CASE STUDY: WHY YOU SHOULD MODEL EARLY AND OFTEN

San Francisco's EHDD has long embraced design that is attuned to site, environment, and context.

Ahead of its time at its founding in 1946, EHDD has a core philosophy that naturally fits with the growing understanding of sustainability over the past two decades. During that time, EHDD has taken an increasingly rigorous and science-based approach to design, including signing on to AIA's 2030 Commitment in 2013. The Commitment has helped the firm take a broader view of its entire portfolio and has cemented the critical importance of energy modeling at the early stages of design.

A mid-sized firm of about 70 staff, EHDD has a portfolio of everything from visitor-serving civic and cultural institutions to commercial and education, its main focus area. Working around the world, though primarily in California, EHDD has met the Commitment's targets every year since joining, with a pEUI reduction of 71% in 2019 and 70.8% in 2018. While the firm's net-zero-energy projects play an important role, "the 2030 Commitment allows us to be honest with ourselves on how we are doing overall, not just on our exemplary projects, along with looking at how we compare to how other firms are doing," explains Brad Jacobson, AIA, LEED AP BD+C, a principal at EHDD.

Energy modeling is deeply ingrained in the EHDD process, with project teams communicating "early and often" with consultants. In fact, EHDD collaborated with its engineers and consultants to develop a protocol detailing how the firm uses energy modeling throughout the phases of a project. This is now shared with new consultants at the proposal stage to set expectations for energy consumption and target-setting that go beyond code compliance.

"Energy modeling is a design tool as much as it is an accounting tool. A lot of times in sustainable design people have good intentions and use their intuition, but you'd be missing out on a lot of powerful opportunities if you don't look at energy modeling early in the process and only use it for compliance at the end," says Jacobson. For instance, in designing Boulder Commons, a net-zero-energy office building in Boulder, Colorado, the team's energy modeling determined that using fiberglass clips concealed in the wall to reduce thermal bridging would have a bigger impact on pEUI than external sun shades, and for much less cost. Modeling "allows you to analyze particular strategies and components by the numbers and then decide what is really getting you to the goal."

Photo by Bruce Damonte