



2026

2030Now Embodied Carbon Action Plan

Stantec Buildings BOU
From the Sustainability team



**Our challenge: to achieve
net-zero embodied
carbon emissions**



On the Cover: Coast Mountain College, Terrace, British Columbia, Canada

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With your reading experience in mind, we have built in easy ways for you to navigate this document.

Use the bottom menu, arrows, and the table of contents to flip to different sections. Watch for information icons, arrows, buttons, and underlined hyperlinks throughout the document. They will lead you to more information.

Designing toward net-zero whole life emissions

Reducing embodied carbon through design, material and system selection, and specification

The building industry is responsible for approximately 37 percent of global CO2 emissions annually. Over the past 50 years, efforts have focused on reducing operational greenhouse gas (GHG) emissions through energy efficiency standards, integrated design and assessment tools, building codes, and performance benchmarking. These collective efforts have significantly improved the operational performance of buildings worldwide.

As operational emissions continue to decrease, the next major opportunity lies in addressing the entire lifecycle of embodied GHG emissions, from material extraction and manufacturing to construction and

end-of-life phases. To mitigate the worst impacts of climate change, the building industry must reduce emissions by 50% by 2030, compared to its 2015 baseline. With global building stock expected to double by 2060, now is the time to turn carbon-neutral goals into action.

This Embodied Carbon Action Plan (ECAP) outlines the steps Stantec Buildings BOU is taking to advance net-zero embodied carbon emissions through structural and MEP (mechanical, electrical, and plumbing) system design.



FortWhyte Alive Buffalo Crossing Visitor Centre, Winnipeg, Manitoba, Canada



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Our Commitment

To design with community in mind is to design with sustainability and resilience in mind. That's our everyday focus in communities around the world. Our approaches deliver positive environmental and social performance from each of our business operating units and geographies.

OUR COMMITMENT

At the forefront of sustainability

Stantec is a global design and delivery leader in sustainable engineering, architectural, planning, and environmental services.

Our technical specialists are at the forefront of innovations that help communities predict and plan for climate change, enhance biodiversity and environmental health, provide social value, develop economic opportunities, and create a sense of place and well-being.

At Stantec, sustainability is key to our purpose, promise, and values. And we live it every day because we are accountable to our communities—to strengthening them and making them resilient for whatever the future may hold.



A- Score

Eighth year recognized for climate leadership and emissions reduction

2025 CDP Climate

1.5°CSTBs

Progressed validated near-term emissions reduction targets

Science Based Targets Initiative

Carbon Neutral

Annually balance residual emissions with quality carbon credits

Our Operational Pledge

OUR COMMITMENT

Reducing embodied carbon

The diverse perspectives of our partners and interested parties drive us to think beyond what’s previously been done on critical issues like climate change, digital transformation, and adaptation within our cities and infrastructure.

Embodied carbon accounts for approximately 10% of annual CO2 emissions¹. To address this, we are focused on reducing embodied carbon in our projects. We are signatories to the Structural Engineering Institute’s (SEI) Structural Engineers 2050 (SE 2050) Commitment and the Carbon Leadership Forum’s Challenge, and resulting MEP 2040 Commitment.

These commitments complement our Buildings-wide goals, collectively addressing embodied carbon, operational carbon, climate change mitigation, and the material health impacts of our projects.

1. [United Nations Environment Programme \(2024\)](#)



Foundation of transformation

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

- Research and standards development
- Education and engagement
- 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



Meagan Erdman
Associate,
Senior Structural Engineer
US West



Beth Tomlinson
Senior Principal,
Sustainability Discipline Leader
North America

MEP 2040 Champion



Mehdi Jalayerian
Senior Principal, TSS Lead,
Mechanical Engineer
US Central

📍 **303 Battery**, Seattle, Washington, USA
Stantec: Electrical engineering services
Architect: CollinsWoerman

OUR COMMITMENT

Signatory industry pledges

We proudly work alongside industry leaders who share our commitment to reducing embodied carbon emissions in the built environment.

Our design leaders guide our teams with a dedication to researching and integrating the latest technologies, materials, and innovations to create more sustainable building designs, whether for new construction, renovations, or rehabilitations.

Net zero building design starts with industry climate pledges

Joining industry climate pledges supports sustainability initiatives and decarbonization

SE 2050 Commitment

The SE 2050 Commitment is dedicated to reducing embodied carbon in our projects by prioritizing the use of lower-impact structural materials. Our goal is to transform structural engineering with a holistic, data-driven, and firm-wide approach that spans across individual projects.

By 2050, our structural engineers are striving to reduce embodied carbon from our designs, leading the way in sustainable, future-focused engineering practices.

SE 2050 ANNOUNCEMENT

MEP 2040 Commitment

The MEP 2040 Commitment aims to radically cut carbon emissions from mechanical, electrical, and plumbing (MEP) systems in buildings by 2040.

This ambitious effort challenges our systems engineers to pursue net-zero operational carbon by 2030 and net-zero embodied carbon by 2040. It covers emissions from the entire lifecycle of MEP systems, including manufacturing, installation, maintenance, and disposal. By addressing both operational and embodied carbon, MEP engineers are empowered to innovate, use low-carbon materials, and implement energy-efficient solutions to minimize the carbon footprint of building systems.

MEP 2040 ANNOUNCEMENT



Federation of Korean Industries Head Office Building, Seoul, South Korea
Stantec: Mechanical and electrical engineering services | Architect: Adrian Smith + Gordon Gill Architecture

OUR COMMITMENT

North America structural design leads

We are committed to continuously innovating and improving structural design to create a lasting impact on the environment and the built world.

Our Structural Engineering Council is led by 9 structural design leaders from across our North American practice. This team meets regularly to establish and maintain technical standards, high-performance building goals, efficient and functional design practices, shared metrics, frameworks, research and development, and design excellence.

Our structural team continuously reviews and integrates the latest technologies and innovations to support the design and delivery of new, renovated, or rehabilitated structures.



Canada



CA WEST
Rory Smith, P.Eng, Principal



CA EAST
Jens Boehme, M.A.Sc., P.Eng.
Principal



CA QUEBEC
Simon Trudel Longeudoc
ing., M.Sc.A.
Team Leader - Structure



CA ATLANTIC
Nathan Guy, P.Eng.
Senior Associate, Senior
Structural Engineer

United States



US NORTH CENTRAL
Ryan Braun, PE
Structural Team Lead



US WEST
Joe Rice PE, SE,
Principal, Senior
Structural Engineer



US DALLAS
Brad Cheshire
Principal, Structural
Engineering Lead



US SOUTH
Pablo Garcia
PE, SE
Structural Design Lead



US NORTHEAST
Mike Simmons
PE
Senior Structural Engineer

OUR COMMITMENT

North America MEP design leads

Our dedication to sustainable design drives us to explore innovative solutions, low-carbon materials, refrigerants with low global warming potential, and energy-efficient technologies.



Engineering Discipline Lead



Doug Bryan
P. Eng., LEED AP
Senior Principal, Buildings
Engineering Discipline, Lead,
Mechanical

Canada



CANADA WEST
Kerry Hebden, P.Eng, CPHD
Senior Associate, Mechanical
Team Lead, Industrial Studio



CA CENTRAL
Jamie Handscomb, P.Eng.
Senior Principal



CA QUEBEC
Catherine Marchand
ing., M.Ing., PA LEED C+CB
Senior Director - Building



CA ATLANTIC
Jeff Rent, P.Eng., LEED AP
Business Centre Practice
Leader

United States



US WEST
Jeff Waring
PE, LEED AP BD + C
Principal, Mechanical



US SOUTH
Elizabeth Slyziuk
BS, PE, LEED AP, ATD
BC Practice Leader



US NORTHEAST
John Havlicek, PE
Principal, Mechanical
Engineer



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Actions and Goals

We have developed actions and goals around the following key areas to help us achieve our commitment to reduce embodied carbon emissions in our project work:

Education

The building industry offers a wealth of resources to better understand and implement climate mitigation, climate adaptation, and long-term sustainability in design.

Our global Buildings practice integrates architecture, interior design, and engineering. With over 13,500 professionals across North America, Australia, New Zealand, Asia, Europe, and the MENA region, our Buildings team fosters collaboration and encourages education in sustainable design.

 **Highpoint 2222**
Austin, Texas, USA



Sustainability Team

With roughly 100 dedicated staff within North America, Stantec’s Sustainability team is one of the largest dedicated holistic sustainability and building performance practices within the industry. This specialized team is integrated with design teams across industry sectors and design disciplines.

The team organizes monthly educational sessions aligning with our commitments to address embodied carbon, operational carbon, climate change mitigation, and the material health impacts of our projects. At least two of these sessions focus specifically on embodied carbon. These virtual training sessions are open to all global offices, recorded, and available for future staff training.

Embodied Excellence Workgroup

Stantec’s Embodied Excellence workgroup is dedicated to advancing our internal commitments to research, education, and information sharing. Comprising sustainability leaders, embodied carbon modelers, architects, and engineers, this group focuses on fostering collaboration and expertise within the company.



2026 SE 2050 Education Goals

- Conduct a minimum of (2) internal webinar training sessions on embodied carbon, with structural design considerations.
 - Continue to nominate a minimum of (1) employee per region to participate in the Carbon Leadership Forum Community Hub and/or task force.
 - Hold annual trainings on embodied carbon modeling tools applicable for structural design for incoming staff.
 - Request material and system environmental product declarations (EPDs) from vendors during material and system considerations. Prioritize low-
- carbon products during scheduling and specification.

 - Provide SpecLink training to engineers to educate on embodied carbon specification requirements.
 - Incorporate SE2050 into our company onboarding materials to introduce new engineers to Stantec’s sustainability initiatives and to increase company wide embodied carbon literacy.
 - Send (1) member of the Embodied Excellence group to the annual SE2050 conference to share lessons learned with the larger group.

2026 MEP 2040 Education Goals

- Develop a multi-disciplinary and integrated education series
- Develop in-house training on low vs. high GWP refrigerant choices.
- Plan in-house training to inform technical staff on carbon reducing design strategies and embodied carbon calculation methods.
- Develop design guides related to equipment selection reducing operational and embodied carbon.
- Develop training tools and resources on “selling” carbon reducing designs to support business development, project management and other client-facing team members.

2025 Internal Embodied Carbon Training

We are committed to educating our staff on the impact of embodied carbon emissions in building design, including considerations around structural and MEP systems. As part of this initiative, we offer at least two dedicated training sessions each year. These sessions are recorded and added to our internal resource library, offering continuous learning for both new and existing team members. This ongoing education empowers our design team members to consider embodied carbon across all aspects of building design.

Embodied Carbon Action Plan: MEP 2040 and SE 2050 commitments and actions
📅 May 4, 2025

Sustainability and our SE 2050 Commitment
📅 June 4, 2025

Whole life greenhouse gas accounting
📅 September 3, 2025

📍 **110 North Wacker Drive**, Chicago, Illinois, USA
Stantec: Mechanical and electrical engineering services, sustainability consulting
Architect: Goettsch Partners

Reporting

Our commitment to reporting is a cornerstone to our corporate governance and sustainability efforts.

At the heart of this effort is our internal 2030 toolkit, which plays a vital role in tracking and reporting the sustainability performance of the buildings we design across North America. This tool captures design-phase project data, initially focusing on key requirements outlined in the AIA 2030 Commitment.

After years of refining a custom methodology, database, and user interface, we continue to enhance our Buildings data reporting. The toolkit will expand to include additional data around embodied carbon, to further strengthen our sustainability metrics.

Aligning with this, we have committed to a year-over-year increase in the number of Stantec Buildings projects that incorporate embodied carbon life cycle analysis (LCA).

This ongoing effort underscores our dedication to transparent, impactful reporting that drives sustainable outcomes across our portfolio.



evol1, Waterloo, Ontario, Canada

Embodied Carbon Reporting Vision

In 2023, Stantec coordinated with Autodesk, a global leader in design software, to develop an early phase embodied carbon modeling tool. As a result of this collaboration, automated embodied carbon reporting is in process. We anticipate that as the embodied carbon industry matures, our annual reporting will continue to evolve.

Stantec commits to manually complete SE 2050’s submission files for a minimum of two projects in each of Stantec’s U.S. regions, totaling ten projects. 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.

2026 SE 2050 Reporting Goals

Complete SE 2050’s submission files for a minimum of two projects in each of Stantec’s U.S. regions, totaling ten projects.

100% of embodied carbon LCA modeling projects are entered into the Stantec Buildings 2030 toolkit.

Further develop the automation of embodied carbon analysis and reporting process for North America.

2026 MEP 2040 Reporting Goals

Develop tracking for low global warming potential (GWP) refrigerant, inclusive of project progress and compliance metrics.

Develop tracking for MEP systems/component environmental product declarations (EPD), inclusive of project progress and compliance metrics.

Reduction

Through innovative approaches and solutions, we’re reimagining and redefining what’s possible for our communities.

We apply this same innovative mindset to reducing embodied carbon.

In 2019, we initiated our internal embodied carbon reduction initiative by investing in the research and development of embodied carbon analysis tools. Since then, our team has continued to evaluate industry tools, expanded our library of Environmental Product Declarations (EPDs) for commonly used materials, and volunteered with organizations that champion industry-wide action on embodied carbon.

Within the first year of our commitment to SE 2050, we focused on reducing embodied carbon through the power of procurement. By requesting EPDs for high-impact structural elements and systems, evaluating material and system alternatives during project development, and specifying low embodied carbon options, our teams realized up to a 20% reduction in total structural embodied carbon.

 **UC Davis Health, Health Administrative Services Building**
Rancho Cordova, California, USA

Beta Testing

Our goal is to drive industry-wide reductions in embodied carbon during the architectural master planning, pre-design, and schematic design phases. In 2023, we supported the development of an early-design phase embodied carbon analysis tool. This tool enables high-performance opportunity assessments in the early design phases, promoting design efficiency. Our design team members are generously contributing their expertise and time to support the tool’s development throughout the year.



2026 SE 2050 Reduction Actions

- Specify lower carbon building materials and systems in building construction documents.
- Explore innovative design solutions that use fewer materials without compromising structural integrity.
- In 2025, we overhauled our concrete specifications to a prescriptive standard to give Readymix suppliers for our buildings more freedom to decarbonize concrete mixes. In 2026, we will publish that document for our structural engineers to use for their projects.

2026 MEP 2040 Reduction Actions

Low GWP Refrigerants:

- Develop in house list of manufacturers/equipment and update specifications to reduce use of high GWP refrigerants.
- Update specifications to include equipment selection of low GWP refrigerants.
- Update equipment schedule templates to facilitate refrigerant accounting/reporting.

Request MEP Systems/Component EPD (Environmental Product Declarations)

- Collaborate with frequently specified manufacturers to gain an understanding of current carbon and refrigerant use and disclosure practices.
- Update specifications to request manufacturer disclosure of refrigerant type, amount, and efficiency as part of the submittal package.
- Communicate Stantec’s commitment to reducing carbon footprints as part of our 2040 initiatives. Moving forward, we will prioritize manufacturers who align with this goal in our specifications.



From Left

- **University of Northern British Columbia Wood Innovation Research Laboratory**, Prince George, British Columbia, Canada
- **British Columbia Institute of Technology (BCIT) Health Sciences Centre**, Burnaby, British Columbia, Canada

ACTIONS AND GOALS

Analysis

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

The majority of our analysis includes Whole Building Life Cycle Assessments (WBLCA) modules A1-4 and B, and limited modeling of modules C and D.

Building Decarbonization Guide

Our building decarbonization guide provides design strategies for reaching net zero at each stage in the building lifecycle.

 **Starling**
Houston, Texas, USA

Whole Building Life Cycle Assessment

System Boundary

PRODUCT STAGE	A1	Raw Material Supply
	A2	Transport
	A3	Manufacturing
CONSTRUCTION STAGE	A4	Transport
	A5	Construction Installation Process
USE STAGE	B1	Use
	B2	Maintenance
	B3	Repair
	B4	Replacement
	B5	Refurbishment
	B6	Operational Energy Use
	B7	Operational Water Use
END OF LIFE STAGE	C1	Deconstruction Demolition
	C2	Transport
	C3	Water Processing
	C4	Disposal
BEYOND THE SYSTEM BOUNDARY	D	Reuse - Recovery - Recycling Potential



Engagement

We recognize our vital role in decarbonizing the built environment and actively seek opportunities to drive positive change within the industry.

Our focus is on promoting sustainable, equitable, and resilient design strategies that reduce embodied carbon emissions. Through our industry relationships, collaborative partnerships, and communication efforts, we support reducing greenhouse gas emissions. We also engage clients and communities in understanding the importance of sustainable design and its impact on long-term environmental and social outcomes.

Our integrated Climate Solutions team enhances our Buildings BOU services by offering internal and external support of the entire whole-building life cycle assessment (WBLCA).

In 2025, Stantec sponsored and presented at several national industry conferences dedicated to decarbonization, including ASHRAE, Net Zero, and Retrofit Canada and USA.

 **Coast Mountain College Trades Building,**
Terrace, British Columbia, Canada



2026 SE 2050 Engagement Goals

- Mentor pre-approved structural engineering subconsultants on the SE 2050 program and embodied carbon reduction opportunities.
- Support the embodied carbon Harmonization and Optimization (ECHO) collaboration to drive consistent embodied carbon reporting requirements and databases for embodied carbon challenges.
- Create a menu of performance analytics scope options to assist pursuits and proposals.
- Develop and present at least two seminar sessions on decarbonization within the international community.

2026 MEP 2040 Engagement Goals

- Strengthen our interdisciplinary task committee including MEP engineers, sustainability consultant, building energy and embodied carbon analyst, and marketing.
- Participate in MEP 2040 forums.
- Nominate a minimum of (1) employee per region to participate in the Carbon Leadership Forum Community Hub and/or task force.
- Nominate a minimum of (1) employee per region to engage with organizations and initiatives relevant to MEP professionals, such as ASHRAE or the American Society of Plumbing Engineers.

ACTIONS AND GOALS

Influence

Stantec staff have been active in task forces and committees contributing to sustainable, equitable, and health-centric design initiatives.

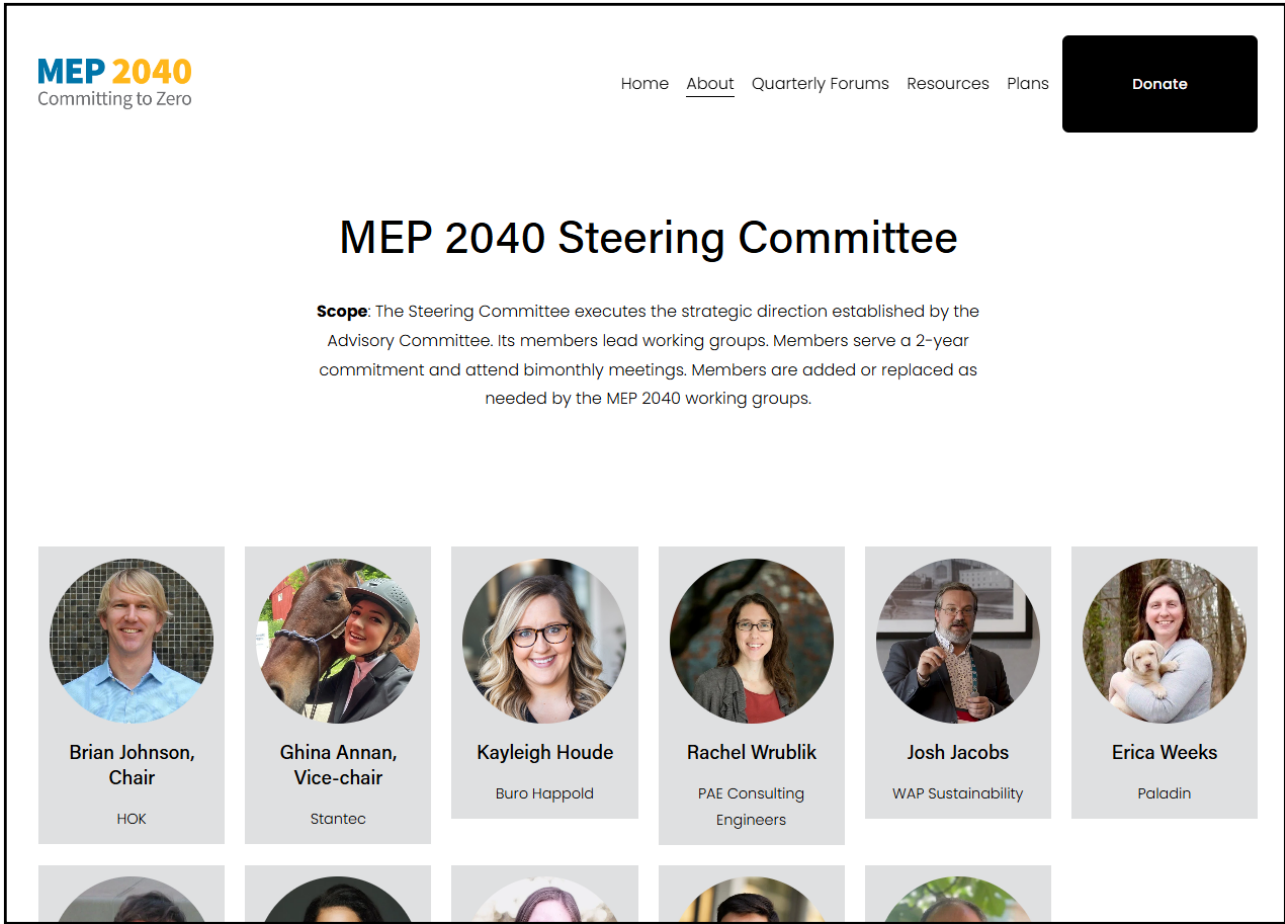
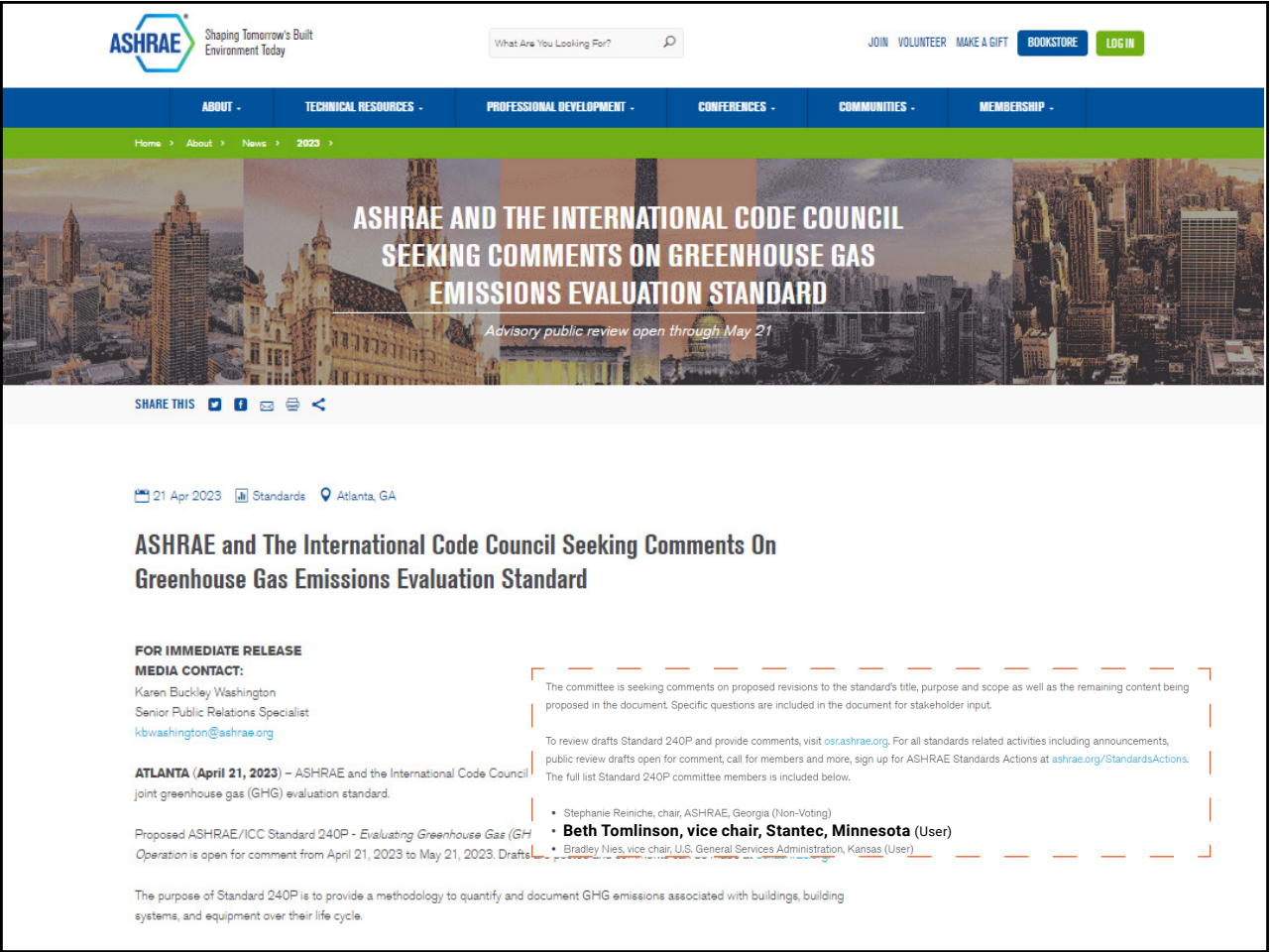
Industry Standards

Stantec partnered with Autodesk on the carbon analysis tools in the Autodesk Forma Cloud.

Stantec’s North America Sustainability Discipline Leader, Beth Tomlinson, serves 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. This innovative building industry standard provides a code-enforceable methodology to quantify the whole building life cycle GHG emissions, including embodied and operational emissions.

[Read press here](#)

Stantec’s [Ghina Annan](#) serves on the MEP 2040 Steering Committee, which is responsible for executing the strategic direction established by the Advisory Committee. Steering Committee members lead key working groups, contribute to advancing MEP 2040 priorities, and participate in bimonthly meetings over a two-year term.



Thought Leadership

Stantec staff are active leaders and contributors to thought leadership advocating for reducing embodied carbon in design initiatives

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](#)

Low-carbon building materials: Designers discuss alternative options
[Read here](#)

New ASHRAE Standards tip the balance toward net zero buildings
[Read here](#)

Does your building need a life cycle assessment?
[Read here](#)

Reducing embodied carbon in building systems: From concept to practice
[Read here](#)

Lessons learned

Education

- Interns had limited exposure to embodied carbon, presenting opportunity for engagement at the university level.
- Client education of embodied carbon is crucial in the early project phase.
- Industry exposure around embodied carbon expertise has been well received.

Reporting

- Reporting at a global scale requires continuous engagement.
- There is an opportunity for staff to provide training and reporting support.
- There is value in including all families in Revit for exporting materials.
- Structural engineers benefit from tracking structural material quantities throughout design. Quantity data is not only required for LCAs but also serves as a gage for efficient structural design.

Actionable embodied carbon reduction requires early design analysis and team feedback.

 **Austin Convention Center Redevelopment**, Austin, Texas, USA
Joint venture: LMN Architects

Innovation & Reduction

- Assessing MEP energy conservation measures (ECMs) with structural embodied carbon provides ROI on the whole life of a building.
- Early design consideration impacts the extent of reduction.
- Prefabrication / modular construction can reduce emissions when close in proximity to the site.
- Climate risk and resilience research is needed to understand short versus long term costs.
- Engagement with vendors can escalate embodied carbon savings.
- Opportunity for EPD design growth.
- There are limitations in understanding variances between construction methods.
- Adaptive reuse is vital for decarbonizing the built environment

Engagement

- There is value in discussing real world examples.
- There is opportunity to provide objective information and encourage collaboration.





03

Appendix

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.

* **La Trobe University Student Accommodation**
Stantec: Mechanical and electrical engineering services, sustainability consulting
Architect: JCB Architects

** **Library and Archives Canada Preservation and Access Facility P3**
Stantec: Structural, electrical and mechanical engineering services, civil engineering, sustainability and building performance, environmental services, physical security
Architect: B+H Architects



Maple Ridge, British Columbia, Canada

E-One Moli Energy – Lithium-Ion Battery Cell Manufacturing Facility
Seven-story mass timber Lithium-ion battery cell manufacturing facility with green roof, targeting net zero carbon certification LEED Gold.
[Learn more](#)



Newton, Massachusetts, USA

Northland Newton Development
Design strategies for this mixed-use redevelopment include the use of mass timber structure with CLT floor planks, glulam beams, and glulam columns.
[Learn more](#)



Winnipeg, Manitoba, Canada

FortWhyte Alive Buffalo Crossing Visitor Center
A mass timber structure, high performance envelope, and low carbon design combine to create a new sustainable building exemplar.
[Learn more](#)



Gatineau, Quebec, Canada

Library and Archives Canada Preservation and Access Facility P3**
This zero-carbon facility is achieved through efficient building design, the use of materials with minimal embodied carbon.
[Learn more](#)



Bundoora, Victoria, Australia

La Trobe University Student Accommodation*
Cross-laminated timber construction, building envelope performance, and a reduction in embodied carbon to achieve a 5 Green Star As Built rating.
[Learn more](#)



Vancouver, British Columbia, Canada

Vancouver Community College
This low-carbon design features a robust HVAC system is designed to adapt to climate change, and mass timber acts the primary structural material in the atrium.
[Learn more](#)



Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

📍 Lakehouse, Denver, Colorado, USA