

# SE 2050 Embodied Carbon Action Plan

2022



ballinger

# Introduction

The challenges that are easiest to meet are rarely the challenges that need us the most.



Since our beginnings, Ballinger has worked to artfully integrate architectural aspiration with engineering acumen to achieve each project's mission. Ours is a design culture, where experience and analytical tools ensure that complex, resource-intensive projects are environmentally responsible in both design and operation. Our interdisciplinary teams collaborate toward solutions that require disciplinary synthesis: the deep integration of architecture, planning, interior design, and engineering is key to achieving excellence in the design of transformative environments.

Our clients operate at the forefront of research, practice, and teaching that contributes directly to communal health. With core missions of knowledge sharing, innovation, and wellbeing, our clients help lead in visioning and realizing a more sustainable future as they educate the future leaders of our society and economy.

As architects, engineers, interior designers, and planners, we have a professional and ethical responsibility to our clients and the communities we serve to steward our shared resources and the built environment. Given the scale and often energy-intensive project types we work within and the collective footprint of our work, Ballinger is positioned to significantly reduce the environmental impact of the built environment.

As a firm, we overwhelmingly view holistic sustainability measures – reducing our carbon footprint, promoting health and wellbeing, and implementing an equitable and inclusive design process – as an integral measure of design excellence. We are committed to advancing our sustainability performance as a firm and further establishing ourselves as sustainability leaders, more broadly leveraging our strengths as a collaborative, interdisciplinary practice.

# The Ballinger Sustainability Action Plan 2.0

Representative of our firm ethos, we have recently engaged in a collaborative, interdisciplinary evaluation to develop the Ballinger Sustainability Action Plan 2.0. Through this effort, we have reviewed sustainability successes and achievements to date, and initiated a process of self-critique toward elevating our performance across all sustainability measures on each of our projects.

The Ballinger Sustainability Action Plan (SAP) supports the advancement of sustainability performance in our work through the following:

- Firm-wide commitments across eleven design and operational measures
  - 1** Equity
  - 2** Site
  - 3** Water
  - 4** Operational Carbon
  - 5** Embodied Carbon
  - 6** Resiliency
  - 7** Wellbeing
  - 8** Post Occupancy Evaluation (POE)
  - 9** Knowledge sharing
  - 10** Community
  - 11** Operations
- A consistent, intentional design process to support project teams in meeting these commitments
- Accountability measures to gauge our process
- Operations recommendations to reduce Ballinger's day-to-day impacts while enhancing health and wellbeing in our work environment

Central to Ballinger's commitment to resource stewardship is the recognition of the unparalleled role that creating, renovating, and operating buildings contributes to greenhouse gas (GHG) emissions. To this end, we have committed to the decarbonization of new and existing buildings – a commitment formalized in our active participation as signatories to the AIA 2030 Commitment, MEP 2040, and SE 2050 programs.



# Embodied Carbon Action Plan

## Education

One of the most impactful ways Ballinger can contribute to sustainable development is in education of our current and future professionals, clients, community members, and leaders to contribute to the requisitely multi-faceted creation of a truly sustainable future. Ballinger, as a multi-disciplinary firm, has the unique opportunity to learn from and educate one another in all aspects of the design process.

### Checklist

#### REQUIRED

- Distribute firm-wide announcement of Ballinger's pledge to join the SE 2050 Commitment. Completed June 2022 during firm wide monthly forum
- Present "Embodied Carbon 101". To be presented during a Ballinger Technical Session by February 2023.

#### ELECTED

- Have a Ballinger representative attend quarterly external education programs provided by SE 2050, the Carbon Leadership forum, or other embodied carbon resource
- Share the SE 2050 library of resources with our technical staff, through our firm intranet, B:hive.
- Provide monthly sustainability updates at our firm-wide forums, informing staff about specific project tracking, lessons learned, and new and advancing technologies
- Attended information sessions on Tally and EC3 to assist in the preparation of reporting the calculated totals of embodied carbon

## Reduction Strategy

As this is our first year of SE 2050 membership, Ballinger is focused on the education of our staff. Through our monthly updates, the "Embodied Carbon 101" webinars, and sustainable material representatives visiting our office, we aim to integrate embodied carbon reduction into our design process.

### Checklist

#### ELECTED

- Update Ballinger's structural master specifications to incorporate embodied carbon performance and to include embodied carbon in our submittal review requirements. Ballinger's master specifications already include minimum requirements for supplementary cementitious materials in concrete mix designs and minimum recycled content for steel framing and rebar, as well as requirements for environmental product declarations (EPDs) when required for LEED credits. Revisions to the master specifications at the beginning of 2023 will include switching to performance-based concrete mix designs, the inclusion of EPD requirements for all projects, regardless of LEED status, and the use of carbon dioxide encapsulations additives.

## Reporting

Initially, Ballinger commits to performing LCAs on the required two (2) projects per year as outlined by the SE 2050 commitment. We have selected a concrete 5-story, 131,000 sq. ft. interdisciplinary life sciences lab and classroom building and a steel-framed 14-story, 400,000 sq. ft. health sciences classroom, lab, and office building as our baseline to compare against as we learn more about embodied carbon reduction strategies and implement them into our designs.

Our goal is to perform LCAs on most if not all our new building projects. Beginning in schematic design with typical bay-framing option studies, we can provide quantitative analysis to our clients to show them which structural system will provide a lower embodied carbon footprint. Additionally, Ballinger will perform LCAs on the renovation and reuse of existing buildings to determine the embodied carbon impacts of the reuse and/or salvaging of existing structures.

### Checklist

#### REQUIRED

- On track to submit the annual two (2) projects to the SE 2050 database

## Advocacy

We are continually populating our firm intranet, B:hive, with sustainability resources across all disciplines. This firm-wide resource is a hub for all things sustainable, enabling us to share resources and report our project data. We also encourage everyone to participate in educational communities, such as the Carbon Leadership Forum, and more locally, the Delaware Valley Association of Structural Engineers (DVASE) and their Sustainability Committee. We want to educate ourselves and learn from other firms in our area. Recently, a member of our structural team attended the International Mass Timber Conference to learn about mass timber and its benefits for the environment. Last month they had the opportunity to share what they learned with the DVASE Sustainability Committee.

### Checklist

#### REQUIRED

- Declare Ballinger as a member of the SE 2050 commitment on boilerplate proposal language

#### ELECTED

- Share Ballinger's commitment to SE 2050 on our company website
- Host Sustainability Visioning Sessions with our clients' energy and sustainability leaders to align our sustainability goals with our clients' ongoing sustainability and carbon emission plans.

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