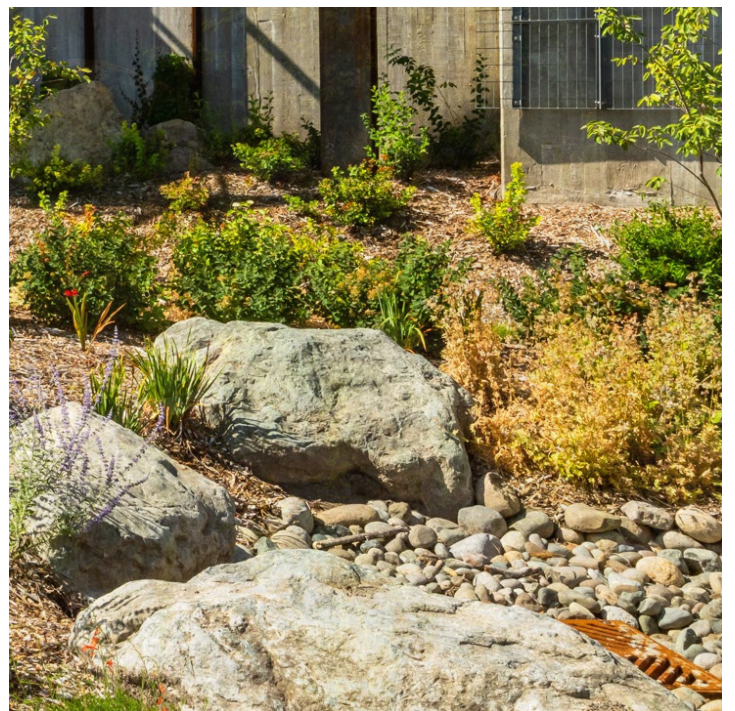
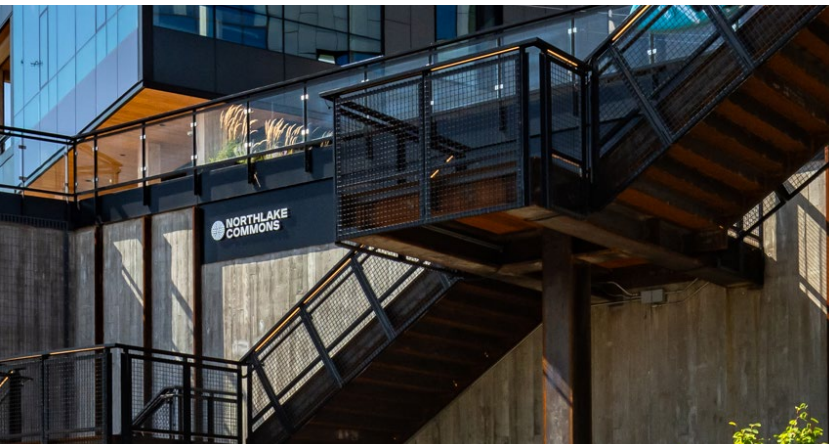
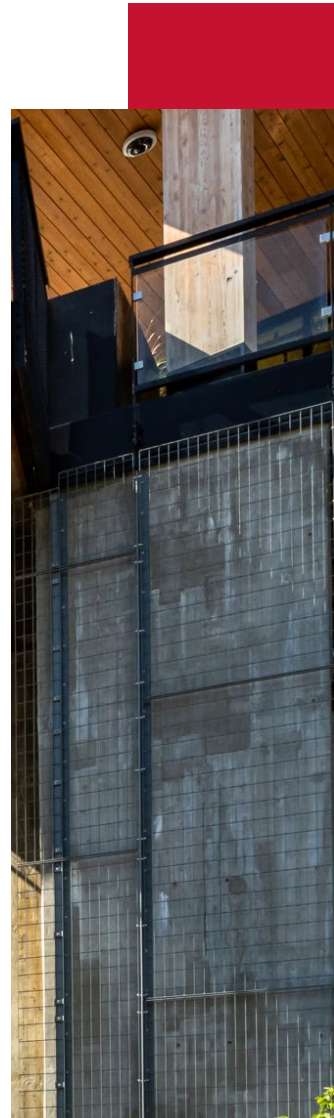
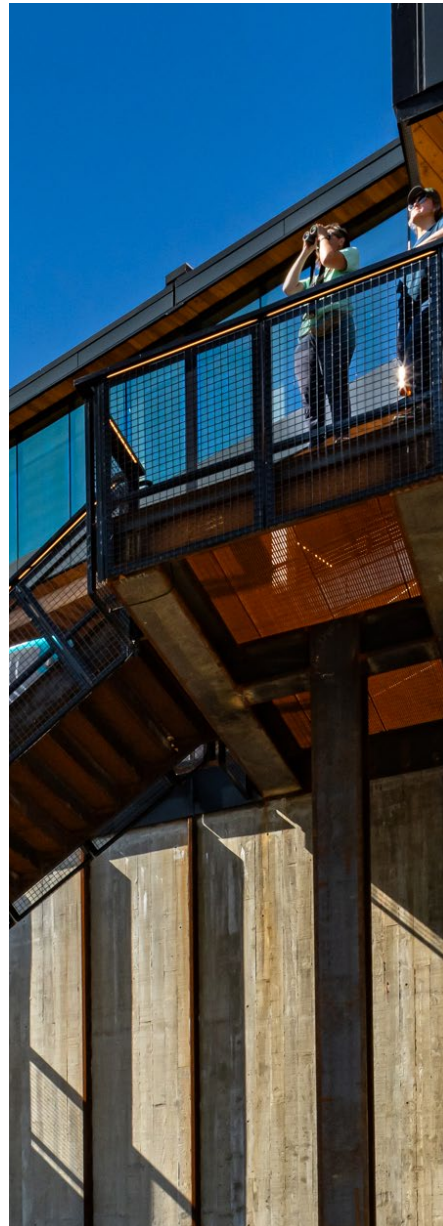




EMBODIED CARBON **ACTION PLAN**

SE 2050 | 2025




EXECUTIVE SUMMARY

This year marks **25 years from our 2050 goal!** We see this as a watershed moment to further empower our engineers through deeper knowledge, support and hard data—that will support their reduction efforts—and hands-on opportunities. These efforts ensure a sustainability push that starts with our individuals and ripples outward through the industry that ultimately translates to planet-wide progress.

WHAT'S NEW

Since signing onto the ECAP, we've been more committed than ever to understanding the environmental impact of our structural engineering decisions and using that knowledge to impact meaningful change in the building industry. Since our 2024 ECAP report, we've made strides to educate staff, develop internal infrastructure to more readily influence embodied carbon reductions and standardize our life cycle assessment processes while advocating for net zero embodied carbon initiatives in our practice.

Look for this icon on the following pages for our achieved electives and additional accomplishments since our last ECAP.

 SE 2050 Elective Achieved

SUSTAINABILITY DEPARTMENT STAFF



**JESSICA MARTINEZ, PE,
LEED AP BD+C**
Sustainability Specialist



**ARIZONA DABRUSIN,
PE, LEED AP BD+C**
Sustainability Engineer



**ROGER HEERINGA,
PE, SE, LEED AP**
Director of Sustainability

SUSTAINABILITY COMMITTEE MEMBERS



SALMA SYED, PE
Project Manager



ERIN SPAULDING
Communications
Manager



KENNEDE BROWN, EIT
Project Engineer



SATHVIK SRIPAD, PE
Project Manager



JORDYN MCCOY
Marketing Manager



JON LOVGREN, PE, SE
Associate

See the **REDUCTION** section on how we are bringing sustainability to our regional offices.



**NATE CHRISTOPHER,
EIT**
Project Engineer



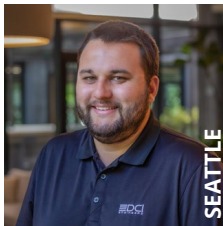
KYLE ENGLAND, PE
Project Manager



ANKITA GOSWAMI, PE
Senior Project Engineer



JACOB FORBES, EIT
Project Engineer



HARRY RODIN III, PE
Senior Project Manager



STELLA BATES, EIT
Senior Project Engineer



PAUL ROGNESS, PE, SE
Principal



JON KOSTECKY, EIT
Project Engineer



JULIA LU, EIT
Project Engineer



**JESSICA CONGDON,
CPSM**
Senior Marketing
Coordinator



TOM WALTERS, PE
Senior Project Engineer

 Committee Co-Chair

EDUCATION

DCI's Education Goal focuses on disseminating knowledge to all of DCI's regional offices, making information and access to resources more accessible. Here are some strides we made recently and what we're focusing on for 2025:

ACHIEVEMENTS SINCE 2024 ECAP

2025+

TRAINING

- ✓ Formalized annual Embodied Carbon 101 On-boarding webinar for new hires.
 - ✓ Developed Low Carbon Concrete webinar that highlights the latest industry developments and strategies for procurement.
- Schedule company-wide webinar on compiled lessons learned & resources for embodied carbon reduction based on project experience and internal research.**
 - Convert webinars into learning modules on the firm's digital education platform.
 - Incorporate sustainability language and goals into the firm's internal Project Manager Training courses.

CONTINUING EDUCATION

- ✓ Part of DCI's Continued Education efforts will include **regional hands-on research and activities** to deepen the firm's understanding of embodied carbon reduction strategies. These include:
 - Review industry research, resources and lessons learned
 - Monitor green rating systems, codes, incentive programs and regulations updates for applicability
 - Collaborate with industry groups and material suppliers to further our understanding of potential embodied carbon reduction strategies
 - **Perform research to identify effective embodied carbon strategies and technologies across several regions, materials and building types**

LESSONS LEARNED

In the past, we've educated staff on general embodied carbon concepts and provided substantial guidance to assist project teams with procurement efforts but know there's a lot more that's required to reach our net zero embodied carbon goals. Through our life cycle assessment research efforts, we've **learned the importance of empowering our engineers to focus on honing their abilities** to optimize the use of materials through proactive coordination and collaboration throughout the design process.

Looking ahead, we intend to build upon our staff's understanding of structural and embodied carbon qualities of major building materials and compile key strategies that optimize whole-life carbon and overall material usage.

✓ SE 2050 Elective Achieved



REDUCTION

With 170+ mass timber projects under our belts, DCI is honing in on other materials and areas for 2025. This includes circularity, adaptive reuse, existing buildings, and reducing embodied carbon for concrete & steel through structural design efficiencies. Check out some of our steps for 2025!

FIRM-WIDE REDUCTION TARGETS

We've determined we need more data to establish specific targets; however, DCI has developed our embodied carbon baseline to establish a benchmark for forward progress to get to net-zero. Over the next year, we plan to significantly increase our reporting through our sustainability reviews and the establishment of regional leaders to oversee projects at a wider scale. As we refine our reporting practices and drill down on the larger pool of data, DCI will identify active steps for reducing our design impacts and realistic reduction targets at 3-5 year intervals moving forward.

ACHIEVEMENTS SINCE 2024 ECAP

2025+

PROCESSES & SYSTEMS

- | | |
|--|--|
| <ul style="list-style-type: none">Established DCI Sustainability Leaders for Texas, Southern California, Northern California, Pacific Northwest, Rocky Mountain & East Coast regions.Established Quarterly FOCUS Meetings with Associate Principals and Principals from all offices.Performed pilot case studies on projects internally to determine effort required for sustainability reviews. | <ul style="list-style-type: none">Establish local sustainability leaders at every DCI office.Develop internal reduced carbon structures checklist for sustainability reviews and perform pilot to roll out for local implementation.Perform internal sustainability reviews on all significant projects at specific design milestones with a goal of incorporating all buildings over 100,000-gsf into an embodied carbon baseline. |
|--|--|

CONTINUED PROJECT PARTICIPATION

- Participate in project design sustainability charrettes to identify potential design considerations impacting embodied carbon and provide recommendations.
 - Collaborate with concrete suppliers to reduce embodied carbon through coordinated discussions with the architect and contractor to optimize performance criteria and mix design efficiency. We've found material availability and technology vary across the regions we work within and require close coordination to achieve meaningful reductions.
 - Update GWP targets in project specification templates for new EPD data as it becomes available.
- Develop concrete commissioning services for projects to mitigate risk, decrease costs and reduce embodied carbon in concrete.

REDUCTION (CONTINUED)

ACHIEVEMENTS SINCE 2024 ECAP

2025+

INTRANET/RESOURCES

Created web-based & *CALGreen* short-form specification templates.



Created Intranet pages for concrete, steel, and wood that reference SE 2050 resources and guidance from the industry.

Developed Internal Low Carbon Concrete Product Information Sheets.



Developed dashboards on *+ a b | e a u* (data analytics platform) for project level assessments, comparisons, and tracking alongside our internal embodied carbon baseline.

Include GWP targets for concrete masonry unit and softwood lumber that align with the new industry average EPDs published last year.

Develop Embodied Carbon Reduction Kick-off Checklist.

Create Reduced Carbon Concrete Design Checklist.

Compile rules of thumb & guidance for the most common structural materials and building types based on lessons learned from project experience & LCA research.

Introduce *+ a b | e a u* sustainability dashboards to staff to streamline project monitoring.

INTERNAL OPERATIONS

Established Sustainability Benchmarking and Sourcing Committee to evaluate and set goals on internal practices/behaviors.

Developed and distributed a firm-wide survey to administrative staff to assess current sustainability practices, building policies, available resources, and office-wide behaviors.

Progress firm benchmarking using firm-wide survey, establish baseline data and set goals for future growth using the JUST Handbook as a reference.

Analyze costs comparing compostable and reusable alternatives to single-use plastics in both large and small offices.

Establish clear signage for recycling, compost, and trash disposal in DCI's 20+ offices.

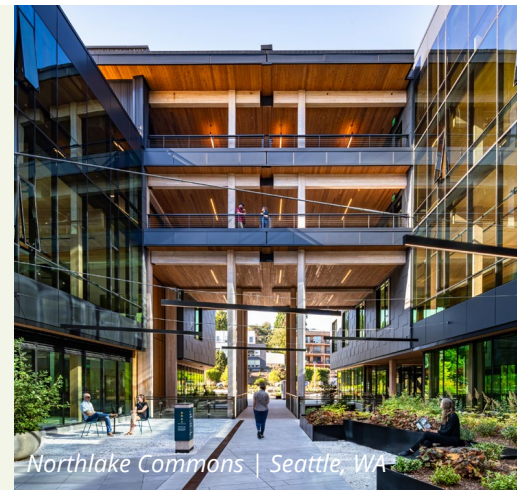
LESSONS LEARNED

As a national firm, DCI designs structures across several different regions and we've noticed embodied carbon reductions strategies are not one-size-fits-all. The location, occupancy type, and construction type have significant influence on the materials used for the structure, which requires us to utilize our project and market experience to identify the most effective structural solutions. In our experience, when engaged early in the design process, we can identify design efficiencies that not only reduce carbon but also save cost.

With this in mind, we are establishing more local leaders in our offices to champion sustainability efforts through internal knowledge sharing during sustainability reviews, implementation of reduction strategies on projects, and developing more sustainable internal operations.



SE 2050 Elective Achieved



Northlake Commons | Seattle, WA

REPORTING PLAN

With four years of data as our foundation, DCI leverages quantitative insights to assess current performance and drive the integration of design standards. This data-driven approach will refine our understanding and position us for continuous improvement and innovation in 2025 and beyond.

ACHIEVEMENTS SINCE 2024 ECAP

2025+

BASELINE

Increased data reporting from five projects each year in 2021 and 2022, seven in 2023, and eight in 2024.



Established internal embodied carbon baseline based on 25 reported projects.

Identified trends and gaps in data.

Develop Reduction & Reporting Targets from internal embodied carbon baseline, project averages and high-level takeaways.

Report data for at least one project from each office.

WORKFLOW

Tested LCA software and monitored industry updates to ensure alignment with latest developments.

Developed infrastructure for preferred data sources, material quantity calculation methods and software.

Continue to refine Revit to LCA software workflow and project data entry as related to our EC baseline.

TANGIBLES



Case Studies Published:

- [Webcor Newark Civic Center Case Study](#)
- [Weber Thompson & PCL Mass Timber Residential High-Rise Study](#)
- [Clackamas Courthouse Case Study](#)
- [KSS & RC Andersen Mass Timber Warehouse Case Study](#)
- [Nucor High Strength Steel Case Study](#)
- [Weber Thompson's Northlake Commons LCA](#)

Future Case Studies:

- University of Washington's Heartwood and R&D Modular Mass Timber LCA White Paper
- WoodWorks' LCA Reports for
 - 1510 Webster
 - Melrose Place
 - Beacon Hill
 - Bush Middle School
- Knife River Precast Case Study
- Pliteq Mass Timber Floor Assembly Case Study



SE 2050 Elective Achieved

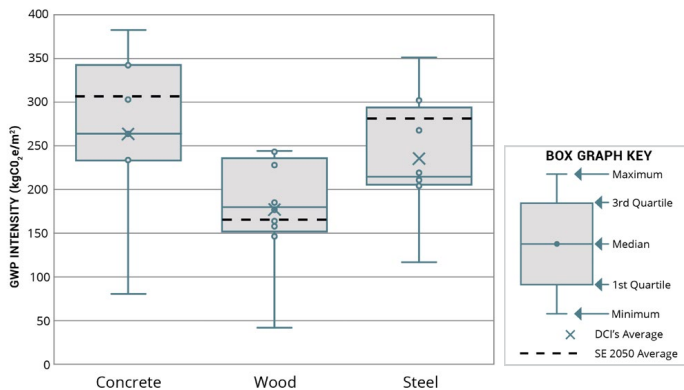
REPORTING PLAN (CONTINUED)

ACHIEVEMENTS SINCE 2024 ECAP

2025+

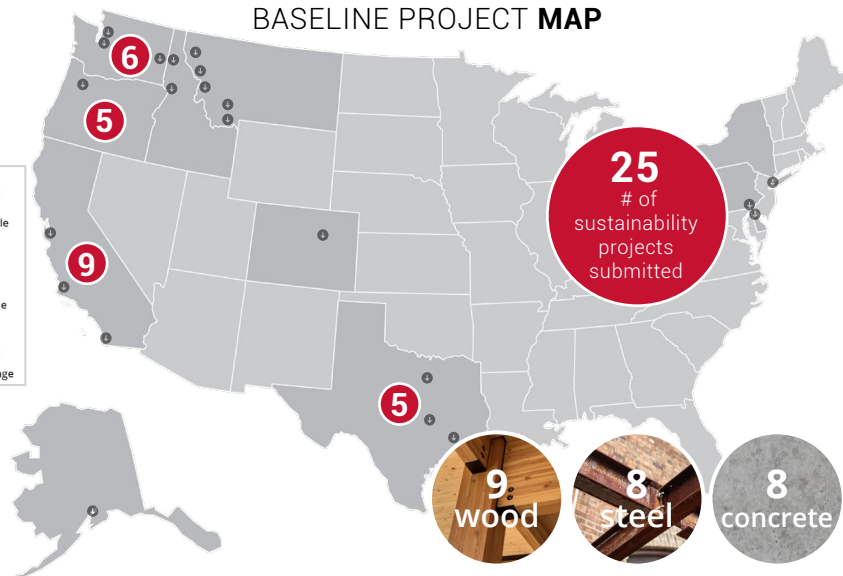
MEASURING, TRACKING & REPORTING

We primarily utilize industry average product information in our analyses per CLF's Baseline Reports. When industry-wide data sources don't exist, we coordinate with manufacturers and industry groups to determine proxies that most accurately represent the material's impact. For our embodied carbon baselines, we use One Click LCA's Life Cycle Carbon tool and report modules A1-A5 (only estimated material wastage), B1-B5, C & D. Currently, we're integrating projects into our baseline at the end of construction documents but are starting to gather more information at the Design Development stage and using this to advise on design decisions in schematic design & conceptual design.



DCI's Embodied Carbon Baseline by Material Type

DCI EMBODIED CARBON BASELINE PROJECT MAP



LESSONS LEARNED

Over the past year, we've taken a step back to look at the project data we've collected to develop our internal embodied carbon baseline and compare the Global Warming Potential (GWP) impacts in our projects by area, primary material type, and building sector. This baseline serves as a comparison point for us to track progress as we push forward to achieve net zero embodied carbon structures. At this time, our average cradle-to-gate impacts are about 220 kg CO₂e/m², which is about 18% lower than the SE 2050 average of 270 kg CO₂e/m². (Source: [Executive Summary of the SE 2050 Commitment Program 2023 Data Analysis and Findings Report](#))

While we feel the data represented by the 25 submitted projects is a significant step towards this goal, we understand that with our resources and breadth of projects across the nation, we have gaps in our data that we'll look to close in the coming years. As illustrated in the provided map and graphs above, many of our regions and project types are not yet included. Going forward, we will increase the number of projects analyzed on a year-to-year basis to capture these projects and diversify the data for a more accurate reflection of DCI's portfolio.



1510 Webster, Oakland, CA

✓ SE 2050 Elective Achieved

ADVOCACY / KNOWLEDGE SHARING

We hold industry-wide knowledge sharing in high regard and will continue to seek out opportunities that allow us to share our knowledge with a wide variety of clients, peers, and industry groups. Here is where we've focused and are expanding those efforts in 2025:

ACHIEVEMENTS SINCE 2024 ECAP

RESEARCH

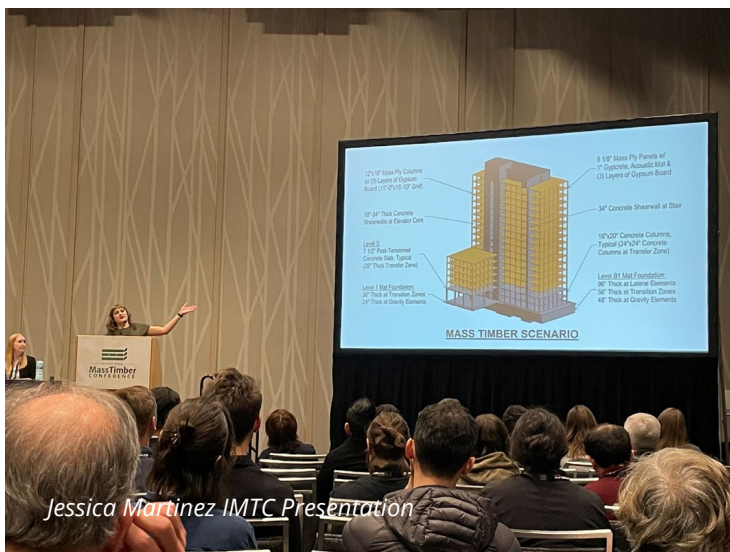
- ✓ Adam Jongeward's involvement with Tallwood's REACTS Consortium on glulam beam reuse.
- ✓ Collaboration with WoodWorks, Pliteq, and Knife River on research.

GREEN RATING SYSTEMS, CODES, INCENTIVE PROGRAMS & REGULATIONS

- ✓ Coordinated with Cities of Seattle & Redmond on green building incentive programs.
- ✓ Provided feedback for ACI 323 & LEEDv5.
- ✓ Participated in the WA State Building Code Embodied Carbon Appendix proposal.
- ✓ Assisted with WA 2025 Legislative Bill (HB1458) - Roger Heeringa provided testimony.

Industry Presentations

- International Mass Timber Conference (2024)
- NCSEA Structural Engineering Summit
- Greenbuild
- University of California Office of the President



Jessica Martinez IMTC Presentation



IMTC Tour of Timberview VIII | Portland, OR

- ✓ SE 2050 Elective Achieved

ADVOCACY (CONTINUED)

ACHIEVEMENTS SINCE 2024 ECAP

2025+

EXTERNAL ADVOCACY

✓ **We can't stop bragging about our SE 2050 Commitment!** We've been mentioning our involvement in our company-wide fee proposal template, on our company website, and during client lunch & learns since signing onto the program in 2021.

Teamed up with several higher education institutions to spread the message of reduced embodied carbon, including: University of Washington, Gonzaga University, the University of Southern California & the Southern California Institute of Architecture.

Structural Sustainability Specialist, Jessica Martinez is co-leading SE 2050's Resources Working Group and serving as secretary for the National Council of Structural Engineers Association's Sustainable Design Committee (NCSEA SDC). She is on the steering committee for the CLF Seattle hub.

Sustainability Engineer and Senior Project Manager, Arizona Dabrusin is on the steering committee for the CLF Austin hub.

CONFERENCES AND PRESENTATIONS

✓ Last year, DCI gave about 20 client lunch & learns and 35 presentations in total. We offer several AIA-approved presentations and will continue updating educational resources as industry developments occur.

Upcoming Presentations

- International Mass Timber Conference (2025)
- AIA 2025 Learning Lounge
- ASHRAE Conference for Integrated Design, Construction & Operations

FUTURE ADVOCACY

Applying for the Energy Trust of Oregon's Net Zero Fellowship Grant.

Support of Washington State Building Code & International Building Code Embodied Carbon Appendix proposals.

Include our commitment to SE 2050 in our email signatures.

LESSONS LEARNED

Through our advocacy efforts at DCI, we've recognized the importance of highlighting the urgency of addressing embodied carbon in our industry and we participate as often as possible to share our knowledge with our peers. As new requirements are proposed by green building rating systems, regulations, building programs, and incentive programs, we carefully review with our experience in other initiatives to share lessons learned and recommendations for implementation.

DCI intends to continue pursuing advocacy opportunities in our communities through engagement with higher education programs, conference presentations, client lunch & learns, local industry groups, and research to propel our industry towards the 2050 goal.

✓ SE 2050 Elective Achieved



Jessica Martinez & Salma Syed CALGreen Presentation



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ENGINEERS
WWW.DCI-ENGINEERS.COM



SCAN TO DIVE INTO DCI'S
SUSTAINABILITY
BROCHURE

FOR MORE INFORMATION, CONTACT:
JESSICA MARTINEZ, PE, LEED AP BD+C
JMARTINEZ@DCI-ENGINEERS.COM
(512) 982-6459



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