



Thursday Sep 30, 12:30pm-2:00pm

Designing Zero Energy Multifamily Buildings Informed by Simulation and Policy

Presenters: Wendy Meguro, AIA, LEED AP, BD+C; Elliot Glassman, AIA, NCARB, LEED AP BD+C, CPHD and Nathan Bishop, AIA, LEED AP

Moderator: Brian Kealoha

Building operation accounts for 39 percent of global greenhouse gas emissions. Hawaii is experiencing a significant demand for housing while working toward the 100 percent clean energy commitment by 2045.

This presentation demonstrates how integrated energy simulation and policy can dramatically reduce multifamily building energy use. We share research demonstrating a replicable design process to reduce energy use and estimate future thermal comfort in multifamily residential buildings.

Design professionals, policy-makers, planners, and building developers may be interested in the early design phase automated parametric energy modeling methods; energy use intensity targets; identification of the most effective energy efficiency measures; and estimates of on-site renewable energy generation and storage. We share how simulated buildings reduced annual energy use 29–61 percent below code and achieved net-zero site energy.

The Arroyo, a multifamily affordable housing project by Koning Eizenberg Architecture in Santa Monica, California, exemplifies many high-performance building strategies relevant for Hawaii and received LEED Platinum certification and an AIA Housing Award. We share the factors that enabled the inclusion of its passive and active energy efficiency measures and discuss the potential for new policies and incentives in Hawaii.