

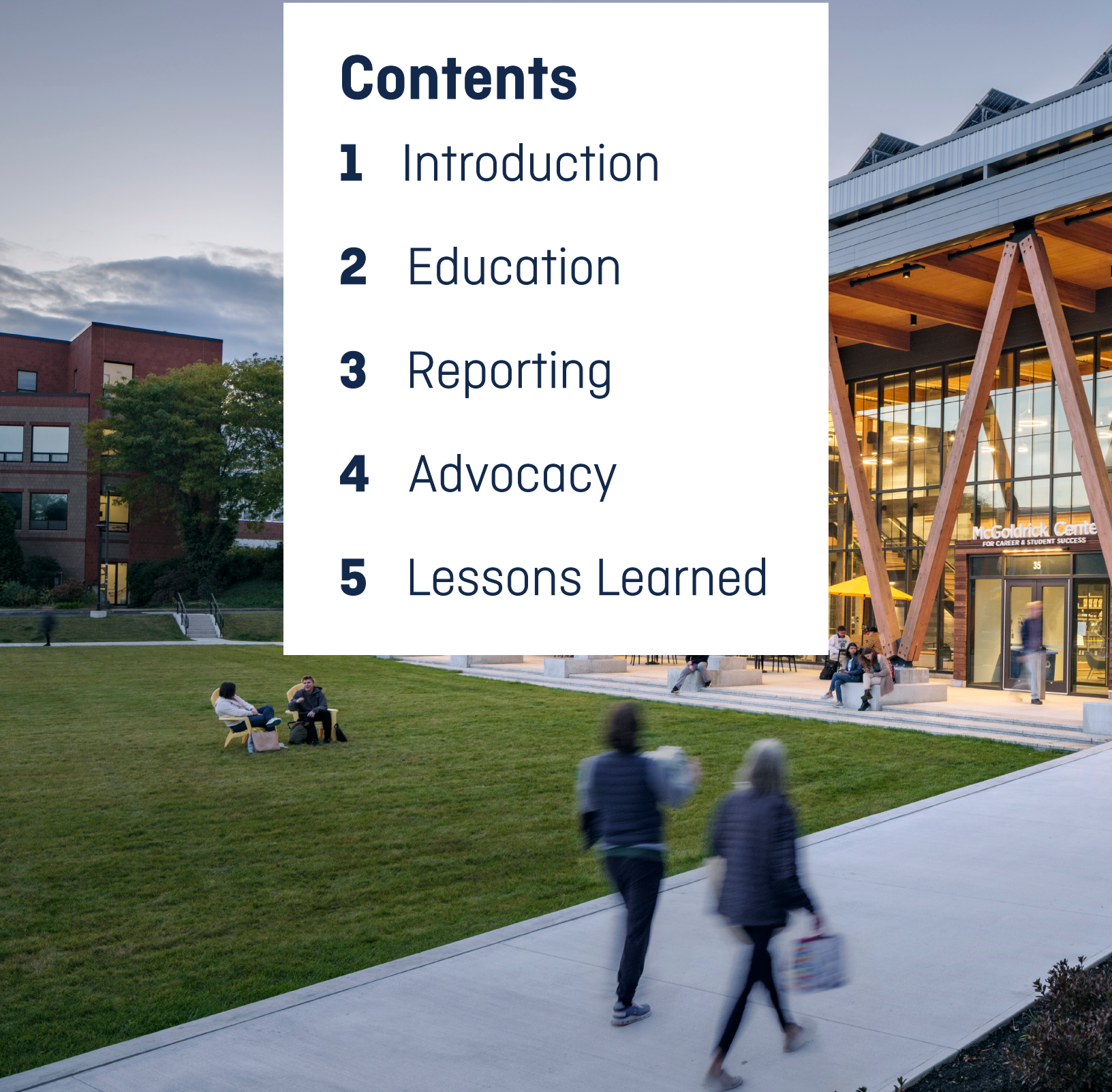
Embodied Carbon Action Plan

SMRT

2026

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1. Introduction

At SMRT Architects & Engineers, we see it as our professional responsibility as designers to create a zero-carbon, healthy, just, resilient, and equitable built environment. The need for meaningful, immediate action to reduce carbon emissions on our projects has never been more apparent. As a collaborative, full-service A/E firm we are committed to continually working towards a solution to tackle this challenge, recognizing that we must be an active participant in our collective community to help drive the industry towards carbon neutral solutions.

As proud signatories of the SE 2050 Commitment, we are committed to pushing ourselves to make meaningful impacts, advocate for progress, develop new low-carbon solutions, and achieving net zero carbon structures by 2050. This imperative is critical to reducing greenhouse gas emissions and limiting global warming to 1.5°C – with the ultimate goal to create harmony between environmental quality and human health and wellbeing.

To meet these goals and support SE 2050 commitment, we are focused on several key initiatives:

- Implementing carbon assessment tools to track and reduce embodied carbon throughout the design and construction process.
- Exploring low-carbon material options and collaborating with industry partners to drive sustainable innovation.
- Educating our teams through continuous learning, training programs, and cross-discipline collaboration to promote carbon-conscious design.
- Engaging clients to integrate carbon reduction goals into project objectives, encouraging thoughtful decision-making across all phases of design.
- Monitoring and refining our strategies to ensure that we stay on track toward achieving our carbon reduction targets.

By integrating these steps into our design practice, SMRT is fully committed to playing an active role in the global movement towards decarbonization and creating a better, healthier future for all.

See our SE 2050 Update:





10/19/2024

Laura Champion, Director
Structural Engineering Institute

LETTER OF COMMITMENT TO THE SE 2050 PROGRAM

Dear Laura,

As a full-service architecture and engineering firm, SMRT, Inc. is proud to reaffirm our commitment to the SE 2050 Program. We recognize the urgent need to reduce and eliminate embodied carbon from our projects by 2050.

While we have long championed operational carbon reductions, we are increasingly focused on the growing significance of embodied carbon in the built environment. We remain committed to integrating low-carbon materials and methods into our designs and to educating our clients and partners on the critical importance of embodied carbon reduction.

As part of our ongoing participation in the SE 2050 Program, SMRT reaffirms the following commitments:

- We will continue to update and publish our Embodied Carbon Action Plan (ECAP) annually, ensuring it remains publicly accessible.
- We will continue to submit project data to the SE 2050 database each year and contribute to establishing embodied carbon benchmarks for structural projects.
- We will actively engage with our clients and partners to raise awareness about the importance of embodied carbon reduction and promote collaborative approaches that drive systemic change across the design and construction industry.

As structural engineers and sustainability leaders, we recognize that the future of our profession is deeply intertwined with the need to reduce carbon emissions. We remain fully committed to the vision of the SE 2050 Program and will continue to align our practices with its ambitious goals. Together, we can pave the way toward a more sustainable and resilient built environment.

Andrew D. Bradley, PE
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Bradley R. Baker, AIA, CPHD
Associate Principal, Sustainability Leader
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SMRT's SE 2050
commitment letter
(2024)

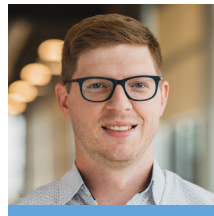
Our Carbon Team

At SMRT, our SE 2050 commitment is driven by a dedicated team of professionals who are passionate about advancing carbon reduction efforts across all aspects of our practice. Led by Brad Baker, SMRT's Sustainability Leader, and supported by Nicholas Tibbets and Zeb Pease as Carbon Champions, this team plays a critical role in ensuring we meet our ambitious carbon reduction goals.

This team has been instrumental in the development and refinement of our carbon modeling and benchmarking processes. The group is currently focused on:

- Developing and refining our carbon modeling workflow.
- Identifying common embodied carbon hotspots in structural elements to inform early designs.
- Establishing internal benchmarks for use in early design phases to guide low-carbon decision-making.
- Advocating for carbon reduction within the firm through educational sessions and sharing lessons learned from projects.
- Driving adoption of embodied carbon modeling on projects and supporting project teams in their impact reduction measures.

Our team operates across our four office locations ensuring that every project, regardless of location, aligns with our sustainability objectives. By working together across multiple offices and disciplines, we leverage the collective expertise of our firm to push forward our commitment to carbon reduction and help lead the industry toward a more sustainable future.



Brad Baker AIA, CPHD

Sustainability Leader
Principal, Senior Architect



Chuck Dudas PE, LEED AP, CPHC

Sustainability Leader
Associate Principal, Senior Mechanical Engineer



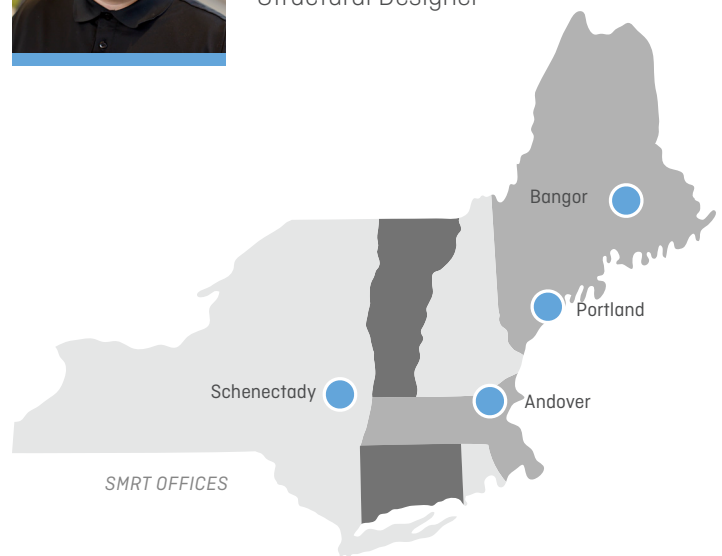
Zeb Pease EI

Carbon Champion
Structural Designer



Nicholas Tibbets EI

Carbon Champion
Structural Designer





2. Education

At SMRT Architects & Engineers, we are committed to being a Learning Organization, recognizing that continuous professional development is essential to the success of our projects, our clients, and our people. Whether through our virtual, firm-wide SMARter Sessions, bi-annual Together Day, or our Intern Development Program, we continually seek to expand our knowledge, improve our practices, and share insights across the firm.

Education is central to achieving our SE 2050 carbon reduction goals. By equipping our staff with the tools and knowledge to make carbon-conscious decisions, we foster a culture that promotes sustainable design at every level. We believe that the sharing and acquisition of knowledge will empower us to develop low-carbon solutions and push our industry toward achieving net-zero carbon by 2050.

Our carbon team has made measurable progress in building the internal infrastructure for embodied carbon practice. We have developed our embodied carbon workflow, created reporting dashboards to track project performance, and established reduction strategies that are shared across project teams. Reference documents for our workflow and practice guide are in development, with materials being incorporated into our staff onboarding process.

Looking ahead, our education efforts are focused on consistent, accessible knowledge-sharing: monthly structural meeting presentations on embodied carbon topics, a dedicated sustainability section on our internal platform documenting workflows and resources, and blog content to follow our SE 2050 submission and keep the broader conversation active.

Carbon Champions

Achieving our carbon reduction goals relies on empowering Carbon Champions within our firm, leaders who advocate for sustainable practices and drive carbon-conscious design. SMRT is proud to have Nicholas Tibbets and Zeb Pease from our structural group as Carbon Champions. They work alongside Brad Baker, SMRT's Sustainability Leader, to promote carbon reduction across all disciplines. Nicholas and Zeb play pivotal roles in developing our carbon modeling workflow, which helps identify carbon hotspots and track reductions. They also contribute by regularly addressing the structural department in monthly discipline meetings, sharing insights, educational resources, and lessons learned, while providing updates on our firm's carbon performance and goals.



Internal Knowledge Sharing

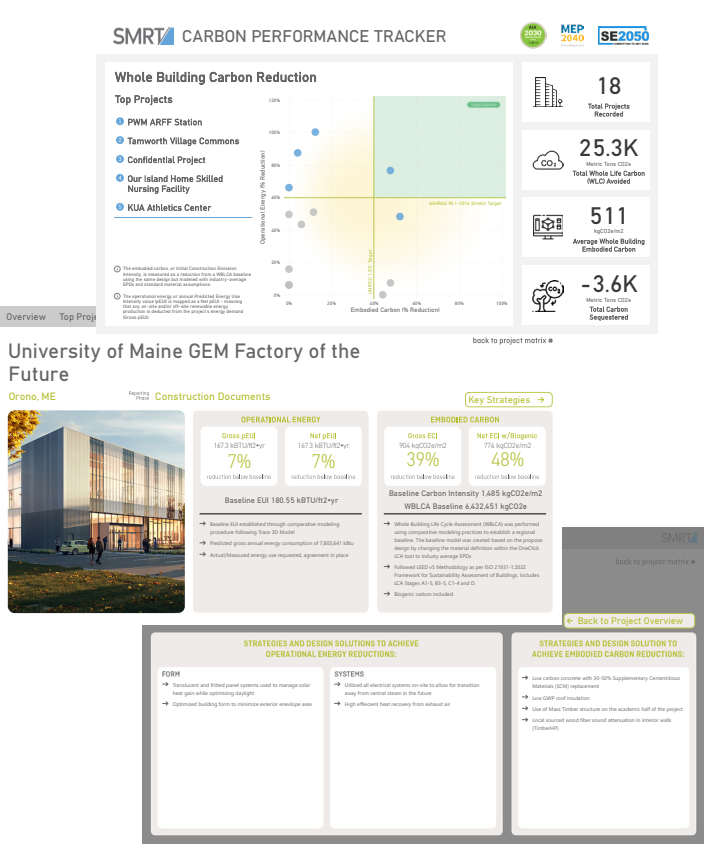
A crucial part of this commitment is ensuring our structural engineers, and extended design teams, are equipped with the knowledge and tools they need to design responsibly. SMRT provides training and educational opportunities in several ways:

- **SMaRter Sessions & Together Day:** Our firm-wide SMaRter Sessions offer monthly virtual presentations on sustainability topics, with all sessions AIA-accredited and recorded for ongoing access. Together Day, held bi-annually, brings the full firm together for a focused day of learning from both internal and external experts.
- **Structural Discipline Meetings:** Our carbon team engages the structural department during monthly discipline meetings to share lessons learned, discuss project-specific opportunities, and keep embodied carbon reduction active in day-to-day practice. These touchpoints create consistent visibility for carbon performance across the structural group.
- **SMRT Intranet (Calvin):** Calvin serves as a central hub for tools, resources, and knowledge-sharing across the firm, including blog posts that translate technical carbon topics into accessible guidance for project teams. Upcoming posts will cover subjects including biogenic carbon, SE 2050 metrics, the social cost of carbon, and key strategies for reducing embodied carbon.
- **Carbon Dashboards:** We have developed dashboards for tracking embodied carbon across structural systems, as well as whole-building and operational carbon breakdowns. These tools are used to display project metrics, share reduction strategies, and build awareness of carbon performance across disciplines.

External Training

Keeping pace with an evolving field requires engagement beyond the firm. Each year, team members attend conferences including GreenBuild, Mass Timber+, and the SE 2050 Signatory Summit, along with targeted webinars and training sessions aligned with our carbon reduction goals.

Insights from these engagements are brought back and shared across disciplines, feeding directly into project practice and firm-wide knowledge. As new tools, materials, and methods emerge, this ongoing external participation ensures our teams are applying current thinking to every project.



Above: Custom dashboards displayed throughout our office displays and Calvin provide an overview of firm performance as well as detailed information and strategies used by specific projects.

3. Reporting

SMRT is committed to using the most advanced tools and methodologies to accurately track and reduce embodied carbon across our projects. We rely on this data to guide important discussions and decisions within our project teams, ensuring that carbon reduction is embedded in every phase of design. In line with our SE 2050 Commitment, we are dedicated to regularly submitting our structural life cycle assessments (LCAs) to the SE 2050 database, contributing to industry-wide knowledge and advancing best practices in carbon-conscious design. By sharing our findings with clients, the design community, and the public, we aim to promote transparency and collaboration in achieving the collective goal of carbon-neutral buildings by 2050.

SE 2050 Reporting Plan

We have set a goal of submitted at least five (5), but commit to a minimum of two (2), structural life cycle assessments (LCAs) to the SE 2050 Database, providing valuable insights into our embodied carbon performance. The LCA scope will include A-D, including biogenic carbon when applicable, and be measured at various phases of design.

- **Conceptual/Schematic Design:** Utilize order of magnitude quantities based on building mass to compare the different structural schemes, their carbon impacts, and identify hotspots
- **Design Development:** Perform actual material take-offs from structural models to develop a baseline case and design case. Use these explore opportunities for further carbon reduction through design and procurement.
- **Construction Documents:** Update quantities and EPDs of previous model to reflect the as-designed case.
- **Construction Administration:** Use modeling to determine impacts of substitutions and change-orders before their approval. At the completion of construction, provide a revised carbon model to include the as-built case.





4. Advocacy

At SMRT, we believe that a strong knowledge base is key to empowering our project teams to design high-performance, sustainable buildings. By sharing knowledge and data, we enable informed decision-making and ensure that carbon reduction remains a priority.

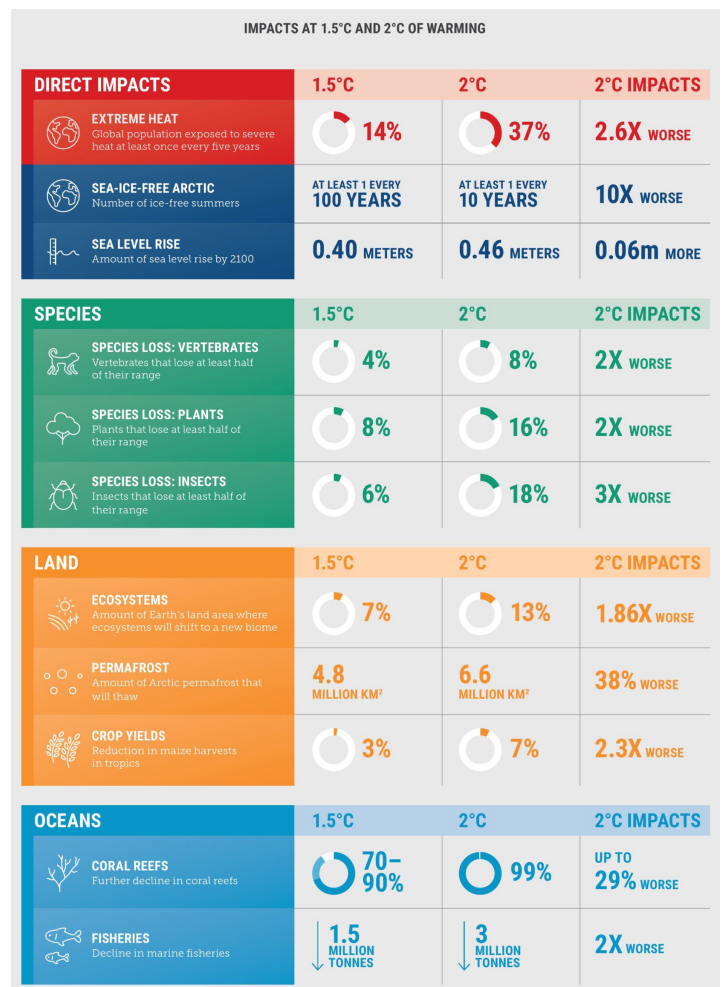
Each client and project comes with unique sustainability goals, and SMRT is committed to educating our clients on the role of embodied carbon. At the start of every major project, we discuss embodied carbon consideration and the social cost of carbon with our clients, as well as outline our commitments to initiatives like SE2050 with our design teams. We encourage our design teams and clients to make informed decisions that consider the full building lifecycle and its social and environmental impacts. Our advocacy extends to promoting low-carbon materials, high recycled content, and waste reduction strategies.

As active participants in the Northeastern Carbon Leadership Forum (CLF), our team engages in monthly meetings and sub-committee discussions focused on low-carbon materials. These conversations connect us with structural engineers and design professionals working through the same challenges, and the insights we gain are applied directly to our projects and shared across the firm.

We also extend this work into the communities we serve. Through participation in the Maine Climate Council's Buildings, Infrastructure, and Housing Working Group and the Maine Deconstruction Committee, we contribute our knowledge of embodied carbon and environmental sustainability to help inform policy and support the development of actionable strategies at a broader scale.

Through all of these engagements, we continue to share insights with our teams and integrate lessons learned into our projects, helping to advance carbon-conscious design both within SMRT and across the industry.

By advocating for carbon-conscious design, both with clients and within the industry, we aim to lead the way in creating a sustainable future and meeting the goals of SE 2050.



The difference in projected climate impacts between 1.5°C and 2°C of warming. **Source:** IPCC 2018 Report



5. Lessons Learned

Every project presents an opportunity to learn, improve, and grow. As we deepen our commitment to reducing embodied carbon, each design allows us to refine our methods and apply new insights. We approach every project as a chance to expand our understanding and bring forward the lessons learned to future work. This continuous improvement not only strengthens our ability to meet carbon reduction goals but also enhances our collaboration with clients, contractors, and the broader industry.

Our commitment to learning and applying the latest strategies in sustainable design is central to our work. Through this process, we ensure that each project is a step forward in reducing carbon emissions and contributing to a healthier, sustainable built environment.

Our experience with embodied carbon modeling as part of the SE 2050 Commitment has provided valuable insights into reducing carbon emissions in structural design. We've consistently identified structural components, such as floor and roof systems or reinforced concrete, as major contributors to the global warming potential (GWP) of a building. This understanding has led us to work directly with concrete suppliers to optimize mix designs by incorporating low-carbon supplementary cementitious materials.

Where a material or system falls outside our core expertise, we seek design assistance from external consultants. Partnerships with organizations such as WoodWorks allow us to explore lower-carbon structural options with greater confidence, and to bring those solutions to clients in a meaningful way. Engaging at this level helps move the broader industry forward, one project at a time.

Every project adds to what we know. Across our SE 2050 work, a few consistent themes have emerged that shape how we think about the path forward.

- Expanding carbon literacy across the broader project team remains one of the most important

factors in adoption. When structural engineers, architects, and project managers share a working understanding of embodied carbon, the conversations with clients become more productive and the design decisions more informed.

- Without enacted policy or incentive programs, connecting carbon reduction to measurable value is a persistent challenge. Clients focused on lowest-cost outcomes need a clearer case for why these decisions matter, and our role is to help build that case early and specifically.
- Contractor and subcontractor engagement is equally critical, particularly in regions outside major metropolitan areas where limited experience with lower-carbon materials and methods can lead to inflated cost estimates and hesitation. The more we can bring these conversations upstream, the more manageable the transition becomes.

We will revisit and revise this Embodied Carbon Action Plan annually, incorporating new data, project experience, and lessons learned as our practice continues to develop.





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