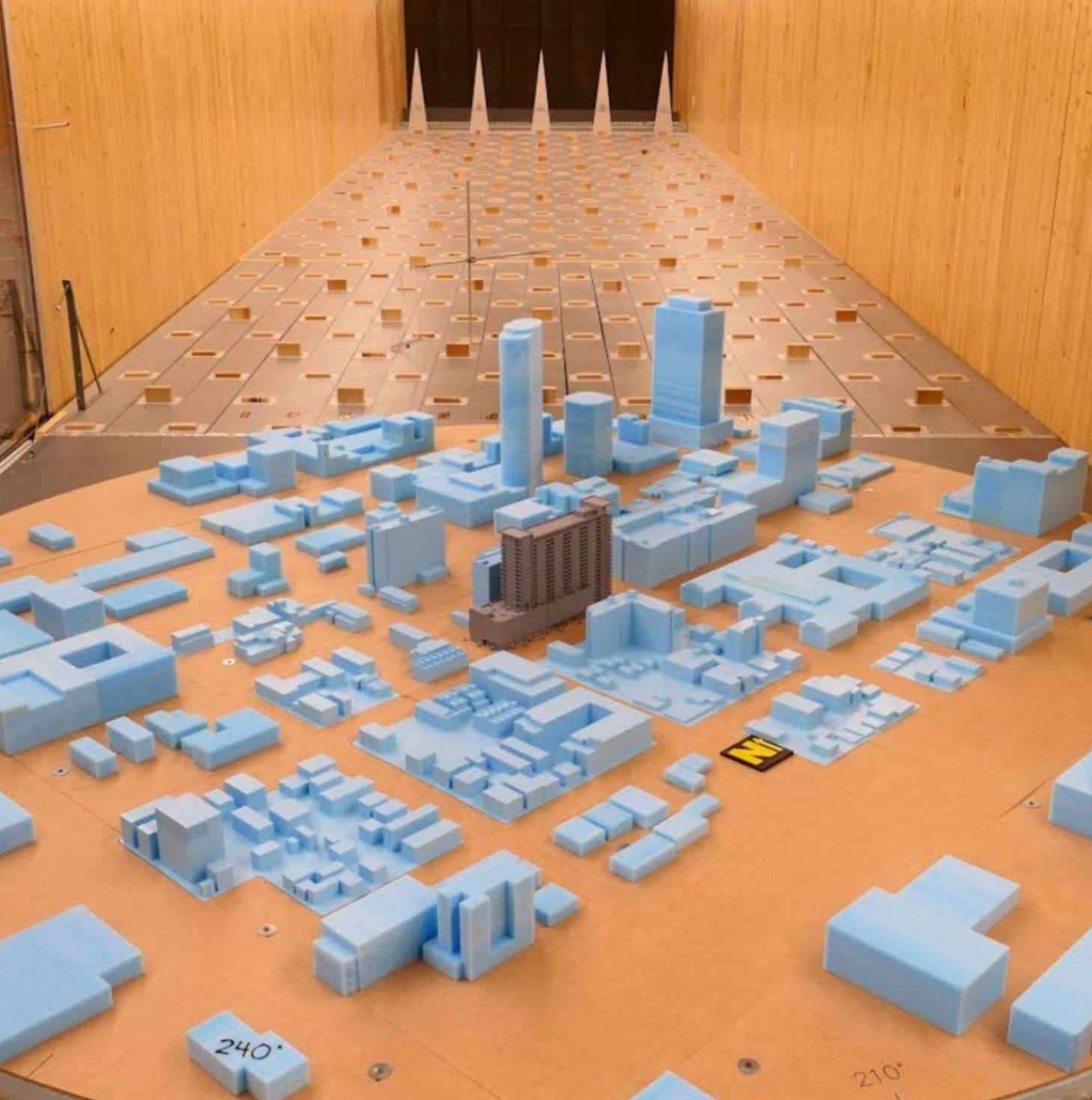




# EMBODIED CARBON ACTION PLAN (ECAP)





# TABLE OF CONTENTS

- 01. INTRODUCTION
- 02. COMPANY HISTORY
- 04. COMMITMENT LETTER
- 06. ANNOUNCEMENT
- 07. EDUCATION PLAN
- 10. REDUCTION STRATEGY
- 12. REPORTING PLAN
- 13. ADVOCACY PLAN
- 14. CLOSING

\* DENOTES A CHOSEN ELECTIVE \*





Dear Valued Employee,

Welcome to Snell Engineering Consultant's Embodied Carbon Action Plan! We are pleased to see you here, taking the initiative towards a more sustainable future. Snell is committed to reducing its Embodied Carbon (EC) to net zero by 2050 and, as such, has joined the Structural Engineering Institute (SEI) commitment, SE2050!

This Embodied Carbon Action Plan (ECAP) lays out the significance of Embodied Carbon, the steps our firm is taking to reduce our footprint, and how we plan to advocate for future projects.

There's no more hiding from the impacts of global warming. Our temperatures are rising at unprecedented rates, causing extreme weather, environmental degradation, and economic disruption. The construction industry alone produces 11% of global greenhouse gas emissions.

We [Structural Engineers] can take responsibility for our design methods to help reduce the industry's impact on global warming, and this is our [Snell's] plan to do so.





# COMPANY HISTORY

Since its beginning, Snell Engineering Consultants has focused on one thing: supporting architecture. We strive to be responsive and thoughtful structural engineers with a disposition for solving problems. Our founder, William Snell, began his legacy in engineering Florida's Gulf Coast in 1961. Since then, our reputable work history has established Snell Engineering Consultants among the region's most trusted and best engineering firms.

Principals Curtis Ross and Cord Van Nostrand have maintained a reputation of reliability and adaptability of services built by our founder. Snell continues to grow while upholding the quality of service established decades ago.

As a full-service structural engineering firm, we provide complete design, peer review, construction administration, and threshold inspections for every level of project. As a top-tier structural engineering firm, our projects can be seen throughout Florida and the Eastern United States.





## **CURTIS ROSS**

### **MANAGING PRINCIPAL**

As the Managing Principal, Curtis oversees the financial aspects of each project. He is also the Director of Business Development, helping build relationships and secure work for the firm.



## **CORD VAN NOSTRAND**

### **DIRECTOR OF ENGINEERING**

As Director of Engineering, Cord leads the structural engineering design for all projects. He also leads our engineering team, providing the support needed on a day-to-day basis.



# COMMITMENT LETTER

Snell Engineering Consultants, a structural engineering firm located in Sarasota, FL, and Lancaster, PA, is hereby signing on to the SE 2050 Commitment Program. We support the vision that all structural engineers shall understand, reduce, and ultimately eliminate embodied carbon in their projects by 2050.

In an era defined by unprecedented global challenges, visionary structural engineering firms must step into the forefront, recognize the imperative to redefine the narrative of construction, and commit to a sustainable future. Snell Engineering proudly stands at the vanguard, declaring a resolute commitment to understand, reduce, and ultimately eliminate embodied carbon in our projects by the year 2050. The construction sector, while integral to societal progress, has historically been a significant contributor to carbon emissions stemming from the extraction, manufacturing, and transportation of building materials. With a deep sense of responsibility and an unwavering dedication to environmental stewardship, we embrace the challenge of reshaping our industry's trajectory.

We recognize that every beam, column, and foundation carries not just the weight of structures but also the responsibility to minimize the carbon burden on our planet. By pledging to comprehend and curtail embodied carbon, we embark on a journey to transform the very essence of how we conceive, design, and construct the structures that shape our communities.



The urgency of climate change demands bold initiatives and transformative actions. We strive to lead by example, inspiring our peers, partners, and clients to join us on this collective mission towards a more sustainable, resilient, and regenerative built environment.

Together, we can redefine the future of structural engineering, ensuring that our projects stand tall and stand for a sustainable, thriving planet. Our proclamation is a call to action, an invitation to forge a new era where engineering excellence converges with environmental consciousness, paving the way for a world where structures harmonize with nature.

We therefore commit Snell to take the following steps, which are part of the SE 2050 Commitment Program:

- Within six months and annually henceforth, we commit to reporting an Embodied Carbon Action Plan (ECAP) and permit the ECAP document or form be made public on the SE 2050 website.
- Within one year and annually henceforth, we commit to submit data to the SE 2050 project database 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.

SNELL,

# INTERNAL ANNOUNCEMENT



Stephen Rauch 9:23 AM

@allstaff

Dear Team,

I wanted to share an exciting step we're taking as a firm to do our part in slowing the climate crisis and designing a more sustainable future. We've recently joined the SE2050 commitment which aims to Educate, Engage, Report, Advocate, and Reduce Embodied Carbon Emissions [of structural engineers] to Net Zero by 2050. You can find an Introduction on Embodied Carbon [Here!](#)

Joining SE2050 provides us with an accessible sustainability program, committed community of engineers, and a database of all signatory firms to learn from and utilize to improve upon our designs. As a firm we will work to reduce our Embodied Carbon (EC) by tracking data across various project types, visualizing the EC trends of different systems, and advocating for more sustainable designs based upon our results.

The SE2050 commitment is modeled after, and runs in parallel with, AIA2030 (Architect's Commitment to Net Zero Carbon) which we've seen some of our closest partners adopt in recent months. Although I will ensure that Snell meets all deadlines, it will take everyone's effort to go above and beyond the minimum requirements, something we should always strive for, especially when it's to help our environment.

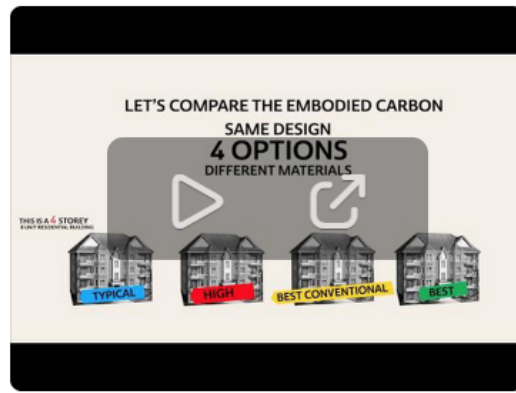
In the coming weeks I will be sending out our Embodied Carbon Action Plan (ECAP) which will contain our plans to educate, advocate, report, and reduce. I recommend everyone read through it as it will not only provide our plans but how we will accomplish them and what software we will use to do so, etc.

I look forward to the challenges and opportunities the SE2050 commitment will bring as we make strides towards a more sustainable future. Together, we can not only do our part in reducing EC across our projects, and the industry, but encourage our partners and clients to do the same.

If you have any questions feel free to reach out! (edited)

[YouTube](#) | Builders for Climate Action

[What is embodied carbon in buildings?](#) ▾





# EDUCATION PLAN



At Snell, collaboration and knowledge sharing is one of the most important practices that allows our designs to continuously improve. To engage in successful carbon reduction, it is imperative that everyone at the firm be on board and understand their role. From engineers to BIM techs, every role is equally as important in effectively tracking, understanding, and reducing Snell's embodied carbon.

## **PROVIDE A NARRATIVE ON HOW THE FIRMS CHAMPION WILL ENGAGE IN EMBODIED CARBON REDUCTION.**

The embodied carbon reduction champion of Snell (Stephen Rauch) will head a sustainability committee of at least three (3) people firmwide. All employees are welcomed and encouraged to join but at a minimum this committee will consist of one (1) Project Manager, one (1) Project Engineer, and one (1) BIM tech. The goal of the committee is to master LCA (Life Cycle Assessment) Software and tracking and pass information along in the form of videos, conferences, flyers, instructional cards, and more.

Although 2050 seems like ages away, the success of this committee will stand the test of time.



# EDUCATION PLAN

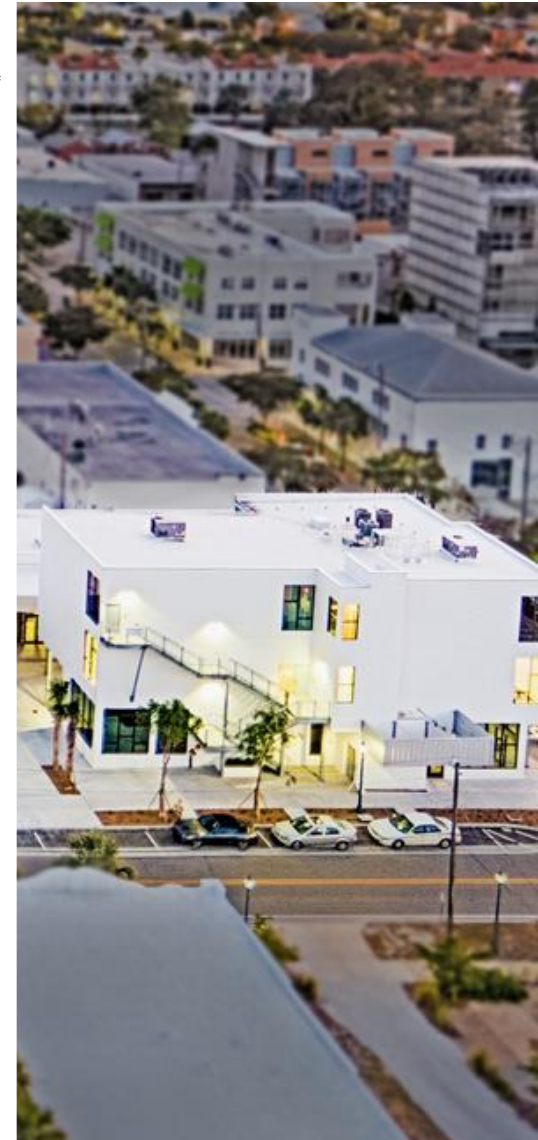


## \* PROVIDE THE GOALS OF THE EMBODIED CARBON INTEREST GROUP. \*

The Interest Group consists of one (1) Project Manager, (1) Project Engineer, and (1) BIM Tech.

### Goals:

- Project Manager
  - Advocate the importance to clients.
- Project Engineer
  - Educate existing/incoming engineers.
- BIM Tech
  - Master LCA Software for Tracking
- Committee
  - Educate clients on the benefit of net zero carbon.
  - Track, Visualize & Reduce Embodied Carbon
  - Make Positive Strides towards Net Zero EC





# EDUCATION PLAN

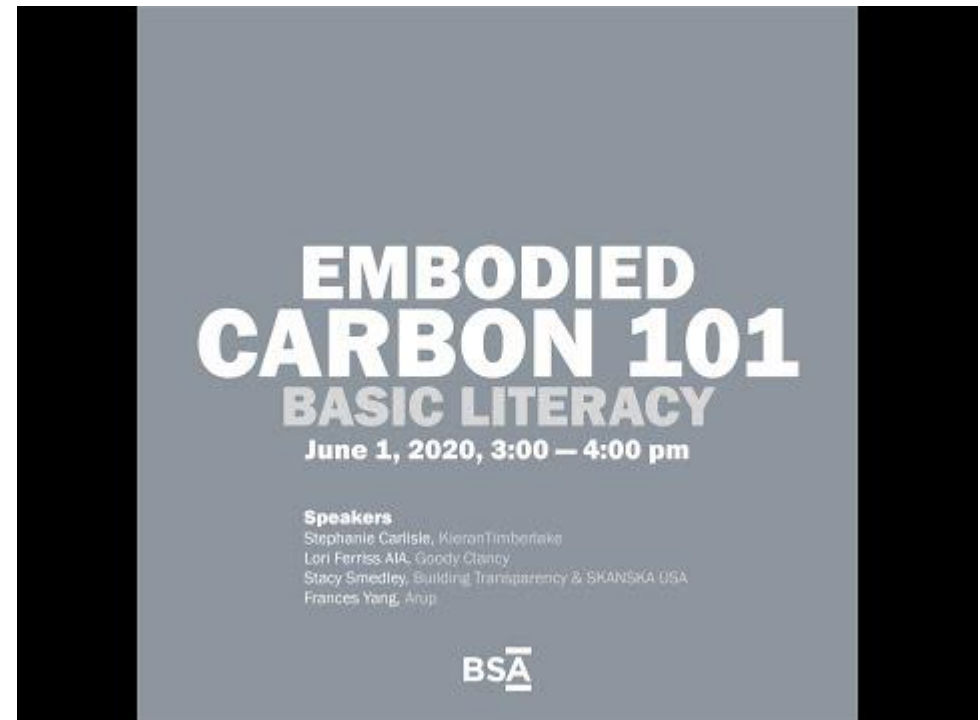
Brief Introduction (~5 mins): The “Shallow Foundation”



<https://www.youtube.com/watch?v=h1piVin01vQ>

**PRESENT AT LEAST (1) WEBINAR  
FOCUSED ON EMBODIED CARBON.**

In-Depth Review (~1 hour): The “Pile-Cap”



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

# REDUCTION STRATEGY



Snell Engineering Consultants is not only committed to reducing the embodied carbon of our projects but also committed to continue providing exceptional client service that has solidified our name. As a first-year member of SE2050 we will first run LCA on completed projects to form a baseline for comparison. With this baseline we will evaluate a wide variety of designs and begin learning where improvements can be made. We will utilize the database to learn from other firms as well as submit our data for other firms to learn from us.

Snell is a strong believer in the power of modern software, and as such utilizes Revit's 3D building software to model, portray, and detail structural design components. The LCA software to be put in use for our first year is Carbo Life Calculator, a Revit plug-in capable of calculating the Embodied Carbon with minimal interaction.

## **Develop and implement a workflow that helps early design decisions based on Embodied Carbon.**

After a baseline of our Embodied Carbon is set, we will update our design process to monitor the Embodied Carbon throughout the design process. We will do so by running LCA after the schematic design phase, at 50%/100% Design Development, and 50%/100% Construction Document.

This will allow us to track the performance of our designs over time and make more sustainably conscious design decisions. After enough projects, we will understand what systems are more carbon beneficial and can begin recommending these systems to our clients as changes are requested.



# REDUCTION STRATEGY

- \* Compare different design options with embodied carbon as a performance metric during the project concept phase. Explain what you did and what the results changed (if anything). \*

The project concept phase is a crucial decision-making phase that could have drastic impacts on the final embodied carbon of a building. If embodied carbon isn't considered in this phase you will struggle to make noticeable reductions later in the project when the construction documents begin solidifying. This is also the least 3D model intensive phase which leaves embodied carbon calculations up to the engineer. To combat this, we will generalize the entire building by taking one applicable bay or stack, an area of the building that can represent the entire building. This will not only save time on the calculation of the embodied carbon but provide a good estimate of what the entire building's carbon footprint would be and allow data-backed recommendations to be made.



# REPORTING PLAN

**SUBMIT A MINIMUM OF (2) PROJECTS PER U.S. OFFICE WITH STRUCTURAL ENGINEERING SERVICES TO THE SE2050 DATABASE.**

With our main office being in Sarasota, FL, and a satellite office in Lancaster, PA, we will submit at least (2) projects within our first year. As we learn and fine-tune our process, we will increase the number of projects submitted and enact new measures to promote the reduction of embodied carbon.



**\* COMPARE EMBODIED CARBON ACROSS PROJECTS AND DOCUMENT WHAT DATA IS MOST IMPORTANT. \***

The data gathered in our first year and beyond will continuously be used to not only track our embodied carbon reduction progress, but determine where we can improve in the design process and what systems are advantageous.



# ADVOCACY PLAN

As a member of the SE2050 commitment, our goal is not only to reduce our firms embodied carbon but influence partners, clients, and the construction industry to do the same. Although the member count of SE2050 is growing, structural engineers make up a small portion of the labor required to erect a building. It is our hope that the insight gained will motivate other industry players to take positive steps towards reducing their embodied carbon as well.

## **DESCRIBE THE VALUE OF SE2050 TO CLIENTS. HOW CAN YOUR DESIGN TEAMS COLLABORATE TO REDUCE EMBODIED CARBON?**

In our first year we will work towards gathering enough data to be able to show clients, partners, and suppliers the benefits of a sustainable design. We plan to use this data in marketing materials to further communicate the benefits with current and future clients. Internally, we will develop a systematic design approach that Engineers can reference and use when making design decisions. This approach will consist of analyzing a project's embodied carbon through multiple design stages and advocating for the most sustainable design, as backed by data. See Page 10 for a breakdown of this approach.

## **PUBLICLY DECLARE YOUR FIRM AS A MEMBER OF THE SE2050 COMMITMENT.**

We have publicly declared our commitment to the SE 2050 program via LinkedIn. As we become more versed in Embodied Carbon tracking, we plan to update our website/LinkedIn with project updates and how they are sustainability oriented.



# CLOSINGS

With our first-year membership getting underway we're excited for the challenges, learning experiences, and relationships to come. This action plan will develop a foundation for which our sustainability efforts can flourish, hopefully beyond Snell. With good bookkeeping and diligence, we will be able to look back next year and see areas of strength and weakness. We look forward to seeing the SE2050 community grow and being apart of such a needed change!

