



# Embodied Carbon Action Plan

SE 2050 COMMITTEE

2025





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Photo: Lookout Ridge,  
Canmore, AB



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# 01

## SE 2050 COMMITTEE

# Introduction

Climate change is the greatest challenge of our time to overcome, and we recognize engineering companies like ISL have an important role to play in developing and implementing solutions. One of those solutions is to reduce the embodied carbon within our structural designs and work towards net zero embodied carbon buildings.

ISL Engineering and Land Services is pleased to commit to the SE 2050 program. We commit to learning and implementing best practices for reducing embodied carbon within our structural designs to ultimately achieve net-zero embodied carbon buildings by 2050.

Joining SE 2050 aligns with our values of environmental stewardship and social responsibility. SE 2050 also offers the structural engineers within our firm the opportunity to contribute to the sustainability and climate change movement in the buildings industry. We want to help push forward best practices and leading technologies in reducing embodied carbon within structural systems designed by ISL.

The purpose of this document is to outline our action plan on how we will reduce the embodied carbon in our designs and become a leader in creating low embodied carbon structures within Western Canada. This action plan will serve as a living document for our company as we continue to learn, grow, and develop our abilities to create low-embodied carbon designs.

Photo: Waterton  
Lakes Visitor Centre,  
Waterton Lakes  
National Park, AB



## Pledge Statement

At ISL we pledge to reduce embodied carbon within our structural building designs and contribute to achieving net-zero-embodied carbon buildings through education and implementation of best practices for reducing embodied carbon. We also endeavour to contribute to furthering these best practices in industry. We make this pledge to continue to live out our values of integrity, excellence, environmental stewardship, and social responsibility through our work and designs.



# SE 2050 COMMITTEE

These are the current SE 2050 committee members. Existing roles and commitments within ISL's SE 2050 committee will be reviewed and adjusted annually.

**EMBODIED  
CARBON  
CHAMPION &  
EDUCATION LEAD**



SASKATOON OFFICE

**KAITLIN OLMSTED** E.I.T., LEED Green Assoc.

## Structural Engineer-in-Training

Kaitlin is a Structural Engineer-in-Training at ISL's Saskatoon office. She brings experience in the environmental sector through an internship at the Pembina Institute and her LEED Green Associate Certificate. Kaitlin is dedicated to designing resilient structures and passionate about reducing the environmental impacts of structural design.

**REPORTING  
LEAD**



CANMORE OFFICE

**JULIAN ASSELSTINE** M.A.Sc., E.I.T.

## Structural Engineer-in-Training | Buildings/Mass Timber

Julian Asselstine is a Structural Engineer-In-Training at ISL's Canmore office. With a strong focus on sustainability, Julian is dedicated to incorporating low-carbon materials such as mass timber into his projects. Although specializing in wood, he brings this approach to all building materials to search for ways to reduce material, or reuse material – especially in the restoration of historic structures – showcasing his commitment to reducing the environmental impact of construction through innovative design and material selection.

**ADVOCACY  
LEAD**



CALGARY OFFICE

**PATRICIA BARANOSKI KLINGER** M.Eng., E.I.T

## Structural Engineer-in-Training

Patricia Baranoski Klinger is a Structural Engineer-in-Training at ISL's Calgary office. Patricia is passionate about sustainable engineering practices and has been instrumental in projects that emphasize the use of environmentally friendly materials. Her work on the Salt Spring Island Fire Hall highlights her dedication to creating sustainable and resilient structures.

**REDUCTION  
LEAD**



CANMORE OFFICE

**CHELSEA OLSON** M.Eng., P.Eng.

## Lead, Mass Timber Structures

Chelsea Olson is a Structural Engineer and leads the Mass Timber Structures team at ISL. With over a decade of experience in structural engineering, Chelsea focuses on mass timber construction, promoting the use of low-carbon materials and efficient design and rehabilitation strategies. Her expertise in mass timber, building science and restoration, combined with her commitment to reducing the carbon footprint of our built environment, makes her a key contributor to ISL's green initiatives.





## Engagement Across Offices & Externally

To promote engagement across each of our offices, our company will implement the following actions:

- Distribute a firm-wide announcement of our commitment to SE 2050.
- Provide status updates quarterly to the Buildings Managers on efforts and progress made that quarter.
- Post our annual ECAP report internally and obtain feedback from our company's structural buildings group.
- Host a kick-off Lunch and Learn to introduce the program and our goals for the first year.
- Promote and encourage external learning and attend conferences and seminars that promote low-carbon materials.

We will also explore joining a Carbon Leadership Forum near us within the next two years.

To maintain currency and active involvement within the team, we will host an annual webinar showcasing our efforts with the SE 2050 initiative and the goals we have achieved in the past year.

## Internal Learning

Within the first quarter of 2025, we will host an Embodied Carbon 101 Webinar from the Boston Society for Architecture to start our sustainability internal seminar series. We will also host a kick-off lunch and learn to educate employees about the SE 2050 program and our goals for the first year. After this initial webinar and our kick-off lunch and learn, we will begin hosting a quarterly webinar within the ISL Buildings group on a sustainability topic. The purpose of the webinar series is to maintain our knowledge and expertise within the sustainability sector and develop best practices for reducing embodied carbon in our structural designs.

Photo: St. Frances  
Cree Bilingual School,  
Saskatoon, SK





Photo: St. Frances  
Cree Bilingual School,  
Saskatoon, SK

### Embodied Carbon Resource Library

We will create an internal embodied carbon resource library on our SharePoint site to effectively distribute resources companywide. This resource library will also include our Embodied Carbon 101 webinar, onboarding resources, and any other documents we feel will be beneficial to our employees. Our resource library will expand and evolve as we collect more resources and learn more about embodied carbon.

### Onboarding for New Hires

To maintain a consistent knowledge base within our building's group, we will develop an onboarding process for any incoming structural engineers and technologists to teach them what our embodied carbon design processes and reduction strategies are. We will also provide education on what embodied carbon is, why it is important to reduce, and where the new employee can go for further resources. Our goal is to have the onboarding process developed by the end of 2025.







# Advocacy and Knowledge Sharing

## Marketing

As part of our SE 2050 commitment, we will develop a marketing plan to publicly declare our firm a member of the SE 2050 initiative and advertise the benefits our commitment can provide to clients. This plan will include declaring our SE 2050 commitment on our social media platforms and our website. A copy of our commitment letter is in **Appendix A** and a copy of our internal and external commitment announcement is in **Appendix B**. Part of our marketing plan will be to determine how to effectively share our firm's successes, efforts, and lessons learned in reducing embodied carbon with our clients, local design communities, and the public.

## Working with Clients

We intend to explicitly incorporate our SE 2050 commitment in our proposals to clients. As well, within our proposals and other marketing materials, we will outline how our design teams can work with clients on reducing the embodied carbon within their projects and the value that reducing carbon can provide. We will also work with existing clients early in the design process to discuss options to reduce the embodied carbon within their project. These options include investigating and promoting the re-use of existing structures – instead of demolition- on relevant projects. Other options include adding embodied carbon commentary in Schematic Design reports, completing system comparison options, and offering to do a life cycle assessment when appropriate. An example of our marketing materials to clients is included in **Appendix C**.

Photo:  
Chuchuwayha Hall  
Rehabilitation,  
near Hedley, BC



Photo:  
Chuchuwahya Hall  
Rehabilitation,  
near Hedley, BC



### Working with Material Suppliers

Engaging with material suppliers is a key component to reducing the embodied carbon within our structural projects. This engagement will include discussions around what low-embodied carbon material options are available locally near each of our offices. For example, we could determine from suppliers what low carbon concrete mix designs they already have available. As well, we intend to research existing programs in each material stream that have positive impacts on carbon reduction and sustainability. From this research, we will create a basis of recommendations for how to choose suppliers that have low embodied carbon options and programs. We hope these discussions will allow us to set benchmarks and determine what is standard practice for our material suppliers and where we can incorporate low-carbon material options.







# Reporting Process

## Project Submissions

ISL intends to submit a minimum of five projects to SE 2050 from a variety of our offices across western Canada.

## Reporting Across Offices

Within the first year, we will explore multiple reporting options to track and record embodied carbon within our projects including Tally, EC3, and ACC Take-off. Once we have decided on a reporting option, we will develop a reporting methodology and firm-wide guidelines on how to report embodied carbon data and how to report different types of projects. These guidelines will help create reporting consistency across our offices.

## Internal Embodied Carbon Project Database

To track our reduction in embodied carbon over time, we will start an internal embodied carbon project database. Initially, we will track and record the embodied carbon of projects that are new construction to establish a baseline of how much embodied carbon is within a typical project. We will then record this data within our database and use it to compare the data to upcoming projects where we make efforts to reduce embodied carbon. This database will allow us to compare current projects to previous projects and track our progress over time. The database will also be available company-wide through our SharePoint site.

Long term, we will track projects costs on our low-carbon initiatives and use the information to better understand the cost impact of embodied carbon reduction strategies. This information will then be used to advocate for low-carbon initiatives on projects and to understand what strategies can help lower emissions and costs.

Photo: Wilson's  
Greenhouse  
Glulam,  
Saskatoon, SK





# Reduction Strategies

## Design Workflow and Short-Term Reduction Target

In our first year, we will not set a quantitative reduction target because we have minimal data on the embodied carbon within our existing projects. Instead, we will establish an embodied carbon baseline to develop an understanding of how much embodied carbon is in a typical project and where we can reduce embodied carbon within our projects. Once we establish a baseline in 2025, we will begin to address our long-term reduction targets and continue to reduce our embodied carbon in subsequent years.

Another goal for our first year is to examine our workflow so we can consider embodied carbon early in our designs. We will start to allocate time early in the project to discuss ways to reduce embodied carbon. Using lessons learned from changing our design workflow, we will create a methodology for carbon efficient design by the end of 2025. This methodology can then be used as a guide for future design projects to determine how we can further reduce embodied carbon.

## Design Specifications

Throughout 2025 we will examine our internal specifications and identify areas where we can specify lower embodied carbon materials. For instance, we intend to update our concrete specifications to allow alternative technologies and mix designs that will reduce embodied carbon below current baseline values in Canada.

This process will be in addition to our goals for working with material suppliers to focus more on performance rather than prescriptive approaches to specifying materials. We will also work with suppliers to determine what low embodied carbon materials are already available locally and then include those materials within our project specifications.

Photo: Tantalus  
Firehall,  
Squamish, BC







Photo:  
Martensville  
Recreation Centre,  
Martensville, SK

## Long-Term Reduction Targets

Our long-term reduction targets for the next 5 to 10 years include:

- Achieve a 10% reduction of embodied carbon for all buildings projects
- Complete a life cycle assessment for 50% of the new construction buildings projects
- Research circular economic principles and incorporate these principles into our design workflow
- Examine special structures and compare the carbon intensity of retrofitting, renovating, or creating a new build.

These long-term goals will be re-evaluated and adjusted annually.



# 06

# Goals for 2025

**GREEN** Required to complete this year

**ORANGE** Start this year

**RED** Stretch goal

✓ Goal completed

EDUCATION CATEGORY				
ELECTIVE	ISL ACTION	IMPLEMENTATION DATE		
Engaging Embodied Carbon Reduction at each Office	Distribute Firm-Wide Announcement	October 2024		✓
	Quarterly Status Updates to Buildings Managers	June, September, and December 2025		
	Obtain feedback from structure's group and post ECAP firm-wide	May 2025 and February 2026		✓
	Kick-off Lunch and Learn	January 2025		✓
	Host internal webinar showcasing achievements with SE 2050 initiative	January 2026		
	Explore joining a carbon leadership forum near western canada	March 2026		
Internal Learning & Embodied Carbon Webinars	Host an Embodied Carbon 101 Webinar from Boston Society for Architecture. Will be posted on our internal embodied carbon resource library.	January 2025		✓
	Host internal seminar every three months within ISL buildings group	July 2025, November 2025, January 2026		
Create an Embodied Carbon digital resource wiki and/or forum on firm's internal website	Create internal embodied carbon resource library on our SharePoint site	August 2025		
Incorporate embodied carbon education in your onboarding process for all new employees	Develop an onboarding process including an onboarding video on embodied carbon.	November 2025		

ADVOCACY CATEGORY				
ELECTIVE	ISL ACTION	IMPLEMENTATION DATE		
Publicly declare your firm as a member of the SE 2050 Commitment	Create marketing plan including declaring commitment on website and social media	October 2024 to January 2025		✓
Describe value of SE 2050 to clients	Incorporate SE 2050 commitment in proposals	June 2025		
	Work with clients early in design process to discuss options to reduce embodied carbon	Throughout 2025		
Engage with structural material suppliers in your region to communicate importance of EPDs and low-carbon material options	Determine low-carbon material options available locally near each ISL office	December 2025		
	Develop internal benchmarks for embodied carbon specifications	December 2025		



# 06

# Goals for 2025

**GREEN** Required to complete this year

**ORANGE** Start this year

**RED** Stretch goal

✓ Goal completed

REPORTING CATEGORY				
ELECTIVE	ISL ACTION	IMPLEMENTATION DATE		
Submit a minimum of 2 projects per office (not more than 5) with structural engineering services to the SE 2050 Database	Submit 5 projects to SE 2050 from a minimum of 3 ISL offices	March 2026		
For multi-office firms, describe how each office is measuring and reporting embodied carbon	Develop firm-wide reporting guidelines	August 2025		
	Use Tally, EC3 and ACC take-off to track, measure, and record embodied carbon	Throughout 2025		
Compare the embodied carbon emissions from multiple projects across your firm. Analyze and document the data and communicate findings to firm	Create baseline of average embodied carbon in a typical project for quick determination of embodied carbon in a project	November 2025		
	Create an internal embodied carbon database	March 2026		
	Utilize embodied carbon database and baseline to compare to new projects	March 2026		

REDUCTION CATEGORY				
ELECTIVE	ISL ACTION	IMPLEMENTATION DATE		
Short-Term Reduction Target	Determine amount of embodied carbon in existing projects to use as a baseline (min. 3 existing projects)	December 2025		
Develop and implement a workflow that makes it easier to make early design decisions based on embodied carbon	Create workflow methodology for carbon efficient design	December 2025		
Update your specifications to incorporate embodied carbon performance. Include embodied carbon in your submittal review requirements.	Update internal design specifications to specify lower embodied carbon materials and focus on performance approaches	February 2026		
	Reduce embodied carbon within concrete mix designs.	December 2025		
Long-Term Reduction Targets	Review and re-evaluate long-term reduction targets	January 2026		


A photograph of a modern outdoor courtyard. The ceiling is made of light-colored wood planks. String lights are strung across the courtyard. On the right, there is a stone wall and a red door. In the foreground, there is a concrete planter with green plants. The background shows a multi-story building with large windows and a balcony.

Photo: Former Voyager Inn,  
Moxey Banff, AB

# APPENDIX A

Copy of Commitment Letter





7909 51 Avenue NW, Edmonton AB T6E 5L9, T: 780.438.9000 F: 780.438.3700

November 4, 2024  
Our Reference: SE 2050

**Structural Engineering Institute**  
SE 2050 Program

Attention: Jennifer Goupil, Managing Director, Structural Engineering Institute

Dear Jennifer Goupil:

**Reference: Letter of Commitment to the SE 2050 Program**

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ISL Engineering and Land Services, a 500-person multidisciplinary firm located in 14 offices across Western Canada, is hereby signing on to the SE 2050 Commitment Program. Our offices include Edmonton, Calgary, Grande Prairie, Lethbridge, Canmore, Fernie, Rossland, Kamloops, Squamish, Burnaby, Langley, Vancouver Island, Saskatoon, and Whitehorse and have approximately 60 staff working in structural engineering sectors. We support the vision that all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050.

We want to join SE 2050 because climate change is the greatest challenge of our time to overcome. We recognize engineering companies like ours have an important role to play in developing and implementing solutions, and we have a moral obligation to reduce the worst effects of climate change where we can. One of those actions we can take is to reduce the embodied carbon within our structural designs. Joining SE 2050 aligns with our values of environmental stewardship and social responsibility and is a natural next step for our company to take to incorporate more environmentally sustainable policies and design practices into all parts of our business.

We therefore commit ISL Engineering and Land Services to take the following steps which are part of the SE 2050 Commitment Program:

- By the end of March 2025, we commit to submitting an Embodied Carbon Action Plan (ECAP) and permit the ECAP document or form to be made public on the SE 2050 website.
- We also commit to submit data to the SE 2050 project database by the end of March 2025 in a collaborative effort to understand embodied carbon in structural engineering projects and to set attainable targets for future projects.

We look forward to joining this coalition and industry effort to achieve the goals of the SE 2050 Program.

Sincerely,



Robin Zirnhelt  
General Manager Buildings -  
BC, Yukon, Rocky Mountains  
Senior Structural P.Eng.



Marc Bourassa  
General Manager Buildings -  
SK, AB  
Senior Structural P.Eng.



Kaitlin Olmsted  
Carbon Champion  
Structural Engineer-in-Training

Photo: Spring Creek  
Mountain Village  
Hotel Malcolm,  
Canmore, AB

# APPENDIX B

Copy of Internal SE 2050  
Commitment Announcement

THE MALCOLM  
HOTEL





619 Main Street, Saskatoon, SK S7H 0J8

To: **Lori Forrest**  
Attention:  
Cc: **Marc Bourassa & Robin Zirnhelt**  
Reference: **SE 2050 Internal Announcement**  
From: **Kaitlin Olmsted**

Date: **September 4, 2024**

Project No.:

## Internal SE 2050 Announcement

The ISL Buildings team is pleased to announce that we have officially joined the Structural Engineering Institute's SE 2050 program!

The purpose of this program is to support and transform structural engineering practice to significantly reduce embodied carbon within structural designs and ultimately achieve net zero embodied carbon projects by 2050 ([SE 2050 Program](#)). According to the Structural Engineering Institute, embodied carbon is the upfront emissions produced from fabrication, raw material extraction, and installation of building materials ([SE 2050](#)).

We have chosen to join the SE 2050 program because climate change is the greatest challenge of our time to overcome, and we recognize we all have an important role to play in developing and implementing solutions. One of those solutions is to reduce the embodied carbon within our structural designs and work towards net zero embodied carbon buildings.

Joining SE 2050 will give us the opportunity to contribute to the sustainability and climate change movement in the buildings industry. As well, we want to help push forward best practices and leading technologies in reducing embodied carbon within structural designs in Western Canada.

For more information on the program, and on the Structural Engineering Institute (SEI), please visit the SE 2050 webpage.

[SE 2050](#)

## Additional Resources

If you would like to learn more about embodied carbon, and how to reduce it, please click the following links to watch an introductory video and explore other information:

Boston Society of Architects: Embodied Carbon 101:

[https://www.youtube.com/watch?v=IW4SD2bDXTQ&list=PLwg\\_OoHemNG4PtCI5Py58kic2GwdGhRei](https://www.youtube.com/watch?v=IW4SD2bDXTQ&list=PLwg_OoHemNG4PtCI5Py58kic2GwdGhRei)

SE 2050 Embodied Carbon Resources: <https://se2050.org/resources-overview/embodied-carbon/embodied-carbon-resources/>

LETI: Sustainable Development Foundation:

<https://sdfoundation.org.uk/leti#:~:text=LETI%20%28Low%20Energy%20Transformation%20Initiative%29%20is%20a%20voluntary,needed%20to%20meet%20the%20UK%20climate%20change%20targets>

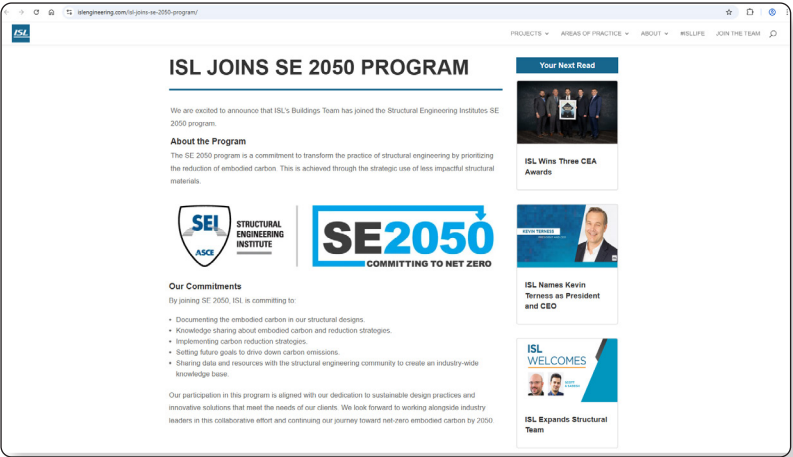
Photo: Waterton Lakes Visitor Centre,  
Waterton Lakes National Park, AB

# APPENDIX C

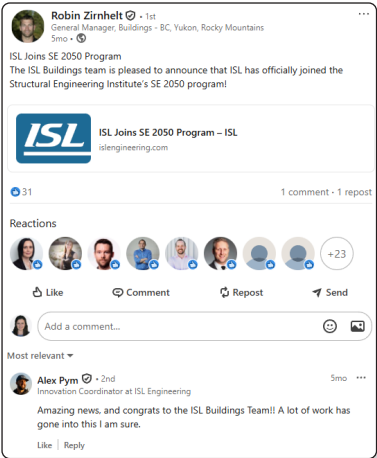
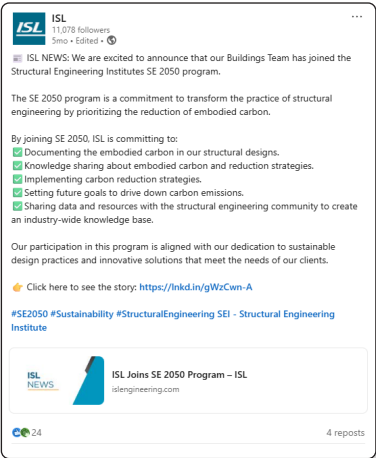
Sample Marketing Materials



# WEBSITE



# SOCIAL MEDIA POSTS



# PROPOSAL SAMPLE

