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Sustainable Architecture

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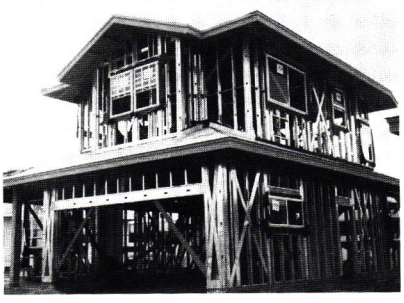

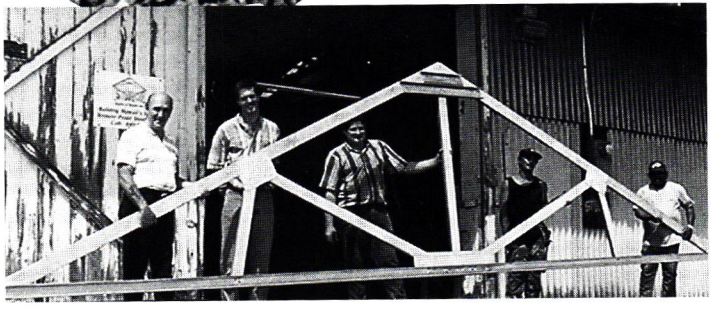

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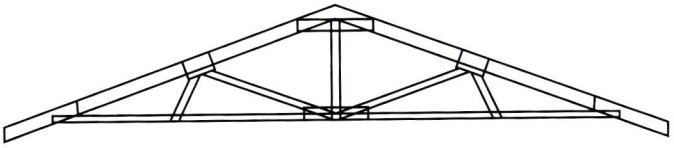

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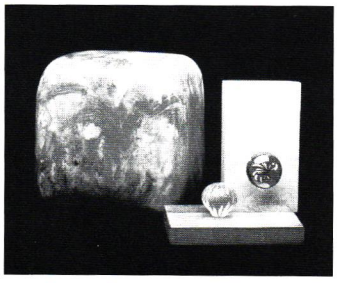

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IN THIS ISSUE ...

Design and building industry professionals are becoming more aware of the environmental impact of construction and are devising creative solutions using environmentally responsible building materials and technologies. These technologies will only increase in importance as landfill space and resources are depleted. Read about the strong and growing sustainable building movement in Hawaii in this issue.

COVER: The tent structures at Molokai Ranch's Paniolo Camp offer visitors a rustic, back-to-nature experience. The camp is an excellent example of sustainable architecture in action. See the story on p. 5.

Hawaii Pacific Architecture is the monthly journal of the AIA Hawaii State Council. Subscriptions are $36 per year. Opinions expressed by authors do not necessarily reflect those of either the AIA Hawaii State Council or the publisher. The appearance of advertisements or new products and service information does not constitute an endorsement of the items featured.

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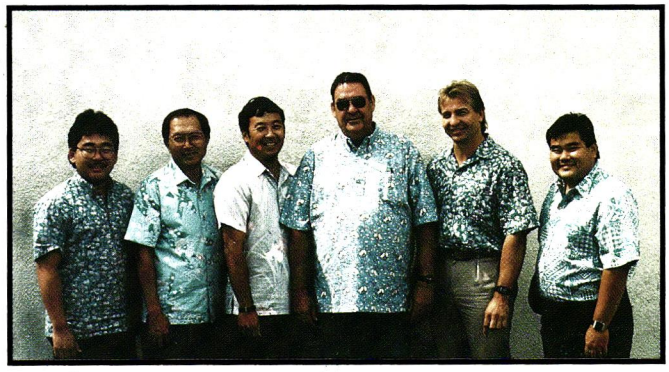
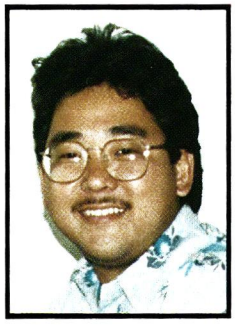
A New Generation of Leaders.

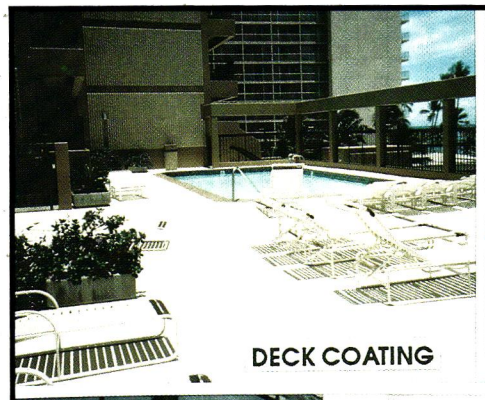


Heading a team of over 40 technicians are left to right: Alvin Nishikawa, Ken Matusumura, John Kobayashi, Al Gardner, Steve Kramer, and Jim Hiramatsu

Meet Alvin Nishikawa.



Alvin is Vice President of The American Coating Company. He is in charge of all field and estimating operations. Previously, Alvin was employed with an engineering firm in Chicago and Honolulu where he focused primarily on restoration and water infiltration problems. Alvin holds a M.S. and B.S. in Engineering from Purdue University.



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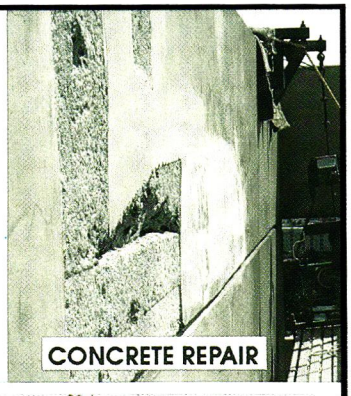

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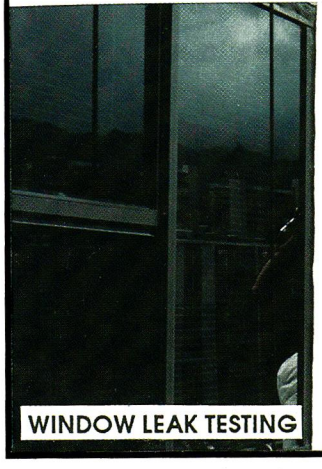

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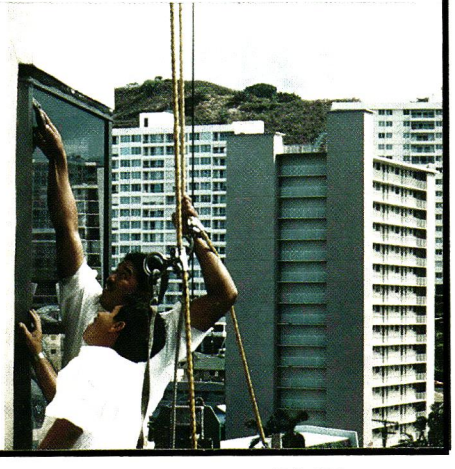

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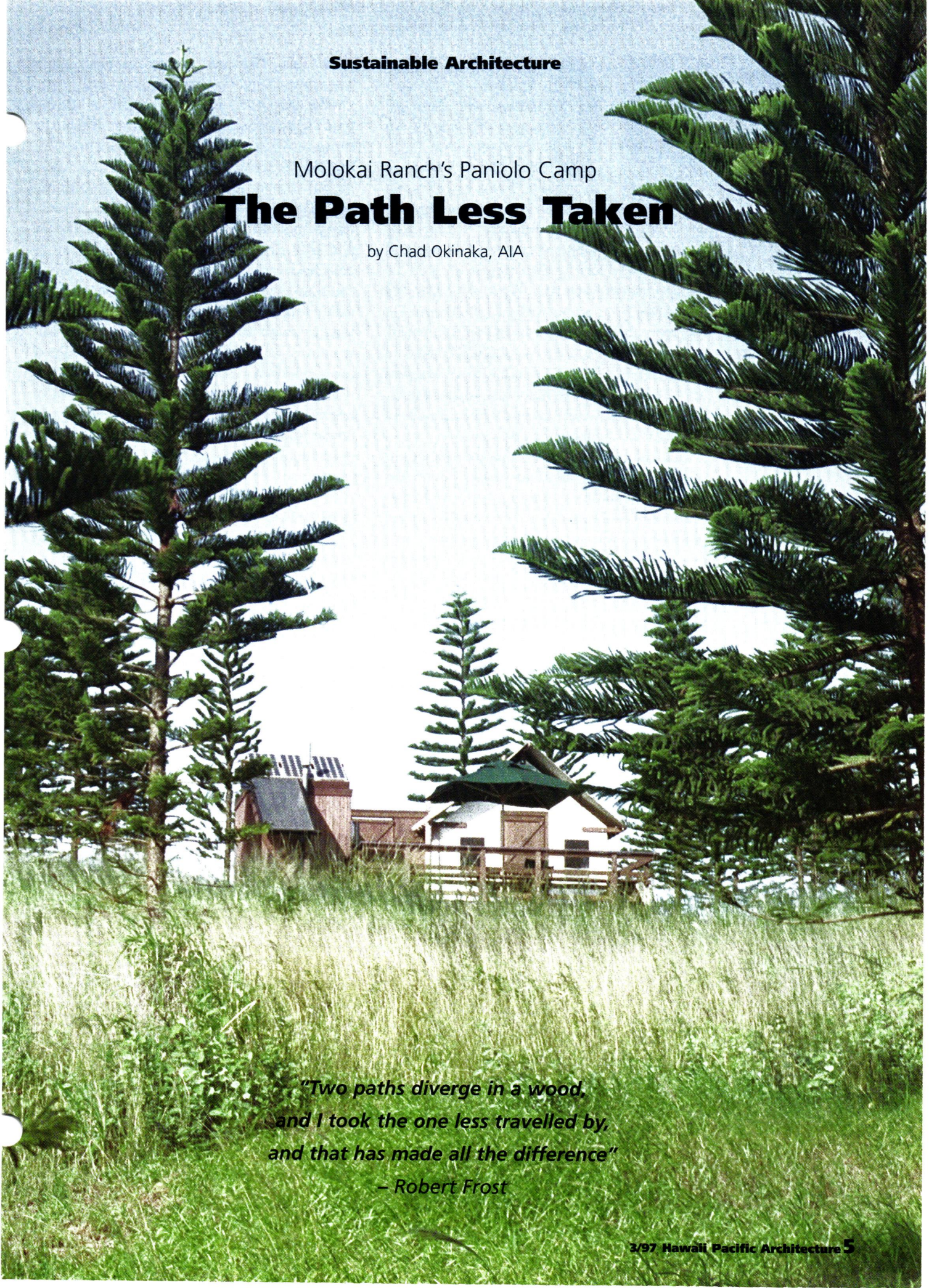
Molokai Ranch's Paniolo Camp

The Path Less Taken

by Chad Okinaka, AIA



"Two paths diverge in a wood,
and I took the one less travelled by,
and that has made all the difference"
– Robert Frost

Paniolo Camp visitors enjoy ocean views and natural surroundings.

On the west end of Molokai, the Paniolo Camp on Molokai Ranch is taking an unconventional path. The camp sits near Maunaloa Town in harmony with the surrounding dry, remote landscape. Camp visitors experience an off-the-grid living experience as well as many outdoor activities. The self-sufficient campsites promote awareness of sustainable concepts and sensitivity to the environment.

Paniolo Camp occupies about 17 acres of ranch lands. The micro-climate is austere and rugged in many respects. Gusty winds, rocky or dusty terrain and the absence of shade trees characterize the site.

A large flat lawn with a panoramic ocean view houses the common area, which includes a pavilion, swimming tank and restroom. Paths lead down the site's sloping grade to the 40 tent units. Existing rock outcroppings, kiawe tree groves, archaeological sites and views controlled the siting of the structures in order to preserve the natural setting and highlight attractive features.

Back to Basics

The accommodations are simple and comfortable. Each unit includes one or two tents, a restroom and an open deck. The units sit above grade on a wooden spaced deck platform located to minimize impact on the land and maximize use of the natural surroundings. Most units have an ocean view from the open deck. The tent structures block sight lines onto the deck, providing privacy.

The structure itself is simply a canvas tent stretched over a wood frame. Since the camp receives substantial sun exposure with limited shading, controlling solar heat gain played a major role in the tent design. Therefore, the tents feature a "fly" that simply forms an additional roof over the tent. The fly not only provides shade but allows air to pass between the bottom of the fly and top of the tent to prevent the sun's heat from radiating into the interior. Cool air enters the tent through the spaced deck and "zip-up" windows, and ceiling fans provide additional air circulation.

A photovoltaic system supplies DC electricity converted from the sun's energy to power all fixtures. Timers turn out the lights every hour, reminding visitors they are on a limited supply of electricity.

Water-Saving Systems

A solar thermal system provides ample hot water to the low-flow shower and lavatory. Odorless and chemical-free composting toilets manage sewage. The composting toilets are highly water efficient as they use less than one pint of water per flush. Potable water is the only amenity supplied to the units due to the area's low annual rainfall and dust which make catchment systems impractical.

Landscaping is critical to minimize the dry, dusty conditions. Strict water usage regulations mandated the use of efficient Buffel grass, which will extend the "green" season without additional water consumption. In

time, existing grass and weeds will grow in with the Buffel grass and provide a natural setting over most of the campsite.

The pavilion lawn is the site's only maintained landscape area. The ranch transplanted more than 500 Cooke pines taken from other locations around the ranch. The trees provide vital wind blocks and shade and greatly enhance the landscape's character, providing pleasant surroundings.

Supporting Local Business

Expanding on the idea of sustainability beyond the camp itself, the ranch is also evaluating possible goods and services that local sources might provide. Local sources reduce the dependency on shipping, which reduces the need for fuel and oil and minimizes impact on the environment. In addition, increased opportunity for small businesses will boost the local economy and provide new activity for Maunaloa Town. Agricultural products, furniture and tent materials are a few of the possibilities the ranch is considering.

As with any divergent path, the route will be arduous. Paniolo Camp provided both a challenge and a unique learning experience for all involved. Future camps are currently being developed and designs are being refined. Paniolo Camp provides an educational experience for all visitors as well as the opportunity to reconnect with nature.

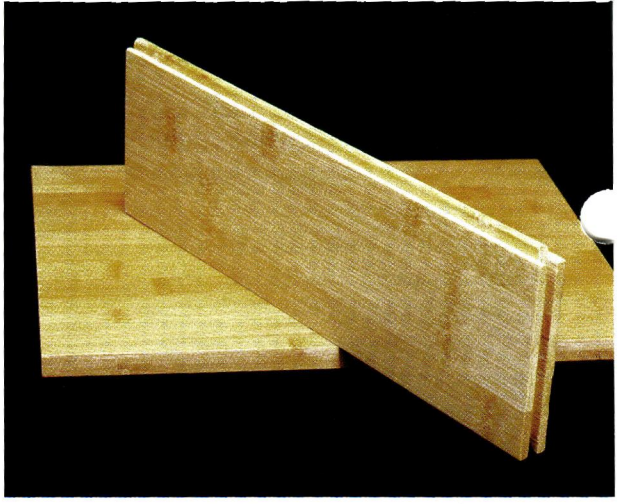
As the environment continues to show signs of strain, it is imperative to ask ourselves if the time has come to switch paths. As design and construction professionals, we need to evaluate the current standard model of construction and ask if it is still appropriate both for our human needs and our world's environment. Nature has traveled a path far longer than we as human beings have existed. Should not our path be one that runs parallel to nature?

Chad Okinaka, AIA, is an associate at Philip K. White Associates and a member of the Green House Hawaii Project committee.

Environmentally-responsive building materials

Better for Business, Better for Hawaii

by Gail Suzuki-Jones



Bamboo plywood tongue and groove flooring, or "Plyboo" from Smith and Fong, is available at Sanders Trading Co., Honolulu.

The architectural block, cabinet and door pulls from Glass Art and Architecture, Aiea, use cast, pressed or blown recycled glass.

Above: Glass tiles from Peak Creations, Kamuela, are created from used glass containers crushed and melted with added colorants.

Left: Plastic lumber, furniture and traffic control items from Aloha Plastics, Kahului, are manufactured from recycled milk jugs and soda bottles collected on Maui and Oahu.

Photos by Hal Lum

As the most remote land mass in the world, Hawaii relies on imported sources for most building materials. However, several products are made right here that can be used in many building applications. Among these are products that are considered "environmentally responsive" because they are made from locally recycled waste materials.

Lumber constructed from recycled and remanufactured plastic; tiles, cabinet pulls and blocks made from recycled glass; and insulation from recycled newspaper are a few examples of environmentally-responsive building products currently made in Hawaii. The manufacturers strive not only to produce products that fulfill strength and aesthetic characteristics of conventional building products, but utilize materials that would otherwise be disposed in our landfills.

Using these products extends the life of existing landfills, reduces the amount of energy used in shipping imported materials and supports local businesses. Recycled-content products are good for the environment, the local economy and the community.

Benefits Outweigh Cost

The perception of higher costs for recycled content materials can prevent designers and builders from exploring the possibility of using them. However, products such as cellulose building insulation made with post-consumer recovered paper use manufacturing technology that is relatively simple and cost competitive.

Other recycled content products require more complex manufacturing technologies and initially may be higher priced than conventional materials. However, other benefits of the materials should come into consideration. For example, lumber made from recycled plastic may not be cost competitive initially, but its durability, termite resistance and maintenance-free nature offer a very short payback time.

Products from bamboo such as laminated bamboo plywood can be potentially produced here in Hawaii. The Bamboo Society and other agriculture-related groups are currently testing a few varieties of bamboo for potential as a structural product, and Maui and Hawaii Counties have approved the construction of bamboo housing structures.

Planting kenaf or eucalyptus to produce building products and other materials has also been discussed. These proposals go beyond design and construction issues to those of community and economic development.

Buy Recycled

The Environmental Protection Agency's *Guidelines for Procurement of Products Containing Recovered Materials* requires federal agencies to buy products with recycled content when purchased in amounts exceeding $10,000 per year

The Green House Hawaii Project

Imagine a home designed to demonstrate energy and resource efficiency, water conservation, and non-toxic building principles, systems and products. This project is currently under way – the Green House Hawaii Project has been exploring sustainable building technologies for the past two years.

A dedicated group of architects, artists, builders, designers, educators, suppliers and government agency representatives has been working together to promote the concepts of sustainable and energy-efficient building. The group has researched environmental demonstration projects, resource-efficient product directories, Web sites, local housing developments and recovered materials projects. Through the University of Hawaii School of Architecture, the project has received grants and support from the state Office of Solid Waste Management and the City and County Recycling Office.

Phase I is complete. It is an exhibit of building materials and systems designed to promote an awareness of the resource-efficient, water-conserving and waste-reducing products and systems currently available or under consideration for the next project phases.

Phase II is under way and will result in construction of a kitchen and bath module incorporating these resource-efficient products and systems. **Phase III** will be the construction of a mobile demonstration house and the production of an educational brochure and video.

Phase IV will build upon the research of earlier phases to develop an Advanced Building Technologies Program to train design and construction professionals in resource-efficient building practices.

The Green House Hawaii Project is a professional team effort to promote resource-efficient building products and practices in Hawaii and other Pacific islands. For more information call Gail Suzuki-Jones at 524-0620.

Materials and resources used in the Green House Hawaii Project will be displayed at the BIA Building Materials EXPO, March 5-6, at Neal Blaisdell Exhibition Hall.

on a designated item. Construction materials including building insulation, structural fiberboard, laminated paperboard, cement, concrete, polyester carpet, patio blocks, floor tiles, playground surfaces, running tracks, hydraulic mulch products, waste receptacles and office paper are listed with recommended levels of recovered material content.

Hawaii Administrative Rules Subchapter 4, Chapter 3-124, Recycled Products, promotes the use of recycled products by state and county purchasing agencies. In accordance with Hawaii statutes there is a 10 percent price preference for recycled products in Department of Accounting and General Services projects.

Several publications are available on recycling and recycled materials. The Clean Hawaii Center has published *Recycled Products and Recycling Services in Hawaii.* The City and County of Honolulu Recycling Office offers an overview, *You Can Recycle on Oahu.*

The State of Hawaii Procurement Office publication, *Buy Recycled in Hawaii,* describes the benefits of supporting recycling and recycled products. A state materials exchange database program, HIMEX, can be a source of salvaged or reusable building materials that would otherwise be headed for the landfill.

In addition, numerous databases, guides and World Wide Web sites list various environmentally-responsive building products and systems. The University of Hawaii School of Architecture has created a Web page that includes the publication *Hawaiian Design: Strategies for Energy Efficient Architecture.* The AIA Environmental Resource Guide and a bi-monthly publication, *Environmental Building News,* are two excellent information sources for design professionals interested in environmentally responsible principles and products.

Efforts to recycle reusable materials have extended throughout the community. Recycling increases awareness of resource consumption and contributions to reducing solid waste disposal. Hawaii schools benefit from funds raised at local recycling centers, while students learn that recycling is a worthwhile cause.

Landfills, power plants and drinking water systems are nearing capacity levels. As designers, builders and consumers we can close the loop by specifying and purchasing products that contain recycled materials and supporting companies that produce those products. By incorporating other principles of reducing, reusing and recycling into our professional and personal practices we can minimize negative impacts on our environment for present as well as future generations.

Gail Suzuki-Jones is co-chair of the Honolulu AIA Energy and Environment Committee. She is project coordinator of the Green House Hawaii Project and Advanced Building Technologies Program.

Maui Community College's ecovillage

Living the Sustainable Life

by Don Ainsworth

A group of Maui college students is awakening to the challenges and benefits of sustainability. Maui Community College Instruction in Sustainable Technologies (MIST), a program funded by the Department of Energy, a grant from the Sohn Foundation and community donations, is not only educating students about sustainable technology, but also hopes to impact resource use islandwide.

Since 1994, student interns have been learning both theory and practical applications of alternative energy and conservation-related systems. This semester, 16 students enrolled in two new courses are designing and constructing an "ecocottage" as a demonstration project for the community. Because of the desire to utilize these technical skills throughout Maui County, students from Hana, Lanai, and Molokai are participating.

The ecocottage, located on the Maui Community College campus, will be a prototype used to demonstrate the potential of resource conservation and the ability to live in areas without access to electricity, public water and sewers. As the work progresses, the structure will be visible from Kahului's main thoroughfare, Kaahumanu Avenue. Information will be disseminated to the community through traditional media, tours, an on-site FM radio broadcast and video presentations on MCC's cable television channel.

"X" marks the site for the ecovillage.

From Cottage to Village

After completion of the ecocottage, an ecovillage will be constructed which will consist of five, three-bedroom dormitory units surrounding a pentagonal main building used as a common area. The central building will house classrooms and labs for students studying for an Associate of Science degree in Sustainable Technologies, as well as provide recreation and meeting facilities.

The buildings, sited in a cluster configuration, will make efficient use of trade winds and solar paths.

Both the ecocottage and ecovillage will provide students an opportunity for hands-on experience in the design, installation and maintenance of sustainable systems, as well as create a research facility for real-time testing and development of energy-related products and systems.

The ecovillage will incorporate the following technologies:

1) Solar stills and filters to treat water from an existing brackish well on campus in order to provide drinking and utility water;

2) Composting toilets, gray water systems and mechanical conservation devices. A biofilter meander will process the gray water and provide biomass for composting and, eventually, bioconversion;

3) Passive cooling and ventilation utiliz-

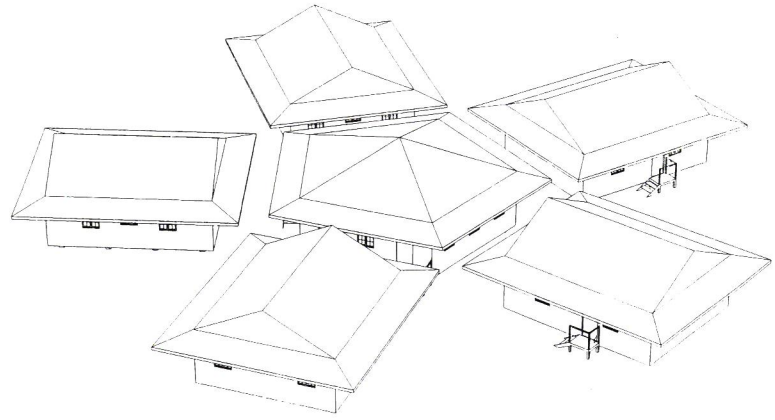
ing architectural systems as well as landscaping and siting;

4) Solar power to heat water and provide basic electric power, utilizing building materials with built-in solar thermal and photovoltaic system components;

5) An energy management system that will accept input from solar, wind, on-site generation and electric grid sources and maintain power storage bank integrity;

6) Propane-powered refrigerator, generator, range and back-up water heater;

7) Biomass anaerobic digestion conversion system to convert green waste, wet kitchen waste and biomass crop into soil extenders, fertilizers and methane gas. The methane gas will be used to eventually eliminate the need for propane.



The Maui Community College ecovillage will comprise five, three-bedroom dormitories surrounding a central classroom and recreation facility.

Reuse Principle in Action

The dorm units will be designed and constructed in such a way that they can be sold and moved from the site. New buildings, incorporating the latest technologies, will then replace the initial units. Sales from the older units, in addition to dorm rental income, use fees and non-credit seminar income will provide continuing financial sustainability.

The ecovillage residents will be the students themselves. As members of a sustainability team, they will be responsible for the caring and feeding of the systems. Living in the units will give the students an understanding of not only the technology but the lifestyle changes required in a sustainable setting, such as altering times for use of electric power and limiting water use.

To support their involvement with sustainable technology, the students will have access to e-mail, the Internet, the University of Hawaii HITS television instructional system, MCC's Skybridge outreach learning system and the CU/CMe video interactive communication system.

Maui Community College offers not only an innovative sustainable technologies program, but also the only one in the state. Ground-breaking and blessing ceremonies for the ecocottage were conducted in February. Building and site tours will be coordinated through the campus MIST office. For more information, call Jane Yamashiro at 984-3262 or Don Ainsworth at 984-3384.

The ecovillage will offer "real-world" study of sustainable technologies that can be practically applied in Hawaii. It is the program's goal to demonstrate that these technologies are of value now and in the future to conserve our valuable resources.

↔ *Don Ainsworth, M.Ed., Colorado State University, is program coordinator for the Sustainable Technologies Program at Maui Community College.*

Alternative residential framing systems

Raising the Sustainable Question

by Alan Ewell

Wood frame construction has been the standard for residential building in the islands since Europeans settled here over 150 years ago. Recently, however, volatile lumber prices, declining quality, and the cost and environmental impact of insect-resistant wood treatment have led many architects and builders to consider alternatives.

Steel Gains Popularity

According to Sam Galante of Hawaii Metal Truss and Panel, the use of steel framing in residential construction in Hawaii has tripled in the past five years. From 25 to 30 percent of island homes built last year were framed with steel, and another 10 percent use steel for non-load-bearing applications.

Steel framing has gained acceptance so quickly because it offers termite resistance, price stability and simple piece-by-piece substitution for wood. Steel is also lightweight and manufactured to exacting standards without the defects found in framing lumber.

However, substituting steel for wood equivalents may not translate into profitability. Steel framing usually means an increase in the price of the finished product.

According to Honolulu architect Richard Geldbaugh, steel framing can be made cost competitive with wood by using fewer and more widely-spaced framing members. Geldbaugh has developed the GlobalHome® building system, which utilizes a post and beam steel structural system enclosed by insulated, factory-built panels complete with interior and exterior finish materials. He expects to build a prototype this year.

Another innovative steel building system is distributed by John Wilson of Island Building Systems. Force 10® homes are shipped from Australia as a complete, factory-built kit of parts which can conform to any custom design. Included are insulated, steel-framed wall panels with fiber-cement board on both sides, steel floor beams and joists, and steel roof trusses and roofing. Windows are factory installed, and cabinets, appliances and plumbing fixtures can also be included.

Steel framing is promoted as offering environmental advantages over wood, especially in

A Force 10® home is shown under construction in Nanakuli. The home uses steel-framed wall panels and steel floor beams, joists and roof trusses.

Hawaii where chemical wood treatment is required for termite protection.

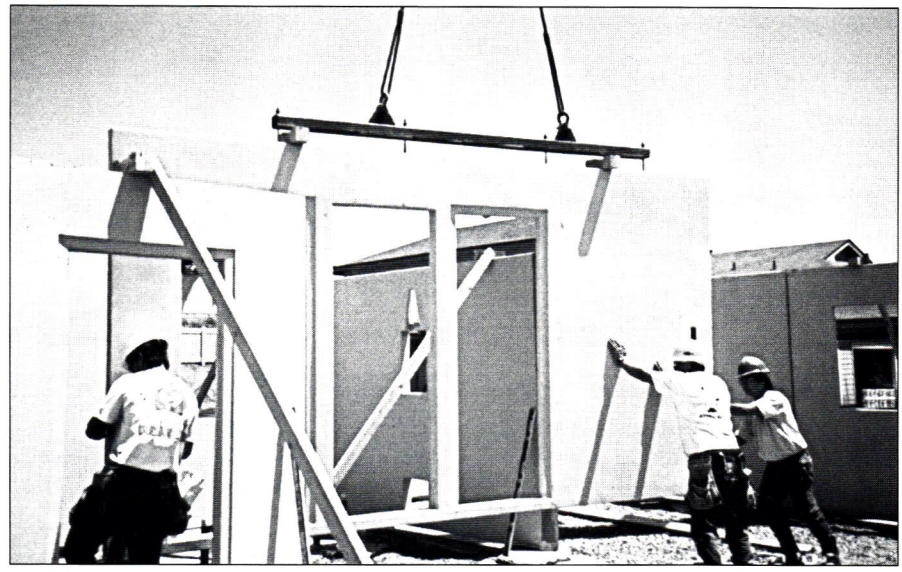
Steel is not associated with the highly publicized and emotionally charged issues of forest management and timber supply, and supporters point out that it contains about 40 percent recycled material.

A recent article in *Environmental Building News,* however, stated that the recycled content in light gauge framing members is typically less than half that of other steel shapes and outlined the energy intensive and environmentally destructive mining and manufacturing processes in steel production. Wood products advocates also remind us that wood is still our only renewable building material and that new timber growth substantially exceeds harvest.

Arsenic-based wood preservatives such as CCA and ACZA, however, represent potential environmental hazards at treatment plants and construction waste disposal sites and the exposure of builders and occupants of homes built with treated lumber is a serious concern. Borate-treated framing lumber is safer, but it must be protected from the weather during the construction process and its long-term effectiveness in preventing termite attack is uncertain. All types of wood treatment add significantly to the cost of construction and the embodied energy in the framing system.

Concrete Pros and Cons

Because of its strength, durability and termite resistance, most commercial and high-rise residential buildings in Hawaii utilize concrete structural systems. Environmentalists, however, raise concerns about the substantial energy required to manufacture portland cement and the considerable air pollution created in the process. Fortunately, the other components of concrete - sand, crushed stone and water - are less energy intensive, considerably reducing the overall environmental impact of concrete. Concrete also accounts for over half of the construction waste in Hawaii, a problem that will grow as landfill space becomes more critical.



A lightweight foam/concrete wall panel is set in place at Royal Kunia.

Concrete is often considered too expensive for single family residential construction. New developments in concrete technology, however, are causing some Hawaii home builders to look again at the advantages of this material.

At its Royal Kunia subdivision, developer Castle and Cooke is building several prototype homes to test new building systems. Under construction are homes with poured-in-place lightweight cellular concrete walls, welded steel wall frames, and pre-cast foam/concrete sandwich walls. Others proposed for the site will feature Metalcrete®, a thin wall, concrete and steel stud composite wall system, 6-inch CMU walls or R-Control® stressed skin panels.

Going Low-Tech

While the trend in Hawaii home building is toward high-tech construction, some builders are looking in the opposite direction to minimize the environmental impact and cost of their structures.

Aina Block Corporation® is the brainchild of architect James Severson. His mechanized block press can produce enough soil-cement blocks in two days to build the walls for a 1,000 square foot home. The hydraulically-compressed blocks can be dry stacked immediately and can be drilled, nailed into, routed and chiseled. Severson plans to build his first home this spring in cooperation with Kauai Habitat for Humanity.

Another innovative low-tech project is a bamboo home being built on Maui by a group associated with the Hawaii Chapter of the American Bamboo Society. This home features a ferro-cement shell over a bamboo frame which will be exposed on the interior of the building. This group is also working toward code approval for a building utilizing a purely bamboo structural system.

There are no perfect building materials. All have their drawbacks in environmental impacts and performance as framing members. The system chosen must ultimately reflect a balance among concern for the environment, comfort and safety of the building occupants, and efficiency and profitability for the builder.

↦ *Alan Ewell is owner of Integrated Architecture, Honolulu. He has been a designer and builder of energy-efficient homes in Alaska and is currently a master's degree candidate at the University of Hawaii School of Architecture.*

Wood-polymer lumber

A 21st Century Building Material

Ten years ago a chemical engineer foresaw the possibility of making durable building products with materials reclaimed from landfill. He reasoned that polymers from grocery bags and pallet wrap could be salvaged and combined with waste wood fibers to make environmentally-responsible lumber. That formula became known as Trex.

Trex is roughly a 50/50 blend of polyethylene and waste wood "cooked up" and extruded in shapes analogous to standard lumber sizes. The wood chips, mostly hardwood sawdust, are surrounded by plastic and thus protected from the ravages of moisture and insects. The wood gives the material its strength.

Trex lumber is a practical building material for Hawaii's tropical climate.

The manufacturing process makes Trex consistent so culling isn't necessary. It is suited for walkways, decking, fencing, outdoor furniture, gazebos, playground structures, boardwalks and landscaping needs. It is not a structural material, however, so it should not be used as joists or beams.

Trex is available through Sansea Enterprises Ltd., a company founded last year by Scott Fleming and Krista Dietz. "Trex was everything you'd want in a decking material for the tropics - termites don't eat it, it doesn't sliver and it's immune to weather," Dietz said.

In simulated weathering experiments, Trex has withstood over 17 years without deterioration and recourse to toxic chemicals. It can be sawed, sanded and routed or drilled without chipping or splitting.

It's denser than redwood, cedar or fir and it can be nailed or screwed very close to the end of the board. It expands or contracts only slightly so it will hold paint or stain more effectively than wood. If left unfinished, it turns an attractive driftwood gray and requires virtually no maintenance.

The 21st century will see a proliferation of recycled building products. Some are already finding an enthusiastic response in the building community. Durable, cost-effective materials that use precious resources wisely are good for business, building and the future of a small, crowded planet.

••*This information was submitted by Scott Fleming, president of Sansea Enterprises Ltd., Pearl City, which represents Trex in Hawaii.*

MASONRY

I K A I K A

Ikaika. Hawaiian for "strong, powerful, determination." All words that symbolize strength and durability. All words that describe masonry. Even the materials of masonry — brick, marble, stone — are vivid pictures of strength. Our own Masonry Institute Award is called "Ikaika", given in recognition of "strong performance in the industry." What does all this mean to you? Nothing measures up to masonry for endurance, ease of maintenance and practical beauty. And that's a truth you can build on.

MIH

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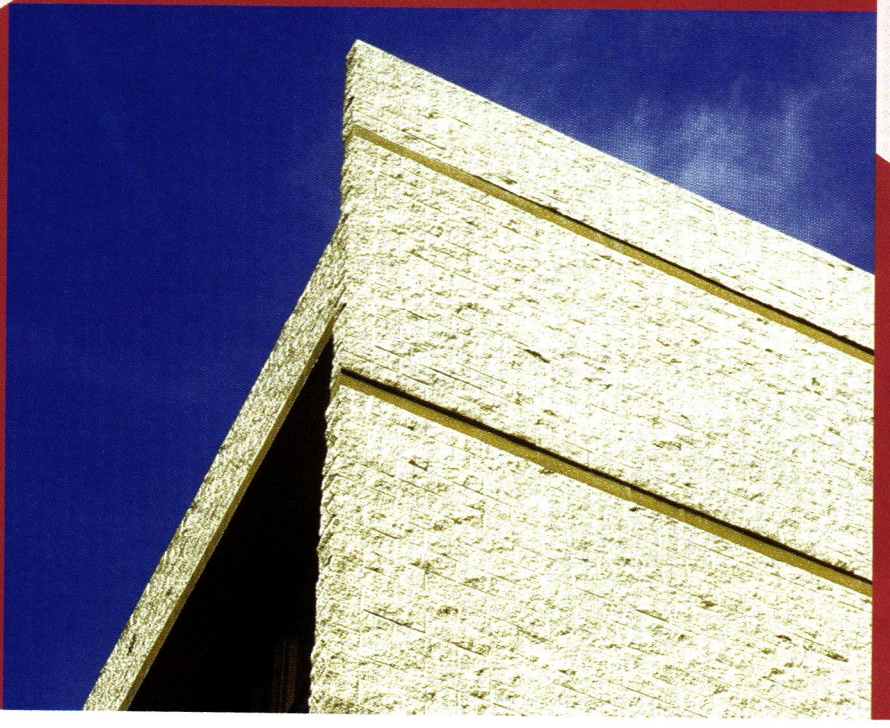
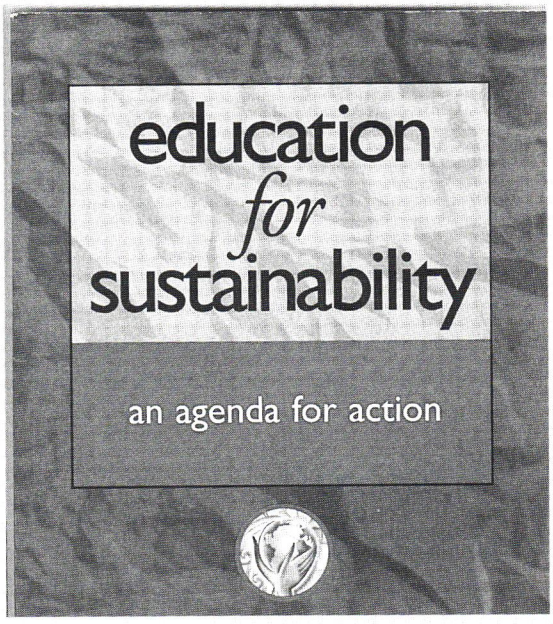
591-8466



News Briefs

Editor's note: This month, Hawaii Pacific Architecture *will feature news from organizations devoted to the promotion of sustainable building technologies. Our regular news briefs section will return in the April issue.*



A Team Effort to Advance Sustainability

The publication, *Education for Sustainability: An Agenda for Action* is the product of the National Forum on Partnerships Supporting Education About the Environment. The forum was a demonstration project of the President's Council on Sustainable Development (PCSD).

The *Agenda* builds on PCSD policies with actions and initiatives that target the infusion of sustainability concepts in both formal and informal educational settings. It emphasizes leveraging resources, synthesizing energy, and forging new partnerships to build mass consciousness and momentum to advance sustainability.

Copies are available free from the National Center for Environmental Publications and Information, 1-800-490-9198.

Internet requests can be made at http://www.epa.gov/ncepihom/index.html

Please refer to publication number 238-R-96-002.

Coalition Formed to Promote Sustainable Building

The Environmental Building Coalition of Hawaii (EBCoH) was recently formed to identify and mitigate the negative impacts of the built environment on Hawaii's natural environment. The organization is co-sponsored by the University of Hawaii School of Architecture and funded by Environmental Protection Agency Region 9 and the State of Hawaii Department of Health, Clean Air Branch.

EBCoH will promote environmentally sustainable building technologies and practices which are applicable to Hawaii and other Pacific islands. Attention will be on environmentally interactive, resource and energy-efficient design principles. Research projects will be undertaken along with a speaker series and monthly meetings.

Meetings are held at 5:30 p.m. on the last Wednesday of each month at the School of Architecture. For more information contact Stephen Meder, EBCoH coordinator, by e-mail at: smeder@edu hawaii.edu or 955-8341.

HIMEX Gives New Life to Old Products

Unwanted products that would normally end up in a landfill can find new uses through a free on-line program sponsored by the Department of Health, Office of Solid Waste Management.

The Hawaii Materials Exchange (HIMEX) on-line database program gathers data from individuals, businesses and organizations who have excess or unwanted materials and links them with other people who need those materials. The program helps alleviate pollution and educates Hawaii residents about resource reduction, reuse and recycling programs.

Successful HIMEX link-ups have included locating a supply of rags for an auto dealership's detailing department, like-new kitchen appliances for a community youth center and drip irrigation tubing for a greenhouse project. For more information call 572-6668 (Maui), e-mail: mrghimex@maui.net or visit the web site at http://maui.net/~mrghimex/

Find Energy Efficient Design on the Web

The University of Hawaii School of Architecture has established an information source on energy-efficient design on the World Wide Web. The Sundial Energy Web Server is sponsored in part by Environmental Protection Agency Region 9 and the State of Hawaii Department of Health Clean Air Branch.

The publication *Hawaiian Design: Strategies for Energy Efficient Architecture* has been digitized as an available on-line resource. Additional information includes case studies of significant projects, the EPA "Green Lights" program description and software, archives of public domain energy software and links to other energy sites. Visit the site at http://sundial/arch/ hawaii.edu

AIA HONOLULU 1996

Award of Merit

Historic Preservation/Adaptive Reuse

Fox Hawaii International

Waimea Plantation Cottages

The design concept for the Waimea Plantation Cottages was to capture the experience of a historic 1930s-era sugar plantation. The project utilizes original plantation cottages from the former Waimea Sugar Company, including workers' and supervisors' cottages and the manager's residence, to create a small-scale resort in an oceanfront Hawaiian garden environment. Cottages from other plantations were also moved to the site, repaired and renovated.

The cottages are sited to provide views toward the ocean. They range in size and floor plans with one, two or three bedrooms. Roof forms also vary with gable, hip, shed and Hawaiian hip roofs.

Kitchen and bathroom facilities were updated but maintain the plantation era character. All cottages have lanais. The existing coconut grove and other major trees were saved and additional landscaping was planted to provide privacy and focus views toward the ocean.

Today, 48 cottages have been renovated and incorporated into the resort, which offers guests the true Hawaiiana experience.

The living room and dining area are casual yet comfortable.

Jurors' Comments

"This is an imaginative application of an adaptive reuse of historical, vernacular structures. Exhibiting respect for an existing coconut grove, the architect has created a comfortable, casual atmosphere that is appealing to local residents and tourists alike."

A view from an entry porch shows the additional landscaping that was planted.

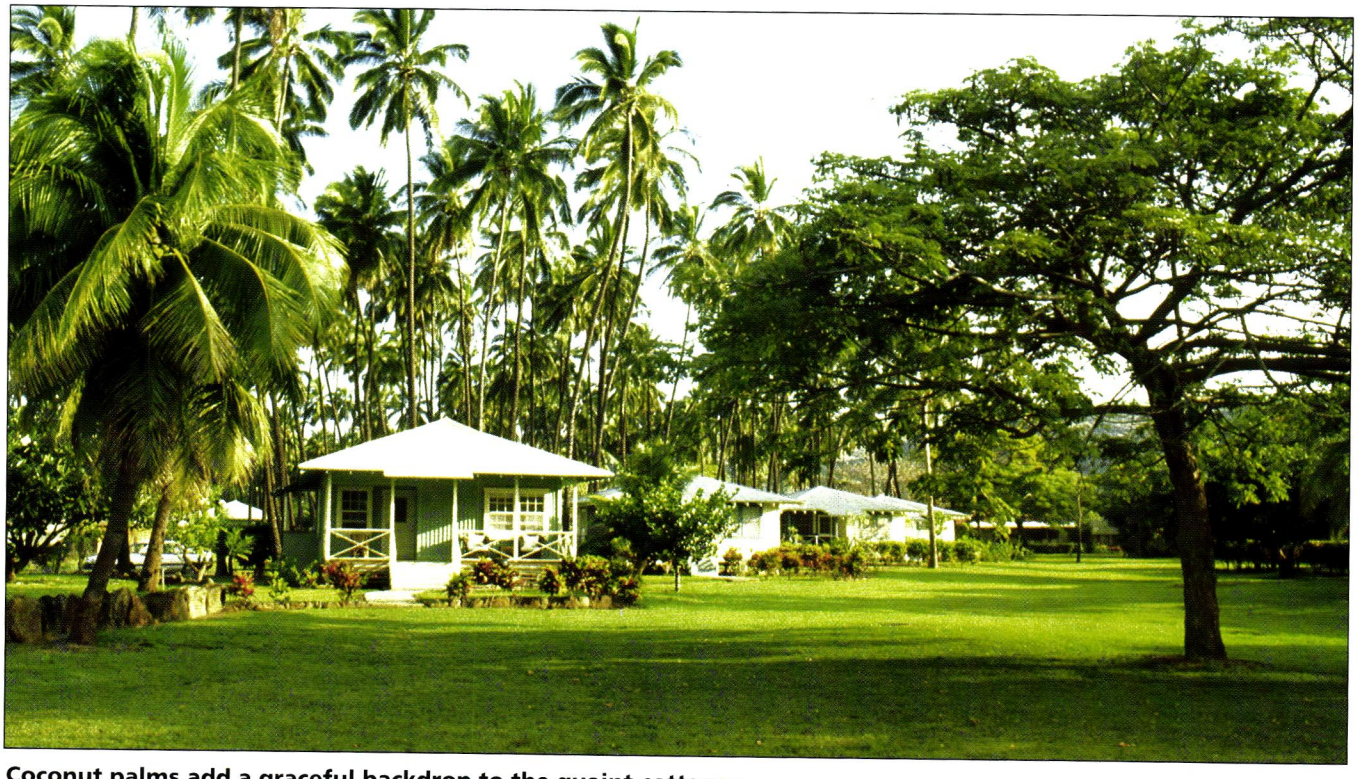
Credits

Owner/Client
Kikialoa Land Company;
Aston Hotel & Resorts

Architect
Robert M. Fox, AIA

Contractor
Kikialoa Land Company

Consultants
Structural: J.A.I.
Adams/Allison Inc.
Civil: Belt Collins
Associates
Landscape: Belt Collins
Associates
Randy Fujimoto, ASLA



Coconut palms add a graceful backdrop to the quaint cottages.

Westward Ho for Expo

The 1997 Building Industry Association Expo, March 5-6 at Neal Blaisdell Exhibition Hall, will feature more than 250 displays of building products and services of interest to design professionals.

A highlight this year is the addition of the Pacific Rim Conference, which will bring together government and private industry representatives to talk about the growing business opportunities in Western Pacific and Pacific Rim islands and countries. Self-reporting LU's for continuing education will be available to AIA members attending the conference.

Among the speakers is Dean Raymond Yeh of the University of Hawaii School of Architecture, who will discuss the architectural profession's future in the Pacific.

Pacific Rim Conference hours are 1:30 - 5 p.m., Wednesday, March 5; and 9:30 a.m. - 3 p.m., Thursday, March 6. Expo show hours are 3 - 8 p.m., Wednesday, March 5; and 11 a.m. - 8 p.m., Thursday, March 6.

For more information on Expo or to register for the Pacific Rim Conference, call Barbie Watanabe at BIA, 847-4666.

Market Place

"Allied Builders rewrote our view of Hawaii contracting..."

So observes architect Kevin Coleman of California based Net Development in recalling plans' execution for Honolulu's new Renal Treatment Centers facility.

This fast-track project involved front-end unknowns, a series of medical moves — and human lives depending upon Allied Builders' speed, sensitivity, pro-active thinking and ability to work in concert with continuing renal care.

Recalls owner's representative Alvin Cecil: "Allied Builders' coordination with hospital staff was hand-and-glove superb. They brought order out of chaos for us, and they accomplished all the change orders we requested and still got the job done on time."

Adds Coleman: "Work with Allied Builders again? In a heartbeat..."
And heartbeats were what this job was all about.

ALLIED BUILDERS SYSTEM
Teamwork. Our motto. Our method.

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Contractor License BC-5068