SE 2050

EMBODIED CARBON ACTION PLAN

August 2023

COFFMAN ENGINEERS

KILROY HEIGHTS AT DEL MAR
LEED GOLD CERTIFIED

1 INTRODUCTION

Connect with us on social media.

www.coffman.com

EXECUTIVE SUMMARY

What if we could grow a building? It's a question worthy of being asked. At its root are the seeds of hope, curiosity, beauty, and balance, evolving into a living structure, both giving to and receiving from its environment. The following Action Plan outlines our year two steps in the approach to achieving the goal of the SE 2050 commitment and to ultimately designing net-zero embodied carbon structures by 2050.

The approach to Education, Reporting, Reduction, and Advocacy we aim to achieve in this second year of the SE 2050 Building Challenge is outlined in the following pages. Our Sustainable Design Production Group oversees the implementation of our goals and is a guiding force to educate our staff on the structural engineer's role in sustainable design. Quarterly presentations are anchoring the education of our engineers while we track our first projects using the Tally software for Life Cycle Assessment (LCA) Reporting. Our Reduction strategies will target concrete mix designs, use of biogenic materials, and embodied carbon comparison studies for at least one of our projects. We will advocate for our commitment by sharing our vision with our network through outgoing communications, especially celebrating our projects honored with sustainable design related awards.

Heartfelt gratitude goes out to our esteemed group of compassionate employees serving this cause. They are our Coffman Embodied Carbon Reduction Champions.

We invite you to continue this journey that aims to grow into a vibrant structural design philosophy of sustainability, that becomes as inherent to the choices we make for materials, systems, resilience, and safety of the buildings we are honored to design.

James R. Conley, SE, Structural Principal, Coffman Engineers

THOMAS JEFFERSON SCHOOL OF LAW
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2 EDUCATION | OUR EXPERTS

Sustainability has always been important to our Coffman San Diego team. Since 2021, we have been working diligently to develop a plan to help us achieve a more sustainable built environment. This culminated with the formation of our own internal Sustainable Design Production Group and our commitment to SE 2050 in 2021. Since then, this dedicated group of engineers and technicians has continued to develop, organize, and implement the tools and best practices required for our team to achieve net-zero structural systems.

EMBODIED CARBON REDUCTION CHAMPION

Chelsea Kemmerrer, PE

Chelsea Kemmerrer, a Structural Engineer in Coffman's San Diego office, is our Embodied Carbon Reduction Champion. As Embodied Carbon Reduction Champion, Chelsea has taken the lead in solidifying Coffman's SE 2050 commitment and developing this ECAP. Chelsea will continue to serve as the main advocate of implementing practices to reach SE 2050 throughout Coffman's structural engineering department.

STRUCTURAL ENGINEERING PRINCIPAL

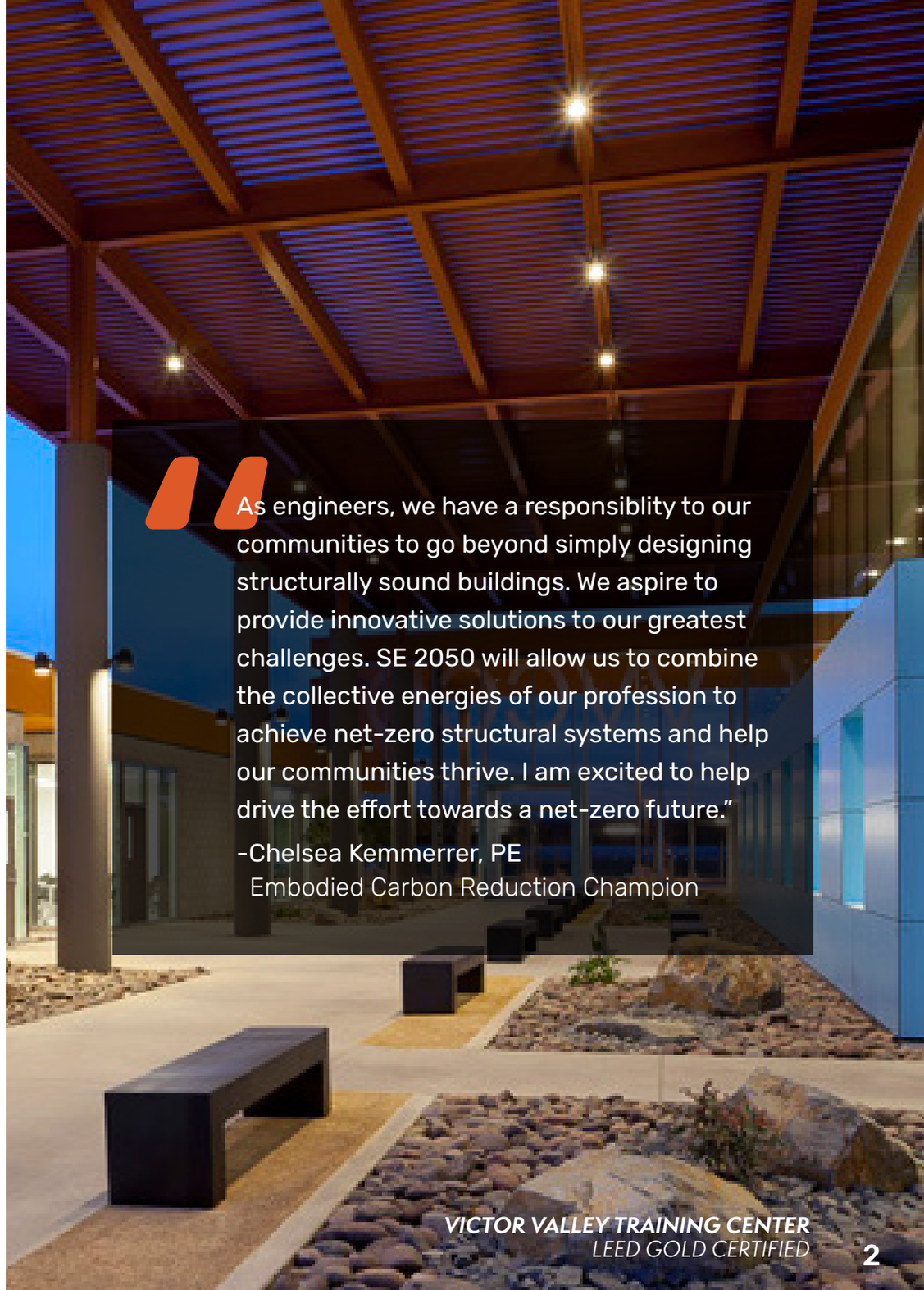
Casey Whitsett, SE

Casey Whitsett is a Structural Engineering Principal in our San Diego office. As a past president and current member of the Board of Directors of the Structural Engineers Association of San Diego, Casey's leadership and involvement in the structural engineering community gives him multiple outlets to spread the word about SE 2050 and teach sustainable design practices to younger engineers.

STRUCTURAL ENGINEERING PRINCIPAL

James "Jim" Conley, SE, DBIA

Jim Conley is a Structural Engineering Principal in our San Diego office and has extensive knowledge and experience with structural engineering design. His involvement in organizations such as the Structural Engineers Association of San Diego and the Post-Tensioning Institute, coupled with his passion for sustainability, make him a strong advocate and leader of SE 2050.



"As engineers, we have a responsiblity to our communities to go beyond simply designing structurally sound buildings. We aspire to provide innovative solutions to our greatest challenges. SE 2050 will allow us to combine the collective energies of our profession to achieve net-zero structural systems and help our communities thrive. I am excited to help drive the effort towards a net-zero future."

-Chelsea Kemmerrer, PE
Embodied Carbon Reduction Champion

VICTOR VALLEY TRAINING CENTER
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2 EDUCATION | OUR STRATEGY

Achieving net-zero structural systems begins by educating our team on current carbon reduction strategies and resources and continuing to seek opportunities to learn in the future. We have developed a plan for teaching and empowering our staff which includes:

- In-House Presentations from Subject Matter Experts on Material-Specific Carbon Reduction Strategies
- Distributing Regular Email Updates to Highlight Carbon Reducing Strategies
- Making LCA Tools, Documents, and Presentations Available on Internal Company Networks
- Maintaining an SE 2050 Onboarding Procedure for New Hires

In addition to our Embodied Carbon Reduction Champion, we will empower our employees to take leadership in this initiative by organizing a Sustainable Design Production Group who will:

- Prioritize and Implement our SE 2050 Goals
- Review and Share Tools and Other Educational Content
- Present SE 2050 to Other Coffman Structural Department Leadership
- Work to Establish Sustainable Design Production Groups in Each Coffman Structural Department

Q1 2023
- CONTINUE TO INTRODUCE LCA ANALYSIS TO NEW PROJECTS

Q2 2023
- ISSUE 2023 ECAP

Q3 2023
- "HOW TO CALCULATE EMBODIED CARBON" PRESENTED TO ALL NEW TECHNICAL STAFF

Q4 2023
- UPLOAD PROJECT LCA DATA TO SE 2050 DATABASE

COFFMAN REPRESENTATIVE ATTENDS QUARTERLY EXTERNAL EDUCATION PROGRAMS

PERIODIC EMAIL DISTRIBUTIONS TO STAFF SHARING THE TOP 10 CARBON REDUCING ACTIONS FOR STRUCTURAL ENGINEERS

- CONTINUE TO INCORPORATE SE 2050 ONBOARDING PROCEDURE FOR NEW HIRES
- "SE 2050 EMBODIED CARBON 101 WEBINAR" PRESENTED TO LOCAL STAFF
- COMPLETE INTENDED LCA PROJECT ASSESSMENTS
- REVIEW 2023 ACCOMPLISHMENTS AND ESTABLISH 2024 GOALS

3 REPORTING

MEASURE

We will measure embodied carbon using Life-Cycle Assessment tools which will allow us to gather information about the carbon impact of our projects, as well as plan for future reductions. Initially, we will focus on embodied carbon found in specified materials by documenting their embodied carbon potential, material sources, and quantities in our projects. Data gathered will be shared with our engineers, as well as SE 2050 in accordance with their guidelines to provide helpful insight into our projects and assist with carbon reduction strategies on a global scale.

EDUCATE

Education is the foundation for meeting the goals set out in SE 2050. Coffman will provide quarterly training sessions with our engineers focused on identifying embodied carbon in design, tracking its prevalence in our structures, and discussing techniques for reduction.

PLAN

Coffman is actively engaging with architects and owners on establishing project sustainability goals beginning at project initiation and implementing them through the life of the project.

TRACK

By the end of 2023, Coffman will submit five LCA-based projects to the SE 2050 database.

PROJECT HIGHLIGHT

Torrey Pines Fire Station (TPFS) is an approximately 10,500 sf 3-bay fire station located in La Jolla, CA at the north-west end of the University of California, San Diego campus. It was our first project to be reported to the SE2050 database in 2022. The project is a CMU shear wall building with steel gravity framing, concrete over metal decking at Level 2, and open web steel joists at the roof level. TPFS is Coffman's first project to use Tally, a Life Cycle Analysis (LCA) software. As such, this is the first project chosen to submit to the SE2050 database by providing the embodied carbon information summarized by Tally. Per Tally, this project has approximately 12,600 ft2 of embodied carbon area, and a total embodied carbon impact of 530,836 lb CO2e, thus having an embodied carbon intensity of 42.13 lb CO2e/ft2. As the project progresses, and LCA software is used more widely, Coffman is hoping to be able to track the changes throughout each project and ultimately see a reduction in embodied carbon over time.

Photo Credit: Miller Hull Partnership

4 REDUCTION

PROJECT HIGHLIGHT

Coffman provided structural engineering design for the SDG&E Energy Innovation Center in San Diego, CA which transformed a grocery store into a state-of-the-art facility which showcases different examples of leading technologies for energy efficiency. The project was one of the first ten buildings in the world to achieve double LEED Platinum certification.

SDG&E ENERGY INNOVATION CENTER
LEED PLATINUM CERTIFIED

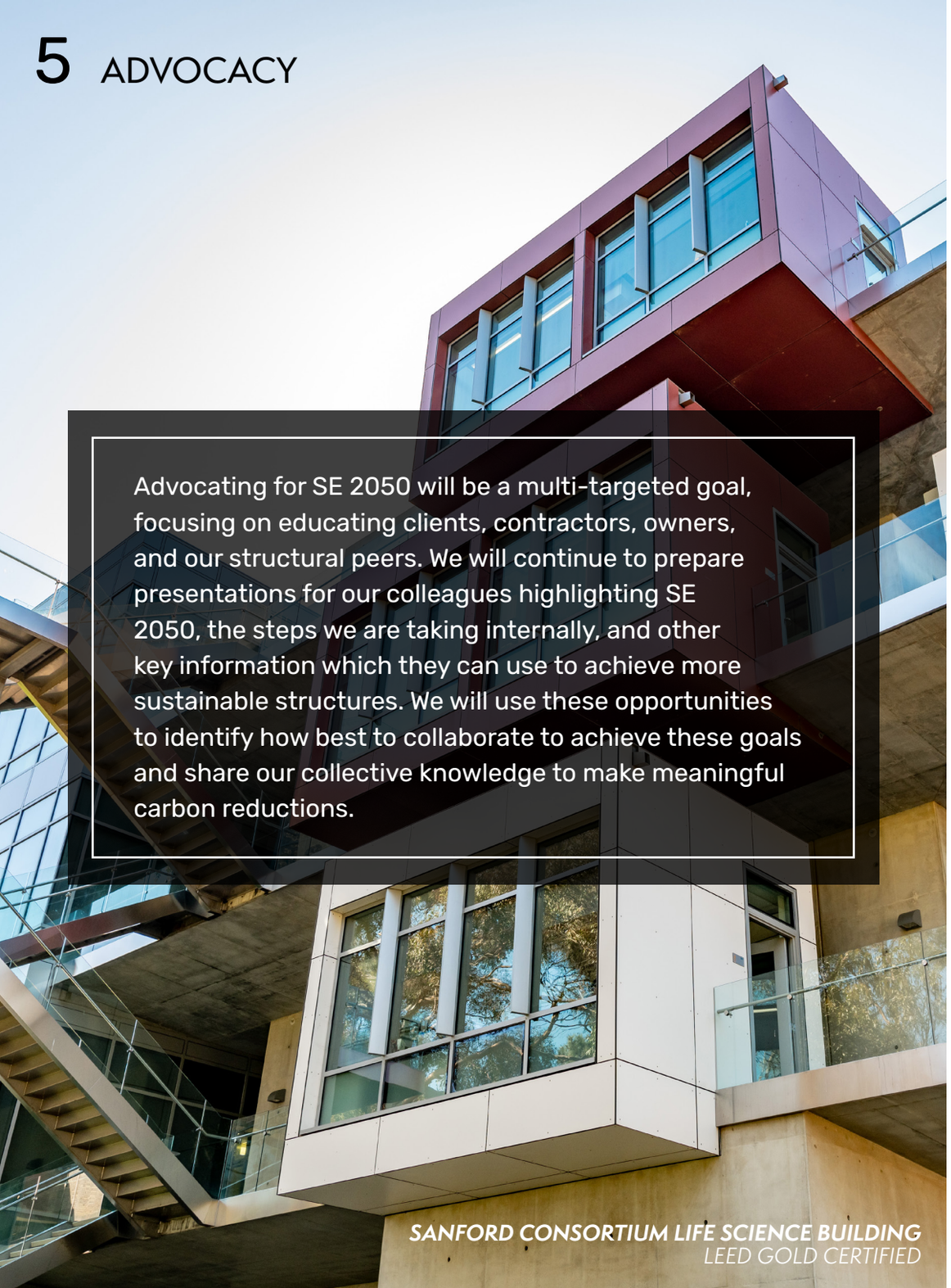
FOR OUR SECOND YEAR COMMITTING TO SE 2050, COFFMAN WILL FOCUS PRIMARILY ON

DATA GATHERING

OF EMBODIED CARBON IN EXISTING AND NEW PROJECTS.

- By the end of 2023, we will identify and implement our revised project specific embodied carbon reduction plan, collaborating with the design and construction teams to set achievable targets.
- By the end of 2023, we will leverage our embodied carbon comparison study to assess the impacts and efficiencies of different materials and share these results with our clients and staff.
- We will update our current specifications and structural notes to incorporate sustainable best practices and reduced embodied carbon materials.
- Our staff will continue to work with concrete suppliers to identify and implement reduced embodied carbon mix designs which meet the project design and sustainability goals.
- Coffman will continue to incorporate biogenic materials in our structural designs and seek opportunities to incorporate new or alternative biogenic materials into our designs.
- We will advocate for the use of domestic steel for its high recycled content and reduced shipping.

5 ADVOCACY



Advocating for SE 2050 will be a multi-targeted goal, focusing on educating clients, contractors, owners, and our structural peers. We will continue to prepare presentations for our colleagues highlighting SE 2050, the steps we are taking internally, and other key information which they can use to achieve more sustainable structures. We will use these opportunities to identify how best to collaborate to achieve these goals and share our collective knowledge to make meaningful carbon reductions.

SANFORD CONSORTIUM LIFE SCIENCE BUILDING
LEED GOLD CERTIFIED

AT COFFMAN, WE ARE PROUD AND EXCITED TO BE COMMITTED TO THE SE 2050 CARBON NEUTRAL PROGRAM. WE WILL CONTINUE TO SPREAD THE WORD TO OUR COMMUNITY BY:

ACTIVELY ENGAGING CLIENTS AND OWNERS TO INCORPORATE STRUCTURAL MATERIALS WITH ENVIRONMENTAL PRODUCT DECLARATIONS (EPDS) IN THE DESIGN PROCESS.

INCORPORATING OUR SE 2050 COMMITMENT INTO OUR STANDARD PROPOSAL LANGUAGE.

COMMUNICATING OUR SE 2050 COMMITMENT AND DETAILS ABOUT THE PROGRAM ON OUR WEBSITE AND SOCIAL MEDIA.

Check out our SE 2050 Commitment Announcement!
www.coffman.com/news/coffman-commits-to-se-2050

www.coffman.com