EMBODIED CARBON ACTION PLAN
October 21, 2022

KAI Hawaii, Inc., a 40 person firm located in Honolulu, HI, 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.

Our firm’s mission is to apply and develop the science/art of structural engineering to contribute to the health, safety, and well being of society. This mission is made tangible daily through the application of structural materials to build, maintain, and repair buildings and infrastructure in our community. However, the embodied carbon of these materials particularly the greenhouse gas emissions associated with producing them has come into focus recently as a major contributor to global warming. As stewards of both our local and global environment, we take seriously our responsibility to understand the impacts of our designs and help steer our industry toward solutions that will help stabilize the global climate and preserve the rich biodiversity of our shared home.

We therefore commit KAI Hawaii 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.
- 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.

Sincerely,

Ken K. Hayashida, President
KAI Hawaii, Inc.
OUR TEAM

EDUCATION

SE 2050 Interest Group
Info Sessions
Webinars
Onboarding

(3) Project Uploads
(2) Project Comparisons

REDUCTION

Construction of Concrete Database
Specification Changes
Client Communication
Share Design Options

REPORTING

Supplier Outreach
Dinner Presentations
Client Stewardship
Declaration of Commitment

ADVOCACY

ACTION SUMMARY
EMBODIED CARBON INTEREST GROUP
The KAI SE 2050 Committee meets biweekly to develop and achieve the goals of this ECAP. Where appropriate, committee members collaborate with coworkers outside of the group.

FIRM WIDE PRESENTATIONS
Firm wide presentations on embodied carbon were given in December 2022 and April 2023. At least two firm wide presentations will be made each year going forward.

EMBODIED CARBON WEBINAR
A webinar will be presented, and a recording will be made available to all current and future KAI employees.

ONBOARDING
During onboarding, we will present all new staff with the SE 2050 Commitment Letter and Program. We will also share the ECAP and recorded embodied carbon webinar as introduction material to the topic.

EMBODIED CARBON CHAMPION
Eric Borchers is KAI Hawaii’s Embodied Carbon Reduction Champion. He is a member of the SEI Sustainability Committee and SE 2050 Leadership Team and leads KAI’s internal SE 2050 Committee.
SPECIFICATIONS
We will review our standard specifications for concrete and update them to include embodied carbon performance goals. We will do this for both public sector and private sector standard specifications.

CONCRETE DATABASE
We have created a database of concrete mixes submitted by contractors on KAI-designed projects to inform the specification updates. We will continue to populate the database with newly submitted mixes to reach at least 100 mixes of various strengths and structural uses.

DESIGN OPTIONS
We will present concept-level structural system design options with embodied carbon estimates alongside structural material quantities to our clients for at least one project to bring embodied carbon into the early design conversation.
MATERIAL SUPPLIER ADVOCACY
We have engaged in conversations with local ready mix concrete suppliers and the local concrete organization, Cement and Concrete Products Industry of Hawaii.

PUBLIC DECLARATION OF COMMITMENT
KAI’s participation as an SE 2050 Signatory Firm will be shared on the company website, and our ECAP will be shared on social media.

DESCRIBING THE VALUE OF SE 2050 TO CLIENTS
We have shared our status as a Signatory Firm with individual architectural and developer clients and will present to architecture offices on embodied carbon.

LOCAL SEAOH DINNER MEETING
We presented about embodied carbon and concrete at the Structural Engineers Association of Hawaii (SEAOH) March 2023 dinner meeting and prepared a paper on embodied carbon and the local structural material supply chain intended for the SEAOH Convention in September 2023.
PROJECT COMPARISONS AND ANALYSIS
Of the (3) projects submitted to the SE 2050 database at least (2) will be of similar project types so that embodied carbon data can be analyzed and compared.

PROJECT UPLOAD TO THE SE 2050 DATABASE
We will be submitting (3) projects this year to the SE 2050 database. We have also begun a study of the most appropriate LCA Tools to use for our reporting.