations and sharing practical lessons with industry peers to help build confidence in low-carbon design.

Describe the value of SE 2050 to clients. How can we collaborate to drive adoption? At your option, attach any associated marketing materials. *

As a signatory to the Architecture 2030, MEP 2040, and SE 2050 commitments, we see value in helping clients better understand how structural decisions affect the overall carbon impact of a project. We encourage our project managers and sustainability consultants to discuss embodied carbon early in design with owners. We also publish our Embodied Carbon Action Plan on our website. The hope is that teams can study practical options, make more informed design decisions, and support broader sustainability goals. We share our project experience internally and externally through presentations and contribute data to the SE 2050 database.

Optional: Upload any documents you would like to exhibit.

Add file

Declare your firm as a member of the SE 2050 commitment on boilerplate proposal language. *

- (●) Committed / Completed
- ( ) Not Committed / Not Completed

ELECTIVES (Not required, recommended to achieve (2) per year):

- [x] Share your commitment to SE 2050 on your company website
- [x] Give an external presentation on embodied carbon that demonstrates a project success or lessons learned (Tip: Get connected at a CLF local hub near you!)
- [ ] Discuss with the Owner / Client the option of requiring that some of the structural materials come with facility-specific or product-specific EPDs
- [ ] Share education opportunities with clients
- [ ] Provide a narrative of how you have encouraged industry and policy change incentivizing availability of low-carbon and carbon sequestration materials
- [x] Start an embodied carbon community of practice or mentorship program in your office
- [x] Mentor a firm new to the embodied carbon space
- [ ] Other action you feel appropriate and a narrative for why.

Elective Narrative (Optional):

Our firm continues to advance SE 2050 through public commitments, external engagement, internal knowledge sharing, and mentorship of new hires. We share our commitment on our website, our engineers give external presentations on embodied carbon and project lessons learned, and we encourage our sustainability leads to have discussions with clients about building life cycle assessment and the use of product-specific EPDs. Within our structural group, we have continued building internal knowledge by training team members who had not previously performed life cycle assessment work, helping them become more comfortable with the tools, process, and use of carbon data in design discussions. We also maintain an internal community of practice to share ideas, project experience, and practical reduction strategies. We have supported firms that are newer to embodied carbon work by sharing lessons learned and helping broaden adoption across the industry through mentoring and through participation in sustainable design committees with NCSEA and SEI.

Program Feedback

Please add any comments that you wish to share publicly. The Program Leadership Group is committed to transparently improving SE 2050.

Comments:

1. We would appreciate if SE 2050 could publish more plug-and-play tools for project teams, such as example specification language, and simple early-phase comparison templates that firms can use without building everything from scratch.

2. It would be helpful if SE 2050 shared examples of successful owner conversations so engineers have better ways to introduce embodied carbon without making it feel overly technical.

3. From the data entered into the SE 2050 Database, it would also help if SE 2050 could develop region-specific guidance.