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HNEI is conducting energy efficiency research at Ilima Intermediate School

A new Project Frog classroom for teaching students and scientists

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Project Frog classroom at Ilima Intermediate School. Credit: Priscilla Thompson (HNEI) & Hawaii DOE.

Students at Ilima Intermediate School in Ewa Beach, O?ahu will have the unique opportunity to learn in a classroom that is itself a learning platform. A 1,200-square-foot, state-of-the-art structure has been installed at the school, the first of three sites selected for energy research that will test the effectiveness of innovative energy efficient buildings powered by renewable energy. The Hawai?i Natural Energy Institute (HNEI) of the University of Hawai?i at M?noa is leading the research study which will analyze the performance of these energy systems for potential future Navy applications in the Pacific region.

?We're delighted to participate in and be the beneficiary of this innovative project,? said Assistant Superintendent Randy Moore of the State of Hawai?i Department of Education. ?It will excite our students and staff on the campus to know they are a part of leading edge research and development work into creating environments that support student learning and are friendly to the planet.?

The pre-engineered test platform, created by California-based Project Frog, Inc., incorporates passive design elements to decrease energy demand, thus increasing the effectiveness of its photovoltaic systems. The structure will be outfitted with high-tech energy monitoring instruments providing valuable research data on the performance of design and material components.

Project Frog?s design provides air quality management and thermal comfort through the use of natural convection and air displacement to reduce the requirements for mechanized systems. Optimized daylighting and glare reduction provides high quality illumination for over 95 percent of daylight hours, keeping the electrical lights off during most of the school year. The design reduces energy consumption,

construction waste and operating expense, while providing spaces that are adaptable for a variety of uses.

"We are excited to play such an integral role in HNEI's research and together advance the science and technology behind all new construction throughout the Islands," said Nikki Tankursley, director of marketing for Project Frog.

?Frog buildings are very responsive to the Hawaiian climate,? according to Tankursley. ?With a small rooftop photovoltaic array, the classroom at Ilima Intermediate School produces more energy than it consumes.?

At Ilima Intermediate School, HNEI will also compare the performance of two different photovoltaic systems, one using a high efficiency crystalline technology, and the other using a newer thin film technology.

?This important assignment is part of a larger research program to evaluate energy technologies for the Office of Naval Research that includes a range of efficiency, storage, and renewable generation systems,? said Dr. Richard Rocheleau, HNEI Director.

The Office of Naval Research is providing funding for the project through a grant to the University of Hawai'i. Projects that support the Department of Navy's energy programs to demonstrate technologies that enable increased implementation of alternative energy sources and promote energy security are made possible by the efforts of U.S. Senator Inouye, Senate Appropriations chairman, to ensure that the Department of Defense has adequate resources to make these critical, cutting-edge investments in energy technology.

Project partners include the State of Hawai'i Department of Education, University of Hawai?i at M?noa ? Hawai?i Natural Energy Institute, and Project Frog, Inc.

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