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State's first off-the-grid public school classroom built in Hana

By COLLEEN UECHI, Staff Writer

Hana High and Elementary School is running the state's first off-the-grid public school classroom, built by youths in the community and equipped to handle the school's growing energy needs for years to come.

The facility, built by high-schoolers and recent graduates in the Ma Ka Hana Ka 'Ike Building Program, was completed during the last week of July, shortly before the new school year started.

"The classroom is totally cool, even on our hottest days in August," Rick Rutiz, the program's founder and executive director, said Friday. "It costs more than those throw-'em-up portables that we build all over the state, but if you take the 50-, 60-year look at things, it's going to be way cheaper."

Ma Ka Hana Ka 'Ike (in working, one learns) is a program for at-risk youths that teaches students building skills while bringing the community much-needed projects. Since it began in 2000, the non-profit has helped build 18 facilities at the Hana school, 44 projects for nonprofits, 32 cottages for kupuna and more than 50 handicap-access improvements, including ramps and rails.

In December, the group began constructing the new school building on the Hana campus. Youths in the program installed 24 rooftop solar photovoltaic panels, two inverters and a battery bank to supply electricity to the classroom, which is cooled naturally through passive ventilation. Students decorated the building with their own art, including a wood mosaic of kalo, a painted underwater mural and a sunset-colored ceiling.

Rutiz, who's been a contractor for more than 30 years, said that the school had originally wanted to build an infant and toddler classroom for teachers and students with children.

"Especially our teachers, we didn't want to lose them because there's no day care here in Hana," he said.



Ma Ka Hana Ka 'Ike photos

Top photo: Hana High and Elementary School's new classroom building, built and decorated by youths in the community, is shown after being completed in late July. Equipped with 24 rooftop solar panels, it's the first off-the-grid public school classroom in the state.

Photo above: High-schoolers and former students in the Ma Ka Hana Ka 'Ike Building Program work on the flooring in the new Hana School building. The non-profit allows at-risk youths to learn on-the-job skills while helping to improve the community.

So, just over two years ago, Ma Ka Hana Ka 'Ike petitioned the state Legislature for \$500,000 in grants, to fund two new buildings and pay for labor. However, the non-profit received \$86,000 of its request, leading to a change in plans. Instead, an elementary classroom, already equipped with bathrooms and showers, was converted into the infant and toddler room. The grant money went toward a new building for preschool students. Other costs were covered by Ma Ka Hana Ka 'Ike, which was able to purchase some of the energy

equipment from Inter-Island Solar Supply at a significantly discounted price, Rutiz said.

At a time when classroom temperatures are a hot topic statewide, Rutiz said that builders focused on creating a cooler classroom through the building's design. The windows and high ceiling allow trade winds to circulate. Hotter air rises and gets sucked out through the cupola on the roof.

Rutiz said that the building has more energy capacity than it needs, so that if it

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Ma Ka Hana Ka 'Ike photo

Rick Rutiz, founder and executive director of Ma Ka Hana Ka 'Ike, said the building is designed to be naturally cool. With fans, a high ceiling and a well-ventilated cupola, hot air will be sucked out.

Building

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becomes a computer lab or other type of classroom in the future, the system could handle it. Right now, it helps power air-conditioning units in nearby classrooms.

Brent Suyama, spokesman for the state Department of Education, said that Hana's building is the only off-the-grid public school facility in the state. Ewa Elementary School has a net-zero building, which uses about the same amount of energy it generates, and the state is working on other potential net-zero schools.

"I've lived off the grid for 30 years, and I know that it works," Rutiz said. "I never have power outages at home, whereas in Hana we have them once a month at school. . . . (This project) was just to try to get the idea that this is a possibility and it's reliable."

Rutiz said that licensed professionals in electric, solar and other fields are present during projects to help the students learn and keep the building "above code." Because the school is on state land, any projects must be state-approved and state-inspected, he added.

The nonprofit has received numerous awards from the Hana community, the county and the state, including the 2010 Hawaii State Governor's

Innovation Award. Its funding comes mainly from private foundations but also from the county.

Students who opt to stay with the program after high school can start earning a salary and teaching others building skills. That's what 22-year-old Lawaia Tehiva has done since dropping out of high school in his sophomore year.

"During school, this was one of my electives, and I just kind of got all into it because of the hands-on (part)," said Tehiva, who specializes in heavy equipment. "It was just the kind of work that I wanted to learn. Now I'm teaching it to the students. I wouldn't think that I would be teaching students because I dropped out of school."

Rutiz said that, while some students do move on to construction, "really that's not our goal."

"Our goal is to create great community people," he said. "Most of our jobs are out in the community, and we're helping our kupuna with either housing or remodeling. . . . When they get to feel three, four, five times what it feels like to be mahalo-ed and help take care of our kupuna, then maybe for life they will make that choice."

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