

Our transition to a zero carbon future

SE 2050 Embodied Carbon Action Plan 2026



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Introduction

A climate emergency is reshaping our world, and structural engineers have a critical role to play. With structural materials responsible for over 10% of global greenhouse gas emissions, we must lead the transition to net zero embodied carbon by 2050. At Arup, we prioritize sustainable solutions that help clients meet their goals while addressing the climate crisis, nature loss, and resource efficiency.

Our purpose—shaping a better world—guides our commitment to creating safe, resilient, and regenerative places for current and future generations. Sustainable development is central to our business, reflected in our firmwide commitments: our science-based Net Zero Plan to achieve net zero by 2040, our GHG Emissions Statement, and our decarbonization commitments prioritizing nature, resilience, and ethical practice.

Arup is committed to shaping a better world, creating safe, resilient, and regenerative places that enable current and future generations to thrive. Every part of our firm has a role to play in making sustainable development central to our business. Our firmwide goals for a net zero, nature positive, and resilient future are outlined in our commitment statements: our science-based [Net Zero Plan](#) to achieve net zero by 2040, our [GHG Emissions Statement](#), and our decarbonization [commitments](#) prioritizing nature, resilience, and ethical practice.

Arup's Total Design approach integrates expertise across sustainability and resilience, digital, buildings, infrastructure, and master planning. This breadth enables us to design and advise in ways that create more inclusive, resilient, and sustainable cities and infrastructure.

Since 2017, we have aligned our work with the UN Sustainable Development Goals, and at COP26 [we advanced this commitment](#) by pledging to use whole life carbon data to reduce operational and embodied carbon. As designers, engineers, and advisors, we are increasingly called upon to support clients transitioning to a more sustainable future. This requires each of us to champion sustainable development as a core design driver, offering innovative ideas and challenging the status quo.

We are proud to have contributed to the SE 2050 Initiative since 2014 and to be among the inaugural signatories of SEI's SE 2050 Commitment Program. Our North America Embodied Carbon Action Plan builds on this foundation, aligning with Arup's global sustainability and decarbonization goals. Now in our sixth year as an SE 2050 Signatory, we continue to refine our strategies, deepen our technical understanding, and expand our impact—sharing knowledge and advancing low carbon structural design to accelerate industry transformation.



“Climate action is critical to our social, economic and environmental stability. Our support of the SE2050 Program is fundamental to reducing embodied carbon in buildings through robust whole life carbon assessments and designing for low-carbon outcomes.

Simon Rees, Principal

Our team

The **Structural Engineering Sustainability Hub (SESH)**, a regional subgroup of the Americas Structural Skills Network, leads our efforts in research, resource development, and knowledge sharing. Led by **Ann Jiras** and **Zoe Brown**, the group steers our SE 2050 commitments and coordinates research initiatives through Arup University. Each office is represented by a SESH sustainability champion who meets monthly to exchange insights and deliver regionally relevant resources that strengthen local practice.



Alanna Joachim
Boston



Kimberly Avelar
New York / New Jersey



Zoe Brown
New York / New Jersey



Marissa Visconti
San Francisco / Oakland



Dalton Keys
Chicago



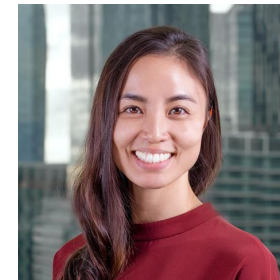
Georgette Harun
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Spencer Schrandt
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Jonathan Kerr
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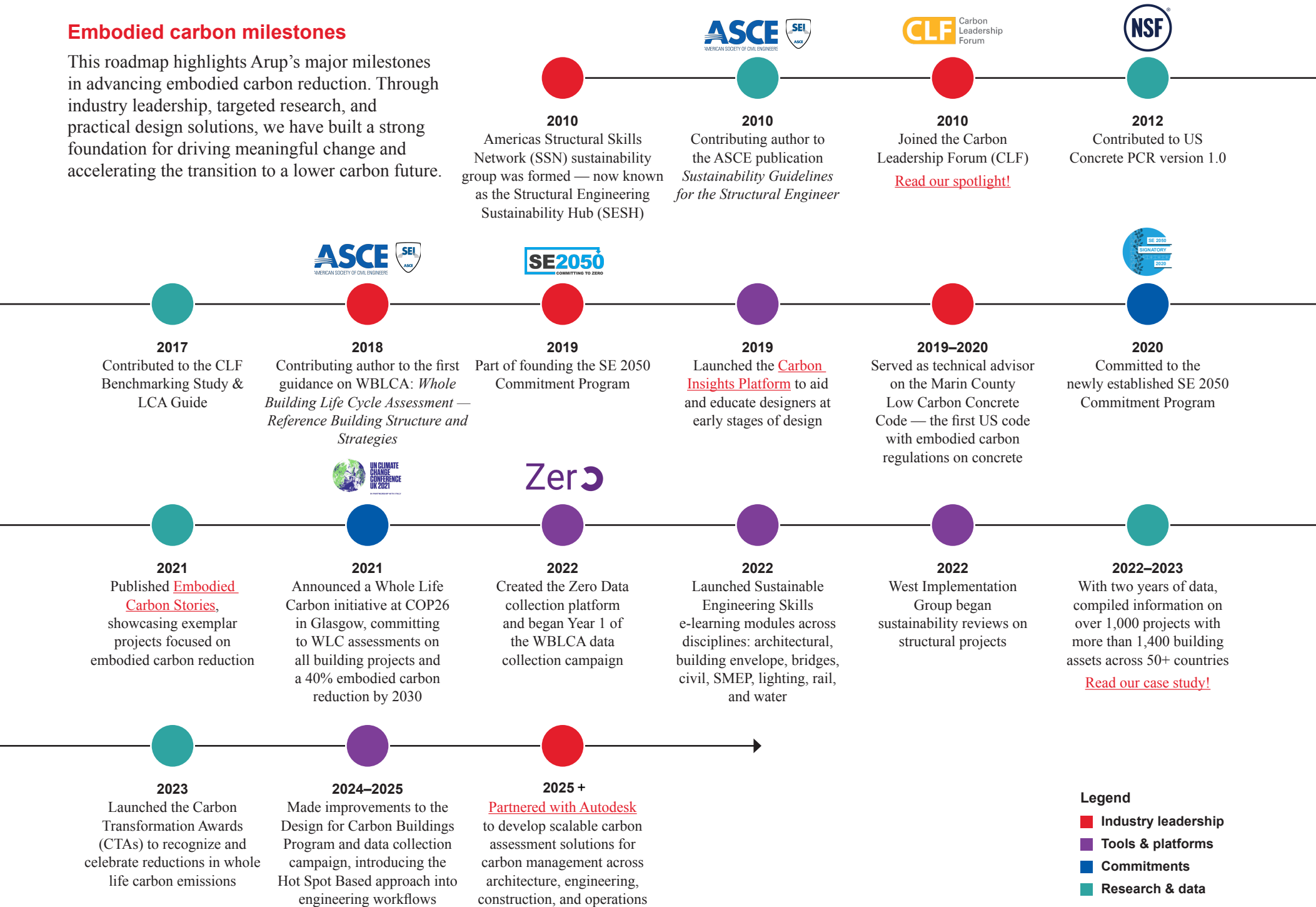


Antony Sutanto
Washington, DC



Embodied carbon milestones

This roadmap highlights Arup's major milestones in advancing embodied carbon reduction. Through industry leadership, targeted research, and practical design solutions, we have built a strong foundation for driving meaningful change and accelerating the transition to a lower carbon future.

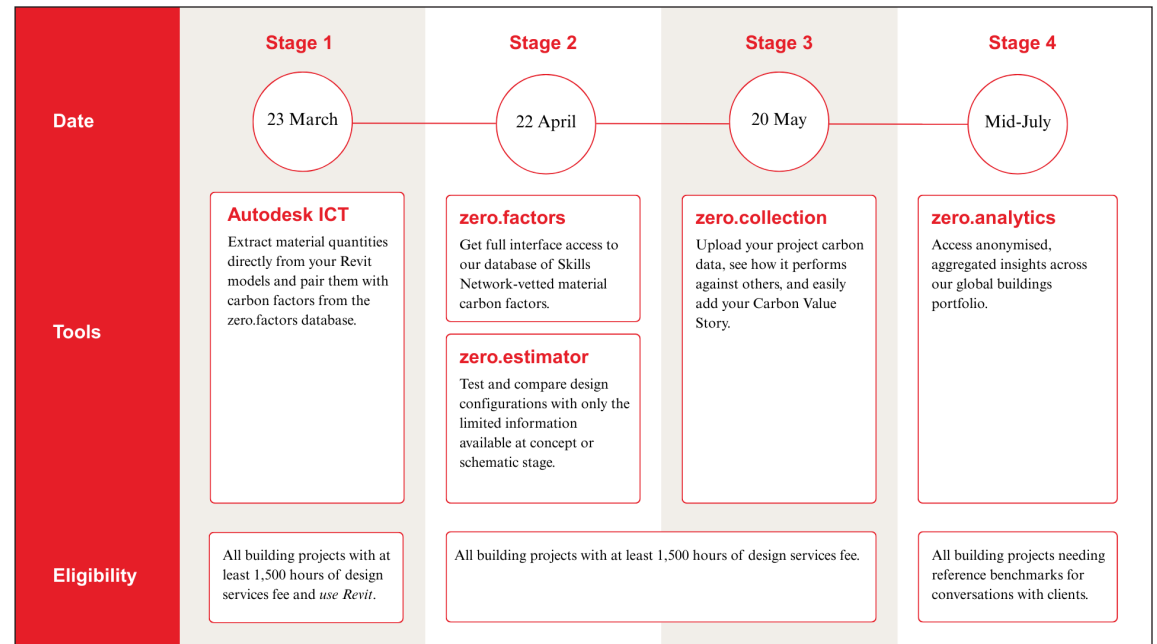


Looking ahead: Business as usual

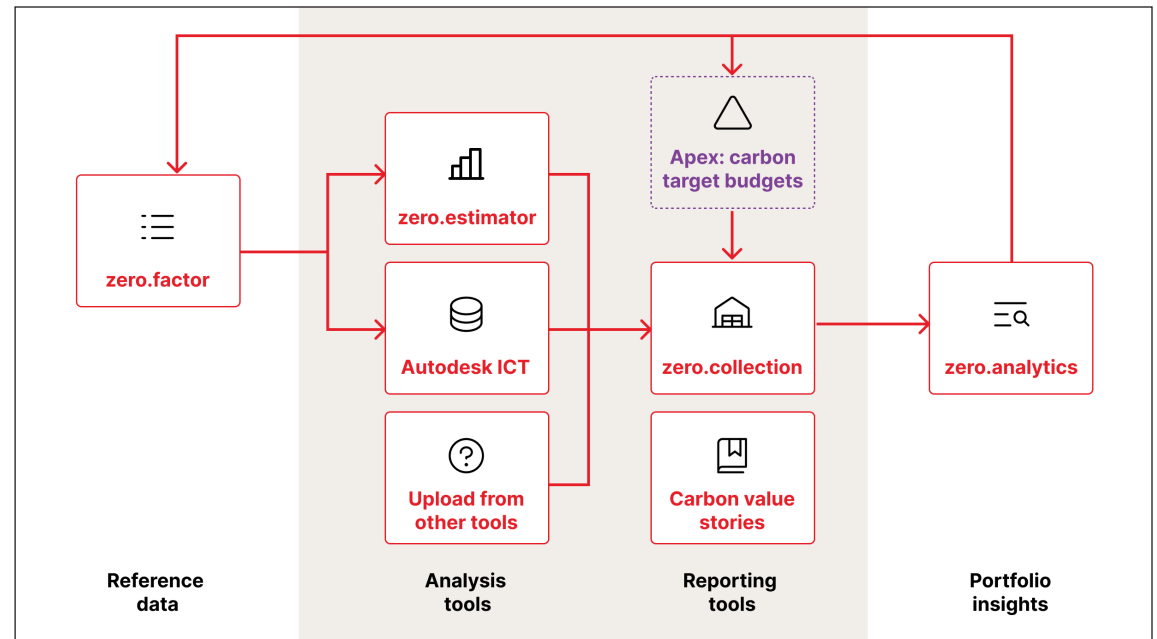
Design for Carbon is an Arup initiative that embeds carbon emissions awareness and assessment into every project, making decarbonization a core design priority as important as efficiency and cost. We are now entering the next phase of the program, equipping project teams with a connected set of digital capabilities that embed carbon insights directly into everyday workflows. This set includes a new Autodesk-developed Integrated Carbon Tool (ICT) and major upgrades to our Zero suite, including a new zero estimator tool.

By the end of 2026, whole life carbon assessments will be embedded into every contractual stage of our buildings projects — fully supported by our upgraded Zero tools and global coaching network.

As a result, we will have helped strengthen our technical excellence, support decarbonization at scale, and ensure our work consistently reflects our purpose of shaping a better world.



The four-stage rollout of our whole-life carbon tools



How our whole-life carbon tools connect

Education

Knowledge sharing

Arup's commitment to education and knowledge sharing is fundamental to advancing embodied carbon reduction. As sustainability evolves, so must our thinking, skills, and design practices to meaningfully reduce the carbon impact of our structures. Our global culture fosters collaboration across disciplines and geographies, enabling us to draw on a worldwide network of expertise and strengthen international knowledge exchange.

Within the Americas, we have a growing community of structural engineers deeply committed to sustainability and central to driving embodied carbon reduction. This group translates global ambition into project level impact, advancing innovation across our regional offices while serving as leaders and advocates within the broader engineering community.

Our efforts are anchored by three primary groups that champion sustainability and embodied carbon initiatives across the region:



The Structural Engineering Sustainability Hub (SESH):
A regional subgroup of the Structural Skills Network that advances research, supports SE 2050 commitments, and connects sustainability champions across offices.



The Americas Embodied Carbon Working Group (ECWG):
A cross-disciplinary forum that brings together building design teams to implement best practices and collaborate with sustainability consulting and MEP colleagues to reduce emissions holistically.



The Americas Sustainability Implementation Group (SIG):
A network focused on ensuring sustainable outcomes at the project level through audit-style sustainability reviews conducted at key design phases.

Together, these groups strengthen our collective capability, accelerate learning, and help embed embodied carbon reduction into everyday practice.

Harvard Convention Center Treehouse



Global training

Arup offers a suite of globally accessible, on demand courses through Arup University that equip structural engineers with the knowledge and skills needed to identify carbon reduction opportunities and apply sustainable design practices. These recorded courses are available to all staff and serve as a valuable resource for both current team members and new hires. Key offerings include:

- **Structural Embodied Carbon Hand Calculations:** Approximating the carbon impact of a structure to guide early design decisions and identify carbon hotspots and potential savings appropriate to project scope and stage.
- **Structural Design Methodology for Reducing Embodied Carbon:** Practical strategies for minimizing embodied carbon across structural systems and evaluating how design decisions influence carbon outcomes.
- **Embodied Carbon Policy & the Role of Structural Engineers:** An overview of policy frameworks and professional responsibilities related to embodied carbon, with a focus on the engineer's role in mitigation.
- **Understanding “Green” Specification Provisions:** Guidance on why “green” provisions are included in specifications and when they should be incorporated into project documentation.

Regional training

Our structural teams regularly host internal presentations and webinar series to share emerging sustainability strategies and key industry developments. This past year, SESH representatives led a ‘Sustainability Mini Series’ that distilled major insights from the 2025 AIA Climate Tech event, including the future of the Insight Carbon Plug-in in collaboration with Autodesk, the evolving landscape of carbon accounting tools, and new approaches to green procurement.

Building on the wave of timely publications released by the Carbon Leadership Forum in 2025, the SESH team also launched a ‘Bring It Back’ series for all structural engineers. This forum created space to summarize, discuss, and present key findings, helping ensure firmwide awareness and consistent application of the latest research and best practices.



Regional training presentations



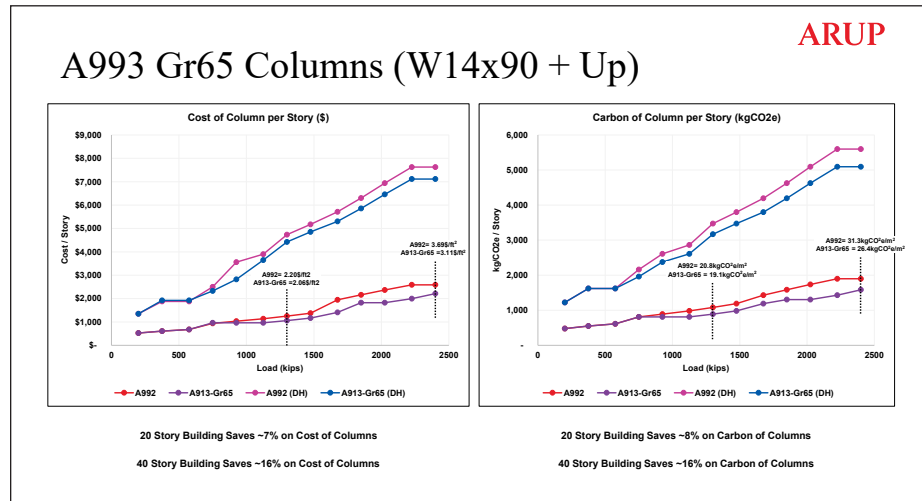
Designers at work

Research and innovation

Arup University, our internal research platform, empowers teams to explore, test, and develop new approaches that advance structural sustainability while addressing broader industry challenges. Through this program, our engineers investigate low carbon materials, circular design strategies, and emerging digital tools that support embodied carbon reduction, strengthening both our technical capabilities and our contribution to industry progress.

The following research case studies demonstrate how our teams are evaluating materials, tools, and design approaches to deepen our understanding of embodied carbon and inform more effective, data driven reduction strategies across our projects.

High Grade Steel × Carbon Cost Comparison



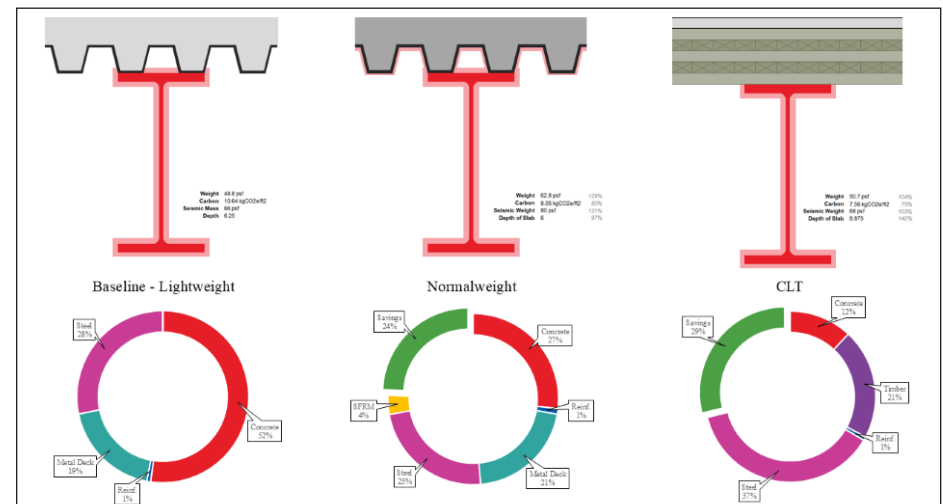
Arup conducted internal research to evaluate material specifications beyond GWP limits, focusing on the growing use of Grade 65 steel shapes and Grade 80 reinforcing steel. The study examined whether higher strength materials could reduce embodied carbon through improved material efficiency, while also assessing the associated cost implications.

The analysis found that Grade 65 steel and Grade 80 rebar have embodied carbon intensities (kgCO₂e/kg) comparable to their lower grade counterparts, meaning any reduction in material quantity directly translates into carbon savings. In many cases, these efficiencies also offset higher unit costs, resulting in overall cost benefits.

The advantages of Grade 80 rebar, however, are not universal. In situations where minimum reinforcement requirements govern, higher strength rebar does not reduce quantity and can increase cost. These findings reinforce current best practice of limiting Grade 80 rebar to larger bar sizes (No. 6 and above), where strength based design controls.

Through targeted studies like this, Arup continues to evaluate standard details, design criteria, and material specifications to drive incremental improvements that collectively advance more sustainable structural design across our projects.

SOMD Comparison Tool



Arup developed an internal slab on metal deck (SOMD) comparison tool to evaluate and compare slab systems based on their embodied carbon intensity. The tool enables teams to assess multiple design options with embodied carbon as a key performance metric, supporting more informed decision making during early design. Results are communicated clearly to project teams and external collaborators, helping integrate carbon considerations into structural system selection and reinforcing a consistent, data driven approach to low carbon design.

Reduction

As Arup's global strategy calls for a transition to a zero carbon economy, we continue to develop resources that support structural engineers in reducing embodied carbon across their designs. We aim to position embodied carbon reduction as a core design criterion—on par with elegance, fitness for purpose, constructability, and future flexibility. Through our regional Structural Skills Network, we provide guidance on a range of strategies that help teams embed low carbon thinking into everyday practice, including:

- **Reusing existing structures** to avoid unnecessary material consumption
- **Targeting carbon hotspots** within structural systems to prioritize the most impactful reductions
- **Specifying low carbon concrete** to reduce emissions from one of the highest impact materials
- **Sourcing sustainable mass timber** to support renewable, lower carbon alternatives
- **Specifying recycled steel** to leverage circular material streams
- **Pursuing material efficiency** beyond standard practice to minimize quantities without compromising performance

The following case studies illustrate how these strategies come to life in practice, demonstrating the tangible ways our teams are applying low carbon principles to deliver meaningful reductions across a range of project types.

Houston Endowment Center



Hot spot based approach

In 2025, our Sustainability Implementation Group team developed and launched a hotspot based workflow designed to embed embodied carbon as a core design metric from the very beginning of each project. The workflow establishes a clear, phase by phase framework for reducing embodied carbon throughout design and pairs each stage with structured sustainability reviews. Central to the approach is the early identification of carbon hotspots, ensuring that the most impactful decisions are informed by carbon considerations from the outset.

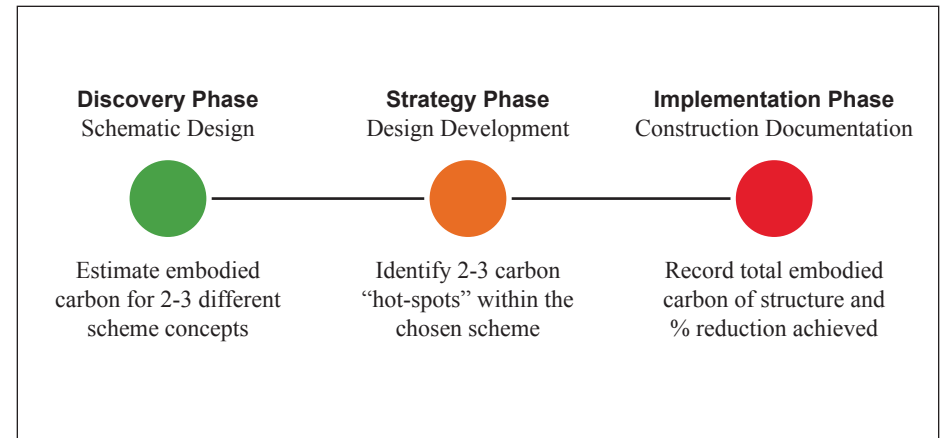
Workflow overview

- Establishes a phase specific framework for embodied carbon reduction.
- Integrates sustainability reviews at each design stage.
- Prioritizes early identification of carbon hotspots to guide key decisions.

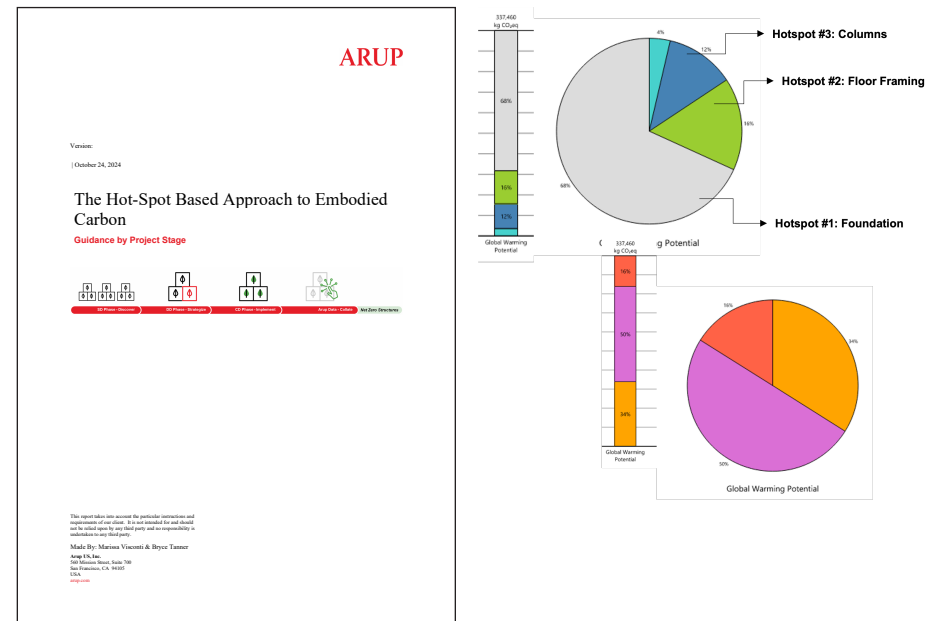
Implementation approach

- Sustainability champions lead milestone reviews.
- Project teams use best practice checklists to identify high impact strategies and beneficial material substitutions.
- Supports carbon conscious decisions before major design commitments are finalized.

By embedding these reviews into every phase of delivery, the workflow becomes a practical, actionable roadmap for driving embodied carbon reductions across projects and ensuring carbon considerations are integrated consistently and at the moments of highest influence.



Hot spot based approach phases



Approach guidance for project stage

Hot spot based approach

Under Ramp Park San Francisco, CA

On a recent two-story commercial building in San Francisco featuring an OCBF system over special reinforced concrete shear walls, our team identified a significant opportunity to reduce embodied carbon—late in the Construction Documents (CD) phase.

A whole-building Tally analysis revealed that 77% of the project's global warming potential (GWP) was driven by concrete elements. Using benchmark data from a 2019 Bay Area Low-Carbon Concrete Study, we established project-specific GWP limits targeting approximately 75% of the National Ready Mixed Concrete Association (NRMCA) national average. These limits were communicated through general notes and reinforced with Environmental Product Declaration (EPD) requirements in the project specifications.

The result: a 20% reduction in total project GWP, showcasing the importance of strategic reductions using the Hot Spot Based Approach. This project illustrates how proactive, data-driven decision making can unlock meaningful embodied carbon reductions pushing the boundaries of sustainable development.

Client

CMG Landscape Architecture
San Francisco Office of Community
Investment & Infrastructure

Key collaborators

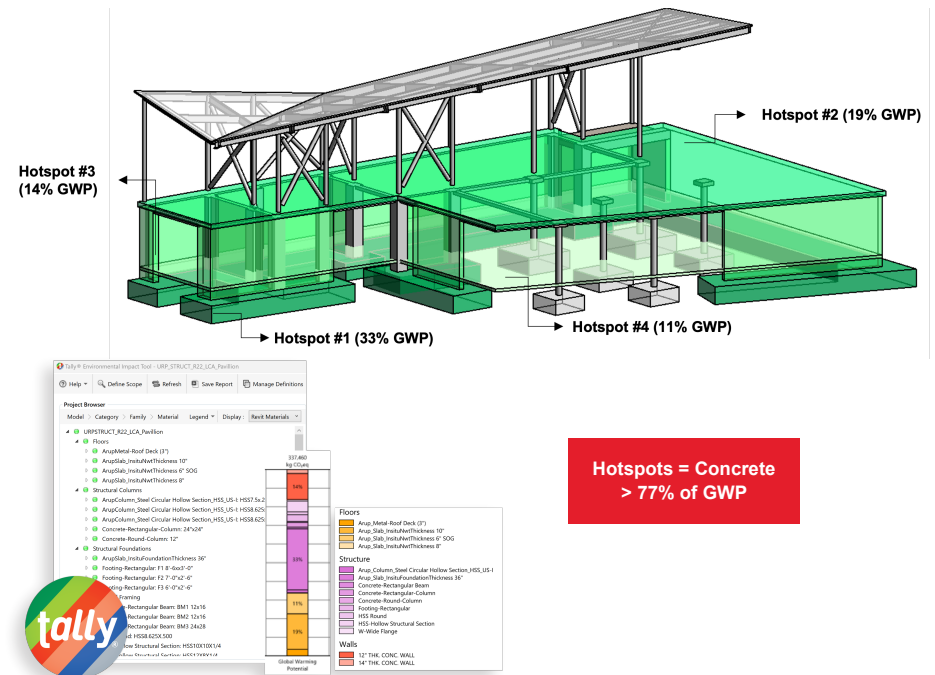
YA Studio
Transbay Joint Powers Authority
San Francisco Public Works
Caltrans

Key facts

Project specific GWP limits
20% Reduction in total project GWP

Key services provided

Structural Engineering
Civil Engineering
Mechanical Engineering
Plumbing Engineering
Electrical Engineering
Geotechnical Engineering
Lighting Design
Site Security
Telecom Engineering



Hot spot based approach

Community Center in Southern California

Arup conducted a concept-level embodied carbon study, supporting the design of a three-story community center in Southern California. Early in the project, the client sought to understand the carbon implications of two functionally equivalent gravity systems: mass timber and steel with a composite deck.

Our team developed high-level quantity estimates for each system and paired them with A1–A3 embodied carbon factors using an internally developed accounting tool. This streamlined approach allowed us to generate meaningful comparisons quickly, without impeding on the timeline of the design process.

The results were clear: the mass timber option demonstrated up to a 40% reduction in product-stage emissions compared to steel with composite deck construction.

By providing actionable carbon data at the concept stage, we empowered the client to make informed, low-carbon decisions early on when design flexibility and impact are greatest. This same methodology can be applied to evaluate lateral systems, foundation strategies, and other structural components, enabling carbon to become a key indicator from day one.

Client

Confidential

Key facts

3-story, approximately 43,00 square foot building.

Visitor center, locker rooms, fitness center, public restrooms, offices, and conference rooms

Key services provided

Structural

Mechanical

Electrical

Plumbing

Facades

Sustainability

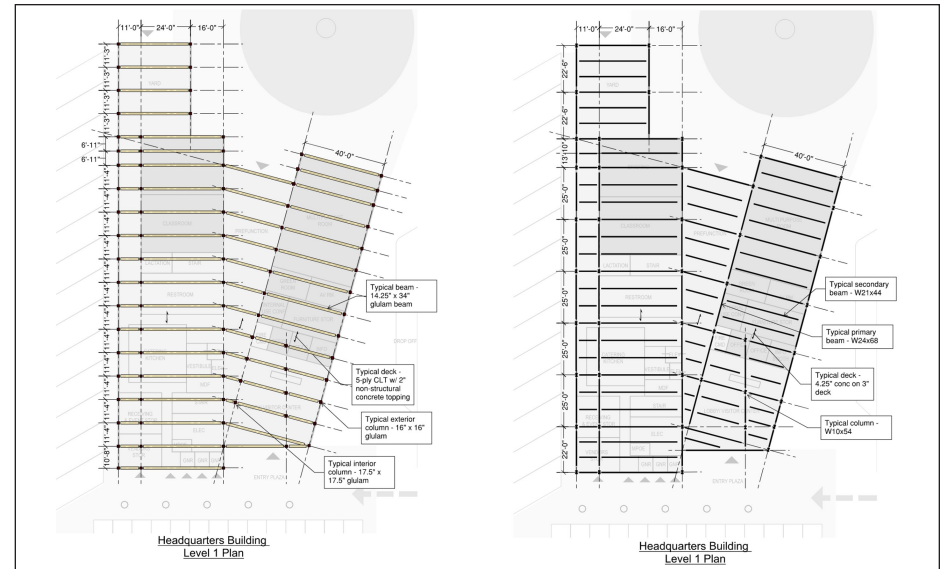
Fire Life Safety

ITC

Acoustics

Security

Geotechnical



Mass timber vs. steel: functionally equivalent gravity systems with differing framing layouts, quantity estimates shown for mass timber and steel with composite deck.

Specifying low-carbon materials

Material specification plays a pivotal role in reducing embodied carbon in building structures. The following case studies illustrate how Arup has delivered low-carbon material specifications on structural projects, translating carbon targets into actionable design and procurement decisions. Each example captures lessons that can be scaled across future work.

HITT Headquarters

Fairfax County, VA

Arup served as structural engineer for the HITT Headquarters project, advancing project-specific concrete Global Warming Potential (GWP) limits to meet ambitious embodied carbon reduction goals. The development also features a 100,000-square-foot photovoltaic solar canopy designed to generate all of the building's energy, underscoring the project's comprehensive sustainability vision. In collaboration with HITT Contracting, the team established clear sustainability targets early in design, such as a 20% reduction below the benchmark set by the National Ready Mixed Concrete Association (NRMCA) Eastern Region concrete GWP limits, mandating supplier-submitted EPDs to verify compliance. Ultimately, the project achieved a 33% reduction in total concrete embodied carbon compared to regional industry standards, surpassing the original target.

Client

HITT Contracting

Key collaborators

Gensler

Key facts

Implementing GWP limits in concrete specifications

33% reduction in concrete embodied carbon vs. regional benchmarks

Key services provided

Structural Engineering



Specifying low-carbon materials

Alameda County GSA Specs

Alameda County, CA

To reduce embodied carbon on General Services Agency projects in Alameda County, CA, Arup developed GWP limits and a corresponding compliance form for asphalt, glass, concrete, steel, and insulation. Arup also prepared specifications requiring a minimum percentage of reused products on future projects, along with a worksheet to support compliance tracking.

Specifying Novel Concrete Technologies. Meta Low Carbon Concrete

Working with Meta and a regional materials supplier, Arup provided key technical support from project inception to delivery, to culminate in several field trials around the country.

In the first phase, Arup started by engaging concrete suppliers and contractors local to each build site, analyzing their typical mix designs and specifications and then creating a phased program to introduce lower carbon concrete. Arup considered different approaches to introduce cement replacement in higher proportions while accounting for supplier familiarity and schedule and cost impacts. Arup also identified where use of concrete can be significantly reduced or eliminated in the structural design.

Arup then worked closely with Meta and local partners to implement a technical risk reduction strategy, recommending alternative mix designs, writing test specifications to measure fresh and hardened properties, analyzing results, and monitoring performance in-situ before trialing larger volumes. Arup traveled to build sites to oversee construction pilots, troubleshoot issues, and document lessons learned.

These efforts helped deliver a 35% reduction in carbon intensity in trial slabs, a structural element where carbon abatement is hard to achieve. Upon evaluation of results, Arup has helped Meta then incorporate lower carbon concrete requirements into template specifications.

Arup is now leading a second phase to test additional novel technologies to enable even more aggressive carbon reductions. These include materials that may help Meta achieve net zero emission concrete. Function, criticality, exposure, technical and commercial readiness, and potential performance variability due to sources of other materials in the mixtures have all been key considerations while advising on next steps for these materials within Meta's facilities. Arup will continue to capture lessons learned and help Meta embed guidance in project team resources, which will be critical to future success.



Reporting

Understanding carbon is the essential first step toward reducing it, and Arup has made this a core part of our global practice. In 2021, we committed to conducting whole lifecycle carbon assessments for all building projects — new construction and retrofit alike. With fewer than 1% of projects worldwide assessed for their full carbon impact, this commitment represents a significant step toward closing the industry wide knowledge gap and strengthening our ability to understand emissions across a building's lifespan. Identifying the scale and sources of both embodied and operational carbon is fundamental to developing effective decarbonization strategies.

As part of our SE 2050 commitments, Arup calculates embodied carbon in alignment with the program's requirements and aims to submit at least two projects per office to the SE 2050 Database each year. These requirements complement our internal initiative to perform LCAs on all projects using the Zero Suite, Arup's internal whole life carbon assessment digital suite of tools. The Zero Suite supports design teams in:

- Accessing reliable carbon factors for materials and fuel sources
- Performing speedy early stage optioneering estimates of operational and embodied carbon
- Accepting structured results from third party tools (LCA tools, energy models, or Autodesk ICT)
- Visualizing the results
- Generating insights beyond project level.



Project delivery

At Arup, embodied carbon reporting extends well beyond measuring the impact of our own structural designs—it strengthens the work of our collaborators and advances industry practice. We are frequently engaged to quantify whole building embodied carbon, assess reductions relative to baseline scenarios, and equip clients with defensible data to meet compliance requirements, certifications, and ambitious climate commitments. Together, these efforts demonstrate how embodied carbon analysis can be leveraged not only to measure impact, but also to inform policy, unlock innovation, and accelerate systemic change.

A Guide to Alignment
in the Built Environment

→ Step-by-step recommendations for consistent and transparent embodied carbon assessments through Building Information Modeling (BIM) workflow optimization



WBC
World Business Council
for Sustainable Development

AUTODESK

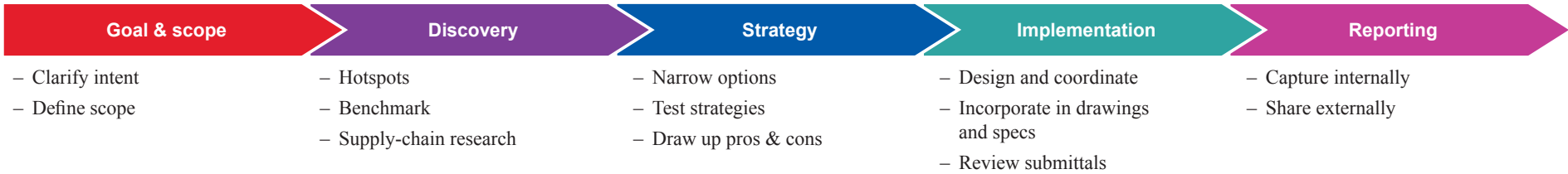
Arup co-authored *A Guide to Alignment in the Built Environment*, a report developed with the World Business Council for Sustainable Development. The guide provides practical direction on aligning BIM workflows with embodied carbon assessment to improve consistency and transparency in results. It supports project teams, owners, and policymakers in integrating carbon considerations earlier and more effectively into design decisions.

UCSF Helen Diller Hospital, CA

Arup is supporting the implementation of low-carbon concrete on UCSF Helen Diller Hospital, within California’s highly regulated healthcare sector. Existing OSHPD requirements limited supplementary cementitious materials (SCMs) to 50% and required 28-day curing periods, making it difficult to use tried and true lower carbon mixes in the Bay Area. To achieve the project’s 20% embodied carbon reduction target, our team pursued an Alternate Means of Compliance process, providing technical support and collaboration to demonstrate performance equivalency of a higher-SCM mix at 56 days. Following our engagement with OSHPD code officials, the agency issued a policy change bulletin ([PIN 81 Low Carbon Concrete](#)) that granted an Alternate Means of Compliance for low carbon concrete mixes that did not prescriptively align with existing code. What began as a project level effort established a pathway for adoption of low carbon concrete in hospital construction statewide.

Portland International Airport (PDX)
Portland, OR

At Portland International Airport (PDX), Arup expanded carbon accounting beyond conventional certification requirements. Our analysis captured the environmental benefits of climate smart timber sourcing and opportunities for structural steel salvage, alongside other sustainability outcomes such as reuse of the terminal connector. Although these strategies lay outside the U.S. Green Building Council LEED framework, Arup ensured their impacts were quantified and acknowledged, contributing to an advancement of current industry norms.



Arup’s high-level process for integrating embodied carbon reduction and reporting into projects.

Liberty State Park Jersey City, NJ

Arup is providing structural, civil, and geotechnical services for the preservation of the historic Central Railroad of New Jersey Train Shed at Liberty State Park. The train shed, constructed between 1912 and 1914, is over 200,000 square feet and listed on both the state and National Register of Historic Places. NJDEP is championing an adaptive re-use approach by telling the story of the structure through historic exhibits in addition to turning the existing structure into a community gathering space. This effort is part of the Liberty State Park Revitalization Program which aims to deliver significant structural and resilience improvements, ensuring that the park's critical assets are preserved for generations to come.

Given the historic significance of the structure, it was imperative to preserve as much of the original structure possible while developing a rehabilitation and retrofit design that would bring the structure up to today's codes and standards. Arup utilized LiDAR scanning and 3-D modelling techniques to efficiently model the large steel frame and capture historic settlements and movements. With this information, the team was able to conduct a detailed structural analysis of the current structure to identify which elements can be reused, thereby reducing the amount of new material added to the structure. Arup is currently conducting materials and soil testing to assess the possibility of reusing the existing foundations. This would in turn lower the total embodied carbon of the restoration project.

Client

State of New Jersey Department of Environmental Protection

Key collaborators

WRT Design

Page Ayres Cowley Architecture LLC

Key facts

Adaptive re-use to preserve historic structure

Detailed analysis and materials testing to minimize new material added

Key services provided

Structural Engineering

Civil Engineering

Geotechnical Engineering



Rendering provided by WXY Architecture, Winter 2025

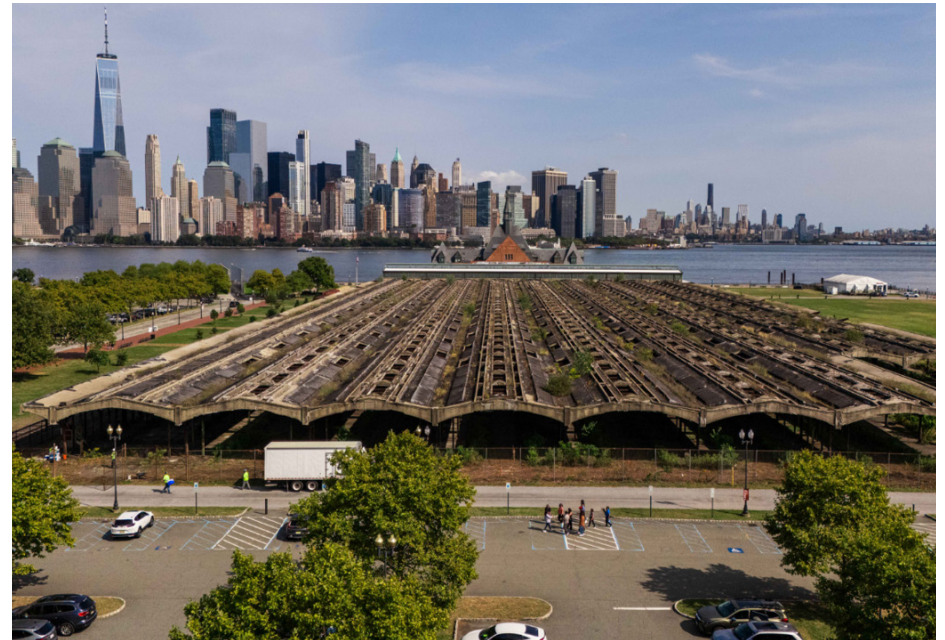


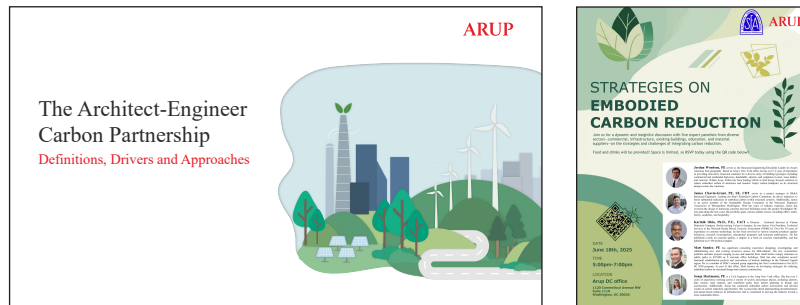
Photo provided by NJDEP, Fall 2024

Advocacy

Arup has been sharing knowledge and data on embodied carbon with the buildings industry for over a decade. We realize that reaching net zero embodied carbon is an ambitious goal that will take significant collaborative effort. Arup will continue to seek ways to engage with others in the buildings industry, inclusive of clients, policymakers, manufacturers, builders, academia, and our peers.

External outreach

Arup develops and delivers educational content for clients and architecture firms on a wide range of topics, including embodied carbon reduction strategies, net zero structural design, green specification practices, and supply chain research. This outreach helps strengthen industry understanding and supports more informed, lower carbon decision making across project teams.



Our Sustainability Implementation Group has developed a range of internal and external presentations to advance our commitment to net-zero carbon. Most recently, our West Coast team created an AIA-accredited presentation, The Architect–Engineer Carbon Partnership, which explores how collaboration between architects and engineers can significantly reduce embodied carbon in structural systems. This resource enables Arup to clearly demonstrate to clients the critical role they play in driving sustainable outcomes and to use early-phase conversations to set ambitious, achievable goals for low-carbon development. For firms interested in hosting this presentation, please contact Bryce Tanner or Ann Jiras.

Our partners, sponsors and memberships

We can't shape a better world alone. That is why we partner with others. Our strategic partnerships tackle the big challenges facing industry, communities, and the planet.



In addition to SE2050, Arup maintains active sponsorship, membership or participation in the following groups and organizations:



Arupians advocating for structural sustainability

Arupians across the firm continue to advance structural sustainability by sharing expertise, shaping industry dialogue, and contributing to collective progress through speaking engagements, publications, and professional leadership.

- Frances Yang presents at the AIA Climate Tech event on circular economy principles (February 2025)
- Bryce Tanner presents The Architect–Engineer Carbon Partnership to Ratcliff Architects
- Lauren Wingo co authors the STRUCTURE magazine editorial [Towards Zero Carbon: Call to Action for Structural Engineers](#) (June 2025)
- Jordan Woodson speaks on a panel at Strategies on Embodied Carbon Reduction, an event hosted by Arup in partnership with SEA Metropolitan Washington (June 2025).
- Lauren Wingo, Jordan Woodson, and Zoe Brown participate in the SEI/ASCE Toward Zero Carbon 2025 Summit and Symposium
- Ann Jiras speaks on a panel at USGBC Carbon Forward: SoCal Sustainable Building Forum on Carbon Insights from Across the Built Environment (August 2025).
- Sean Augustino presents on the new ASCE/SEI Prestandard for Assessing the Embodied Carbon of Structural Systems for Buildings through ASCE Online Learning (August 2025)
- Marissa Visconti presents at the SEAOC Convention on Project Level Workflows for Embodied Carbon Reduction Strategies (September 2025)
- Lauren Wingo speaks on a panel at APTA TRANSform 2025 on Sustainability & Resilient Services for Rail Agencies (September 2025)
- Ann Jiras and Marissa Visconti contribute to SEAOC's response letter to the California Air Resources Board (CARB) regarding reporting requirements and project reporting tools for buildings in California (December 2025)
- Ann Jiras and Frances Yang speak on a panel at the SEAOSC Sustainability Summit on Designing for Circularity (February 2026)



Zoe Brown, Lauren Wingo and Jordan Woodson at SEI/ASCE Towards Zero Carbon 2025 Summit



Ann Jiras and Frances Yang at SEAOSC Sustainability Summit 2026

Industry leadership and engagement

Arupians contribute to industry progress not only through project work and research, but also through active leadership in professional organizations that shape standards, guidance, and collective action on structural sustainability.

- Structural Engineering Institute (SEI) — participation in technical committees, sustainability working groups, and national initiatives advancing embodied carbon literacy and contributing to standards development
- American Institute of Architects (AIA) — engagement through climate focused events, knowledge sharing, and architect–engineer partnership initiatives
- U.S. Green Building Council (USGBC) — involvement in forums focused on carbon transparency, reporting, and whole building decarbonization
- Structural Engineers Association chapters (SEAOC, SEAOSC, SEAMW regional groups) — leadership in local and regional sustainability committees, workshops, and policy focused collaborations
- Additional industry coalitions and advisory groups—including the Carbon Leadership Forum, SE 2050, and the ECHO Project—where Arupians contribute through leadership and active participation in multi-stakeholder efforts that advance circularity, strengthen material transparency, and accelerate the adoption of low-carbon design practices

Technical services supporting structural sustainability

Arup has expanded its technical services to reflect the critical role structural engineers play in reducing carbon emissions and advancing low carbon design. These services strengthen our ability to support clients, influence project outcomes, and advocate for more sustainable structural solutions across the industry.

- Whole building life cycle assessments that quantify embodied and operational carbon across all project stages
- Embodied carbon policy guidance that helps clients navigate emerging requirements and align with best practice standards
- Third party expert support on low carbon concrete to evaluate material options and reduce emissions in structural systems
- Design for circularity services that promote reuse, adaptability, and material efficiency
- Additional non traditional design strategies that broaden the range of low carbon pathways available to project teams
- These offerings position Arup to lead by example—providing the technical rigor, data, and insight needed to drive meaningful carbon reductions in the built environment.

About Arup

We guide, plan and design the future of the built environment. As a global consultancy with extensive technical and advisory experience, we bring a Total Design approach to our work with our clients. This is how we shape a better world.

What Total Design means to us

Total Design is our distinctive approach to design and problem-solving, combining broad contextual understanding, curiosity-driven discovery, deep and purposeful collaboration, and consummate technical excellence. This approach enables us to create meaningful, engaging experiences for our members, systematically empowering them to deliver superior outcomes for our clients, society, and the environment.

The outcomes we seek

We develop sustainable solutions that enable our clients to meet their business needs, while simultaneously addressing the climate crisis, nature loss, and resource efficiency.

We offer a wide range of services, that address every priority in the built and natural environments: climate change risk, resilience and adaptation, decarbonization, engineering and technical services, planning, building performance and commissioning, and more.

California College of the Arts (CCA)



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