



SE 2050 COMMITMENT TO NET ZERO

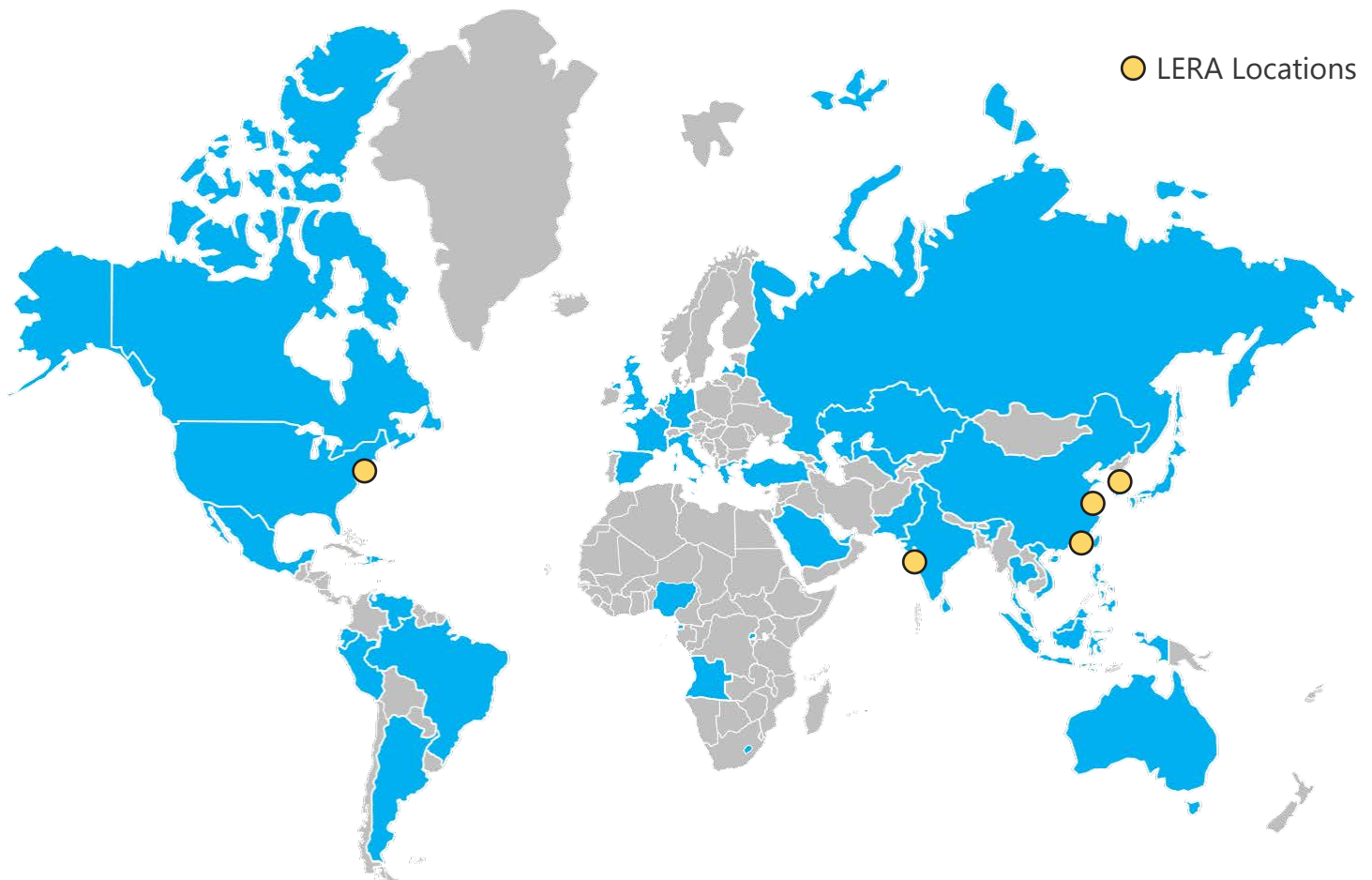
LERA is currently the lead structural engineer for more than \$12 billion and 50 million square feet of construction, worldwide. LERA is committed to promoting the practice of sustainability in our structures.

SE 2050 Commitment

LERA Consulting Structural Engineers has joined the SE 2050 Commitment. The SE 2050 Commitment program was 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 dedicating to SE2050, and committing our resources, we hope to create a process for the elimination of embodied carbon that will be an industry standard.

Embodied Carbon Action Plan (ECAP)

LERA is Committed to Carbon Reduction Worldwide



NEW YORK (HQ)

MUMBAI

HONG KONG

SHANGHAI

SEOUL

LERA has office locations in New York, Mumbai, Hong Kong, Shanghai and Seoul. 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 it's own. Design phase processes, material preference and contractor knowledge vary by location. Bringing our resources together, allows us to find and share the best solutions for each particular market need.

LERA

Embodied Carbon Action Plan (ECAP)

EDUCATION

LERA is committed to educating and engaging all of our offices in our embodied carbon reduction efforts. LERA's core ECAP team will first present an "Embodied Carbon 101" seminar to the firm. The seminar will include an overview of SE 2050, introduction to embodied carbon, and LERA's firm-wide commitment. After our initial firm-wide meeting, LERA's ECAP team will present a series of seminars throughout the year starting with a seminar dedicated to further understanding and quantifying embodied carbon. This seminar will introduce the use of Tally and the required Revit environment, other tools to supplement Tally results, and showcase sustainability review of example projects.

The next seminar presentation will be dedicated to specific strategies for reducing embodied carbon. This seminar will review modifications to office specifications and approaches used in recent projects that have successfully reduced embodied carbon. Additionally, this seminar will look at published work by other structural engineering firms to expand LERA's tool kit.

The final seminar in the schedule for the year will present a seminar dedicated to advocacy to clients. This seminar will present strategies for communicating with different clients and explore their motivations and limitations. All seminars will be presented to the NYC office first, followed by an adapted version for our India, China, and South Korea offices.

LERA's Embodied Carbon Reduction Champion



Richard B. Garlock, P.E.
Partner, LERA

Richard Garlock, P.E. is a Partner at LERA Consulting Structural Engineers (LERA). With over 20 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. He guides the efforts of our Project Manager in the development of the structural design and in the coordination of structural engineering services with the Owner, Architect, Services Engineer and Contractor. As LERA's Signatory Director to the SE2050 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



Richard E. Naumann
P.E.



Xia Li
P.E. (CA)



Yun Luo
P.E. (TX)



Chris Faschan



Renuka Ranwadkar

Embodied Carbon Action Plan (ECAP)

REPORTING

LERA plans to harness the power of 3D BIM models to measure embodied carbon in a structure and to track sustainability metrics throughout the design process. Tally, a plug-in for Revit, will be 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 will be 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 will be reported both internally, to LERA project teams, and externally, to our clients.

Starting in 2022, each new domestic design project will be subject to an internal embodied carbon review at each major design milestone (SD, DD, and CD). Data generated at each project milestone will be 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 will then be reported to clients and approaches to sustainable design will be tailored to the motivations of the client. Sustainability reviews will be 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 2022, LERA plans to submit (2) projects to the SE2050 database that are representative of different building typologies and different markets. The first project will be a concrete residential tower and the second project will be a mixed-use steel tower both in the Northeast United States. These projects have been selected to start an internal database that tracks differences in primary construction materials, regions, and building typology.

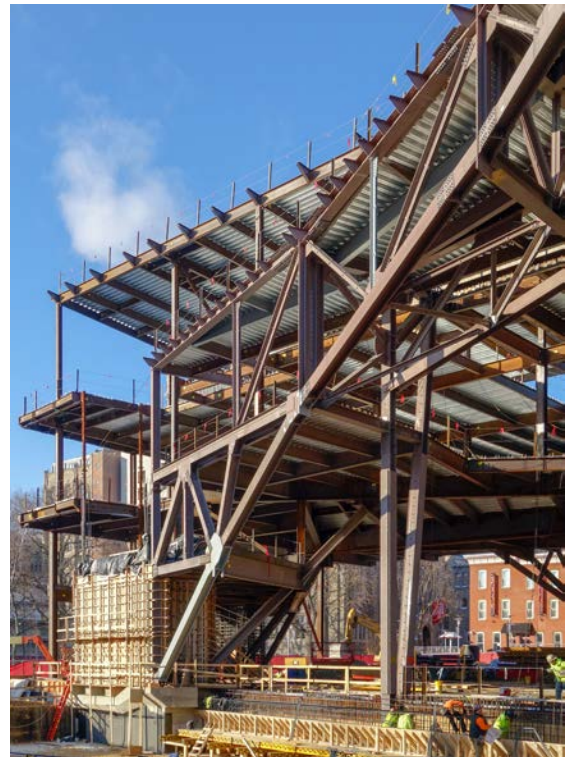


Image Credit: Snøhetta

Embodied Carbon Action Plan (ECAP)

EMBODIED CARBON REDUCTION STRATEGIES

Embodied carbon reduction strategies for our first year of involvement in SE2050 will be focused primarily on educating our engineers on concepts related to embodied carbon reduction and on creating processes for educating our clients and contractors.

Our strategy will be 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. Working with architects and clients to incorporate biogenic building materials, where appropriate, is an important part of our design process. Our team is constantly 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. Strategies will be flexible enough for application to buildings of every typology, allowing us to serve all of our clients.



Embodied Carbon Action Plan (ECAP)

ADVOCACY

LERA will engage with the broader design, construction and real estate industries as we Partner on educating each other and enhancing our commitment to carbon reduction together. LERA will utilize our network of worldwide clients and design collaborators to expand our knowledge on the best practices for carbon reduction and informing clients and contractors of the benefits for 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 New York), 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

