



## SE 2050 COMMITMENT TO NET ZERO

LERA is currently the lead structural engineer for more than \$12 billion and 50 million square feet of construction worldwide. We are committed to promoting the practice of sustainability in our structures.

### SE 2050 Commitment

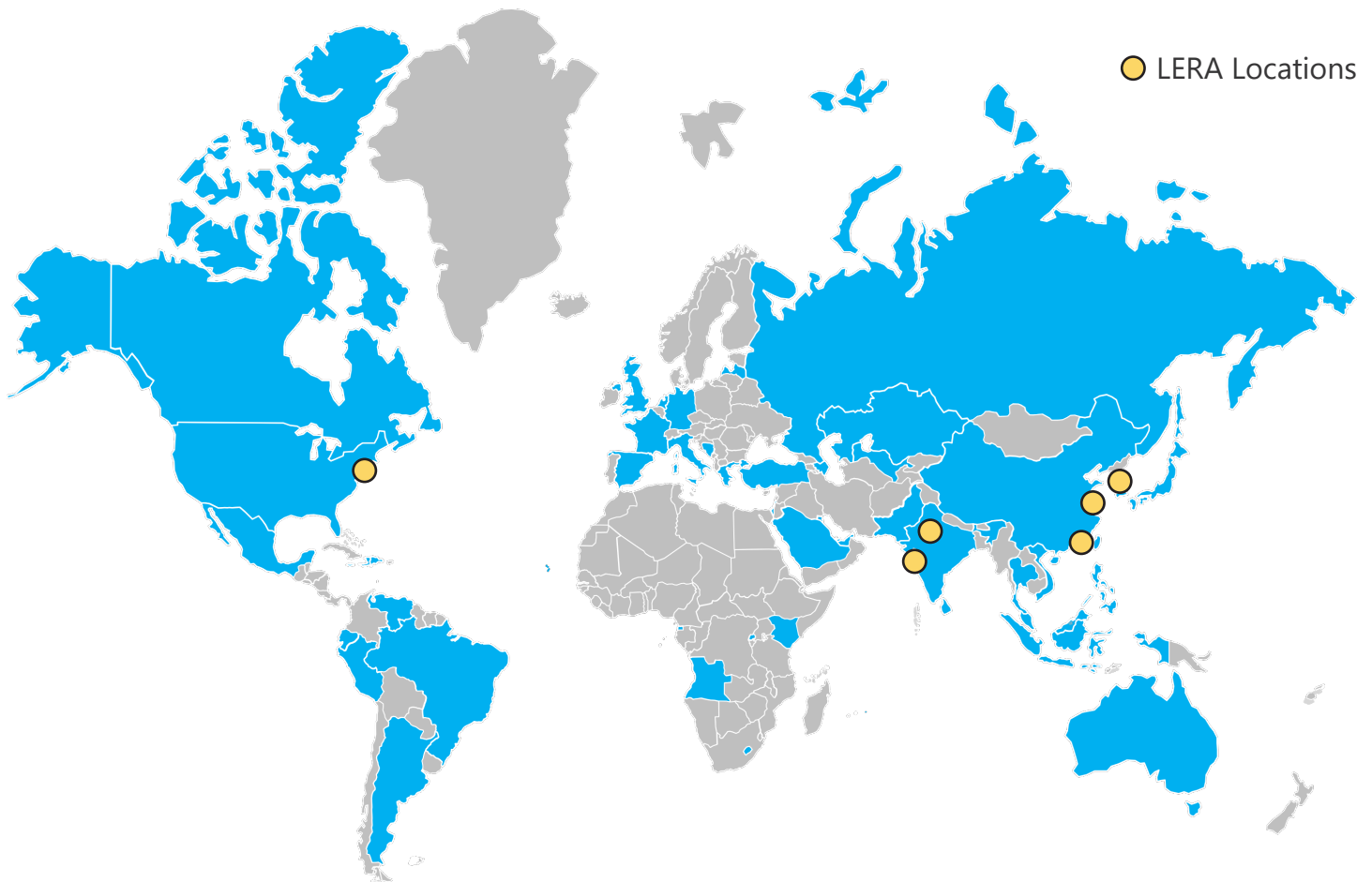
---

LERA Consulting Structural Engineers has joined the SE 2050 Commitment program, developed and launched by the Structural Engineering Institute (SEI) and issued by the Carbon Leadership Forum (CLF). This comprehensive program has been created to ensure substantive embodied carbon reductions in the design and construction of structural systems by the collective structural engineering profession. The sharing of research and data on embodied carbon metrics will open up valuable resources and dynamic collaboration for the entire industry to learn from. Acquired knowledge will be used to teach our staff and clients about the impacts of embodied carbon, providing a valuable dialogue and plan to move forward. By participating in and committing our resources to SE 2050, we hope to create a process for the elimination of embodied carbon that will become an industry standard.

# Embodied Carbon Action Plan (ECAP)

## LERA is Committed to Carbon Reduction Worldwide

---



**NEW YORK (HQ) | MUMBAI | HONG KONG | SHANGHAI | SEOUL | JAIPUR**

LERA has office locations in New York, Mumbai, Hong Kong, Shanghai, Seoul and Jaipur. All of our locations work together as one firm. Each office has a liaison on our SE2050 Committee, and shares in the collection and analysis of project data. Utilizing data from multiple markets and geographic areas gives us valuable insight that cannot be achieved by reviewing one area on its own. Design phase processes, material preference and contractor knowledge vary by location. Pooling our resources together allows us to find and share the best solutions for each particular market need.

# Embodied Carbon Action Plan (ECAP)

## EDUCATION

LERA is committed to educating and engaging all of our offices in our embodied carbon reduction efforts. Following our initial series of seminars introducing the SE 2050 program, the LERA ECAP team is planning a series of 2024 seminars with more focus and detail.

A large portion of our work has been recently affected by executive orders issued by New York City and New York State focused on sustainable construction. The LERA ECAP team is planning to educate our engineers on the specifics of these executive orders, and how they impact our work for government agencies.

On a project-specific basis, we have been tailoring specifications to include embodied carbon targets and other language focused on sustainable construction. We are in the process of compiling this work from a range of projects, and presenting it firmwide, with the intent of progressing our office standards related to sustainable construction.

## LERA's Embodied Carbon Reduction Champion



Richard Garlock, P.E.  
*Partner*

Richard Garlock, P.E. is a Partner at LERA Consulting Structural Engineers. With over 30 years of experience designing efficient structural solutions to realize complex architectural visions, his expertise ranges from academic and research buildings to high-rise office and residential towers. Since 2005, Rich has been a Visiting Lecturer for Princeton University's Dept. of Civil & Environmental Engineering. He was an invited presenter at the 2019 CTBUH World Congress, and served on the jury for the 2020 CTBUH Awards. Rich was also an invited presenter at the 2017 NASCC: The Steel Conference, and serves as a Structures Specialist for the NJ Emergency Management Urban Search & Rescue Team.

As LERA's Signatory Director to the SE 2050 Carbon Reduction Program, he oversees and implements the firm's sustainable design initiatives, with the aim of reducing the carbon footprint of LERA's structures and promoting sustainable design and construction practices industry-wide.

## Key Team Members



Rick Naumann, P.E.



Xia Li, P.E.



Chris Faschan



Alex Kovacs



Claire Naumann



# Embodied Carbon Action Plan (ECAP)

## REPORTING

---

LERA is harnessing the power of 3D BIM models to measure embodied carbon in structures, and to track sustainability metrics throughout the design process. Tally, a plug-in for Revit, is regularly used as the primary tool for the measurement of embodied carbon. Much of our design work is already reliant on accurate building modeling, allowing for the easy integration of dynamic embodied carbon tracking into our normal workflow. Data obtained from Tally is supplemented with other industry and in-house computational tools to control data quality, and to track a variety of sustainability metrics.

LERA is in the process of advancing in-house BIM modeling standards to incorporate parameters important to the tracking of embodied carbon, ensuring compatibility with Tally throughout the design process. The evolution and longevity of a project BIM model is consistent with the goal of tracking and understanding embodied carbon data throughout the design process. Continuity in approach across projects within the firm, and developing some degree of automation, are important goals.

Embodied carbon data are being reported both internally, to LERA project teams, and externally, to our clients.

Beginning in 2022, each new domestic design project LERA undertakes is subjected to an internal embodied carbon review at each major design milestone (Schematic Design, Design Development and Construction Documents). Data generated at each project milestone is then used as the base for an in-house sustainability review aimed at optimizing embodied carbon in ways consistent with the motivations of the client. Results of these internal sustainability reviews is reported to our clients, and approaches to sustainable design are tailored to their desired outcomes. Sustainability reviews are emphasized during the early stages of design, using Tally to efficiently illustrate the potential for embodied carbon reduction associated with different design approaches and material specifications. Our regular use of parametric modeling during Schematic Design can be easily expanded to include sustainability topics.

In 2024, LERA plans to submit at least two (2) projects to the SE 2050 database that are representative of different building typologies and different markets. Over the past year, we have found that clients are increasingly interested in using life cycle assessments to inform design, creating momentum in educating LERA's engineers and gathering data.



Image Credit: Snøhetta

# Embodied Carbon Action Plan (ECAP)

## EMBODIED CARBON REDUCTION STRATEGIES

LERA continues to develop embodied carbon reduction strategies to support our involvement in SE 2050. An increasing number of our clients express interest in design work informed by a Life Cycle Assessment (LCA), and in the use of sustainable materials.

Our strategy is comprehensive, focusing on all parties involved in the construction of our projects, including clients, contractors and material suppliers. We are constantly strengthening existing relationships with local concrete suppliers, and collaborating on the development of sustainable concrete mixes. By paying close attention to the use of pozzolans and admixtures, we strive to build with more sustainable concrete. Furthermore, working with architects and clients to incorporate biogenic building materials, where appropriate, is an important part of our design process. Our team is frequently incorporating these concepts into updated specifications, allowing us to realize sustainable construction.

LERA is focused on developing embodied carbon reduction strategies that can be applied to our diverse portfolio of projects around the world. Our strategies are flexible enough to apply to buildings of every typology, allowing us to serve all of our diverse clients.





# Embodied Carbon Action Plan (ECAP)

## ADVOCACY

LERA is engaging with the broader design, construction and real estate industries as we endeavor to educate each other and enhance our collective commitment to carbon reduction. We aim to utilize our network of worldwide clients and design collaborators to expand our knowledge on the best practices for carbon reduction, and to inform clients and contractors of the benefits gained from the study and use of innovative materials and efficient designs. Our industry organization involvement includes:

U.S. Dept. of State (DOS) Bureau of Overseas Buildings Operations (OBO) – Industry Advisory Group (IAG)

Council on Tall Buildings and Urban Habitat (CTBUH) – The Future Potential of Steel-Timber Composite Structures, Steering Committee

Structural Engineers Association of New York (SEAONY) – Sustainability Committee

American Institute of Architects, New York (AIA NY) – Committee on the Environment

Professional Women in Construction (PWC)

Commercial Real Estate Women (CREW)

American Council of Engineering Companies of New York (ACEC NY)

The Architectural League of New York

New York Building Congress (NYBC)

Women Builders Council (WBC)

SEAoNY Education Committee, Publications Committee & Young Members Group

Autodesk Engineering Executive Council

Engineers Without Borders, New York Chapter (EWB-NY)

ACE Mentor Program

Those Amazing Professions (TAP)

