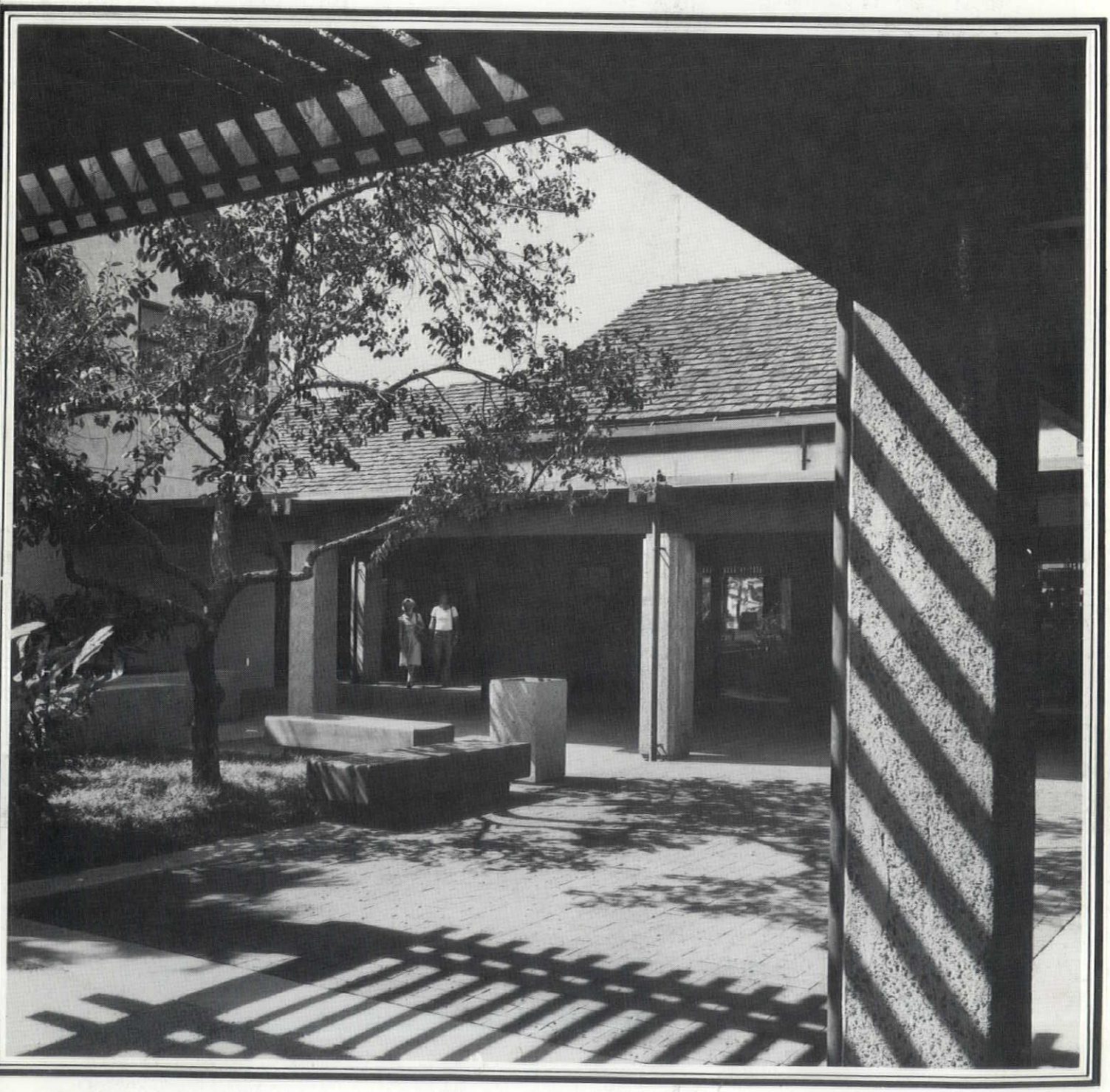
journal
of the
hawaii
society/
american
institute
of
architects

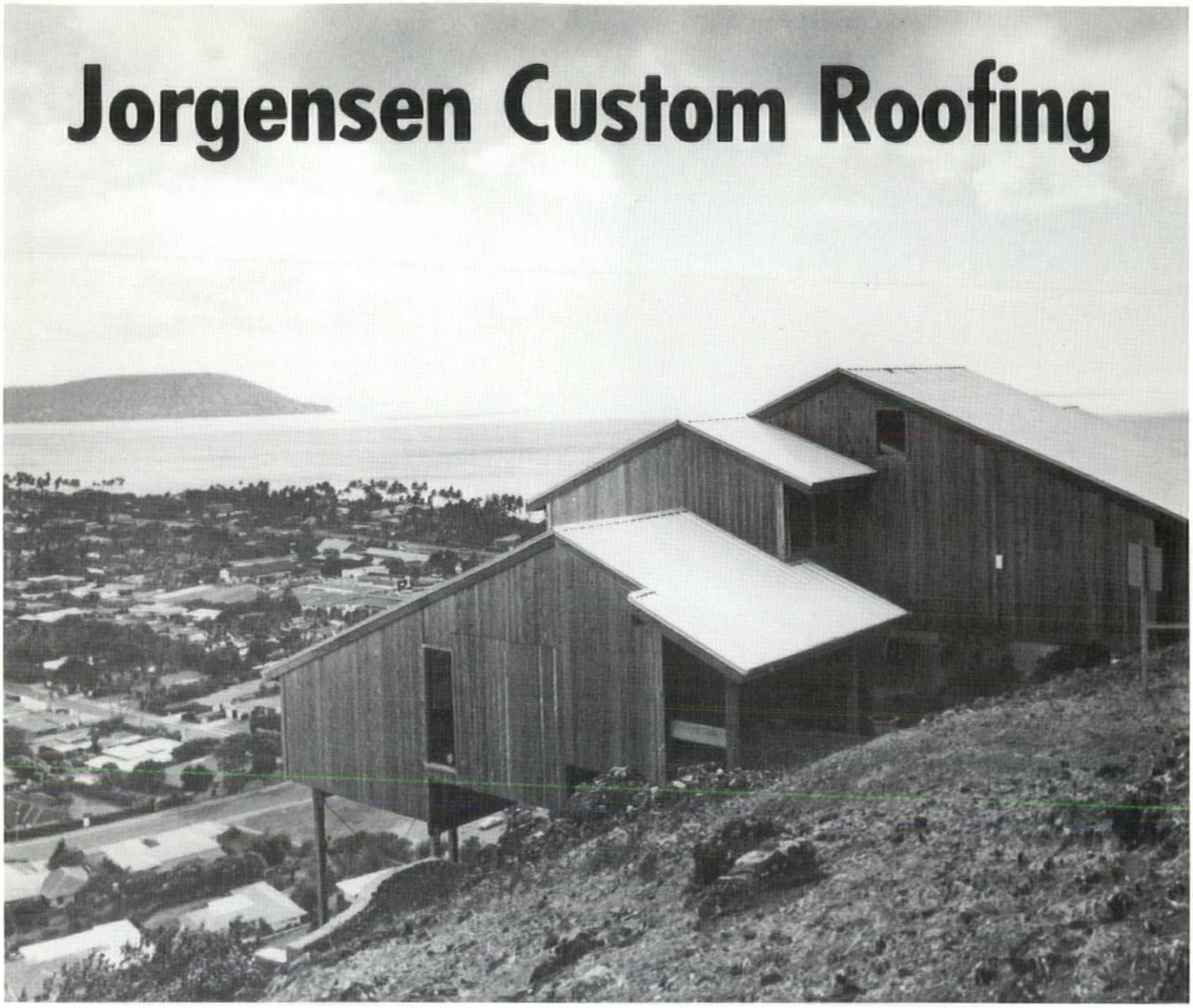
HAWAII ARCHITECT

APRIL, 1978

Water



Jorgensen Custom Roofing



Consider the advantages of Jorgensen's Metal Roofing– Lightweight and Competitively Priced

- AVAILABLE IN A VARIETY OF PROFILES AND COLORS
  Four Profiles – Seven Colors
- EASY TO INSTALL
  No Specialty Trades Required
- LOW MAINTENACE
  Long Lasting
- IDEAL FOR HAWAII'S CLIMATE
  Termite-Proof
- MANUFACTURED IN HAWAII
  Immediate Delivery

For more complete information and specifications call 841-4281

EARLE M. JORGENSEN CO.

STEEL • CULVERT • FASTENERS • GALVANIZING • ROLL FORMING

2655 Waiwai Loop, Honolulu, Hawaii 96820 • (808)841-4281

HAWAII ARCHITECT

APRIL, 1978

Hawaii Architect is a monthly journal of the Hawaii Society/American Institute of Architects. Subscriptions are $10 per year. Opinions expressed are those of the editors and writers and do not necessarily reflect those of either the Hawaii Society or the AIA.

All correspondence should be directed to:
Hawaii Society/AIA
1192 Fort Street Mall
Honolulu, Hawaii 96813
Beverly McKeague
Executive Secretary
Phone (808) 538-7276

Published by:
Crossroads Press, Inc.
863 Halekauwila Street
P.O. Box 833
Honolulu, Hawaii 96808
Phone (808) 521-0021

Stephen S. Lent, Publisher
William B. Roberts,
Advertising Director

Hawaii Architect (063170)
controlled circulation
postage paid at Honolulu, Hawaii

Contents:

The
YES & KNOW
of Yes Check

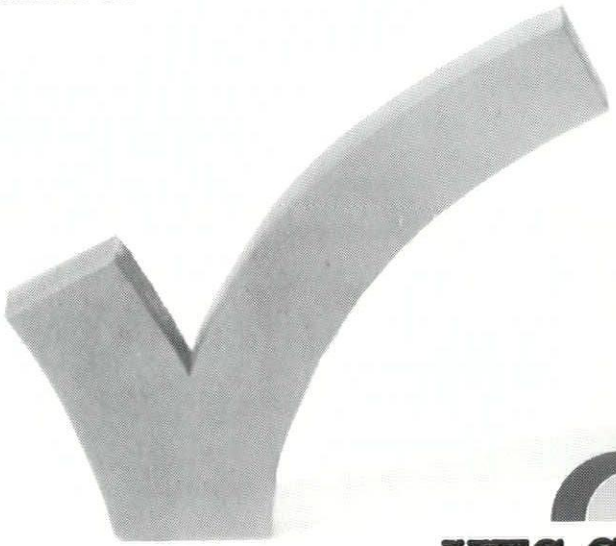
What's the difference between Yes-Check and a credit card?

A credit card offers you instant credit for most everyday purchases. Yes-Check offers you an instant loan for those less common moments of surprise when you need extra cash fast.

True, both offer a line of credit. However, with Yes-Check, you may qualify for a credit line up to $10,000.

You'll find the annual interest somewhat lower than your typical charge card and well worth the convenience of a small automatic loan.

More questions? See a Customer Consultant at any branch of First Hawaiian.



YES-CHECK
from First Hawaiian
The bank that says yes.

Member FDIC

Water Conservation and Reuse

An interview with Edward Y. Hirata
by MICHAEL JAMES LEINEWEBER, AIA

HA—Edward Y. Hirata, manager and chief engineer of the Honolulu Board of Water Supply, agreed to participate in a noon meeting at AIA headquarters on Tuesday, Jan. 17, 1978.

The session began with a discussion of public sentiment and the sense of urgency regarding water conservation on Oahu. Hirata observed that water supply, and the problems associated with it, was like the oil supply, in that it would continue to be a problem, and one which would turn into a crisis unless conservation and alternatives were seriously considered. Concerning public awareness, Hirata observed that:

EYH—The water situation on Oahu has been the subject of much discussion in the newspapers, on radio and TV, and the biggest benefit that we're deriving from all this publicity is that the public is becoming more aware of our water supply situation. I've always maintained that an informed public will be a more responsive public when it comes to water conservation.

HA—In order to develop a consistent way of looking at the water situation, Hirata then offered the following simplified model of water supply and demand on Oahu:

EYH—Our principal source of water is an underground water system which consists of a lens of fresh water that floats on sea water. This underground reservoir is replenished by rainfall on the Koolau and the Waianae ranges.

On the average, approximately two billion gallons of rain falls on Oahu every day. Of this amount, about 650 million gallons a day (mgd) infiltrates into the groundwater basin. However, not all of this amount can be intercepted and used. We currently believe that about 540 mgd can be developed under present technology. This estimate is based on the best data we have on rainfall, evapotranspiration, and runoff.

On the demand side, agriculture is the largest user of this resource, drawing about 220 mgd. The Board of Water Supply uses about 140 mgd. The military (Navy at Pearl Harbor and Army at Schofield and Shafter) uses about 35 mgd, and private water systems use about 30 mgd.

The total demand is 425 mgd. This leaves us with a balance of about 95 mgd to meet future demands.

During the last 10 years, we have experienced a population growth of 150,000 persons on Oahu (from 550,000 to 700,000), which represents a 27 per cent increase. By the year 2000 our population is estimated to reach one million.

In addition to population growth, there has been a corresponding per capita increase in water consumption. In 1966, per capita use was 177 gallons a day. In 1976, it was 200 gallons a day, or an increase of 15 per cent. If our per capita use continues to increase, we estimate that per capita use will be 240 gallons a day by the year 2000 and 250 gallons a day by the year 2020.

It would seem that population increase coupled with increased per capita water consumption would cause our water demand to increase geometrically, rather than in direct proportion to our population. At these rates, our underground water supply will be stressed to its limit by the year 2000.

HA—If Hirata's projections are borne out by experience at the year 2000, it appears that Oahu will have a problem of locating new water supplies, reducing demand, or evolving new and more efficient ways to reuse water, all of which could have major impacts on land use and lifestyles on Oahu. Hirata sees the solution as solvable in two ways:

EYH—First, we can increase our supply by developing alternate sources such as trading treated sewage effluent with agriculture interests for the groundwater that they presently use, treating surface water, treating brackish water in the Pearl Harbor springs or desalting seawater.

Second, we can try to cut down demand. There are two possible ways to do this. The first is to control population growth, since water use correlates very closely to population. The second is conservation, which simply means getting everyone—the homeowner, agriculture, industry, commercial activities, the military, and private water users—to use less water.

Conservation also means tailoring water resources to the various types of demands according to the water quality required. An excellent example of this would be the use of treated sewage effluent for irrigating sugar cane.

The public response to our appeal for conservation is living proof that we can cut down on water use if we really try.

On August 12th when we made our appeal for a voluntary 10 per cent cutback in water use, our total demand on Oahu was about 160 mgd. Since that time, our daily demand has dropped about 26 per cent.

This decrease in demand has resulted in the stabilizing of our groundwater levels in the Pearl Harbor basin, which had dropped to record lows.

In order to better prepare ourselves for future low groundwater situations as we are now experiencing, we are proposing mandatory conservation rules, in the event that voluntary conservation measures do not result in a reduction in water use.

A public hearing on these pro-

Continued on Page 22

Water Conserving Fixtures

by GLENN E. MASON, AIA

Second of two articles

The first of these articles (Hawaii Architect, March 1978) concentrates on water conserving toilet fixtures. This second article will cover fixtures used for bathing, personal hygiene, and in the kitchen, which together account for some 50 per cent of the water used in the home. These water saving fixtures generally fall into three categories: Those which (1) reduce the flow rate demanded by conventional equipment; (2) improve temperature control; or (3) question the fixture's normal volumetric capacity.

About 40 per cent of the water used in the home passes through conventional faucets. These faucets commonly employ a globe valve which controls water flow by turning a rubber gasket down on a seat. One problem with the globe valve occurs as the gasket begins to wear out. Leakage occurs, resulting in water use through waste. Washerless valves reduce the likelihood of this occurrence.

WASHERLESS VALVES

These use two gem-smooth ceramic disks instead of a washer and seat. The disks are hard enough to resist water and mechanical wear and also resist water hammer. These valves are available on some models of single handle faucets. While slightly more expensive initially they are virtually maintainence free and save water by eliminating leakage.

FLOW CONTROLS

The flow rate at sinks or showers can be as high as eight to 12 gallons per minute. Depending on the flow control used and the home water-pressure, satisfactory performance can still be obtained with a flow rate as little as a two gallons per minute. At the Water Conservation Fair sponsored by the Board of Water Supply last year a demonstration of a 3.5 gallon per minute flow restrictor showed little tactile difference from a conventional fixture. Public acceptance of these devices is often quite good, simply because most users are not conscious of the restrictor's presence.

Flow restrictors or volume con-

trols may be built into the fixture but are often small separate controls located ahead of the fixture. Costs may vary from 75 cents to $20. The less expensive inserts are readily available locally and can be installed by the layman. Many fixture manufacturers now offer lines with integral flow controls.

AERATORS AND SPRAY TAPS

Aerators are attached to almost all new faucets. Originally intended just to reduce splashing, they also act like a flow control, producing about a 50 per cent reduction in flow. New water-conserving aerators are capable of reducing flow rates to three-fourths gallon per minute from the normal two to 12 gallons per minute.

Spray taps produce flow rate in the range of one to two gallons per minute, not by aerating the water, but by delivering it in a broad pattern of droplets, allowing more efficient dispersal of water. Spray taps are not commonly available in the United States but are in wide use throughout Europe. While delivery times are long and costs somewhat greater, the fixtures are often well designed.

Porteus Hall at the University of Hawaii is an example of one local building which has used these fixtures.

SELF-CLOSING MIXING VALVES

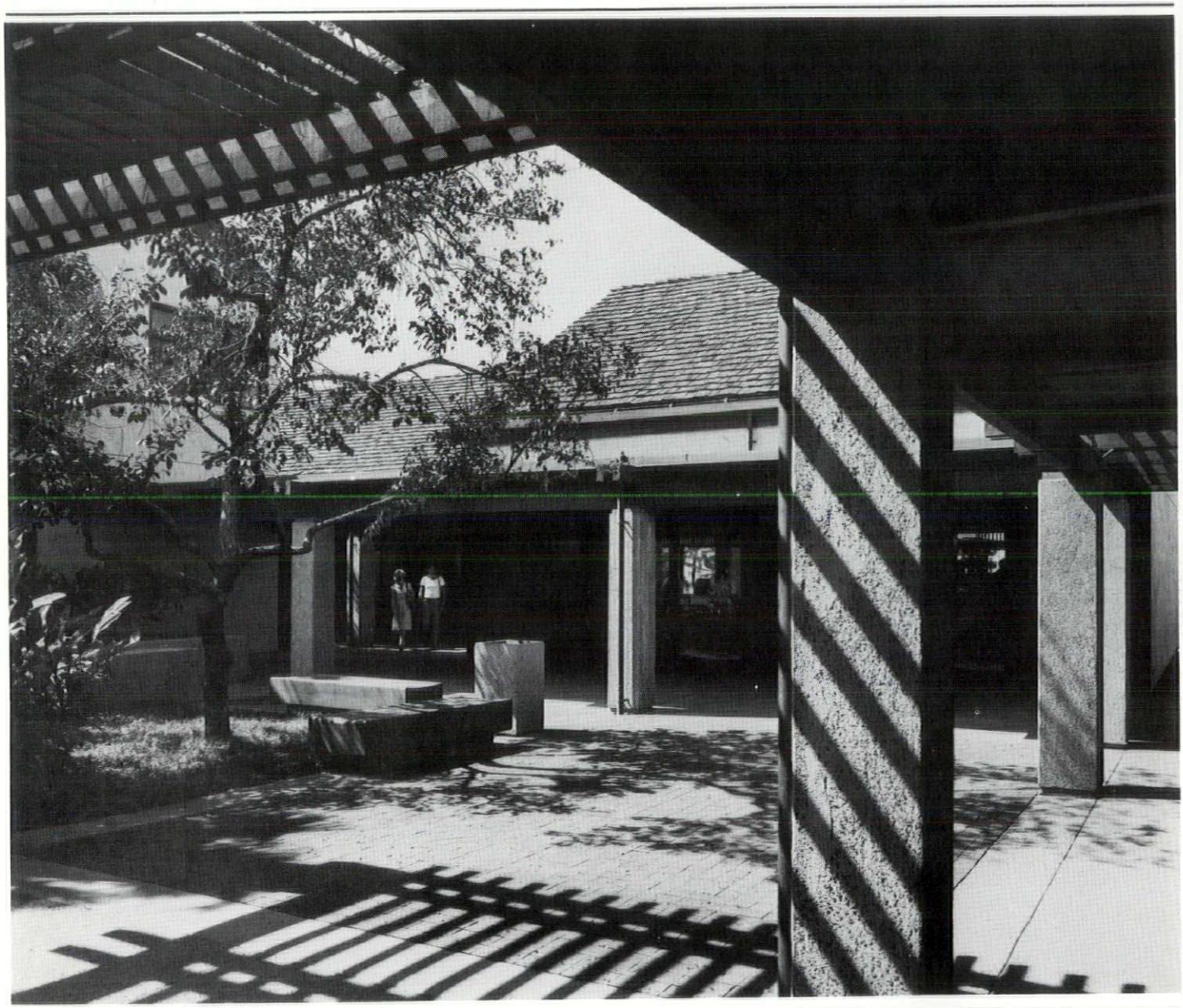
Usually used in institutional settings, these fixtures may be hand operated, or foot and knee operated. They are designed to remain on only while pressure is applied to the faucet or push down controls. By leaving the water on only for the time it is actually needed definite but unqualifiable water savings will result.

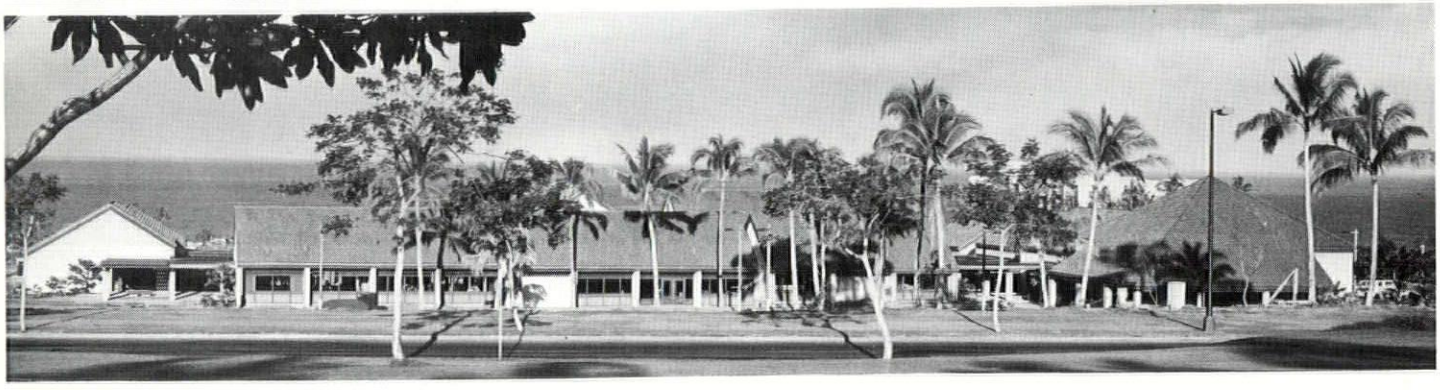
The costs of hand operated devices are comparable to conventional equipment. Acceptance is

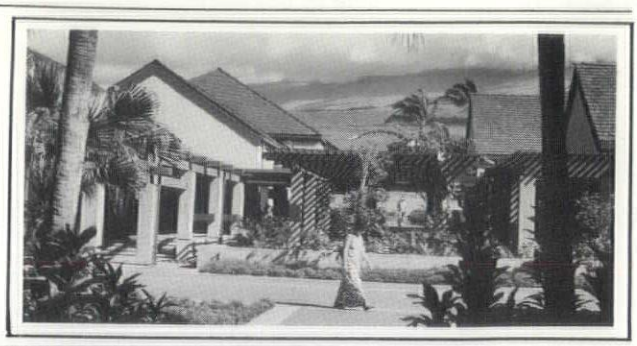
Continued on Page 24

LAURELS
Exhibit awards

HS/AIA Honor Award
Wailea Town Center







THE SITE

The 7.2 acre site for Phase 1 of the project—a shopping center—is situated in the center of a new 1,400-acre major resort area located on the lee flank of Haleakala. The hot, dry, and sunny conditions which are normal to this area are evident in the existing kiawe trees scattered about in a generally scrubby and dry landscape. The project site has a natural mauka/makai slope of approximately 10 per cent, with the lower portion punctuated by a distinctive natural swale extending to the ocean.

Looking makai, within a view quadrant of about 110 to 120 degrees lie Molokini, Kahoolawe, Lanai, and the West Maui mountains along with a panorama of the Pacific Ocean. Looking mauka, one sees the green and wooded slopes of Haleakala—often shrouded in low lying clouds.

Wailaea, Maui
Photos courtesy of
Augie Salbosa and
Alexander & Baldwin

THE NEED

To design a resort shopping center with a focus on facilities for cultural activities. These facilities include an outdoor area suitable for the performing arts, an art gallery showing significant work by local artists and complete working art studios available for various periods of time to both tourists and local residents.

Since it is located in a new resort area, at the end of what many local residents still consider a long drive, the client desired a facility with a distinctive architectural identity; one that people would find appealing—a place to go for browsing, shopping, fun and pleasure.

JURY COMMENTS

High quality usage of space and quality materials. The Village Square was extremely well-detailed and presented a pleasing two-story scale. Great background structure; creates a timeless period.

Exterior window locations could have been much closer to the sidewalk display. There seemed to be some lack of overall graphic control.

THE SOLUTION

A perimeter framework of buildings creates and defines the two major spaces—a town square and a village green. These spaces and the use of simple materials—cement plaster, wood, exposed aggregate concrete and shake roofs—tie the entire project together and give it its unique personality. Accenting the town square is a 16' x 16' fountain— echoing the basic module of all the structures.

A large transplanted monkey pod tree will eventually shade a large portion of the village green, creating a cool and inviting ambience. A restaurant, an open pavilion and a branch bank frame and define the town square. The pavilion also acts as a portal to the village green.

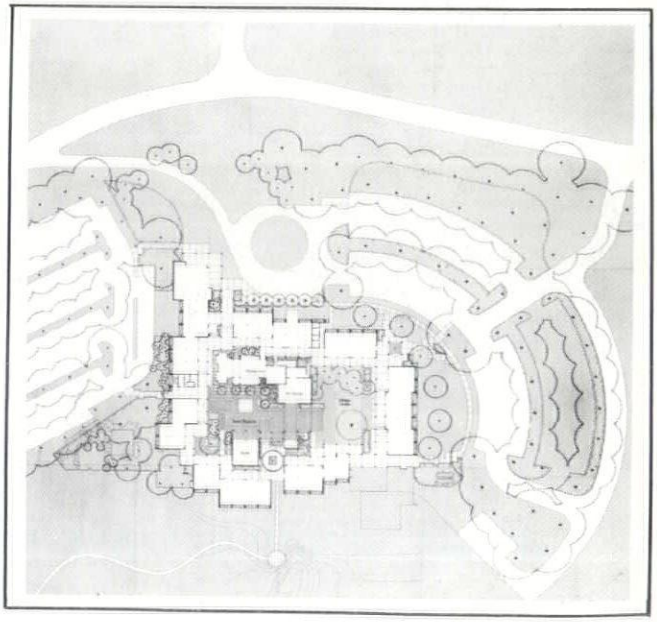
Connecting the perimeter buildings is a continuous covered walkway which steps down, along with adjacent buildings, in easy 2-foot increments following the natural grade of the site. This shaded link acts as the pathway for people to experience the entire center—inducing them to continue on, turn corners and see what other shops and activities lie beyond.

OWNER - Wailea Development Co.
A subsidiary of Alexander & Baldwin and Northwest Mutual Life Insurance Co.

ARCHITECT - Edward Sullam FAIA & Associates

CONSULTANTS - EDAW, Inc.
Landscape Architects
- Stanley Shimabukuro & Associates
Civil Engineers
- SSFM Engineers, Inc.
Structural Engineers
- Bennett & Drane
Electrical Engineers
- Ferris & Hamig
Mechanical Engineers

GENERAL CONTRACTOR - Rovens Construction Corp.



LEX SCRIPTA
Commentary

Water Use/Land Use

by DENNIS CALLAN and GEORGE HUDES

Oahu is facing a permanent water crisis. Although there are many different projections about when we will reach the limits of our natural water supply, the most reasonable estimate is somewhere in the mid-1980s. At that point we would be pumping more water out of the ground than is percolating into it from rainfall.

Honolulu's city government could mitigate this situation by reducing the rate of urban development, as is happening across the mainland in communities such as Petaluma, Ramapo, Dade County, and Fairfax County. But instead, the City Council and administration continue encouraging massive urban sprawl, more high-rises, and several additional "Waikikis" on Oahu. We don't have the water, but Mayor Fasi has been known to say we have enough for 3 million residents on Oahu.

Already we are using at least 489 million gallons per day (mgd) of Oahu's total safe developable supply of approximately 544 mgd. It will take only 10 years to reach that limit at the rate of growth projected by the Honolulu Board of Water Supply's CIP plan, which estimates a 5.5 mgd annual demand increase.

But even this may be optimistic given discrepancies in current water use figures. One study—the Hawaii Water Resources Regional Study—presents current water use figures of 610 mgd (440 ground and 150 surface).

The crucial estimate of 544 mgd total available water could be off 10 per cent to 20 per cent in either direction, due primarily to difficulties in measuring evaporation. If it is 10 per cent too optimistic we may have already reached the water crisis.

Curiously, with each updated official prediction we approach the "safe yield" date sooner: In 1971 the Board of Water Supply estimated we will reach the limits of Oahu's natural water supply in 2020; in 1975 they revised the date to 2000; now their CIP projections suggest 1987.

Other "safe yield" water predictions vary but give little room for complacency.

- In 1970, the chief engineer of the Board of Water Supply estimated the limit at 1995.
- Four years later the water board chairman pegged the trouble zone between 1985-90.
- In 1973, the Board of Water Supply's chief engineer estimated the limit at 1985-86.
- A 1974 study by Oh and Yamaguchi for the Water Resources Regional Center predicts we will reach the maximum yield in the early 1980s.
- In 1978: "Our reports indicate something drastic is going to happen between 1980 and 1990 unless steps are taken now." Statement of William Thompson, chairman of the Department of Land and Natural Resources.

Alternative water sources like nuclear desalination or recycled sewage effluent are too uncertain, unsafe, expensive and/or complicated to be relied upon for the near future, when we will need some kind of adjustments in the use of our dwindling supplies.

Rather than utilizing this shortage as an argument for slower growth, the Board of Water Supply proceeds to develop its biggest new wells in the area already overpumped the most— the Pearl Basin. The water board, the sugar industry, and the military have overpumped there (taken out more water than is going in, lowering the water lens) for at least the past 14 years, according to hydrologist John Mink.

Similar problems exist in the two other major water sources proposed by the water board. Schofield would be pumped 25 per cent beyond "safe yield" identified by the U.S. Geological Survey, and on Windward Oahu, most of the streams would become nearly dry.

Dr. Fred Reppun, chairman of the Kahaluu Neighborhood Board, puts it this way: "We are deeply concerned over the way the Board of Water Supply seemingly is willing to sacrifice the taro farmers of the Waihee Watershed on the altar of water consumerism in the burgeoning developments and the increasing density of urbanization on Oahu."

Plenty of water for development, sugar, and big business, but not enough for diversified agriculture which feeds our people in places like Waianae, whose water pressure has recently been cut in half.

Meanwhile, the developers of the West Beach project, which is predicted to require several million gallons of water daily, and which is the beginning of a proposed major city of 300,000 people in the Ewa-Honouliuli area, are being told there will be no problem supplying the water they will need.

Doak Cox, head of the Environmental Center at the University of Hawaii sums up our groundwater situation this way:

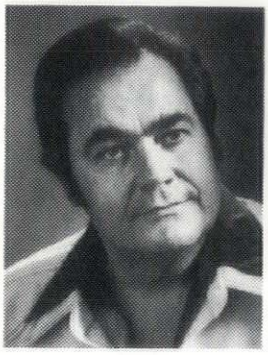
"On Oahu, the Board of Water Supply is aware of the problem . . . the difficulties of estimating a safe yield . . . and of the possibilities for and consequences of its overestimation. . . .

"That Honolulu has not suffered from (such) disregard in the past is due more to accident than intelligence."

None of these water supply estimates consider important issues related to streamflows such as recreation, aesthetics, flood control, low cost water for agriculture and aquaculture, survival of stream life and maintaining a healthy coastline ecology for fish and bathers. The Board of Water Sup-

Continued on Page 12

The trend setter is Century Center ... Ceramic Tile for every kitchen counter



L. Robert Allen
Trend-setting developer.

EVERY APARTMENT KITCHEN COUNTER IS CERAMIC TILE

CENTURY CENTER

Kalakaua & Kapiolani, Honolulu

Developer:	L. Robert Allen
Project Consultant:	Tom Evans, Inc.
Architect:	Jo Paul Rognstad AIA
Interior Design:	Richard Crowell Associates
Contractor:	Charles Pankow Associates

Yes, Century Center, the beautiful new condominium developed by L. Robert Allen at Kapiolani and Kalakaua is a luxury trend setter for living and working in Hawaii in many ways . . . luxurious appointments and private Dining Club, Athletic Club and Health Spa and more are a part of ownership of individual units.

Not the least of trend setting features in Century Center are the kitchens. Every apartment, not just a few, has kitchen counters of Ceramic Tile. And a very special Ceramic Tile, too, personally selected by Mr. Allen himself along with Jo Paul Rognstad, the architect, when the two visited a small, specialized mainland Ceramic Tile manufacturer. The 3 by 6 inch tiles chosen are handcrafted, have interesting glazes, are shaped to provide curling edges for the counters. The counters are in an attractive variety of colors for individual apartment choice.

Ceramic Tile is also used generously elsewhere. In apartment bathrooms Ceramic Tile accents the beauty of Travertine Marble counters.

CERAMIC TILE, MARBLE & TERRAZZO BELONG IN HAWAII

These great materials, more and more are getting major attention from developers of the finer homes and other buildings here as they work with their skilled architects, interior designers and contractors. Helping, too, are the qualified, reliable contractors who take part in their own industry-wide Promotion Program . . . people ready with ideas, accurate estimates, up to the minute industry developments and on time delivery to fit your schedules.

Contact any of these Promotion Program participants:

A-1 Tile of Hawaii Corp. 682-4576
Atlas Tile Inc. 839-7403
Classic Tile Corp. 841-6893
Costa, Hank Tile Co. 533-4989
Custom Ceramics 538-3537
Hawaii Tile and Marble 839-5102
Honolulu Roofing Co. Ltd. 941-4451
Kunishige, S. Tile Contractor 734-3340
Lani's Tile Co. 235-1144
Logan Tile Co. 262-5754
Nan-Cor Tile Company 488-5591
Pacific Terrazzo & Tile Corp. 671-4056
Pacific Tile Co., Inc. 841-8534
Pezzani, Bob Ceramic Tile 261-1580
Sato, Robert Ceramic Tile 841-8811
Wichert Tile Ltd. 955-6631

ARCHITECTS, DESIGNERS, BUILDERS, Please Note
Every week in advertising in the Honolulu Sunday Star Bulletin & Advertiser Hawaii's tile contractors call special attention to you with this message:

"Building? Remodeling? Redecorating?
Ask your architect, designer or builder about the beauties and values of Ceramic Tile."

Tile, Marble & Terrazzo Industry Promotional Program

Attention: John P. Brack
Honolulu, Hi 96817
1405 N. King Street, Suite 302

Water/Land

Continued from Page 10

ply doesn't consider these factors in its hunt for water, though such consideration is mandatory according to both federal and state laws. Seepage of groundwater maintains stream flows, and groundwater development has in many cases, effected stream water diversion.

Urban and sugar developments have paved over streams, put them in concrete channels, and generally dried them up. Streams are treated as drainage canals, stagnant and choked with weeds due to low flow, receptacles for garbage and sewer water. Dried, uncared for streams become flood hazards, especially with the extra run-off due to paved-over urban areas. Threats of flood damage become excuses for costly channelization. The millions of dollars for stream channelization awarded to contractors, paves the way for more urban development.

Water shortage is part of the larger situation in Hawaii where we are also running short of open space, quiet neighborhoods, rural atmosphere, room for traffic, agricultural land, and many other characteristics of our lifestyles. Hawaii has been growing at twice the national rate and recently, four times faster than the national rate. Public opinion polls indicate broad support for slowing down this pace of development.

This leads to an overwhelming conclusion:

We need to conserve water and slow down the rate of development, and the most effective way to do it is by limiting the number of new water users, through an annual quota on hookups. Other places in America have done this recently with approval from the courts.

Many states and the Federal Environmental Protection Agency have taken action to control water and sewer service as a major way of limiting growth. Communities like Marin County have voted down bond issues that would have sup-

plied more water for more people and development.

The most effective techniques for controlling urban development on the mainland are moratoria on water/sewer hookups and extensions, according to a national survey of planning directors. This would be especially appropriate on Oahu, where we have a more limited supply of water than nearly any mainland community.

Moratoria, however, are temporary measures that cover several years. The next step is for the community to develop a master plan, perhaps through the Development Plan process, allowing for so much growth each year. Such plans have generally been direct projections from recent growth rates, allowing for generous accommodation of whoever arrived, within an overall mood that growth is good.

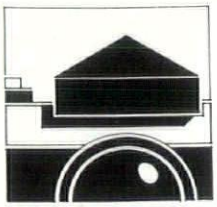
Recently, things have changed. Many mainland communities are slowing growth by rejecting the "demographic trends" forecast in population projections. The classic example of Petaluma had been growing at a rate of 2,500 housing units per year, until they established a new annual limit of 500 units. Lifestyle, rather than water, was the major issue in their case, but both are involved in ours.

Although water may be Oahu's most compelling reason for growth control, there are many more beyond the scope of this essay: protection of our diverse lifestyles; shortage of land; fragile island ecology; traffic congestion; preserving beauty for tourism; agricultural production; land banks for future generations; and reducing the costs of government services.

According to recent mainland precedents, we have every right to permanently limit access to existing water utilities through annual hookups quotas. This is perhaps the most direct, immediate, highly visible, and constitutional way of solving Oahu's population problem. Authority for this is vested in police powers of our state and local governments.

When such controls are placed on housing supply, costs tend to rise, unless balancing measures are taken. Developers can be required to make a certain per cent of their units for low and moderate incomes. Low cost housing can be

Continued on Page 25



WIDE-OPEN
Photo feature

Tribute to Scott Redfield 1947-1978

Great Images on Film

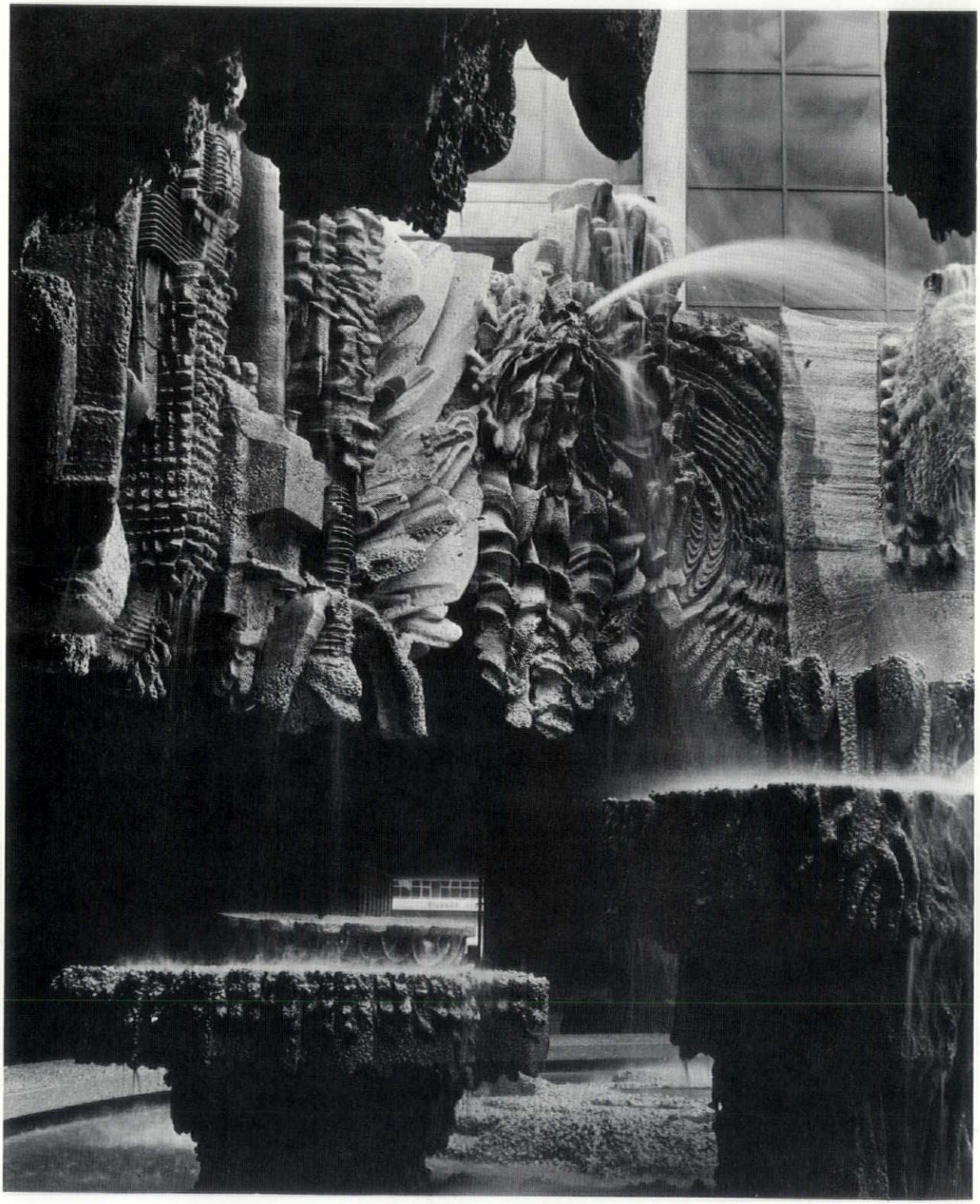
Photos by Scott Redfield

When Scott Redfield opened his architectural photographic studio in 1974, he had a dream. He was not just content to take photographs and process them. He was more interested in technologically advancing the process and quality of architectural design, working drawings, and contract administration. His ability to perceive the overall perspective of architecture and photography allowed him to understand the shortcomings of the system.

Scott Redfield had the perception to understand the lack of technological advance in the process we call construction documentation and strived to bring it into the twentieth century. His philosophy was simple: Incorporate the best aspects of design with the most advanced level of photo and computer processes available. His was a never ending search for ways to integrate new aspects of photography with architecture.

But Scott was simply a very special person. He managed to combine a professional product with a very human and sensitive approach to business. He was sometimes too generous and sometimes perhaps too trusting. But this is what made him very special.

How do you write about someone like Scott? He was dependable. He was friendly. He was a part of our lives. We will miss his creativity and the warmth of his personality. We will miss—Scott Redfield.



Scott Redfield

Letters to the Editor

BALLPOINT
commentary/letters

Kudos

Keep up the excellent work! The content of each issue of Hawaii Architect increasingly brings to those who receive it greater insight into the problems with which we all must cope. The article by Hans Riecke on the Maui County General Plan and the article by Jim Reinhardt on A/E selection, both appearing in the February 1978 issue, are informative, thought provoking, and focused on issues common to us all.

With regard to Reinhardt's article, the Hawaii Society has requested an opinion from the Society's legal counsel on the implications of U.S. Codes (18 USC Section 441c-a and 441j(a)). Perhaps you might publish that opinion when it is received.

E. ALAN HOLL, AIA
President
Hawaii Society/AIA

Errata

As a regular reader of Hawaii Architect, I am disturbed by your failure to identify Karl Bornhorst in picture No. 2, page 6, February issue. I am almost certain this omission was unintentional. This thoughtless and careless omission however does detract from the otherwise high quality of your journal.

Karl Bornhorst is a fine man and deserves your recognition.

HENRY ENG

Ed. We sincerely apologize to Karl Bornhorst. No slight was intended and we regret the omission of Mr. Bornhorst's name from the picture caption brought to our attention by Mr. Eng.

Jury

by CHRISTOPHER SMITH, AIA

SELECTION SYSTEM

Each project was reviewed independently by each juror using grading criteria of Reject, Discuss, Positive. A degree of discussion then was developed again for each project.

Reject Level: Those submittals that initially were unanimously rejected under independent review were open for further jury review and for final discussion. (Even during the jury process, re-review of rejected projects occurred.)

Discuss and Positive Levels: This was the initial pre-selection level. All projects were thoroughly reviewed for substance, meaningful design capability and unique environmental awareness elements (if any).

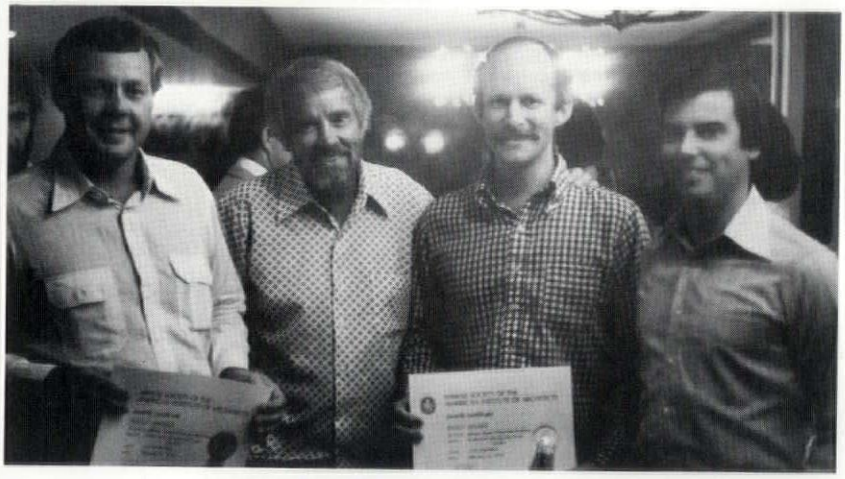
During this stage, all projects were visited by more than one juror.

Following the initial field reviews, each project was reevaluated with further field trips taken if desired. Final selection, categorization and award level were then made. HA

HS/AIA Award Banquet

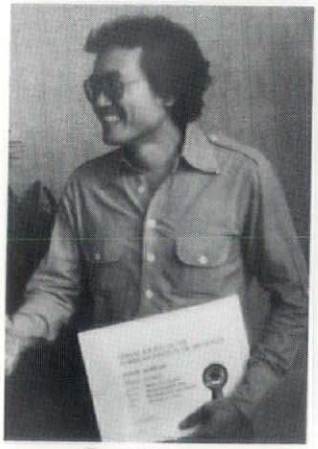
Alan Holl, Ginny and Chip Detweiller

Edward Sullam and Richard Lowe.

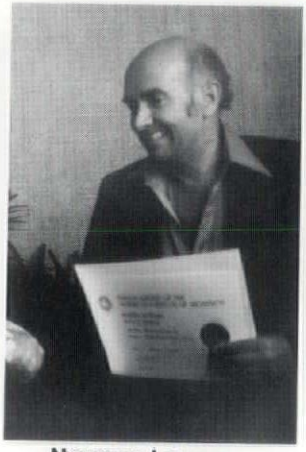


Harold Higgins, George Johnson, Dwight Lowrey and Jim Hearne.

Russell Sabin, Byron Tsuruda and Jack Miyasato



Bon-Hui Uy



Norman Lacayo

Francis Oda

Book Review

Bon-Hui Uy, a partner of Media Five Limited, is working on his book entitled "Architectural Drawings and Leisure Sketches," to be published in April.

The book will have an introduction by New Yorker Richard Meier.

Bon-Hui's perspective and plan oblique drawings include work done for Philip Johnson, Richard Meier, Davis Brody, and others between 1965 and 1972 while he was in New York City. The book also includes sketches he has done as a designer here in Honolulu.

The refreshing leisure sketches of people, old buildings, marketplaces, and harbor activities were done in Honolulu and abroad over the past few years.

The main text is in both English and Chinese.

The book, 8½" x 8½", is 118 pages, black and white, and is perfectly bound. It may be purchased for $10 at the AIA office and most Honolulu book stores. HA

NEW MEMBERS

DAVID E. CHRISTENSEN, Associate Member; Wimberly, Whisenand, Allison, Tong & Goo. B. S. Industrial Design, Washington State University, Western Washington State College. Hobbies; art, photography, water sports, music, drums, drama.

GAIL ABE, Associate Member; Pacific Division of NAVFAC/ ENGCOM. B. Arch., Cooper Union. Hobbies: music, photography, individual sports, gardening.

LUCIANO MINERBI, Associate Member; University of Hawaii. Doctorate of Architecture, Polytechnic University of Milano. Master of Urban Planning, University of Washington. Wife: Daniela. Children: Lahela 2. Hobbies: photography, design, gardening.

THIS FORMER ALL-STATE HALFBACK WILL DIE 20 YEARS BEFORE HIS TIME

Back in college he was always in great shape. But, like too many other Americans, the end of his college career signaled the end of his regular physical activity.

Years of business pressure, poor diet and a sedentary lifestyle have conspired to steal away his good health and cut years from his life expectancy. Now he's a prime candidate for heart disease—the number one cause of death and disability in the U.S.

Don't let the same thing happen to you. If you left your active lifestyle back in school, get moving again. Start a moderate program of regular lifetime sports like golf, tennis, biking, jogging, bowling or swimming. Start your new program with a check-up by your physician. It can help you feel better, look better and live better.

Just a little activity and recreation can make a big difference in your whole outlook on life. And the sooner you get moving, the longer you'll be able to move.

KEEP MOVING, AMERICA!

AAHPER
American Alliance for Health, Physical Education and Recreation/1201-16th Street, NW/Washington, DC 20036/(202) 833-5554

Hirata

Continued from Page 5

posed rules was held on October 27. We are now reviewing the testimony presented and plan to present a revised proposal to the Board of Water Supply at our February meeting.

Briefly, our mandatory conservation measures will be based on groundwater levels—the lower the groundwater level, the more restrictive the water use will be. In the first stage, we will concentrate on reducing lawn irrigation and other less essential uses to achieve a 10 to 15 per cent reduction in water use.

If the groundwater levels continue to decline, we will further restrict lawn irrigation and other uses, with the objective of a 30 per cent reduction in water use.

If the present public response is any indication of the cooperation we can expect in the future, I can assure you that we will not have to invoke the mandatory rules because the voluntary program will take care of the problem.

Industry must also do its part in this conservation effort. All industrial water users, whether they are our water customers or not, must review their industrial processes and cut water use wherever possible. Since water is relatively inexpensive in comparison to other materials, there is a tendency to sacrifice water conservation. In many cases, some form of water reuse may be the best solution from a conservation standpoint.

Industry, from a water-fixture and appliance design standpoint, has for too long been woefully unresponsive to the water conservation ethic.

Architects and engineers, as designers of water systems and water-using devices, have an obligation to incorporate water conservation into design criteria in order to design-out systems which waste water.

Fixtures must be designed that are water efficient, which use less

water per flush; and which restrict flow through showerheads. The secret is to provide enough water to get the job done but no more.

HA—While Hirata continues to push the immediate technological and capital "fixes" that he sees needed to insure a continuing supply of water on Oahu, he also emphasis his long range conservation plan:

EYH—The heart of the plan deals with public education. The public should know about their water supply, where their water comes from, how it's brought to their homes, what is the supply limitation, and what alternatives are available. A more knowledgeable public is a more responsible public when the need to conserve arises and very bluntly, the need is now.

Some of the ways we can educate the public are through television, radio and newspaper announcements, through public speaking engagements, through the dissemination of water-saving information. We've asked the Department of Education to incorporate the water supply story and water conservation into their curriculum.

We must establish a conservation ethic within our younger generation and continue to reinforce it throughout their lives.

The second part of our long-range conservation plan consists of implementing, through legislation, the use of water-saving devices, fixtures and appliances; and eliminating the one-time use of water as a cooling device. If water-cooled equipment is used, we must mandate some form of recirculation to conserve water.

Conservation not only means using less but reusing water in an effort to reduce the draft on our underground supply.

The most promising reuse alternative we're working on involves taking treated sewage effluent and using it to irrigate sugar cane, thereby reducing the sugar industry's draft on our groundwater sources.

PL 92-500, more commonly known as the Water Pollution Control Act, mandated the expenditure of millions of dollars to clean up our wastewater. After spending all that money to clean up our wastewater, the only logical thing to do would

Continued on Page 26

Water Conserving Fixtures

Continued from Page 7

not great because the fixtures are awkward to use.

THERMOSTATICALLY CONTROLLED MIXING VALVE

While this valve is similar to conventional mixing valves in that it has two knobs, one of the knobs controls water temperature while the other controls volume. Temperature oscillations in the water supply are leveled out automatically using a bi-metallic spring as a sensor. Remixing water as the hot water supply changes is no longer necessary, which saves both water and discomfort.

The manufacturers claim a saving of up to 40 per cent of the warm water used in showers, bathtubs, and sinks. The units cost about three times the cost of conventional mixing valves and are available from Friedrich Grohe, Ideal Standard, Rokal Armawren, and Richard Fife, Inc.

PRESSURE-BALANCING MIXING VALVE

In appearance it is the same as any single handle-operated mixing valve so common in showers today. The pressure balancing avoids user discomfort caused by sudden pressure drops common in bathrooms with more than one fixture attached to the same supply line. It does not compensate for simple temperature fluctuations. Again, water savings can be affected by the avoidance of readjusting the water mix. Units cost roughly twice the cost of conventional mixing valves.

AIR-ASSISTED SHOWER HEAD

In 1931, Buckminster Fuller developed the Dymaxion Bathroom which contained a "fog gun" shower which used atomized water and warm air, plus liquid soaps to cleanse and accelerate surface oxidization of the skin. A one-hour "bath" with this system was reputed to use only a pint of water.

What is available today seems crude by comparison, but for a few hundred dollars one can get a Minuse unit which reduces the water volume used by mixing compressed air with the water. The warmed air helps spread and push the water over the body, giving the sensation of a hard-driven shower and saves 83 to 95 per cent of the water used by conventional units. Water consumption is reduced to about one-half gallon per minute. As a result of this small hot water demand the shower must be close to the water heater or connected to a continuous hot water circulating system.

Laundry and dishwashing consume about 14 per cent of the fresh water used in the home. The water used by these functions can be recycled for irrigation or, when filtered, the grey water produced can act as the supply to black water systems. Even if the grey water is not recycled the use of certain types of dishwashers and clothes washers can result in substantial water (and hot water) savings.

AUTOMATIC DISHWASHERS

The average amount of water used by a dishwasher for a 60-minute cycle is 13 to 16 gallons. If the dishes are rinsed under a free flowing stream of water prior to placement in the dishwasher, consumption would be greater.

To handwash the equivalent of a full dishwasher load of dishes requires about 15 gallons of water. To wash and rinse the dishes under a free flowing stream of water, consumption of 25½ gallons might be reached.

Using a dishwasher can save water, but it depends on the individual's personal washing habits. The Consumer Report of May 1974 also notes that for light jobs the first wash cycle may be eliminated, thereby saving additional water.

At $200 and up the dishwasher is definitely a consumer luxury item, but one that more and more Americans feel they cannot do without. As a water user it rates no bad marks.

AUTOMATIC CLOTHES WASHERS

The typical clothes washer uses about 50 gallons of water per load. There are two ways a washer can save water consumption: The suds-saver and the variable water-level control. Many machines now come with this latter feature.

The suds-saver feature is not as common as it once was, but at least two models are still available: the Maytag A606 and the Speed Queen DA3690. Suds-saver units save water by reusing about 17 of the normal 20 gallons used in the wash cycle of an initial load. They require a laundry tub capable of holding 20 gallons, eliminating most high-rise condominiums as a market for these automatic clothes washers.

The bibliography at the end of the March article (HA, March 1978, page 17) offers some excellent sources for information and products. The Residential Water Conservation book from the California Water Resources Center should be on every interested architect's or builder's shelf. HA

Continued from Page 13

encouraged on government owned lands, of which there is a great deal. Or government can supply park land in return for a share of the housing, which can be made available for low to moderate incomes.

A comprehensive growth management program would force the government for the first time to do something effective about the high costs of housing. Explicit response to this already existing problem could lower present prices, if the right amount of low cost housing were supported by the government.

Costs can also be held down through compact development patterns utilizing low and medium density apartments and townhouses. This also conserves more water than tract housing sprawl, with its water gulping lawns and long distance leaky pipes. Medium density saves about 30 per cent more water than single homes.

One of the best short-term ways to acomplish these goals for Oahu, and provide jobs for the construction industry, is to develop Kakaako immediately, and slow the development of almost all other parts of the island through a moratorium on water hookups. Housing for 50,000 could be provided in Kakaako at medium density, while preserving and expanding the existing businesses.

A variety of uses and densities can also be developed in select places in town, on blocks currently empty or dilapidated, and in neighborhoods that desire improvement or redevelopment.

Most importantly, the numbers and the rates of development of housing units should be limited to whatever figures the public chooses in the current development planning process. HA

Hirata

Continued from Page 23

be to reuse the effluent in some beneficial way.

HA—What are the chances of doing this in Hawaii, on a significant scale?

EYH—Here in Hawaii, the potential for reuse is excellent. Since 1971, the Board of Water Supply, in cooperation with the Public Works Department of the City and County of Honolulu, the Oahu Sugar Co., the Hawaii Sugar Planters' Association, the Water Resources Research Center, and more recently the State Health Department, has been conducting a study to determine whether treated sewage effluent can be used to irrigate sugar cane.

The two primary concerns relating to the use of treated sewage effluent are:

1—Viral contamination of our groundwater.

2—Reduction in sugar yield due to the effect of nitrates in the effluent.

Indications are that, with proper disinfection, the chances of viral contaminations are remote.

Our studies using 100 per cent sewage effluent showed that nitrates did significantly affect crop yield. Studies are now underway to determine the effects of various dilution levels. I'm confident that with proper dilution we can reduce the nitrate effects to nonsignificant levels.

If effluent reuse becomes a viable alternative, we're talking about eventually recycling about 160 million gallons a day of effluent from the Sand Island, Honouliuli, and Mililani Sewage Treatment Plants.

The key to the success of this endeavor is cooperation and in that regard, I want to commend all the agencies involved in this study for their cooperation and positive attitude. With this kind of "can do" spirit, I'm confident that we will make effluent reuse a reality.

There are alternative water sources, such as surface water, brackish water, and even saltwater. But, at this point, effluent reuse seems to be our most promising alternative.

With water all around us, the question is not whether we will run out of water, but how much this resource will cost us as we are forced to go from the inexpensive groundwater source to alternate sources.

Our major challenge is to use our precious underground water supply in the most efficient manner, through conservation, so that we can delay as long as possible the day when we have to go to alternate sources at additional cost and lesser quality. HA

Classified Notices

Call 521-0021 to place a classified ad.

SERVICES

Liquor License
Map Preparation
with lists of owner/lessees
BLUE SKY ENTERPRISES
537-5925; 524-4711

ADVERTISER'S INDEX

Where to go For BUSINESS DINING

RESTAURANTS & CATERING

Columbia Inn

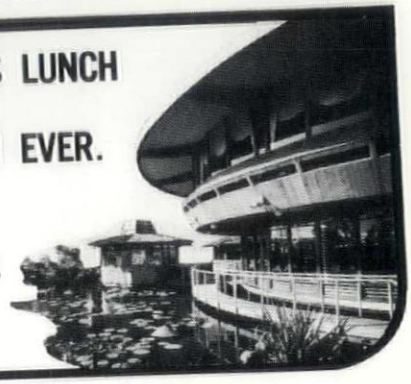
OPEN 24 HRS.
(except the wee hours of Monday morning)

Early riser breakfast, Businessman's lunch,
Family style dinner, late evening snacks

TOP OF THE BOULEVARD
645 KAPIOLANI BLVD. HONOLULU

THE BUSINESS LUNCH CAN BE BETTER THAN EVER.

At THE PAGODA
FLOATING RESTAURANT
1525 Rycroft Street
Phone 941-6611



Arthur's

Luncheon served from 11AM to 2PM, Monday thru Friday. Cocktails till closing at 10 PM. Light lunches on Saturdays.
In the Davies Pacific Center, on Merchant and Alakea Sts. Phone 521-7133.
A Flamingo Restaurant

PANCAKE HOUSE RESTAURANT

Smitty's

BREAKFAST • LUNCH • DINNER • SNACKS
Monday thru Friday 7:00 a.m.-8:30 p.m.
Saturday & Sunday 7:00 a.m.-2:00 p.m.
Ala Moana Shopping Center
Shop 1235—Street Level Map
Telephone 946-6442
FAMILY STYLE DINING

Garden Court

RESTAURANT AND COCKTAIL LOUNGE

SELF-SERVICE CATERING
We prepare the food you want--you pick it up in non-returnable containers. An inexpensive way to host T.G.I.F. or pauhana parties, receptions. Or use our banquet room and facilities adjacent to the Garden Court Restaurant at Ala Moana.
Phone 941-2345 ext. 6006.

LIBERTY HOUSE
AN Amfac COMPANY

Now, we're open till midnight.

We cordially invite you to come and enjoy our fine family dining during our new extended hours:
Monday - Friday, 6 a.m. to midnight;
Saturday, 8 a.m. to midnight;
Sunday, 8 a.m. to 9 p.m.

teruya's 1333 River Street
Phone 533-1218

AS LOW AS **99¢**

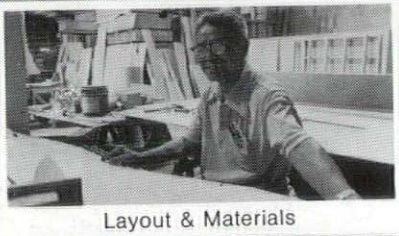
DOWNTOWN BREAKFAST

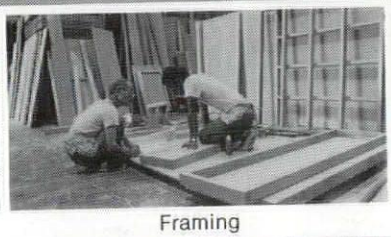
Choice of any of
12 omelets—2 Island
Fresh Eggs
Hash Browns or Rice
Toast, Butter, Jelly

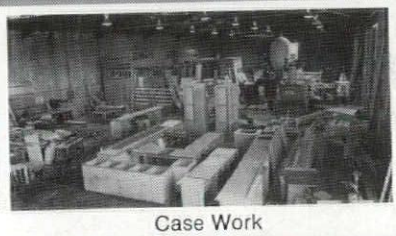
mr. sub
union mall
7 A.M. to 10 A.M.

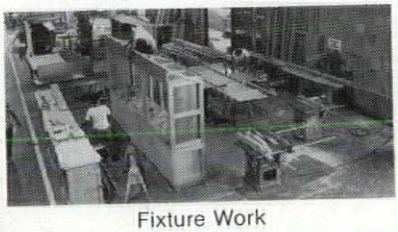
These fine eating places can be enjoyed
for
breakfast, lunch, dinner, or a catered affair.

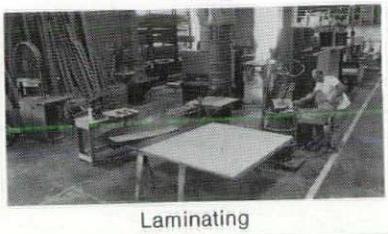
IMUA translates your ideas into a working language through this modern plant and manufacturing facility.


Layout & Materials


Framing


Case Work


Fixture Work


Laminating


Finishing

The smooth flow of all work assures each job its promised priority.

Jobs are analyzed, estimated, and resulting bids proposed. All data is co-ordinated as to timing and deadlines with the architect. The job flow and timetable for all supplies is established.

Everything necessary for the job is brought together in the Layout and Materials division. Orders previously placed are assembled. Unfilled or back orders are expedited. The job then goes into production on schedule.

Doors, windows, and other customized details are prepared for later finishing. In this special area IMUA'S expert skills in carpentry and cabinetry are extensively utilized. Challenging and innovative architectural specifications are met.

In the plant's 25,000 square feet of production facilities IMUA maintains a large inventory of lumber and materials, based on anticipated demands and normal job requirements. This is especially important in Hawaii, where the paperwork of back ordering can cause costly and unnecessary delays.

Finishing is done mostly in the shop, but, as necessary, also on the site. Plant work must pass close tolerance inspection before reaching the site, where it is put in place, and hand finished, in many cases, to merge with all other job site work.

In modern store, restaurant, and office construction many jobs require some form of wood or plastic lamination. This work is performed in a special department, with experienced hands, and with the most modern and complete equipment in Hawaii.

Send for the new illustrated folder on operations, personnel, some recent jobs, and staff capabilities.

IMUA
BUILDER SERVICES, LTD.

855 Ahua Street
Honolulu, Hi 96819
833-1811