

# Wai‘anae Coast Community Mental Health Clinics

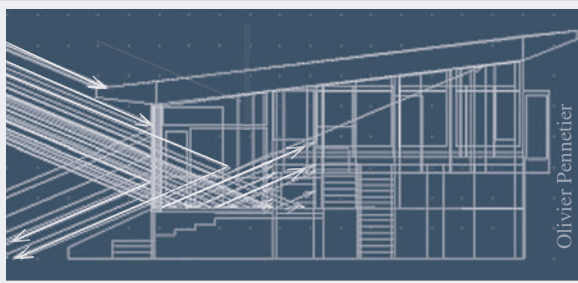
By Dr. Stephen Meder, Director, UH Sea Grant Center for Smart Building and Community Design

The Wai‘anae Coast Community Mental Health Clinics is a non-profit organization serving the largely underserved, low income, native Hawaiian population of the Wai‘anae coast of O‘ahu. They provide outpatient, residential, educational and outreach services to many whom would otherwise be overlooked by the standard healthcare programs. The clinics employ about 100 people and treat more than 5,000 patients a year. They have several facilities in the Wai‘anae district, all of which would benefit from design and energy efficiency upgrades. The organization’s main clinic is a two story, 20,000 square-foot pair of buildings that are in urgent need of a revitalization. The UH Sea Grant Center for Smart Building and Community Design (CSBCD) was contacted by Puanani Burgess, the director of the clinics, and requested the CSBCD’s assistance in assessing the facilities performance and provide design recommendations to improve the comfort, energy use, and programmatic needs of their flagship facility. In response to the request, CSBCD personnel made a site visit and developed a preliminary assessment of the facilities. Dr. Stephen Meder, director of CSBCD, then

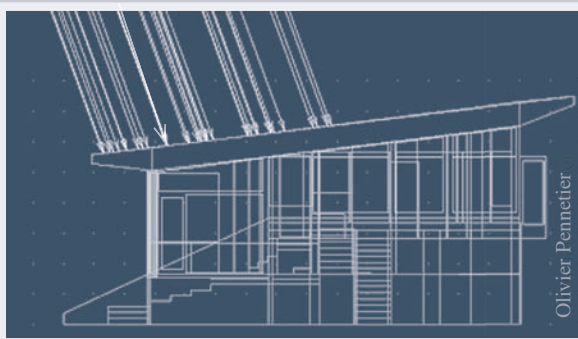
coordinated meetings with the clinic, Hawaiian Electric Company (HECO) and the State Energy Office at the Department of Business, Economic Development and Tourism to consolidate an assistance program for the clinic upgrades. The Hawaiian Electric Company has agreed to provide mechanical engineering services to assist the team to quantify the design recommendations.

The site is located in a very hot and dry area of the island, and the buildings and surrounding areas are inhospitably hot and inhumane. The lighting and air conditioning systems are in decrepit condition and operating at ineffective and inefficient levels. All in all, the building is currently in need of renovation to improve its functionality as well as appearance. A team of students from the UH School of Architecture were convened to combine their talents with Architecture faculty, CSBCD staff and an engineering consultant to provide a detailed energy assessment, thermal, ventilation and daylighting analyses. Additional design recommendations will be offered that will include improvements for energy performance, aesthetics and improved operations. It is expected that the design recommendations will include extensive landscaping, areas for productive gardens, small-scale aquaculture, and a rooftop photovoltaic system. With additional partnerships and support for renovations and renewable energy systems, it is hoped that CSBCD can provide viable designs for a zero net energy building. This is an extremely exciting community-based project which assists a very notable non-profit to continue and expand their valuable work while helping to create a facility that can be a model in the state and throughout the region.

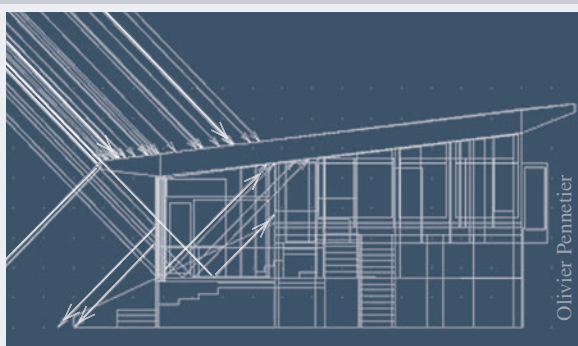
*The three images below represent examples of daylighting/ solar thermal analysis being conducted by the students:*



*Diagram of sun ray geometry at noon during winter solstice.*



*Diagram of sun ray geometry at noon during the equinox.*



*Diagram of sun ray geometry at noon during summer solstice.*

