



2030 NOW EMBODIED CARBON ACTION PLAN

2023

From the **Stantec Carbon Impact Team**

EXTERNAL

We Design with Community in Mind

Today, our communities face compounding challenges — changing climate; widening social inequities and health vulnerabilities; economic breakdowns and imperiled natural systems and resources – all of which are connected to the climate crisis and demand immediate action to safeguard our collective health and livelihood. The World Economic Forum Global Risks 2022 Report ranked failure to act on climate as the number one threat facing the world, with severe impacts for the next decade. As designers in the built environment, every decision we are making today has a potential impact on a community today, tomorrow, next year, and over the next decade.

We cannot wait for 2030 to realize our 2030 Commitment to designing with community in mind. This Embodied Carbon Action Plan comprises actions we must take today to achieve net zero emissions by 2050.

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Introduction

There is great opportunity to reduce embodied carbon through design, material selection, and specification. Stantec is committed to the challenge.

The building industry accounts for roughly 40% of global energy-related emissions. For the past 50 years, the building industry has focused on reducing operational Greenhouse Gas (GHG) emissions through energy efficiency standards, integrated design and assessment tools, building codes, and performance benchmarking. Through collective efforts, the industry has successfully transformed the operational performance of buildings worldwide. As operational emissions continue to be driven down, the whole life cycle embodied GHG emissions is the next significant opportunity to limit the building industry’s global emissions. Mitigating the worst impacts of global climate change requires the building industry must halve its emissions by 2030 from its 2015 baseline. As the building stock is anticipated to double by 2060, now is the time to intervene and turn carbon neutral goals into action.

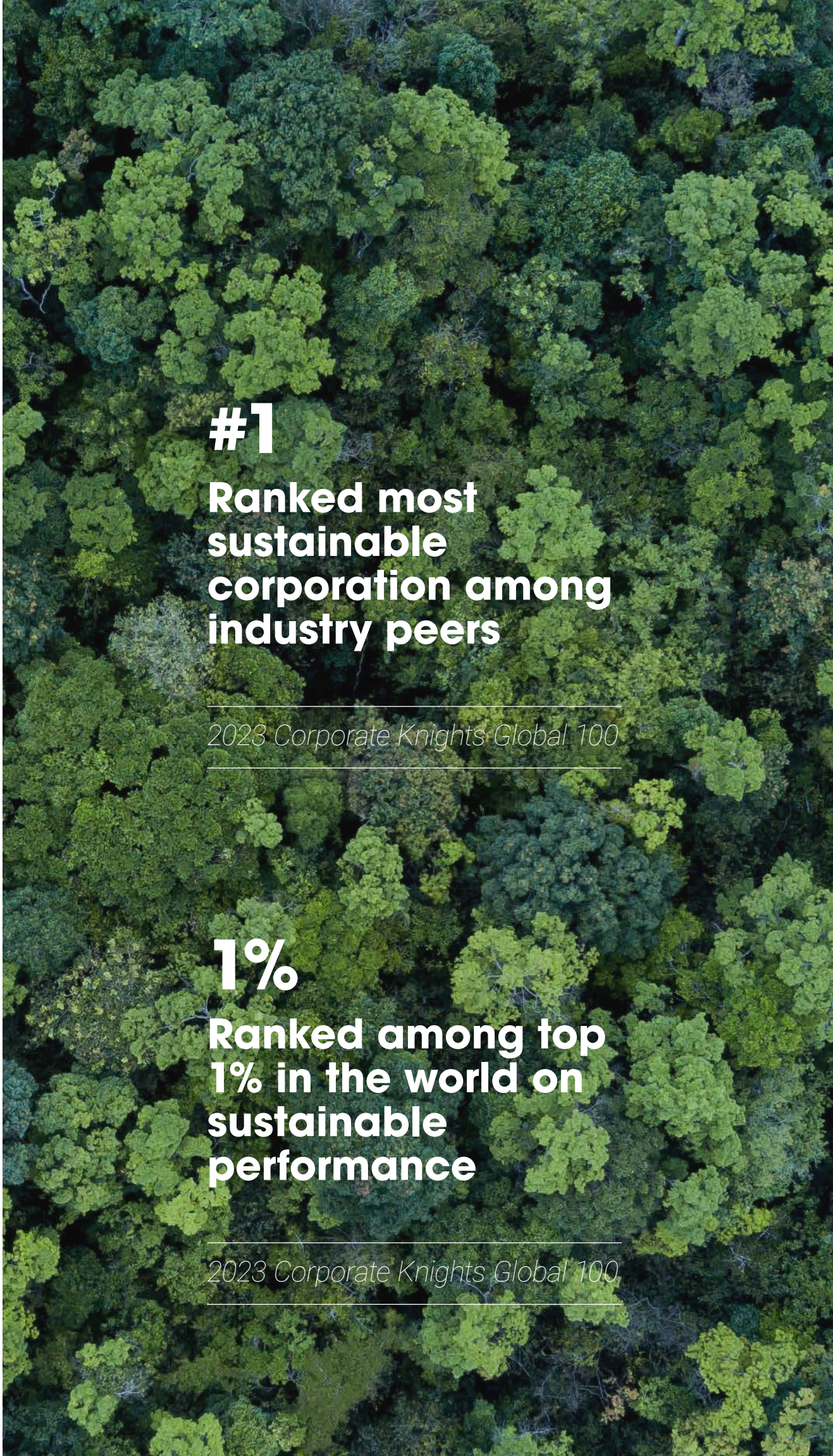
This Embodied Carbon Action Plan (ECAP) comprises actions we must take today to achieve net zero emissions by 2050.

Our Commitment to Sustainability

Stantec practitioners design with community in mind and recognize the urgency and professional responsibility of mitigating carbon emissions and their impact on the climate and built environment.

Our dedication to sustainability is mirrored in Stantec’s corporate priorities. In 2023, Stantec was named [one of the most sustainable companies](#) in the world by Corporate Knights, which released its Global 100 Most Sustainable Corporations rankings. Companies in the Global 100 represent the top one percent of companies in the world on sustainability performance.

Stantec is aligned with the United Nation’s Sustainable Development Goals (SDG) framework as a measure of success both for ourselves as a corporate citizen, and in the work we deliver for our clients.



#1
Ranked most sustainable corporation among industry peers

2023 Corporate Knights Global 100

1%
Ranked among top 1% in the world on sustainable performance

2023 Corporate Knights Global 100

Who We Are

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That’s why at Stantec, we always design with community in mind.

We care about the communities we serve—because they’re our communities too. This allows us to assess what’s needed and connect our expertise, to appreciate nuances and envision what’s never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

We’re designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

AT STANTEC, SUSTAINABILITY IS A PRIORITY AND CONSIDERED IN EVERY ASPECT OF THE FIRM’S OPERATIONS. [VIEW STANTEC’S 2022 SUSTAINABILITY REPORT.](#)

Our Commitment to Reducing Embodied Carbon

As a global leader in sustainable design, we are committed to prioritizing the reduction of embodied carbon in our project work.

The Structural Engineering Institute’s (SEI) Structural Engineers 2050 (SE 2050) Commitment aligns with our commitment to design solutions that make meaningful progress towards carbon neutral buildings and landscapes and prioritize materials that have a positive impact on the environment, climate, human health, and society.

Our commitment to SE 2050 is complimented by the AIA 2030 Commitment and AIA Materials Pledge. Together, these address the embodied carbon, operational carbon, climate change mitigation, and material health impacts of our projects.

[View Stantec’s SE 2050 announcement.](#)

FOUNDATION OF TRANSFORMATION

Stantec commits to transforming the building industry and our practice through the following foundations



Research and standards development



Education and Advocacy



Technical design advancements



Material database and specification development



Benchmarking embodied GHG emission modeling and performance



Knowledge sharing within global Stantec and our industry partners

SE 2050 CHAMPIONS



Robby Vogel
Principal | Structural Engineering Design Leader, North America



Beth Tomlinson
Senior Principal | Sustainability Discipline Leader, North America



Stantec's SE 2050 Commitment Letter

Education

At this point in the climate crisis, there is no shortage of information and materials available in the building industry, and society in general, to better understand what it means to design for climate mitigation, climate adaptation, and long-term sustainability.

Stantec Building practitioners have access to internal and external resources that empower advocacy for low-carbon, climate resilient design.

The Stantec community unites approximately 26,000 team members working in over 400 locations across 6 continents. Our global Buildings business is the largest integrated architectural, interior design and engineering firm. We employ 3,400 people at offices in North America, Australia, New Zealand, Asia, Europe and the Mediterranean, and the North African (MENA) region.



CARBON IMPACT TEAM

Stantec’s Carbon Impact Team, one of the largest dedicated Sustainability & Building Performance practices with specialized teams located across North America, is integrated within our industry sectors. This cross-disciplinary team includes dedicated sustainability champions from a broad range of expertise, including building architects, engineers, landscape architects, scientists, and sustainability specialists.

The Carbon Impact Team hosts monthly internal educational sessions on key sustainability themes, including embodied carbon. In our first year as signatory to the SE 2050 commitment, we held two internal training sessions on embodied carbon. These training sessions were open to our global offices, recorded, hosted on our internal SharePoint site, and distributed in our global internal Stantec Carbon Advocate newsletter.

EMBODIED EXCELLENCE WORKGROUP

Stantec’s Embodied Excellence workgroup aims to advance our internal commitments toward research, education, internal information sharing, and education. This internal workgroup consists of sustainability leaders, embodied carbon modelers, and structural engineers.

North America Leaders in Structural Engineering

Nine regional Structural Design Leaders support Stantec’s structural engineering team across our North America multi-discipline offices. The Structural Design Leaders form Stantec’s Structural Engineering Council, which meets monthly to develop and maintain discipline-specific technical standards, high-performance building objectives, shared metrics, frameworks, research and development, and design excellence.

At Stantec, we believe successful solutions do more with less and start with a goal. Our structural team actively reviews and applies the latest structural technologies and innovations to assist in delivering new, renovated, or rehabilitated structures. Experienced and versatile, we design facilities that are efficient and functional – the optimal environment for staff, customers, and the communities we serve.



Christoph Von Teichman M.Eng., P.Eng.
Structural Design Leader,
Canada East



Rory Smith P.Eng.
Structural Design Leader,
Canada Alberta



Reza Hadiseraji M.Sc., PMP, P.Eng.
Structural Design Leader,
Canada British Columbia



Jens Boehme M.A.Sc., P.Eng.
Structural Design Leader,
Canada East



Mike Simmons PE
Structural Design Leader,
US Northeast



Alan Dyck PE, SE
Structural Design Leader,
US Mountain



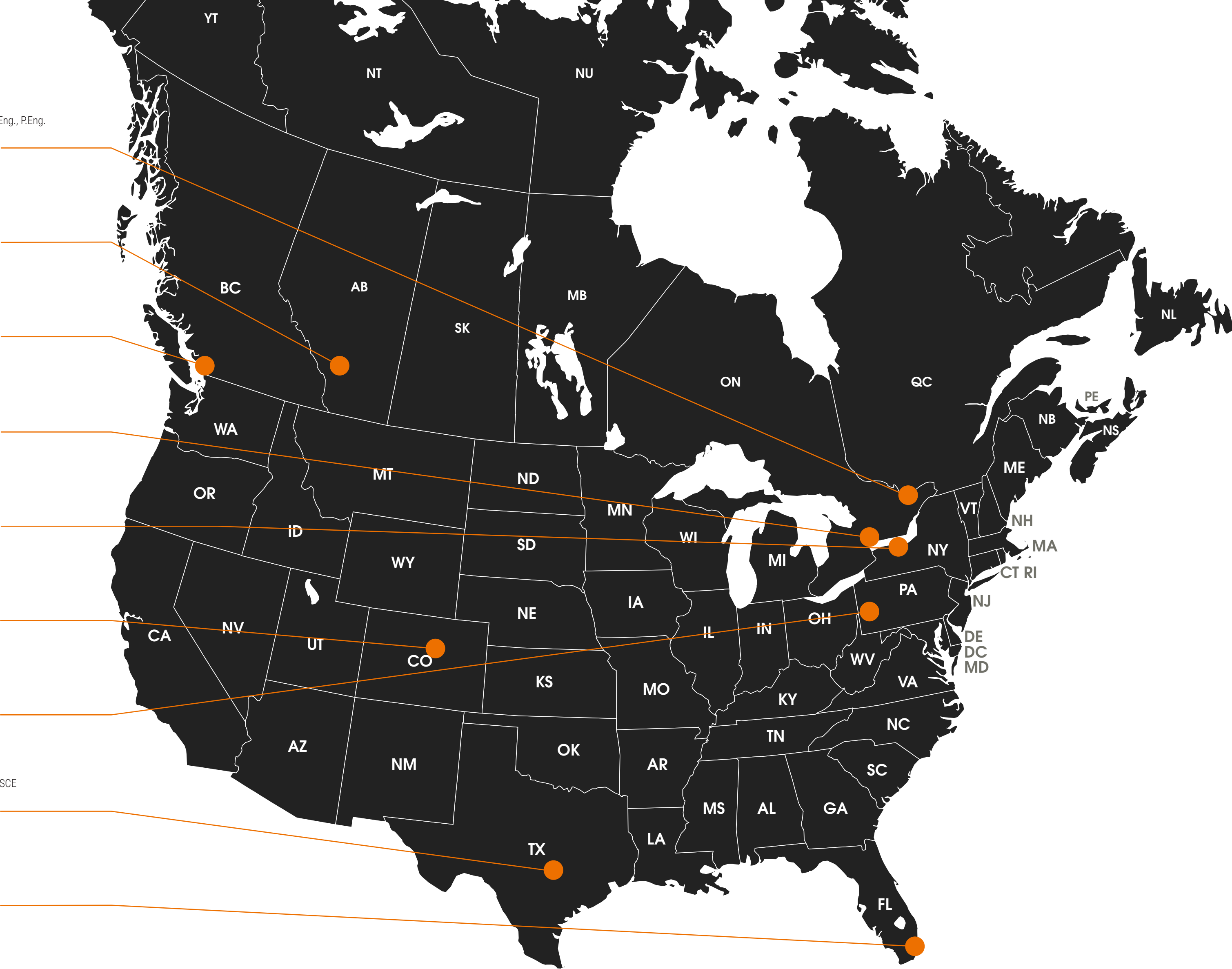
Scott Soule PE, S.E.
Structural Design Leader,
US East



Robby Vogel PE, LEED AP BD+C, M.ASCE
Structural Engineering Design
Leader, North America



Pablo Garcia PE, SE
Structural Design Leader,
US Gulf



2022 Education Actions

- ★ Included Stantec’s SE 2050 commitment within our 2030Now Sustainability Action Plan.
- ★ Distributed our published commitment to SE 2050 internally.
- ★ Developed and presented two webinars focused on embodied carbon to Stantec’s global staff.
- Created an internal SharePoint page for staff dedicated to embodied carbon tools and resources.
- Stantec’s Carbon and Climate Discipline Leader, Beth Tomlinson, engaged in monthly meetings within ASHRAE’s Task Force for Building Decarbonization to develop and publish their Building Decarbonization Position Document and is Vice Chair of the joint ASHRAE/ICC Standard 240P – Evaluating Greenhouse Gas (GHG) and Carbon Emissions in Building Design, Construction and Operation.
- Shared the SE 2050 library of resources with technical staff.
- Global training for staff in embodied carbon modeling in OneClick LCA.
- Initiated an integrated embodied carbon interest group within Stantec.

★ *Required SE 2050 action steps*

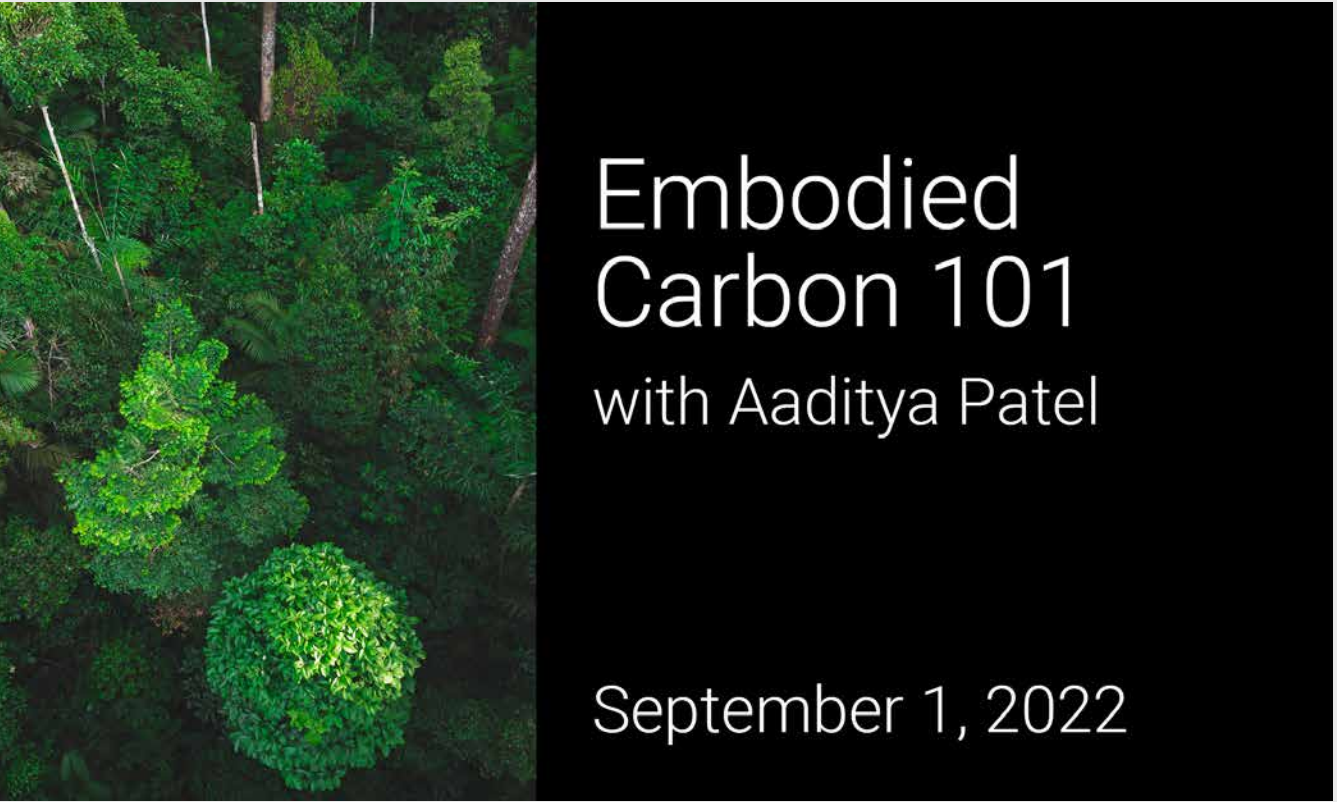
2023 Education Goals

- Maintain a minimum of (2) webinar training sessions on embodied carbon.
- Join Stantec’s engineering council meetings to expand educational opportunities beyond our Buildings business line.
- Present the document, “How to calculate embodied carbon” to all technical staff.
- Finalize the narrative of how our Embodied Carbon Reduction Champions will engage embodied carbon reduction at each office.
- Nominate a minimum of (1) employee per region to participate in the CLF Community Hub and/or task force.
- Nominate a minimum of (1) employee per region to participate within the American Society of Civil Engineer’s.
- Annual trainings on embodied carbon modeling tools for incoming staff.

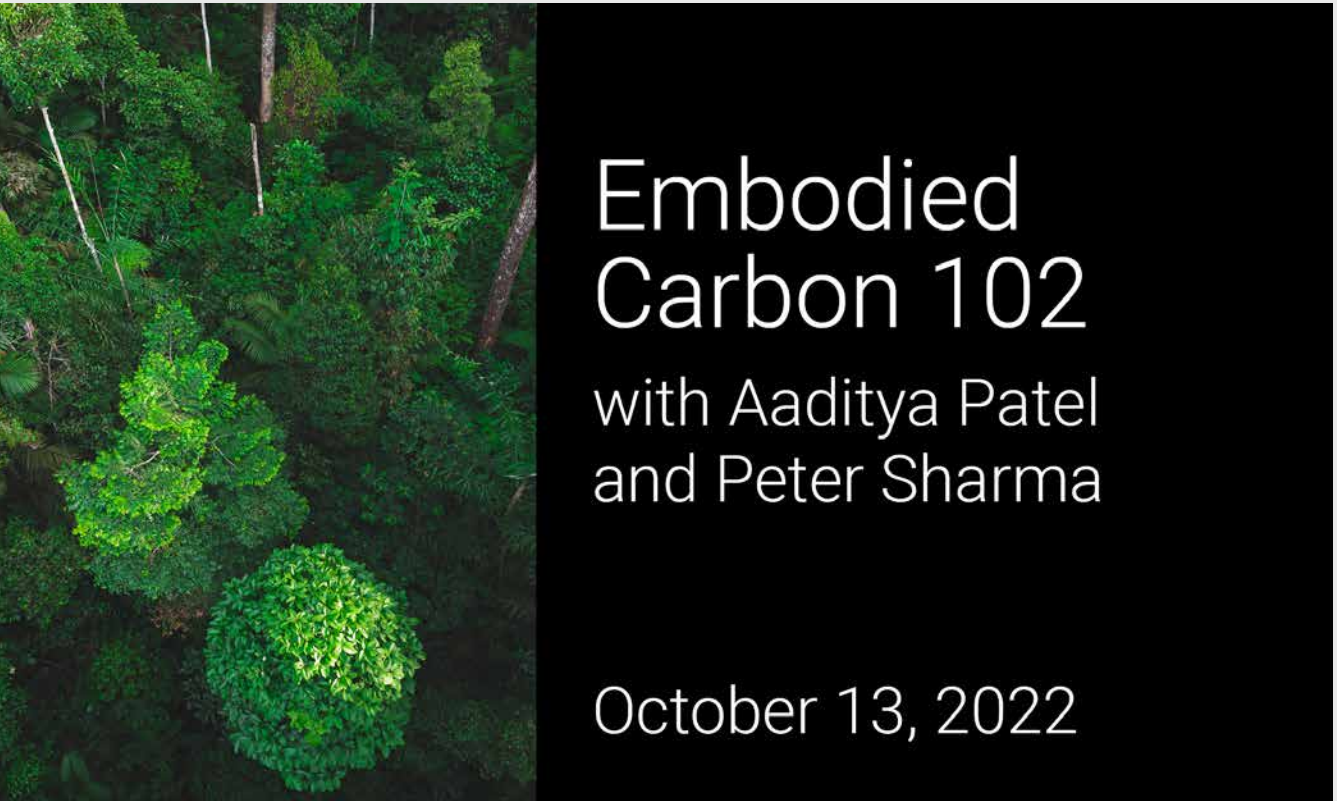
2022 Internal Stantec Embodied Carbon Trainings

This introductory training provided overviews of:

- *Embodied Carbon and Life Cycle Analysis (LCA)*
- *Environmental Product Declarations (EPD)*
- *Calculation Tools*
- *Reduction Strategies*
- *Key drivers*
- *Stantec’s Buildings Commitments*



This follow up training session offered examples of Life Cycle Assessments (LCA) being used to measure and reduce embodied carbon emissions on Stantec projects.



Reporting

Stantec has committed to a year-over-year increase in the number of Stantec Buildings projects that have embodied carbon life cycle analysis(LCA).

To complete our annual reporting and public disclosure on Stantec’s environmental, social, and governance (ESG) issues and achievements, in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Standards, Stantec tracks metrics from the Buildings Business Operating Unit (BOU). We report on sustainability metrics from our project work, including total revenue aligned with the [United National Sustainable Development Goals](#), and project sustainability performance data. Using an internal database, with an established custom methodology, we track our modeled energy and both operational and embodied Greenhouse Gas (GHG) emissions performance expectations for projects over 25,000 square feet.

Reporting annually to SE 2050 is a key component of Stantec’s corporate governance and sustainability reporting.

SE 2050 Reporting Vision

In 2022, Stantec coordinated with OneClick, one of the industry’s leading embodied carbon analysis tool providers, on SE 2050 reporting needs. We requested their assistance in developing a streamline export of embodied carbon modeling to SE 2050’s reporting form. We anticipate that as the embodied carbon industry matures, Stantec’s annual reporting will continue to evolve. Developments will be included in each iteration of our Embodied Carbon Action Plan.

For our first year as signatory, Stantec commits to manually complete SE 2050’s submission files for a minimum of 5 projects located in the United States. Over time, we may opt to include international submissions, as we have a significant portfolio of embodied carbon analysis projects within the UK, Canada, and Australia.

2022 Reporting Actions

- Increased Stantec’s annual project work including embodied carbon modeling.
- Reviewed the SE 2050 reporting form with embodied carbon modeling staff and structural engineers.
- Trained staff to ask about project carbon budgets or established project sustainability goals during proposals, predesign, and/or project kickoff meetings.
- Coordinated with OneClick on SE 2050 reporting exports.

** Required SE 2050 action steps*

2023 Goals

- * Complete the SE 2050 reporting spreadsheet for a minimum of (5) total projects across North America, Australia, and Europe.*

Analysis

The majority of our analysis includes Whole Life Cycle Assessments (WLCA) modules A1-4 and B, and limited modeling of modules C and D. We anticipate that as the embodied carbon industry matures, Stantec’s annual reporting will continue to evolve. We will report on developments in each iteration of our Embodied Carbon Action Plan.

Whole Building Life Cycle Assessment

SYSTEM BOUNDARY

PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BEYOND THE SYSTEM BOUNDARY
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RAW MATERIAL SUPPLY	TRANSPORT	MANUFACTURING	TRANSPORT	CONSTRUCTION INSTALLATION PROCESS	USE	MAINTENANCE	REPAIR	REPLACEMENT	REFURBISHMENT	OPERATIONAL ENERGY USE	OPERATIONAL WATER USE	DECONSTRUCTION DEMOLITION	TRANSPORT	WATER PROCESSING	DISPOSAL	REUSE – RECOVERY – RECYCLING POTENTIAL

Innovations & Reduction

Stantec initiated our internal embodied carbon reduction commitment in 2019 through inaugural corporate investment toward research and development of embodied carbon analysis tools. During the pandemic, staff continued to work on assessing industry tools, developing our structural library of Environmental Product Declarations for commonly used materials, and volunteered in organizations that support industry embodied carbon action.

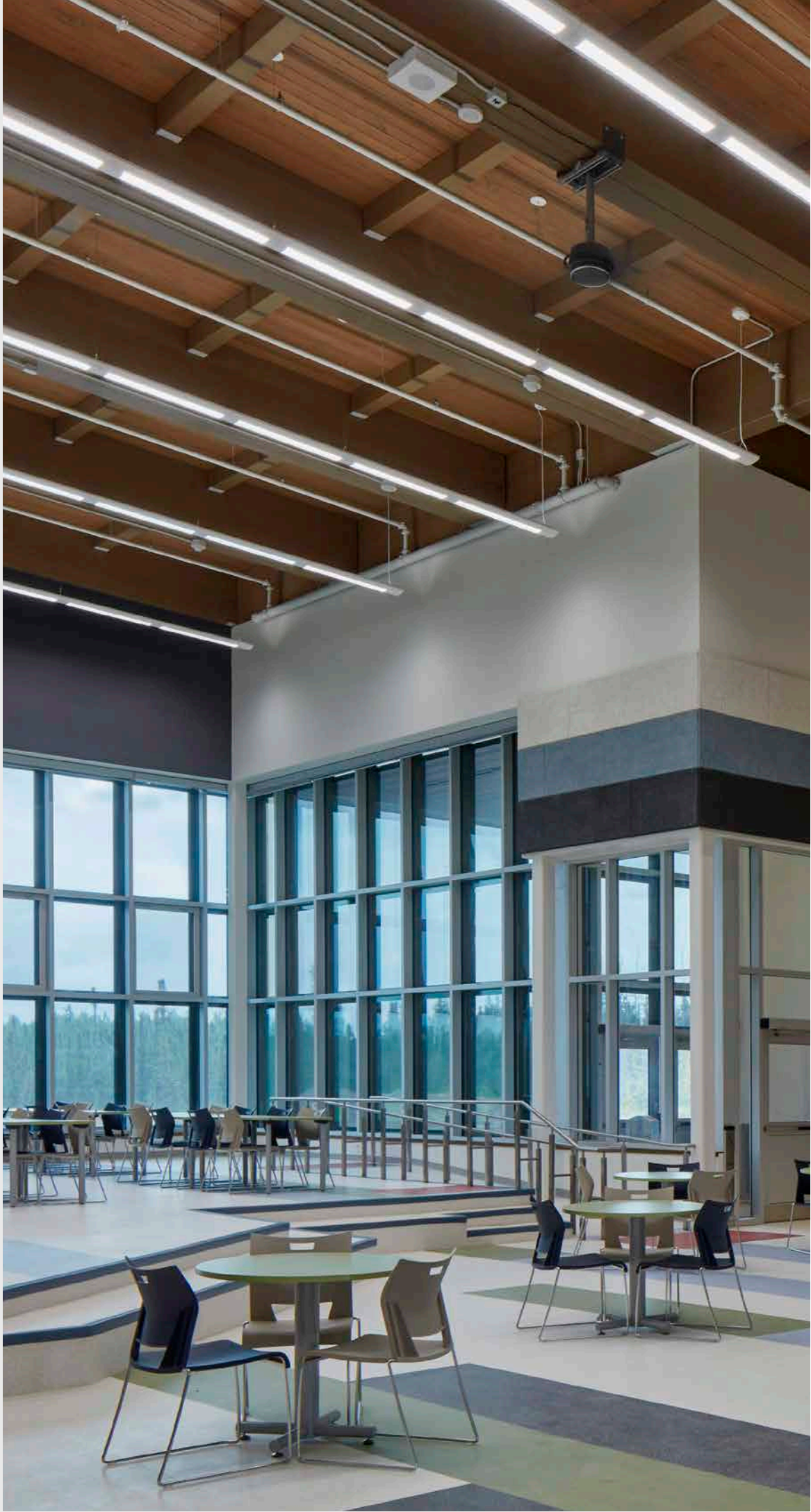
Within the first year of Stantec’s SE 2050 commitment, we will prioritize the reduction of embodied carbon in current projects through the power of procurement. Requesting Environmental Product Declarations of high-impact structural elements and systems, reviewing material and system alternatives during project development, and ultimately specifying low embodied carbon options has **demonstrated up to 20% reduction of total structural embodied carbon**.

BETA TESTING

Innovation and high design are integral to Stantec’s design culture and practice. Over the course of 2023, Stantec has committed to beta testing an early design embodied carbon analysis tool. As integrated design firms understand, early high-performance opportunity assessments support design efficiency, saving the owner and project budget costly redesign or construction changes. Stantec’s subject matter experts are donating their knowledge and time to support this tool’s development over the course of the year. Our goal is to generate industry-wide reduction of embodied carbon in architectural master planning, pre-design, and schematic design phases.

INDUSTRY STANDARDS

Stantec’s Carbon and Climate Discipline Leader has been appointed by ASHRAE to vice-chair the development of a joint ICC/ASHRAE Standard 240P, Evaluating Greenhouse Gas (GHG) and Carbon Emissions in Building Design, Construction and Operation. This innovative building industry standard will provide a code-enforceable methodology to quantify the whole building life cycle GHG emissions, including both embodied and operational emissions.



MANITOBA SCHOOLS INITIATIVE, MANITOBA, CANADA

2022 Innovations & Reduction Actions

- * Began specifying lower carbon materials and systems in building construction documents.
- Continued investing corporate research budgets toward embodied carbon research, innovations, and tools.

2023 Innovations & Reduction Goals

- Complete beta testing of master planning and early design phase embodied carbon analysis tool.
- Continue serving on the joint ICC/ASHRAE Standard 240P committee.
- Advance the development of a new industry specification with industry partners for the reporting of WBLCA modules A4 and A5.

* Required SE 2050 action steps

Advocacy

In response to the climate emergency and the urgency for rapid industry transformation, Stantec commits to leveraging our market influence and resources, not for market gain, but as a service to our clients, our communities, and our staff. We advocate for reduced embodied carbon emissions throughout our Buildings services, including:

- Policy development
- Master planning
- New construction
- Existing building reuse design

In addition to our Buildings services, our integrated, multi-business line, [Climate Solutions](#), provides an internal and external advocacy mechanism to support the whole-building life cycle assessment (WBLCA) chain of impact, including:

- Net Zero Mining
- Transportation electrification
- Fourth industrial revolution
- Manufacturing process retooling
- ESG advisory services
- Energy transitions
- Planning and community engagement

Stantec supports the entire chain of embodied carbon reduction.

2022 Advocacy Actions

- ★ Developed Marketing and Business Development material to explain the market value of SE 2050 and improved embodied carbon performance.
- ★ Declared Stantec as a member of the SE 2050 Commitment through a press release on our website.
- Supported ILFI Net Zero Carbon design standards for international industrial clients.
- Educated manufacturing clients on the importance and market value of generating Environmental Product Declarations (EPDs) and distributed access links to the EPA's free trainings on EPDs.
- Created a QA/QC process for project embodied carbon reduction plans.

★ *Required SE 2050 action steps*

2023 Advocacy Goals

- Present Stantec projects with successful embodied carbon reduction strategies and lessons learned.
- Mentor our pre-approved structural engineering subconsultants on the SE 2050 program and embodied carbon reduction opportunities.




📍 *NORTHLAND NEWTON DEVELOPMENT, NEWTON, MASSACHUSETTS*

Appendixes

IN THIS SECTION

Signature Projects

External Initiatives

 **Atlassian Headquarters**
Sydney NSW, Australia

Joint Venture / Association / Collaboration: LCI Consultants.
Architect of Record: Shop Architects and BVN Architects.



Buildings Signature Projects

We apply building science and design solutions that help reduce the generation of carbon emissions in the built environment and deliver projects with a positive effect on the socio-ecological health of our communities.

Building projects reducing embodied carbon in structural design



BUFFALO CROSSING VISITOR CENTRE

A mass timber structure, high performance envelope, and low carbon design combine to create a new sustainable building exemplar.

[Learn more](#)

 WINNIPEG, MANITOBA, CANADA



303 BATTERY

A 14-story, 112-unit net positive energy multi-family residential tower designed with the intention to achieve the Living Building Energy Petal.

[Learn more](#)

 SEATTLE, WASHINGTON, USA



ATLASSIAN HEADQUARTERS

A timber design with a glass and steel façade and a mix of outdoor and indoor spaces, an energy-efficient approach, and natural ventilation.

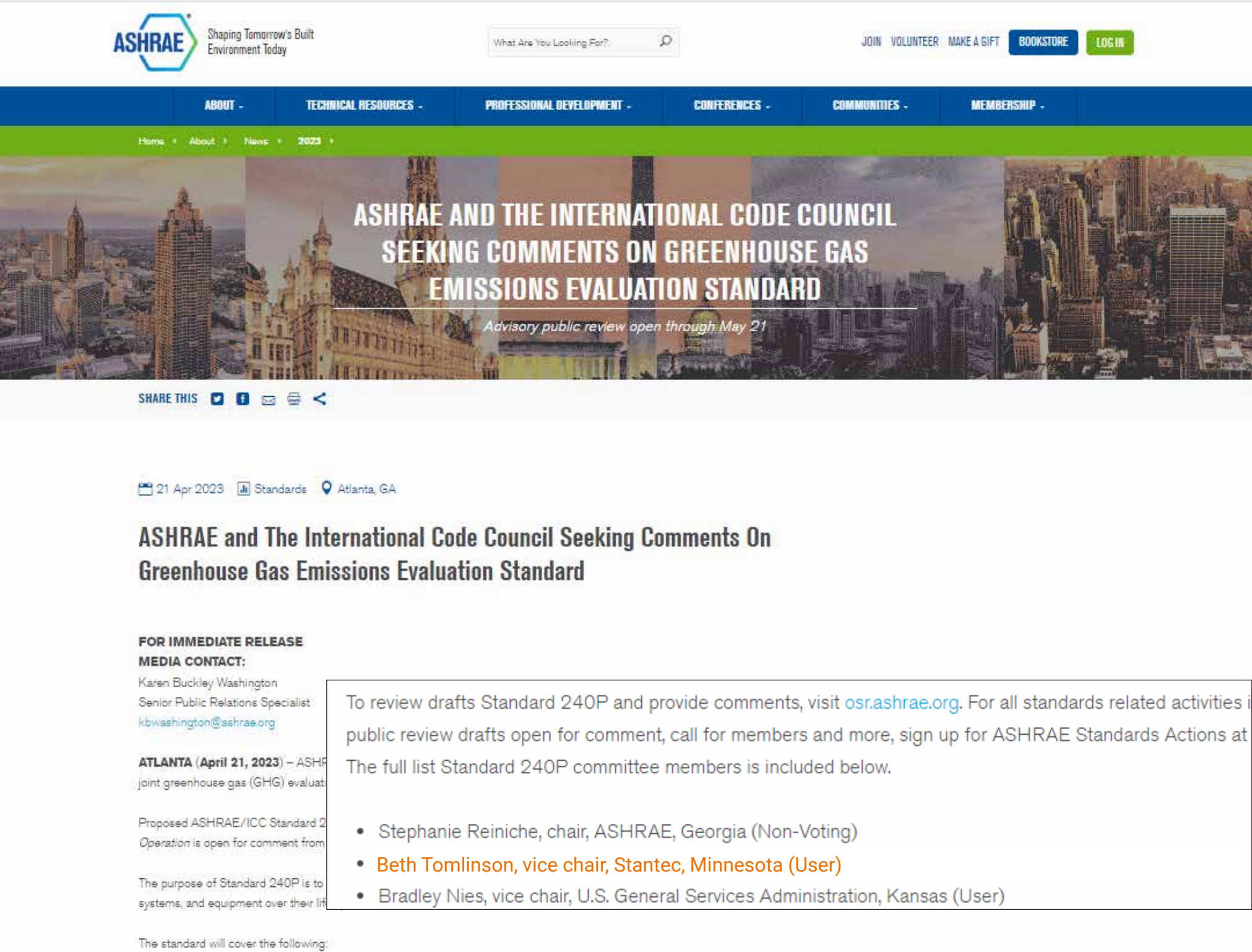
[Learn more](#)

 SYDNEY, NEW SOUTH WALES, AUSTRALIA

External Initiatives

We care about the communities we serve—because they’re our communities too. This allows us to assess what’s needed and connect our expertise, to appreciate nuances and envision what’s never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

Our team includes designers, engineers, scientists, and project managers who are innovating together, sharing their expertise, and advocating for carbon neutral buildings and landscapes and prioritize materials and process that have a positive impact on the environment, climate, human health, and society.



ASHRAE STANDARD 240P ANNOUNCEMENT

Stantec’s North America Sustainability Discipline Leader, Beth Tomlinson, services as Vice Chair of the joint ASHRAE/ICC Standard 240P – *Evaluating Greenhouse Gas (GHG) and Carbon Emissions in Building Design, Construction and Operation*, extending our commitment and leadership within the Buildings industry.

[Read press here](#)

Thought Leadership

Stantec staff have been active leaders and contributors to thought leadership advocating for reducing embodied carbon in design initiatives for many years. Below are articles that provide value to our clients and communities.

EMBODIED EMISSIONS UNDER THE MICROSCOPE

[Read here](#)

RECYCLE YOUR BUILDING: 8 REASONS TO CONSIDER ADAPTIVE REUSE AND RETROFITTING

[Read here](#)

CARBON: A COMMON LANGUAGE FOR CHANGE—NOW IS THE TIME TO ACT

[Read here](#)

ARE NET ZERO ENERGY AND NET ZERO CARBON BUILDINGS A MUST-HAVE?

[Read here](#)