

2025

Embodied Carbon Action Plan



STRUCTURAL
ENGINEERING
INSTITUTE



BVE
established 1971

Palomar Maintenance & Operations Building, San Marcos, CA
Zero-Net Energy | LEED Platinum

Executive Overview



BWE is proud to be committed to the SE2050 movement with the goal of reducing and ultimately eliminating embodied carbon from our projects by 2050. As we observe the increasingly detrimental effects of climate change in everyday life, we are motivated to do what we can as structural engineers to strive for net zero carbon emissions, preserving a sustainable and habitable environment for generations to come.

Since 1971, we have completed over 14,000 projects throughout the Southern California region and beyond. Throughout that time, we have focused on sustainable structural designs, oftentimes with client goals in mind, such as meeting LEED certification requirements at all rating levels, including LEED Platinum.

Joining SE2050 has empowered us to make our own embodied carbon reduction goals and implement them on all of our projects going forward. After joining the movement in 2024, we are in our 2nd year of the program and are already seeing tangible results from the changes we have made. We look forward to continuing to contribute to the industry-wide effort of striving for net-zero embodied carbon in our structural systems.

53

YEARS IN
BUSINESS

37

FIRM'S
TOTAL STAFF

14

FIRM'S
STRUCTURAL STAFF



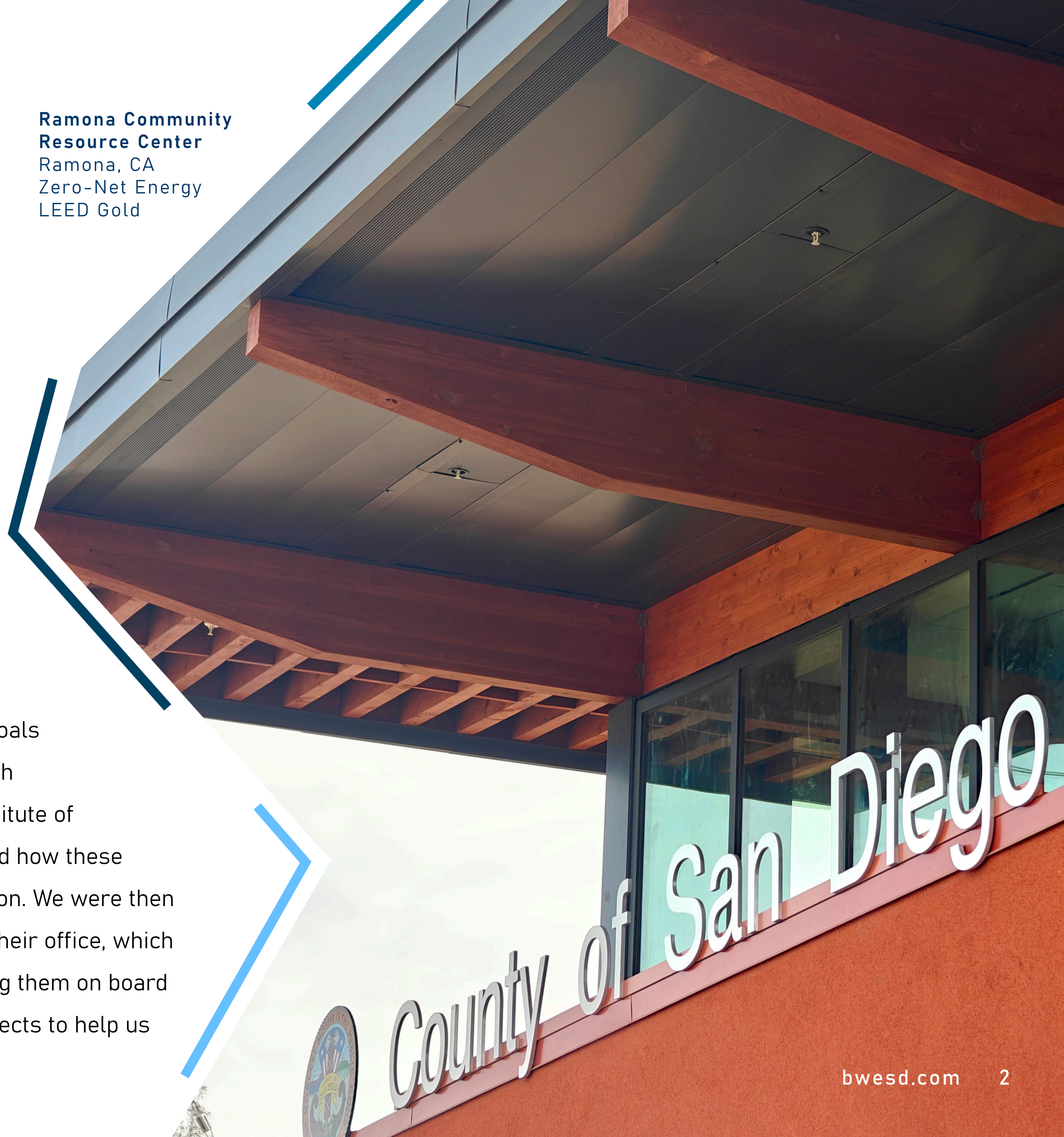
MARA CORDON, SE
2025 Embodied Carbon Champion

Education Plan

At our firm, Structural Engineering leadership actively mentor staff on SE2050 goals during monthly meetings, ensuring all team members— from Principals to interns—are involved in data collection and sustainability initiatives. Each year, we provide staff with updated educational materials on sustainability, distributed through the SE2050 Microsoft Teams channel within our firm. Viewing a webinar about the basics of embodied carbon is part of our on-boarding process for all new employees. In the past year, we have formed an embodied carbon interest group within the structural department to discuss sustainability goals and strategies to implement them.

We have made it a goal to also extend our efforts beyond the firm by delivering targeted presentations to our project partners, raising awareness of sustainability goals and strategies for reducing embodied carbon. Our most recent collaboration was with the California Nevada Cement Association, where we presented to the American Institute of Architects (AIA) of San Diego on “Sustainability Innovations in Concrete” and explored how these innovations contribute to specifying concrete mix designs with lower embodied carbon. We were then asked by one of our architect clients in attendance to give a similar presentation to their office, which we did to further spread the message. By engaging architects and owners and getting them on board with sustainable structural design, we are enabling the decision-makers on our projects to help us pave the path forward toward carbon neutrality.

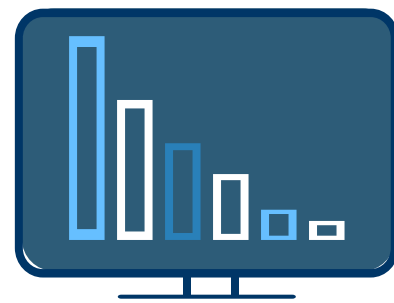
**Ramona Community
Resource Center**
Ramona, CA
Zero-Net Energy
LEED Gold



Advocacy



In 2024, we completed our first year as a SE2050 signatory firm. BWE remains committed to building decarbonization and furthering our role in a sustainable future through two key methods. Using these methods, we advocate for driving collective action toward achieving net-zero by 2050.



COMMITMENT TO THE DESIGN

Our sustainable solutions prioritize the use of performance-based concrete mix designs and minimization of building materials through efficient design. When working with a client, we align sustainable options with cost objectives to demonstrate how embodied carbon reduction is also an effective and impactful method of design.



ENGAGE & COLLABORATE

Our 2024 Embodied Carbon Champion delivered a presentation to architects on “Sustainability Innovations in Concrete,” highlighting how these innovations play a key role in specifying concrete mix designs with reduced embodied carbon. By engaging with clients throughout the life of each project, we have been able to effectively advocate for SE2050 and ensure our sustainability goals are understood by architect clients and owners.

BWE Embodied Carbon Champion, Mara Cordon, SE, onsite at the upcoming Kimball Highlands Clinic in National City, CA



Reduction Strategy

Embodied Carbon Reduction Goals

Our initial firm goal is a 5% overall reduction of embodied carbon for selected projects. This will be achieved by reducing the embodied carbon of our concrete mix designs a minimum of 10%. We have updated our concrete general notes to include a carbon budget with a minimum of a 10% GWP reduction of baseline GWP for concrete mix designs in the Southwest region as published by the NRMCA.

These efforts have already begun to pay dividends. Our engineers have learned how the amount and type of concrete used in a project significantly affects the amount of embodied carbon. Consequently, we have revamped our approach to concrete mix design requirements. We now use a performance-based design that allows for the use of more efficient and sustainable cementitious materials, such as Portland Limestone Cement (PLC), fly ash, and slag, to meet both strength and performance requirements. This approach gives contractors the flexibility to use the most efficient and sustainable mix available without being constrained by a maximum water to cement ratio on the structural drawings.

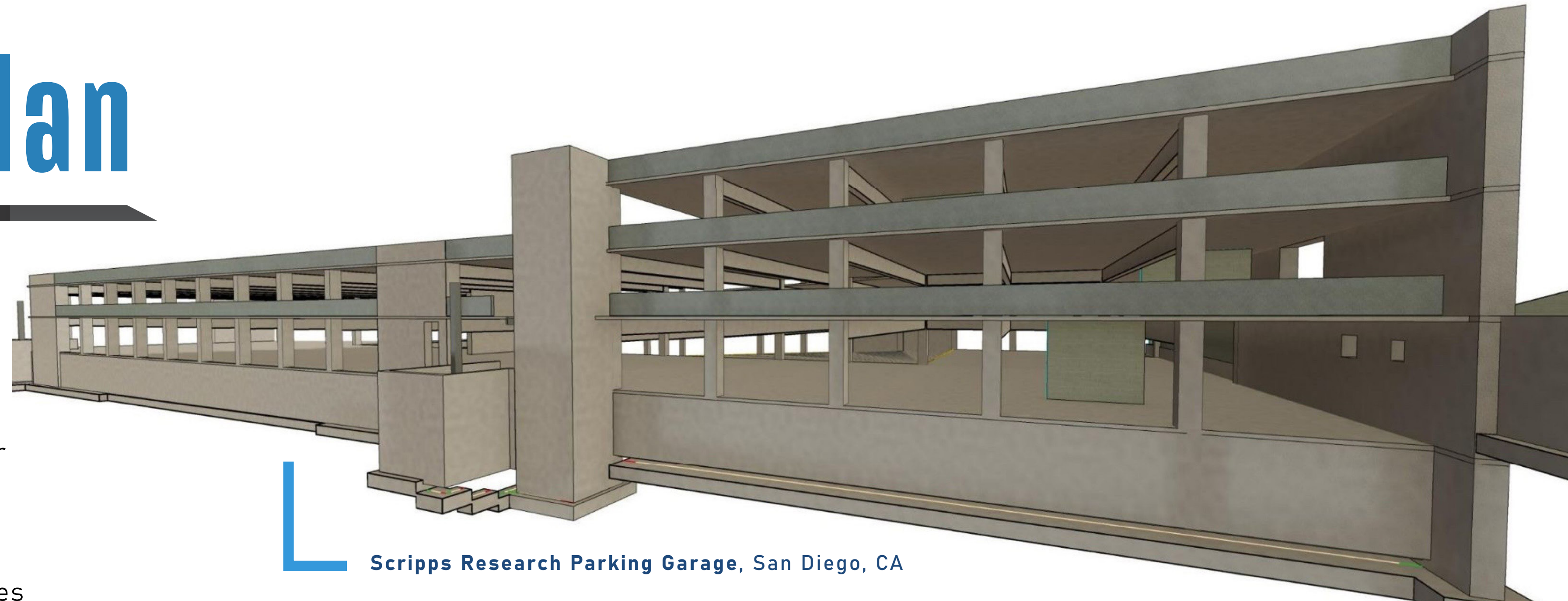
Our long-term goal includes tracking projects over the years to see how these methods have been able to reduce embodied carbon in our projects.

Makers Quarter Block D Office Building
San Diego, CA | LEED Platinum

Reporting Plan

EMBODIED CARBON DATA COLLECTION & ESTIMATION

We are using the Embodied Carbon Estimator tool to calculate the Embodied Carbon Order of Magnitude (ECOM) of our projects that are completed or in construction. This tool utilizes applicable industry-wide Environmental Product Declarations (EPDs) to estimate the amount of embodied carbon for a project. To facilitate the data collection and reporting process, we are utilizing schedules within our Revit template to track material quantities of modeled elements for all projects. As we gather more data through the years, we will make comparison charts that graph the total embodied carbon per project type to ensure we are reducing embodied carbon in our projects.



Scripps Research Parking Garage, San Diego, CA



Eastgate Terrace, San Diego, CA

Elective Documentation

LA Trade-Technical College,
Art & Culinary Arts Facility
Los Angeles, CA | LEED Silver



Education

Provide a narrative of how the Embodied Carbon Reduction Champion will engage embodied carbon reduction at each office. *(Required)*

Present at least (1) webinar on embodied carbon and make a recording available to employees. Include this resource in your orientation and on-boarding program. *(Required)*

Initiate an embodied carbon interest group within your firm and outline their goals.

Create an Embodied Carbon digital resource wiki and/or forum on your firm's internal website for staff to create, share, and discuss Embodied Carbon educational resources.



Reporting

Submit a minimum of (2) projects per U.S. office with structural engineering services to the SE2050 Database. *(Required)*

Include all structural material quantities in your submissions to the SE2050 Database.



Reduction

Set clearly stated, firm-wide reduction targets in the short-term (<1 year) and long-term (>5 years). *(Required)*

Update your specifications to incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.



Advocacy

Describe the value of SE2050 to clients. *(Required)*

Publicly declare your firm as a member of the SE2050 Commitment. *(Required)*

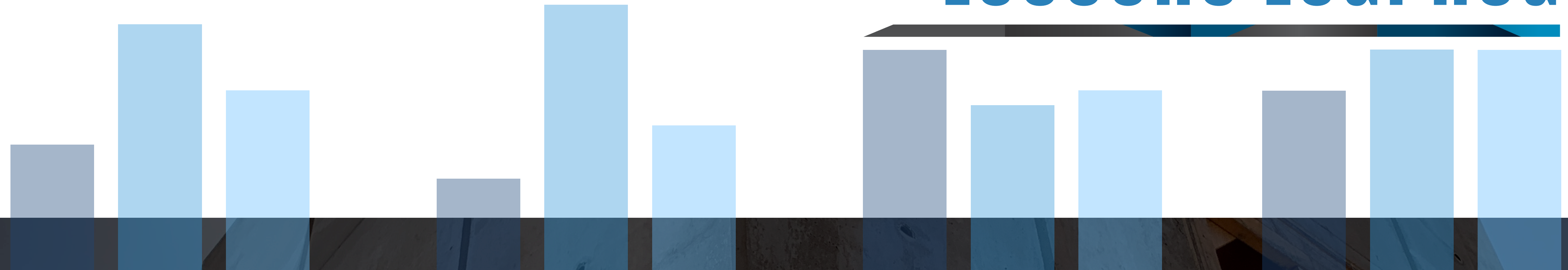
Give an external presentation on embodied carbon that demonstrates a project success or lessons learned.



2024

2025

Lessons Learned



PREPARATION COMMUNICATION COLLABORATION

Over the past year, we have learned from talking to representatives at CNCA and NRMCA how to implement performance-based concrete mix designs into our concrete general notes. We have also learned to set up our Revit models to be able to expediently report structural material quantities for us. These lessons learned in our first year in the program will help us going forward with meeting our embodied carbon reduction goals for the years to come.