rjc

Engineers

# EMBODIED CARBON ACTION PLAN 2026

SEI ASCE STRUCTURAL ENGINEERING INSTITUTE | SE2050 COMMITTING TO NET ZERO

TRCA Administrative Headquarters

# CONTENTS

# 1.0 RJC'S COMMITMENT

RJC Engineers (RJC) is an employee-owned engineering firm that celebrates creative thinking, prompt service, and technical excellence in the design and maintenance of structures. RJC provides structural engineering, structural restoration, building science, parking facility design, structural glass engineering, and building energy modeling services. Bringing the best of RJC to every project for over seven decades, the firm integrates ingenuity and practicality to create success for its clients and their projects.

RJC recognizes that the decisions we make today as structural engineers can impact society for generations. With this in mind, we acknowledge our role in shaping a more sustainable future and fully support the vision that all structural engineers shall understand and make efforts to reduce and ultimately eliminate embodied carbon in their projects by the year 2050.

For over seven decades, we have promised "Creative Thinking. Practical Results" to our clients and industry partners. While our promise remains the same a lot has changed within industry. Once thing that has not changed fast enough however, is the high carbon load of buildings. Worryingly atmospheric CO2 levels have risen from 311ppm (in 1950) to 429 ppm as we prepare our 2026 Embodied Carbon Action Plan, when we know that keeping CO2 below 350 ppm is needed to attempt to keep the planet at safe levels of warming. As creative thinkers passionate about solving problems, we see our commitment to SE 2050 as an opportunity to develop and share bold, innovative, and practical solutions.

Is RJC ready to educate, explore, question, solve, report, advocate and share? Yes, we are.

This Embodied Carbon Action Plan (ECAP) outlines how we at RJC will capitalize on our strengths and, creatively, practically drive down carbon emissions associated with our projects while simultaneously helping the industry.

## 2026 at a glance

Building on our 2025 foundation, in addition to "tool development and training" RJC is **amplifying our data collection efforts, and further embedding carbon aware decision making into everyday practice**.

RJC's 2026 focus areas include:

- Expanding the volume and diversity of projects within our **RJC Ascend** database.
- Developing a **Low Carbon Playbook for Structural Design**, providing step by step guidance for designers.
- Beginning **regional and project type analysis** to better understand RJC specific design patterns.
- Tracking how RJC's work compares to the **300 $kgCO_2e/m^2$** target for structural designs >1,800 $m^2$.
- Increasing transparency by making target tracking metrics available on the **RJC Intranet**.

# 2.0 EMBODIED CARBON TEAM

While all RJCers contribute to our SE 2050 journey, we have identified a core group to provide focused leadership and advance SE 2050 initiatives.

RJC continues to operate under a distributed leadership model, led by our Embodied Carbon Champion and SE 2050 Project Manager, with support from the Structural Technical Group (STG), Sustainable Design Liaison Group (SDG), Corporate Marketing team, and our network of Embodied Carbon Ambassadors.

Two Technical Excellence Committees play a central role in advancing SE 2050 at RJC: the STG and SDG. Working closely together, these groups guide and implement initiatives across regions and practice areas.

Our Embodied Carbon Champion, Dominic Mattman, also chairs the Structural Technical Group, which oversees the technical direction of RJC's Structural Engineering Practice. This alignment ensures SE 2050 leadership is directly integrated with technical resource development, training, staff growth, and RJC's broader industry contributions.

Dominic is supported by Wendy Macdonald, SE 2050 Project Manager and Chair of the SDG, who provides day to day coordination and leadership.

This work is further supported by the Ascend Database Team, which tracks and interprets embodied carbon data, and by our Embodied Carbon Ambassadors—subject matter experts who serve as local resources, helping distribute knowledge and support project teams in decarbonization efforts.

# 2.0 EMBODIED CARBON TEAM

## Dominic Mattman
BASc, MASc, P.Eng., LEED® AP
Associate
Embodied Carbon Champion
Chair Structural Technical Group

## Wendy C. Macdonald
P.Eng., ENV SP, LEED® AP BD + C
National Sustainability and Carbon Leader
SE 2050 Project Manager
Chair Sustainable Design Group

## Mike Moffatt
BASc, P.Eng., LEED® AP
Executive Principal
SE 2050 Executive Committee Liaison

## Terry Bergen
CTech, LEED® AP, CPHC
Managing Principal
SE 2050 RJC Board of Directors' Liaison

## Anna Wang
MASc
Sustainability and Carbon Leader
Ascend LCA Expert

## Danielle Arciaga
BASc, EIT, wbLCA AP
Building Performance Engineer
Ascend LCA Expert

## Kaison Cheung
BASc
Engineering Software Programmer
Ascend Database Expert

## Alex Hartloper
PhD, EIT
Engineering Software Programmer
Ascend Database Expert

## Tanya Kennedy Flood
BBA, CITP | Corporate Marketing and Communications Leader
SE 2050 Communications Lead

# 3.0 EDUCATION PLAN

Our education plan for 2026 continues to focus on three primary strategies:

1. Developing higher level literacy
2. Cross pollination
3. Custom learning

**Developing higher level literacy**

Maintaining what we gained through our 2023 firm-wide Embodied Carbon Basic Literacy training, we preserve this level playing field by including access to the training in our onboarding materials.

We are pleased that in January 2026 we launched RJC's updated Intranet, which supersedes our previous Knowledge Hub and provides a nimble but expansive platform to help RJCers stay informed and educated about RJC initiatives, standards, and core knowledge about our practice areas. This will be the home for resources on implementing more thorough reduction strategies on our projects.

Our new Intranet brings together everything from introductory information on SE 2050 and embodied carbon, to training videos on calculating, visualizing, and tracking project embodied carbon using our Ascend tool. It also includes guidance on reduction strategies and shows which Embodied Carbon Ambassadors are available for an impromptu chat.

Through posts on our Intranet, we will be able to keep RJCers appraised of our updated ECAPs, and how we're doing with our embodied carbon targets.

**Cross Pollination**

2026 is the year we really put our Embodied Carbon Ambassadors to work. Because RJC offers services beyond structural design (i.e. building enclosure design, building restoration, building performance/ energy modelling, Life Cycle Assessments (LCA), deep carbon retrofits, etc.), we have Embodied Carbon Ambassadors from our non-structural disciplines too. This means our LCA practitioners will be working hand-in-hand with our structurally minded Ambassadors, allowing for holistic thinking and cross-pollination of ideas.

**Custom learning**

We are proud of our 2025 Structural Training Days, crafted largely by our SE 2050 Embodied Carbon Champion. Hundreds of RJC Structural engineers and BIM staff attended in-person training across four events held across Canada. We reiterated the link between structures and global warming and introduced our new embodied carbon reduction target. A panel of embodied carbon experts (architects, developers, authorities) explained why it's important to them and how we can help. Through hands-on sessions with RJC-Ascend—our new tool for estimating, tracking, and communicating embodied carbon emissions—staff built key skills. Through the rest of 2025 and into early 2026 we've reinforced this work with smaller, focused BIM and designer sessions. We're proud to say that 2025 included ~1400 hours of staff education, more than four hours per person.

# 3.0 EDUCATION PLAN

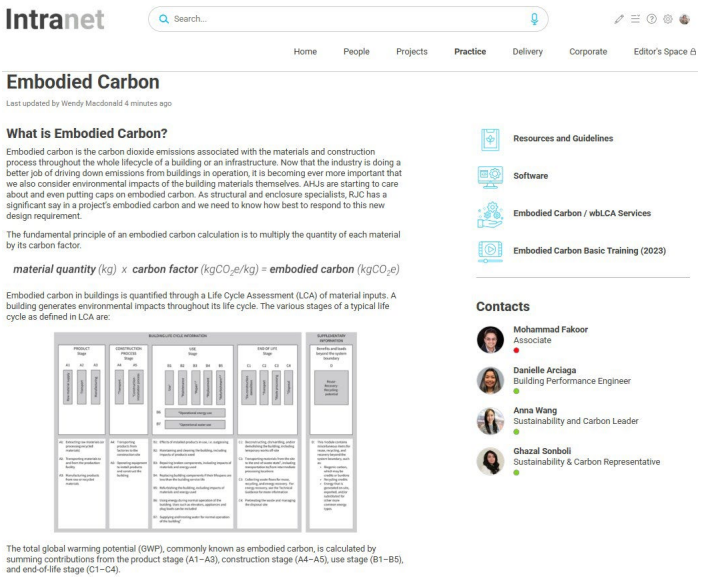
In 2026, our Embodied Carbon Ambassadors will play a key role in amplifying communications. Through quarterly meetings with the other Ambassadors led by our SE 2050 Program Manager, and regular discussions with managers and project teams, they will begin to truly establish themselves as local subject matter experts.

They will support local teams as they undergo the work of a “big lift” of populating the Ascend database, helping designers and BIM staff use the tools on real projects.

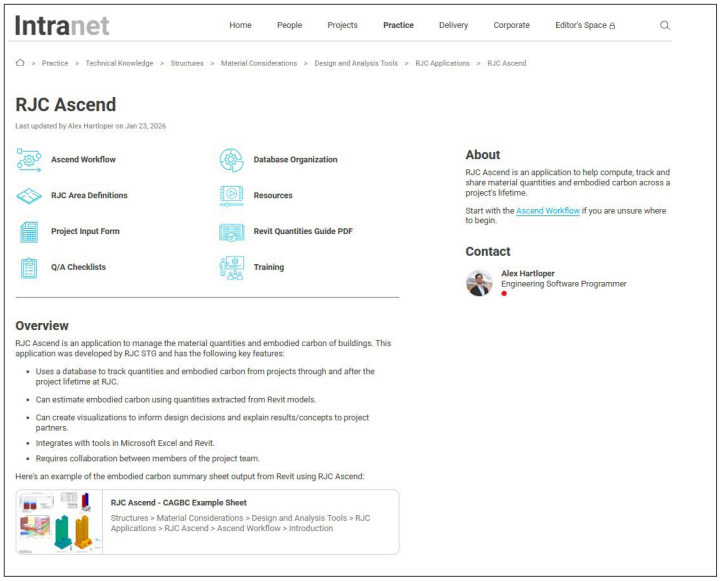
They will form a network and conduit for information flow as the Ascend workflow is expanded into the Low Carbon Playbook /workflow over the year. In late 2026 or early 2027 they will present the work done over the past months to their local teams.

Our education goal of 2026 is to move beyond information-sharing toward a practical, learn-by-doing approach.

Once more projects have been added and our Ascend database team analyses the data, we will provide bespoke education to teams across the country tailored to their location and typical structural designs.


The total global warming potential (GWP), commonly known as embodied carbon, is calculated by summing contributions from the product stage (A1–A3), construction stage (A4–A5), use stage (B1–B5), and end-of-life stage (C1–C4).



# 3.0 EDUCATION **ELECTIVES**

**Provide a narrative of how the Embodied Carbon Champion will engage embodied carbon reduction at each office.**

This year's increased mobilization of our Embodied Carbon Ambassadors will strengthen our Embodied Carbon Champion (Dominic)'s lines of communication between SE 2050 team and local offices.

Dominic will lead the charge of working with offices to populate the Ascend database, and the development of tools to help us analyze the resulting data.

Our SE 2050 Project Manager (Wendy) will lead the development of the Low Carbon Playbook, eliciting input from our Embodied Carbon Ambassadors.

Ultimately, the Ambassadors will present the outcomes to their teams: helping to further establish them as local subject matter experts.

**Present at least one (1) webinar focused on embodied carbon and make a recording available to employees (include resource in on-boarding materials).**

RJC has a bespoke Embodied Carbon Basic Literacy Training, using the Boston Society for Architecture – Embodied Carbon 101 Youtube video teamed with a preamble recording from our SE 2050 Project Manager explaining what it means that RJC is an SE 2050 signatory, and an overview of the 2023 ECAP.

This recording was made available during a company wide roll-out and "viewing parties" through 2023, and now is accessed through our company Intranet. Viewing the recorded video is part of onboarding for new Structural hires.

**Train all your firm's structural engineers on the core concepts and skills required to measure, reduce, and report embodied carbon.**

In 2026 we will build on solid foundation of embodied carbon basic literacy, RJC Ascend hands-on training and the Sustainability content of the 2025 Training Days. It's time to make the next leap forward.

The Low Carbon Playbook we plan to create will provide stage-by-stage information, actions, and resources, and tie into our Ascend workflow for our structural engineers to measure, reduce, and report embodied carbon. These resources, backed by the support of our Embodied Carbon Ambassadors will be the catalyst to change and act as experiential learning.

**Incorporate embodied carbon reduction in your onboarding process for all new employees.**

Onboarding materials point new structural staff to embodied carbon resources, including the Embodied Carbon Basic Literacy Training, on our new Intranet.

**Initiate an embodied carbon interest group within your firm and outline their goals. This group may more broadly address sustainbility, but they must include embodied carbon.**

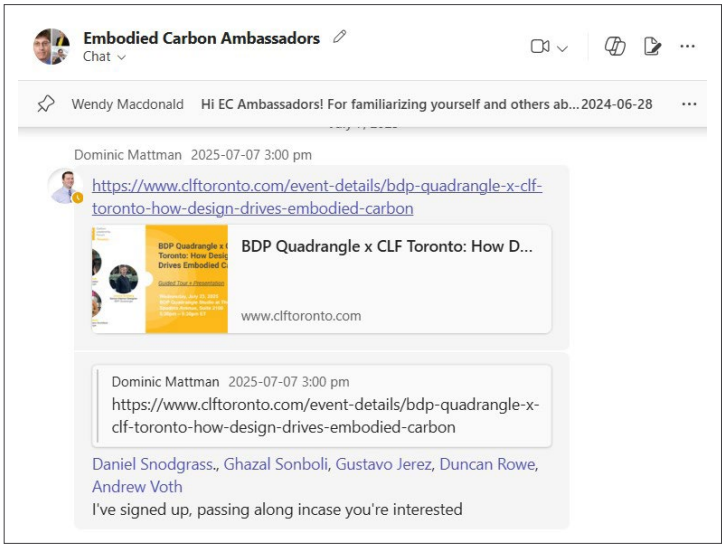
As noted in our Embodied Carbon Team section, we have two related but separate groups who have a particular interest in embodied carbon. One is our Sustainable Design Liaison Group, whose mandate is to provide continuing education of staff regarding basic principles and latest trends in the practice of sustainable design.

# 3.0 EDUCATION ELECTIVES

Our Embodied Carbon Ambassadors are subject matter experts and are becoming the go to local resources for embodied carbon—helping spread knowledge and support project teams as they work to decarbonize.

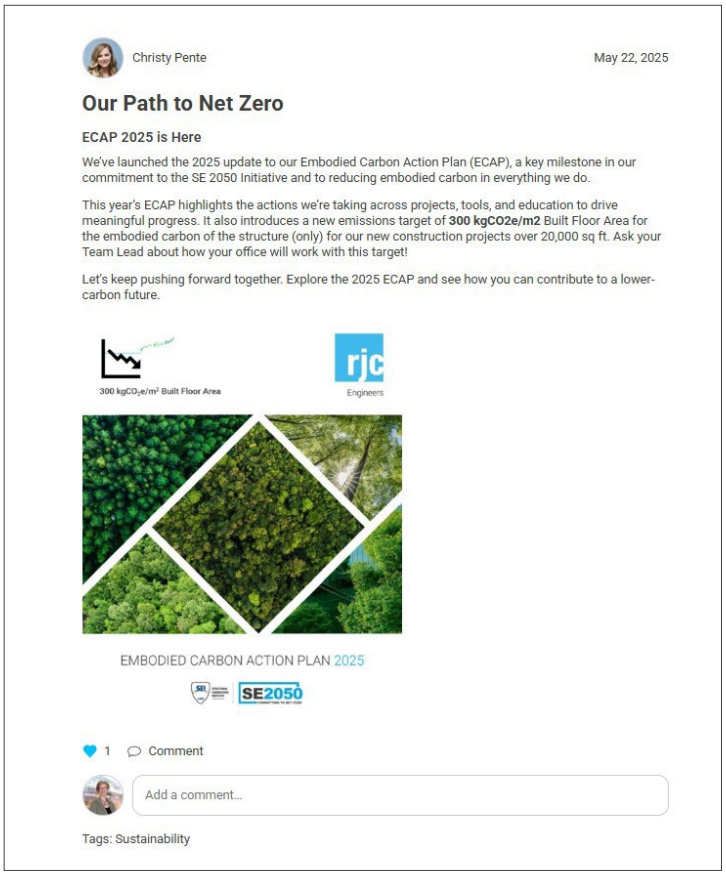
**Create an Embodied Carbon digital resource wiki and/or forum on your firm's internal website for staff to create, share, and discuss Embodied Carbon educational resources.**

Our Embodied Carbon Ambassadors connect informally through a Microsoft Teams channel to share knowledge and respond to emerging questions. Firmwide updates are shared through our new Intranet, where members of the SE 2050 team post embodied carbon news, events, and updates, and all RJCers can comment and engage—while more informal, behindthescenes conversations continue within the Ambassador Teams channel.




**Engage with a CLF Regional Hub. This could mean: (1) Attending presentations or working sessions and reporting back to the firm OR (2) Co-chairing a hub.**

Anna Wang, our Sustainability and Carbon Leader in the Toronto office, is on the CLF Toronto steering committee and plays a prominent role in the embodied carbon space in Toronto and beyond.



# 4.0 KNOWLEDGE SHARING/ADVOCACY ELECTIVES

As an industry leader, RJC readily shares knowledge through industry publications, seminars, conferences, webinars, lunch and learns and more. We use many mediums to take full advantage of opportunities to share our knowledge, celebrate our successes, detail our case studies, and provide lessons learned with the larger industry and public.

In 2025, our Embodied Carbon Champion (Dominic) was busy attending and presenting at various conferences and events. He attended the Canada Green Building Council's (CAGBC) day long Embodied Carbon Summit for the second year and, along with 80 participants, discussed topics ranging from establishing a Canadian national database for whole building life cycle assessment (wbLCA) results, aligning wbLCA tools, harmonizing wbLCA frameworks, implementing an Embodied Carbon target in the National Building Code, costing data collection, increasing market awareness, and ensuring appropriate industry expertise. He'll go back again in 2026.

He traveled to Phoenix, AZ to participate in the SE 2050 panel during the SEI Structures Congress (and looks forward to continuing the discussions in 2026 in Boston). He was also a participant in the SE 2050 Summit held in Boulder, CO along with Kaison from our Ascend Database Team.

He has presented two separate case studies during the Canadian Institute of Steel Construction (CISC)'s annual conference in Montreal, QC, and will present for CLF Alberta and at a regional CISC event in Toronto in 2026. Daniel Snodgrass, one our Embodied Carbon Ambassadors presented at the FIB (International Federation for Structural Concrete) International Conference on Concrete Sustainability as well as the Lower Carbon Concrete Symposium in Toronto.


*Figure 1 - Dominic and SE 2050 Co-Chair Luke Lombardi at the 2025 SEI Structures Congress*

*Figure 2 - Dominic and Kaison at 2025 SE 2050 Summit in Boulder, CO*

# 4.0 KNOWLEDGE SHARING/ADVOCACY **ELECTIVES**

RJC has also signed up to become a partner of the Centre for the Sustainable Built Environment at the University of Toronto. Furthermore, RJC has joined the Re-Use Cooperative which has the ambition of creating standards for the salvage and re-use of building materials with particular focus on brick and steel.

With 2025 being the marketing launch of our RJC Ascend and RJC Aspire tools, we have found ourselves busy demonstrating the tools to clients and colleagues. Easy to demonstrate with just a laptop and monitor, we've showcased one or both tools at Canada Green Building Council's 2025 Building Lasting Change Conference, client parties and lunch and learns.

Moving into 2026, we look forward to continuing to contribute, collaborate, and advocate in the industry.


*Figure 3 - RJC booth at Canada Green Building Council - Building Lasting Change conferenced, 2025*

**RJC Aspire**

is an application that provides a fast way for teams to check that their concept stage Part 3 residential design is on track to meet energy and Greenhouse Gas targets (both operational and embodied carbon).

**RJC Ascend**

is an application to streamline the workflow for estimating, tracking and communicating material quantities and embodied carbon in our structural designs.

*"First you must **Aspire** to build better, then you can **Ascend** to reach your goals."*

# 4.0 KNOWLEDGE SHARING/ADVOCACY **ELECTIVES**

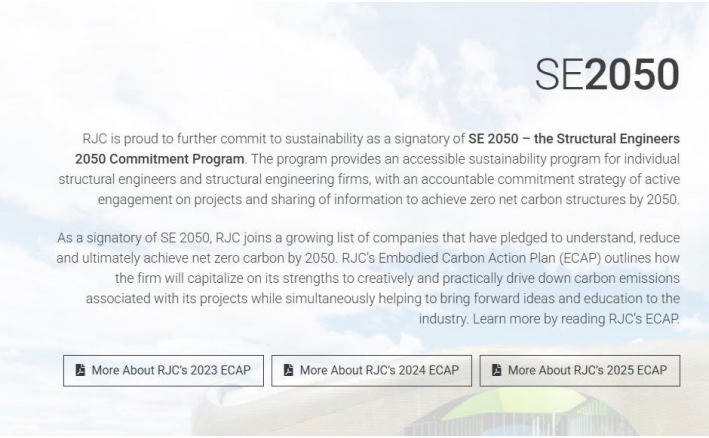
### Publicly declare your firm as a member of the SE 2050 Commitment

Our website describes the value of SE 2050 and notes our pride to join a growing list companies that have pledged to understand, reduce and ultimate achieve net zero carbon by 2050. We include a link to our 2023, 2024, 2025 and now this 2026 ECAP which further details our pledge and the reasons.

### External Presentations & Case Studies

We're curious, and we share what we've learned. RJC Ascend was utilized for the recently published embodied carbon study for the CISC Low-Rise Commercial Buildings Study showing 20% reductions were achievable through the structural steel alone while only accounting for 40% of the overall GWP in a "steel" building. Dominic has presented this study multiple times, including at the 7th Centre for the Sustainable Built Environment Partners meeting, and at the Canadian Institute of Steel Construction Conference in Montreal, where we also participated in a panel on the 12-Storey case study led by ArcelorMittal Dofasco. We also presented at the Lower Carbon Concrete Symposium in Toronto, the FIB (International Federation for Structural Concrete) International Concrete Symposium and sat on the SE 2050 Panel at the ASCE's Structure's Congress.

In 2026, we're looking forward to collaborating with industry partners in multiple studies as well as presenting at the FIB Congress in Portugal.




# 4.0 KNOWLEDGE SHARING/ADVOCACY **ELECTIVES**

Describe the value of SE 2050 to clients.

We talk about SE 2050. In RJC presentations to prospective clients, we often include a series of slides on sustainability, including one specifically noting our SE 2050 commitment


**Engage with structural material suppliers in your region to communicate the importance of EPDs and low-carbon material options.**

Last year, RJC completed case-study on Low-Rise Commercial Steel Buildings, requested by the Canadian Institute of Steel Construction (CISC). A primary element of the study was the impact of product specific EPDs and progressing beyond industry average EPDs. This study found that low-rise steel buildings (i.e., 1-6 storeys) should be expected to satisfy current municipal embodied carbon limits in Canada if a reasonable effort is made to source low-carbon materials.

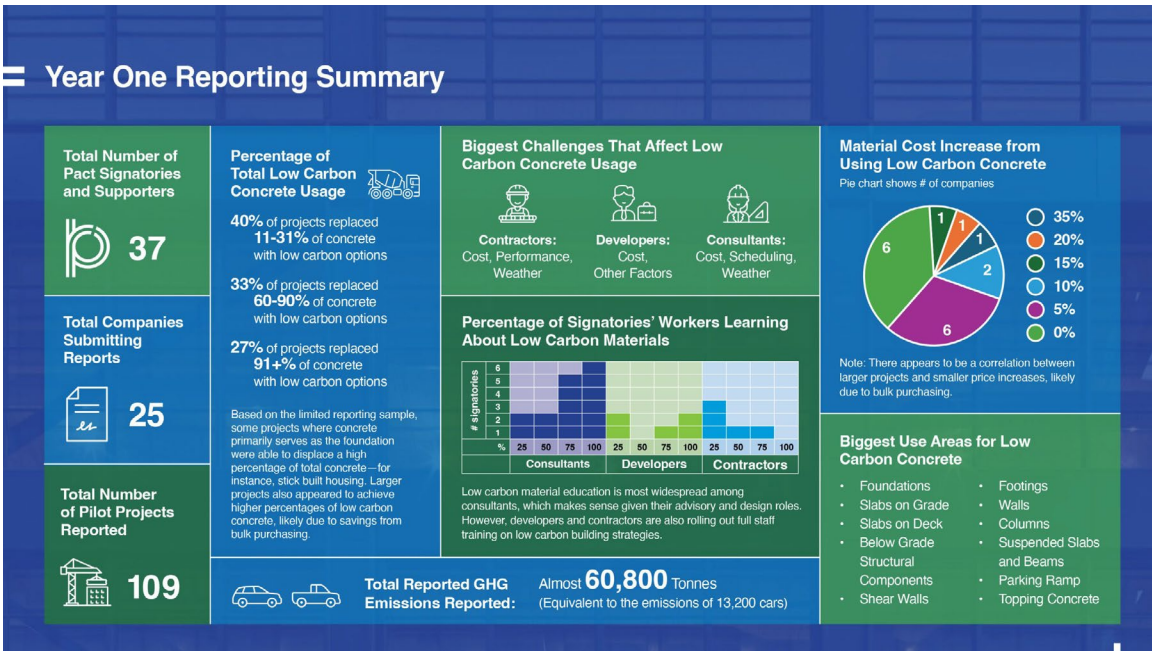
We're also engaged in a multi-team study looking at the impacts on costs, construction schedule and sustainability of system material selection (concrete vs. steel vs. mass timber) which will be published in 2026.

RJC is engaged in a trial program on lower-carbon high-early strength slabs which we hope to report as well in 2026.

RJC regularly collaborates with general contractors and material suppliers to minimize the gap between embodied carbon in structural specifications and what is produced in the field, which varies due to construction schedules, cold-weather applications, and concrete mix over-specification. Reducing this gap helps move beyond EPDs toward tracking and reporting embodied carbon in concrete. This includes collaboration with American Concrete Association (ACI) Ontario Chapter, Concrete Ontario, and Cement Association of Canada.

RJC also engages with the Canadian Institute of Steel Construction (CISC) and produced the previous mentioned studies for the CISC and with ArcelorMittal Dofasco. Dominic is an associate member of the CISC Sustainability Committee and an additional study to identify variation in tonnage estimates from design to fabrication through construction.

# 4.0 KNOWLEDGE SHARING/ADVOCACY **ELECTIVES**




**Engage with local, state, and federal governments to communicate the importance of low embodied carbon procurement and construction policies, and provide expert testimony to this effect.**

RJC has an integral role in the development of Canadian Codes and Standards for wood-frame and mid-rise wood-frame developments. We participate at a national level on code groups to develop changes for wood, including those that have led the way to allowing taller wood buildings.

Anna Wang, one of our Embodied Carbon Champions, sits on National Research Council of Canada (NRC)'s Embodied GHG Equivalent Task Group. This group is tasked with advising how embodied carbon/GHGs should be included in the next update to the National Building Code (NBC) of Canada.

**Propose alternative methods for advocacy and describe their value.**

RJC was an inaugural member of and has now completed two years with the Responsible Buildings Pact – an initiative of the Climate Smart Buildings Alliance (CSBA). This group of developers, consultants, contractors and supporters is working to ensure "lower carbon materials are consistently considered and used", to "de-risk sustainable actions, create a culture of shared accountability for material decisions, and drive continually higher professional standards." The Responsible Buildings Pact's expectations of its signatories to engage in continuous learning, pilot test a Low Carbon Design Consideration process, track and report on outcomes, and collaborate with other Pact signatories. In 2024-2025, Pact signatories focused on concrete, and this year we take on steel. Responsible Buildings Pact and SE 2050 share a number of common goals and initiatives.

A copy of the Responsible Building Pact's 2024-2025 is available here.

# 5.0 REDUCTION STRATEGY

With our internal embodied carbon database now up and running, and RJC Ascend being rolled out to all staff, 2026 is the year of loading up the database. We'll confess - the Ascend training in 2025 through Q1-2026 was a significant effort and took more time last year than we'd anticipated. With this, two major initiatives have become 2026's tasks:

- Crafting of a "Low Carbon Playbook" that establishes an embodied carbon related workflow for our projects.
- Targeted addition of projects to Ascend database for analysis and benchmarking.

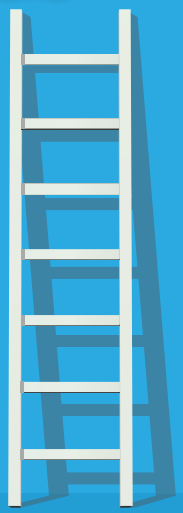
Our Embodied Carbon Ambassadors will work with their local offices to accelerate the population of the database in earnest, and to develop the Low Carbon Playbook. The database will be instrumental in helping us develop benchmarks based on historical "business-as-usual" design, and indicate how we'll need to adjust in order to achieve our long term goals.

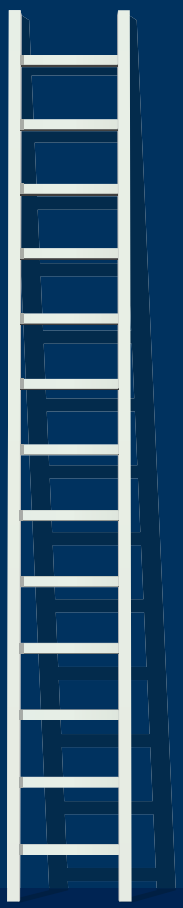
## Short-term goals

### (< 1 year)

Crafting of a "Low Carbon Playbook" scalable workflow process.

Accelerate the quantity of projects added to Ascend database.





## Long-term goals

### (5+ years)

Back-cast from 2050 to establish data informed targets and tracking.

**Target 40% reduction in our internal benchmark (175 kg CO2e/m2).**

Complete implementation of workflows firm wide.

# 5.0 REDUCTION STRATEGY **ELECTIVES**

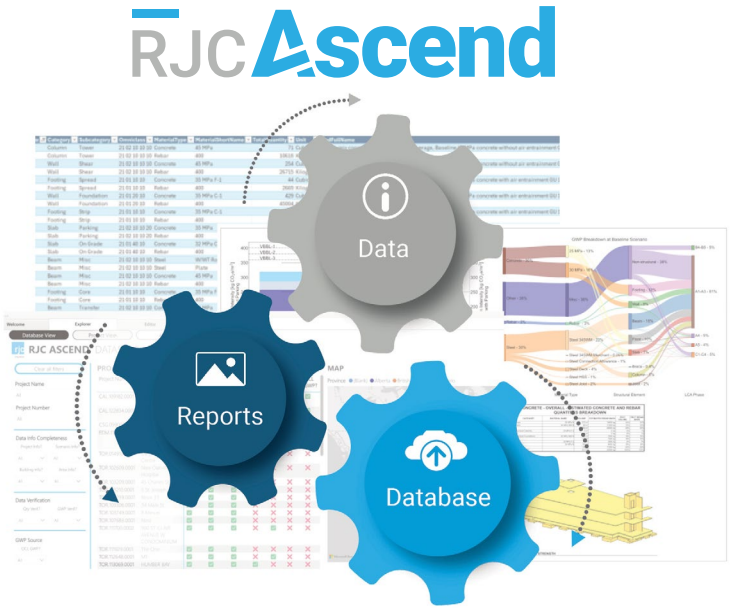
**Set clearly stated, firm-wide reduction targets in the short-term (<1 year) and long-term (>5 years)**

For our short-term target, we are maintaining our 2025 newly launched target of a maximum of 300 kgCO2e/m2 of built floor area for new construction, structural designs. We selected 300 kgCO2e/ m2 based on the Canada Green Building Council (CAGBC)'s Zero Carbon Building Standard – Design v4, which mandates a maximum embodied carbon intensity of 425 kgCO2e/m2 of built floor area. It is our understanding that approximately 70% of a building's embodied carbon is from the structure (on average). Our target of 300 kgCO2e/m2 is derived from 70% of the ZCB-Design mandate. Based on the projects in our LCA study average, this is an achievable upper bound target. SE 2050 recently completed statistical analysis and found that the 80th percentile of study projects had and embodied carbon intensity of 350 kgCO2e/ m2 and a mean of 234 kgCO2e/m2. As ZCB-Design is intended to be an achievable yet focused target, we feel this is a good goal for the short term.

In 2025 we targeted 175 kgCO2e/ m2 (40% reduction) across the firm's relevant projects as a long term goal. This would meet the highest performance levels of ZCB as well as Toronto Green Standards V4 Tier 3.

Last year, we had envisioned incorporating embodied carbon analysis and reporting in the workflow for all new construction structural projects (starting in 2025), greater than 1,800 m2 (20,000 sq. ft.). This was super ambitious and a more realistic growth from a targeted 40% projects in 2026 to 100% in 2030 is our revised strategy.

Ultimately, we want to better understand what it means for RJC structures to be net-zero carbon by 2050. Does this mean carbon offsets? Are we building restorative/energy positive buildings? Are we building sufficient biobased buildings to compensate for our carbon emitting strategies? Will carbon sequestering materials come into play? All important questions to grapple with and understand. We wish to better understand the end goal and begin to back-cast from 2050.



# 5.0 REDUCTION STRATEGY **ELECTIVES**

**Communicate the embodied carbon impacts of different design options to clients with creative data visualization.**

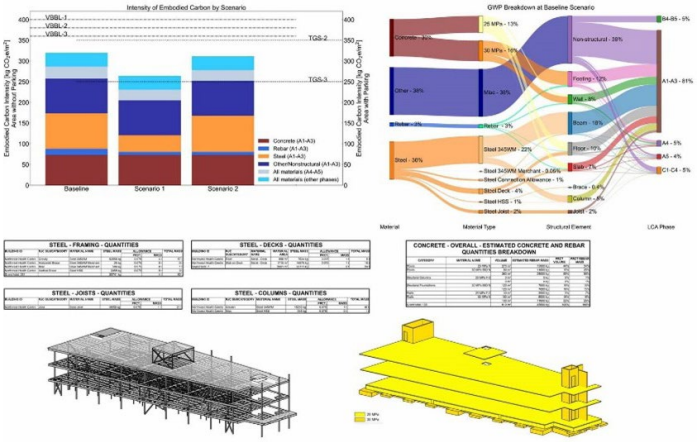
Communicating embodied carbon impacts to clients is one of the primary functions of RJC Ascend. The embodied carbon tool is an innovative solution to calculate structural material quantities more efficiently. It simplifies a traditionally time- consuming and error-prone process in gathering quick and accurate data which is crucial for embodied carbon calculations. The data from the tool isn't just numerical—it can be presented graphically and in tables, offering clients and contractors clear insights into construction costs and embodied carbon measures. Traditional methods of computing quantities from Revit models have been labour-intensive and prone to inaccuracies.

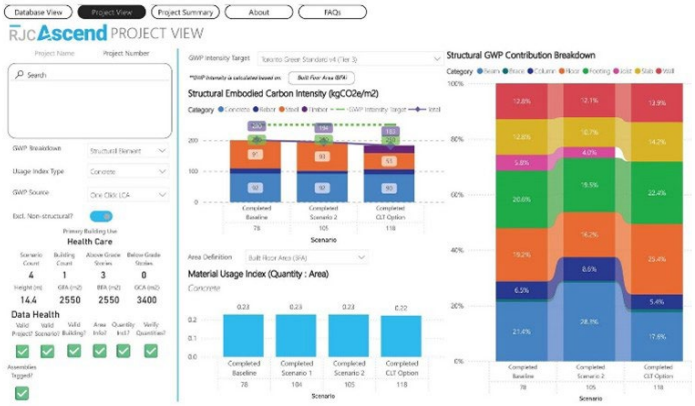
RJC has bridged this gap with:

- Precision and Speed: Ascend allows for swift, high-quality data extraction.
- Accurate Data: With accurate data on structural materials, more precise embodied carbon calculations are possible.
- Optioneering: Revit Model can quickly be adjusted, EPD selections can be revised and the multiple scenarios compared.
- Versatility: Data can be showcased graphically or tabulated, aiding clients and contractors in making informed decisions.

The tool was first introduced to RJC structural designers and BIM modellers during lunch and learns in fall 2023. 2025 included multiple rounds of additional training and began the incorporation of this tool into standard workflow processes.

RJC Ascend

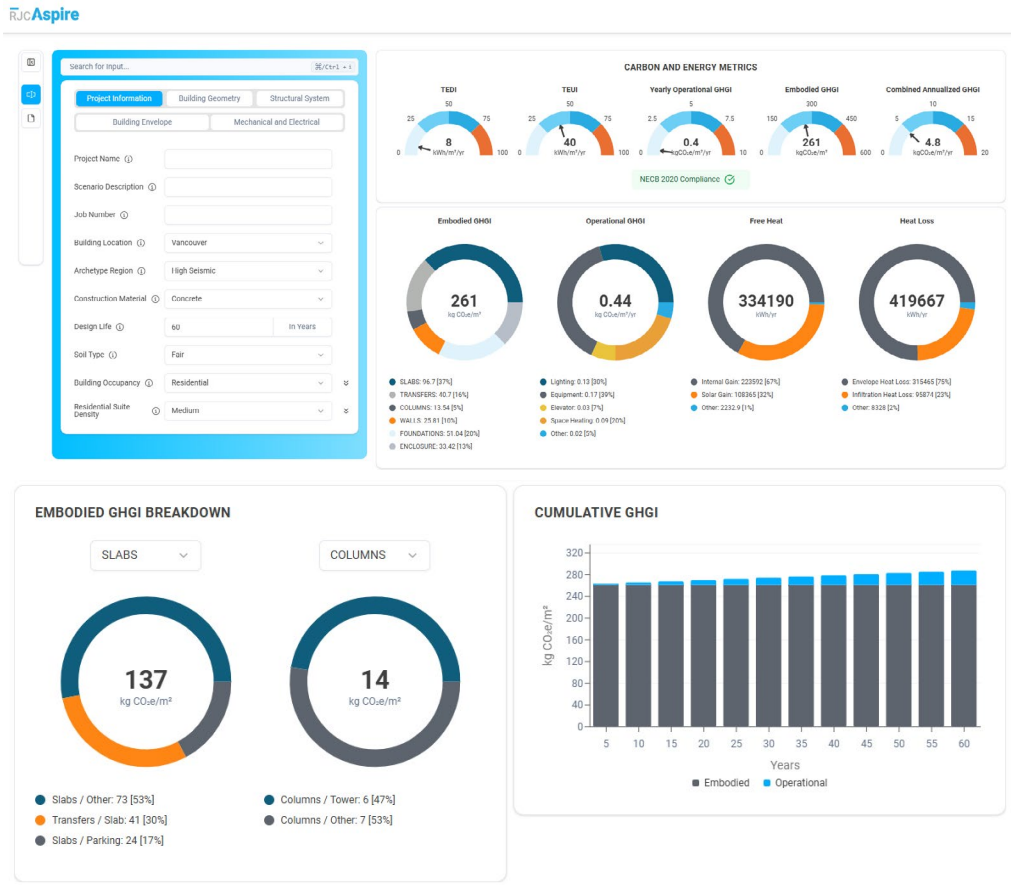


# 5.0 REDUCTION STRATEGY **ELECTIVES**

**Develop and implement a workflow that makes it easier to make early design decisions based on embodied carbon.**

For really early stage design decisions where not much is known about the building, RJC Aspire allows our engineers to study the embodied carbon impacts of concept stage structural design options for concrete, residential buildings. Evaluating impacts of structural system, spans, transfer elements, balconies and envelope systems in residential buildings. RJC Aspire also allows our engineers to see the operational carbon and reports a combined annualized Greenhouse Gas Intensity (GHGI) in kgCO2e/m2/yr. In 2026, RJC will begin to expand RJC Aspire to include residential light wood-frame designs.

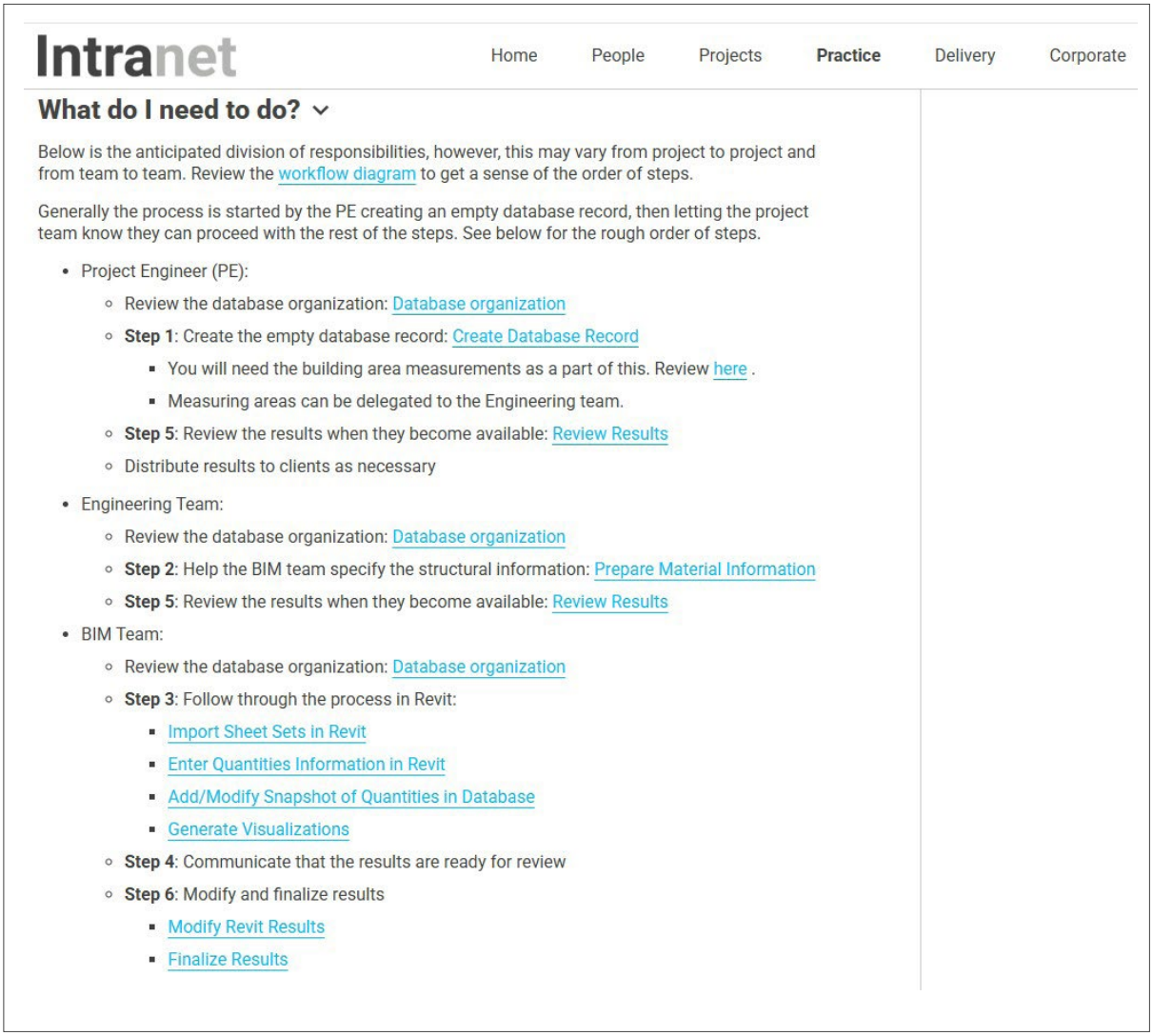



Once a design is established and in Revit, teams can follow the established Ascend workflow described on our RJC Intranet. This leads teams through the steps required to create a database record for the project, establish material quantities, calculate embodied carbon, and generate visualizations for discussions with clients.

In 2026, RJC has begun engagement with the SE2050 Resources Team to being adaptation of the IStructE's The Structural Carbon Tool to the North American market.

# 5.0 REDUCTION STRATEGY **ELECTIVES**

Our plan with the “Low Carbon Playbook” is to expand this workflow so each step of a project, from proposal through to as-builts, designers know what to do, have access to appropriate resources, and generally can support RJC’s goals and embodied carbon commitments.



Intranet

Home | People | Projects | **Practice** | Delivery | Corporate

**What do I need to do?**

Below is the anticipated division of responsibilities, however, this may vary from project to project and from team to team. Review the workflow diagram to get a sense of the order of steps.

Generally the process is started by the PE creating an empty database record, then letting the project team know they can proceed with the rest of the steps. See below for the rough order of steps.

- Project Engineer (PE):
  - Review the database organization: Database organization
  - **Step 1**: Create the empty database record: Create Database Record
    - You will need the building area measurements as a part of this. Review here .
    - Measuring areas can be delegated to the Engineering team.
  - **Step 5**: Review the results when they become available: Review Results
  - Distribute results to clients as necessary
- Engineering Team:
  - Review the database organization: Database organization
  - **Step 2**: Help the BIM team specify the structural information: Prepare Material Information
  - **Step 5**: Review the results when they become available: Review Results
- BIM Team:
  - Review the database organization: Database organization
  - **Step 3**: Follow through the process in Revit:
    - Import Sheet Sets in Revit
    - Enter Quantities Information in Revit
    - Add/Modify Snapshot of Quantities in Database
    - Generate Visualizations
  - **Step 4**: Communicate that the results are ready for review
  - **Step 6**: Modify and finalize results
    - Modify Revit Results
    - Finalize Results

# 5.0 REDUCTION STRATEGY **ELECTIVES**

**Update your specifications to incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.**

Our Sustainable Design Liaison group has been tasked with proposed updates to our Structural Specifications to incorporate embodied carbon performance. Concrete and steel specifications have been updated and are ready for use. These specifications ask for EDP submittals for the mixes used and structural steel products supplied. RJC's base specifications will ask the contractor to provide alternate pricing based on overall GWP reduction targets.

**Other embodied carbon reduction strategies – carbon capture in cement**

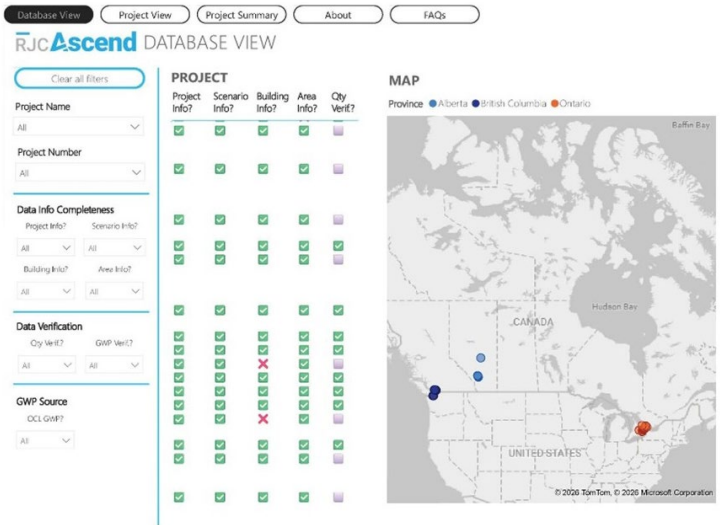
Dominic Mattman, Chair of RJC's Structural Technical Group and our 2024 Embodied Carbon Champion, continues his appointment to participate on an expert advisory panel to support the Canada Green Building Council and University of Toronto in a joint initiative to study carbon capture and utilization in cementitious building materials. Panel meets quarterly for the duration of the project (2023-Q1 through 2026-Q3). The "Burying Carbon in Buildings: Advancing Carbon Capture and Utilization in Cementitious Building Materials" research project, partially funded by the Canadian Government, is looking at how carbon might be captured and used in concrete as a means to lower Canada's GHG emissions. Reduction strategies including but not limited to CCU will be published in 2026. This additional guidance will be incorporated in our Embodied Carbon Playbook.

# 6.0 REPORTING PLAN

Our 2026 reporting plan is to mobilize our Embodied Carbon Ambassadors to work with their offices to select 4-5 projects to input into the Ascend database. We will select from these to submit to SE 2050. Many of past SE 2050 submissions have drawn from RJC's largest two offices (Toronto and Vancouver), included primarily concrete structure, projects within the past decade, with a focus on Multi-Family Residential Buildings (MURBs), although some healthcare and office buildings are also included. For 2025, we expanded and submitted from our Calgary and Edmonton offices as well. Through 2026 we wish to continue to expand our range across offices and building archetypes to help us with establishing benchmarks across sectors and locations.

Using Ascend to calculate embodied carbon was a pivot for us in 2025, and will be the case moving forward. RJC Ascend interacts with our REVIT models, our internal database as well as OneClick LCA to complete the cycle. The project info, quantities and embodied carbon results are stored within our database for future data analysis. Our RJC Ascend tool can also export these results into the SE 2050 database import template simplifying data collection process. We will include A-C stages.

Projects required to undergo a full LCA will use OneClick LCA, inclusive of the A-C stages.




**Submit 5 projects with structural engineering services to the SE 2050 Database across the firm.**

Through 2026 we wish to expand our range to help us with establishing benchmarks across sectors and locations. While past years we've allowed ourselves the space to focus our efforts on "laying the foundations", now that our tools are up and running, we are eager to continue our trend of submitting wider cross sections of projects representing a more diverse range of office locations and project types.

# 6.0 REPORTING PLAN **ELECTIVES**

**Compare the embodied carbon emissions from multiple projects across your firm. Analyze and document what data or pieces of information are most important and communicate the findings to your firm.**

In parallel to our Embodied Carbon Ambassadors helping local teams to do a “big lift” in populating the Ascend database, and our Ascend database team beginning to look for trends in the data, we aim to develop visualization tools within Ascend to help make these comparisons clearer and more useful across the firm. The results of this analyses will be shared though internal webinars to support internal learning.

**Include all structural material quantities in your submissions to the SE 2050 database**

RJC’s new RJC Ascend lends itself to easy reporting of structural materials and we are happy to include these in our submissions to the SE 2050 database in the 2026-Q1 reporting period and beyond.

# 7.0 LESSONS LEARNED

Something raised on the most recent SE 2050 Signatories call felt particularly resonant. The comment was that looking back at what was accomplished in a year you might be disappointed, but looking back at what you've accomplished in ten years and you'll be amazed. This is similarly reflected in a comment by Bill Gates (The Road Ahead, 1996): "People often overestimate what will happen in the next two years and underestimate what will happen in ten."

In hindsight, we overestimated what we could achieve in 2025. Our goals were ambitious: training hundreds of staff across the country on two new tools, expecting immediate project uptake, and simultaneously responding to newly announced targets—some of which applied to projects already underway.

Over the past few years, we have focused on building the necessary foundations: tools, frameworks, and workflows that create the infrastructure for meaningful, data driven action. Like the farmer patiently tending to the bamboo while it develops it roots before the rapid growth emerges for all to see, we have developed our roots. Now we are ready to have those strategies grounded in data and to clearly map our pathway to 2050.

This explosion will be led by our Embodied Carbon Ambassadors in 2026 who have been waiting for their time to grow. Establishing these direct, in-person links to our engineers and BIM staff will go a long way in making sure goals and processes are communicated widely.

This is the turning point—from preparation to sustained, measurable progress, as creative thinking delivers practical results.

Let's go!

connect

rjc.ca