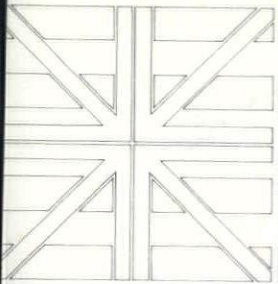


C.2



journal
of the
hawaii
society/
american
institute
of
architects

HA

HAWAII ARCHITECT

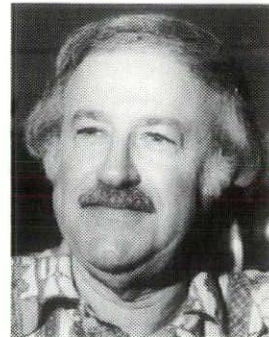
MARCH, 1978

Water





Indoors and out Ceramic Tile helps display and sell for Cutter Ford



Richard Cutter

Ceramic Tile in Cutter Ford showroom reflects the beauty of this 1978 Ford LTD. Richard Cutter, general manager, also shown here, points with pride both to facilities and sales records of the company. General contractor for the Cutter Ford facility: Harvis Construction Inc., Honolulu, and Ralser Construction of San Mateo, California.

Since the day this new dealership in Hawaii opened in late 1974 Cutter Ford in Aiea has been strictly first class—and generous use of Ceramic Tile has helped keep it that way.

Both indoor and outdoor new car showrooms have floors of Ceramic Tile. Beautiful. Fords on display gleam against these backgrounds. And, says Richard Cutter, general manager, Cutter Ford has made a habit of exceeding factory sales goals.

The floors are easy to keep clean, too. Hose and steam it down. Dirt is gone, including oil stains. Maintenance cost is low.

The additional use of Ceramic Tile on walls and floors elsewhere make it a pleasure to visit Cutter Ford for sales or service.

CERAMIC TILE, MARBLE & TERRAZZO BELONG IN HAWAII

These great materials more and more are getting major attention from those who build the finer homes and other buildings here. Skilled architects, interior designers and contractors believe in them. Helping, too, are the qualified, reliable contractors who take part in their own industry-wide Promotion Program of the Tile, Marble & Terrazzo Contractors Association of Hawaii...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

Tile, Marble & Terrazzo Contractors Association of Hawaii

1405 N. King Street, Suite 302

**Attention: John P. Brack
Honolulu, HI 96817**

ARCHITECTS, DESIGNERS, Please Note

Every week in advertising in the Honolulu Sunday Star Bulletin & Advertiser Hawaii's tile contractors call special attention to your professions with this message:

"Building? Remodeling? Redecorating?

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

HAWAII ARCHITECT

March, 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 No.: (808) 538-7276

HS/AIA Officers:

President:

E. Alan Holl, AIA

Vice President/President Elect

James Reinhardt, AIA

Secretary

Joyce Noe, AIA

Treasurer

Carol Sakata, AIA

Directors

Arthur Kohara, AIA

Fred White, AIA

Lewis Ingleson, AIA

Carl Saake, Associate AIA

Maurie Yamasato, AIA

Hawaii Architect Personnel

Co-Editors

Wayson Chong, AIA

Ron Holecek, AIA

Tom Culbertson, AIA

Art Director

T. E. Garduque, AIA

Staff

Rob Hale, AIA

Michael J. Leineweber, AIA

Glenn Mason, AIA

Published by:

Crossroads Press, Inc.

863 Halekauwila Street

P.O. Box 833

Honolulu, Hawaii 96808

Phone No. (808) 521-0021

Stephen S. Lent, Publisher

William B. Roberts,

Advertising Director

Hawaii Architect (063170)

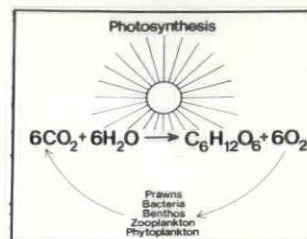
controlled circulation

postage paid at Honolulu, Hawaii

Contents:

Article: Water-Conserving Fixtures 5
by Glenn E. Mason, AIA

Article: Aquaculture and Hawaii's 6
Water Resources
by Linden A. Burzell, Ph.D.



Article: Water As A Landscape 9
Design Element
by Mike Miyabara



Ballpoint: Manoa Stream Park Plan 10
by Charles A. Ehrhorn, AIA

ASLA: The Less Thirsty 12
Tropical Garden
by Paul Weissich, ASLA, and
Janet T. Gillmar, ASLA

Wide-Open: 1978 HS/AIA Honor Awards 14



New Members: Michael T. Okada, Steven R. Davis, 21
Wesley M. Yoshikawa, Douglas B. Snelling

Cover Story: A striking effect of dynamic Akaka Falls on the Big 10
Island is produced by high contrast posterization. The
photo was reproduced from a serigraph by Hans H.
Juette. This artwork commissioned by Hawaii
Architect. For more waterfalls see page 10.

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 MAINTENANCE
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



Water Conserving Fixtures

by GLENN E. MASON, AIA

Architects are in the position of being able to encourage water conservation in very direct ways. New construction and remodeling of commercial, institutional, and residential buildings offer possibilities for significant savings not only of water, but of water and sewer charges to the consumer.

Literally dozens of new products are now on the market which offer water savings; so many in fact, that it is impossible to cover even the general principles of all categories in the space provided here. Nor is that necessary: some of the categories of water-saving devices are very expensive and probably nearly impossible to get locally; some require the expenditure of energy as a water substitute which can rarely, if ever, be justified in our energy importing economy. Therefore this discussion is limited to some of the most promising and interesting conservation fixtures.

About 45 per cent of the water which passes through indoor fixtures is literally flushed down the toilet. Since this is the largest single user of water the average household has, it will be considered first. Subsequent installments of this water conserving fixtures series will cover fixtures used for bathing and personal hygiene and kitchen fixtures.

CONVENTIONAL TOILETS

Within this group there are variations in design which can save thousands of gallons per year per household. Unfortunately there is some tradeoff between the noise produced and amount of water used in a toilet. This is because generally the more pressure the water exerts in the flushing action, the less water is needed. This is why the old two-piece toilets with a detached tank hung high on the wall and a washdown bowl used only two and one-half gallons per flush.

The most commonly used arrangement in residential use today uses a two-piece toilet with tank attached and a bowl using a siphon jet action. These tanks use about five to seven gallons per flush.

Water displacement devices can be added, ranging from the plastic bleach bottle filled with pebbles and water to commercially available water dams; but experimentation must occur to determine that proper flushing action is not impaired.

The siphon vortex uses an action which causes the water to swirl in a strong vortex motion. It is the quietest fixture in residential use. It is often made in a low silhouette one-piece unit, which is also the greatest water user, requiring from six to eight gallons of water per flush. The one-piece flush valve toilets of either siphon jet or blowout actions use about four and one-fourth gallons per flush, or about 12.5 per cent less water than tank type toilets.

URINALS

Water consumption of urinals varies widely with the flushing action and type of urinal. The floor-mounted stall type urinal uses only about one gallon per flush, as do wall hung urinals with a washdown action. The next most efficient is a pedestal urinal with a modified washdown action, which uses about one and one-half gallons per flush.

Any unit which uses a siphon jet action will be quieter, but uses about three and one-half gallons per flush or four gallons with the blowout action.

SHALLOW TRAP TOILETS

This is a relatively recent variation of the conventional floor mounted close-coupled toilet. It looks similar to conventional toilets with a smaller tank provided. The smaller diameter, shallower trap leaves less water and hence less

inertia for the siphon jet action to overcome. The toilet requires only three to three and one-half gallons per use, saving at least 15 per cent of all water consumed within the home.

The unit cost is about 10 dollars more than the equivalent conventional unit. Presently the unit is not carried in all colors or style lines, but this promises to change.

Manufacturers include: American Standard—*Water Saving Cadet*; Briggs—*Conserver*; Crane—*Water-Economy Siphon Jet*; Eljer—*Emblem*; Kohler—*Water Gard*; and Mansfield—130-8.

WASTEWATER RECYCLING TOILET SYSTEMS

This is essentially a conventional water flushing toilet with an aerobic on-site wastewater treatment system. The water is treated, charcoal-filtered, and reused. There is practically no water consumption beyond the initial charge. It presents no aesthetic problems but its cost is in excess of \$2,000, limiting its use to areas where access to conventional sewer systems are non-existent.

Manufacturers include: Aera-filt; Multi-Flo; and Thetford.

None of these is available locally.

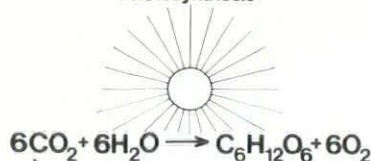
PRESSURIZED FLUSH TOILET

This toilet uses a combination of pressure and gravity to propel waste on its journey. It uses about two quarts of water per flush, a substantial savings, but requires the hookup to a small compressor. It is installed conventionally except that it needs only a 1½-inch soil line instead of the conventional 4- or 5-inch lines.

The vitreous china model is available for a little more than \$300 on the Mainland. Savings could be effected by ganging the units or in a high-rise structure where a common pressure line could exist. The

Continued on Page 16

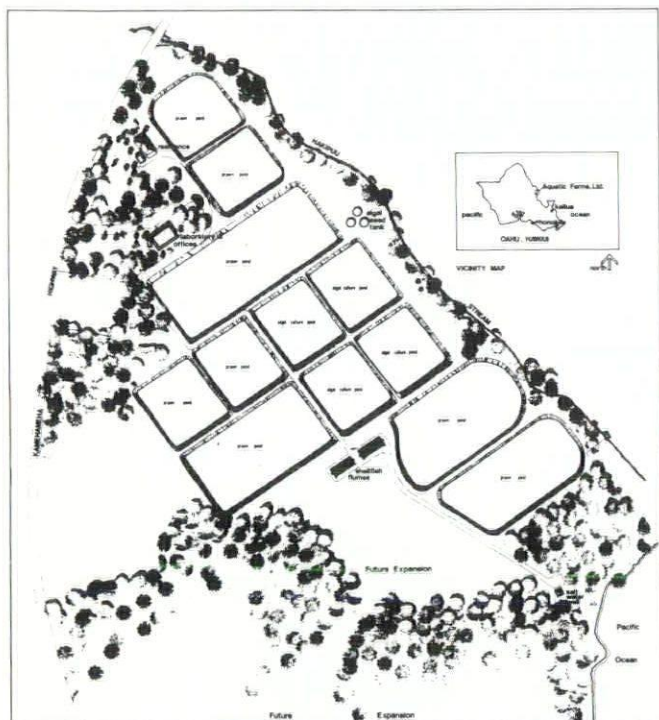
Photosynthesis



Prawns
Bacteria
Benthos
Zooplankton
Phytoplankton

Aquaculture and Hawaii's Water Resources

by LINDEN A. BURZELL, Ph.D.
Vice president, Aquatic Farms, Ltd.



Linden A. Burzell, Ph.D., is vice president and a founder of Aquatic Farms, Ltd. He is the acting chairman of the Hawaii Prawn Farmers Association and a member of the Hawaii Governor's Aquaculture Advisory Council. His research background is in aquatic microbiology, especially as related to aquaculture development.



Site Plan

AQUATIC FARMS LTD.
Halapou, Oahu, Hawaii

Aquaculture is the cultivation of aquatic plants and animals under conditions more or less dictated by man. As such, it is even more dependent than terrestrial agriculture on a reliable supply of high quality water. If Hawaii's fledgling aquaculture industry is to grow in line with its demonstrated economic and technical potential, and basic water policy decisions to be made in the next few years must be compatible with aquaculture needs. Clearly, accurate information about the aquaculture industry is basic to developing rational policies in this field.

In this context, it might be interesting for Hawaii Architect's readership to consider a few facts about aquaculture as it relates to the use of water.

First of all, aquaculture is not necessarily as big a consumer of potable water as is generally believed. Generally speaking, most tropical freshwater aquaculture (including the cultivation of freshwater prawns and many species of

fish) need only consume enough water to compensate for evaporation and seepage losses from ponds. There need not be much, if any, net flow through such ponds under normal operating conditions.

With careful pond design, siting, and construction, the actual consumption of water on a per-acre basis can be less for pond aquaculture than for many terrestrial crops, including sugar cane and certain types of diversified agricultural produce. As an example, Aquatic Farms' prawn operations in Windward Oahu use less than three gallons per minute per acre of pond surface under normal conditions.

Aquaculture can figure prominently in systems for the multiple use of water. Perhaps the simplest such system, and the only one currently employed in Hawaii, involves the use of water first for aquaculture and subsequently for the irrigation of terrestrial crops. In many cases, effluent from aquaculture facilities has been rated by terrestrial farmers as superior to vir-

gin groundwater for irrigation purposes.

Aquaculture technology is rapidly developing to the point where it can be a significant element in the reclamation of sewage effluent. Municipal sewage represents a tremendous potential water resource that becomes progressively more attractive as the costs of developing new sources of water continue to increase.

It may soon be practical, under certain circumstances, to produce aquaculture crops of commercial value in advanced waste treatment systems that also give substantial yields of high quality irrigation water. Particular emphasis can be expected on crops for purposes other than direct human consumption. Potential examples include seaweeds grown for their extractable colloid content, certain fish for animal feeds, aquatic plants for fermentation leading to the produc-

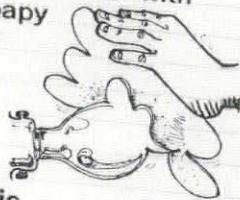
Continued on Page 19

HAWAII ARCHITECT

FACTS ON LIGHTING EFFICIENCY

Keep them clean.

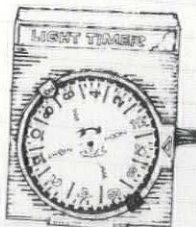
The lights you leave on all day or night for safety and security need your occasional attention. You can lose 30-40% of your available light if you let bulbs and fixtures get dirty. Give them the once-over with a cloth and soapy water, once in awhile.



Make them automatic.

You can avoid wasting energy by making your security lighting system automatic. Photo-electric cells or timers

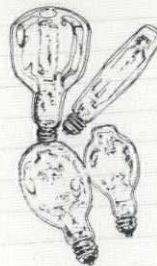
will remember to turn the lights off (or on) even when you forget.



New lamps are more efficient.

Check the alternatives to the traditional incandescent bulb. Fluorescent, mercury, metal-halide and sodium lamps may

cost more. But, because they produce more light per watt, and last longer, they give you more for your energy dollar.



Use electricity wisely.

When it's time to replace or remodel your present lighting system, don't use guesswork. Be certain on getting the most efficient system for your needs.



HAWAIIAN ELECTRIC

general rubber corporation

RUBBER EXPANSION JOINTS—SOUND ZORBERS—FITTINGS
for piping systems

**SPECIALTY EXPANSION
JOINT FOR 250°F
CONTINUOUS SERVICE**



- **COMPENSATES** pipe motion over three times more than conventional expansion joints. Movement forces are also 65% less because of the "wide" arch configuration.

- **HIGH STRENGTH** polyester reinforcement provides rated working pressure to 150 PSIG in all sizes, all at the same high temperature — 250°F.

- **HEAT RESISTANT** chlorobutyl (250°F) construction is stable under continuous high temperature service. Chlorobutyl also absorbs vibration and noise more than comparable designs of other elastomers.

- **FLANGES** are full faced and flat 125/150 lbs. USAS B16.1 standard drilling, mating to all types of metal and fragile plastic pipe, eliminating problems of fracturing mating flanges, as can happen with raised face flanges. Retaining rings are split malleable iron, ASTM A-47-68.

- **ECONOMY** of the mass produced design will benefit both new construction designers and maintenance engineers on replacement. Maxi-Joint is the only molded expansion joint to have the same face to face dimensions as conventional class I and class II expansion joints, and is available in sizes 2" to 12" I.D.

- **VERSATILITY.** Also available in other elastomers for special applications. Contact factory or your local representative for recommendations.

FREE CATALOG! WE'LL MAIL IT! CALL 839-9021

AN **AMFAC** COMPANY

AMFAC DISTRIBUTION CO., LTD.

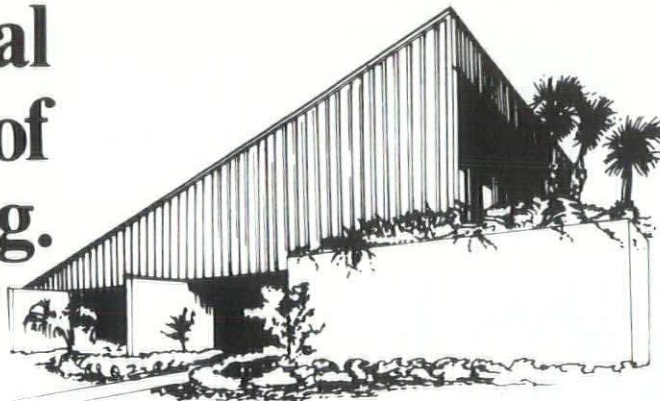
deROCHER

2846 Awaawaloa St., Honolulu, Hawaii Phone 839-9021

Kauai 335-5475

Maui 877-5957

**A special
kind of
building.**



Atlantic Building Systems, Inc. is a nationwide manufacturer of the new generation of pre-engineered metal buildings. Good looking. Economical to build. Versatile. They're real money-savers on upkeep and energy. And they offer you unlimited versatility in custom-design capability to meet your exact working needs as well as the appearance you want. For more information and free estimates, please call . . .

S. D. HILL & ASSOC. INC.

735 Bishop

Suite 204

524-4815

Authorized Dealer



Atlantic Building Systems, Inc.
THE BUSINESS BUILDERS®

• Design Manuals Available On Request •



water can come to unity



static water



water in motion

Water is perhaps the single most versatile landscape design element. Through a variety of visual, auditory, and tactile sensations, water contributes greatly to our enjoyment of the world around us. As with any other landscape design element, the use of water requires careful consideration of scale, mass and volume, form, texture, and color. This article will address itself primarily to looking at the aesthetic role of water in the landscape in these terms.

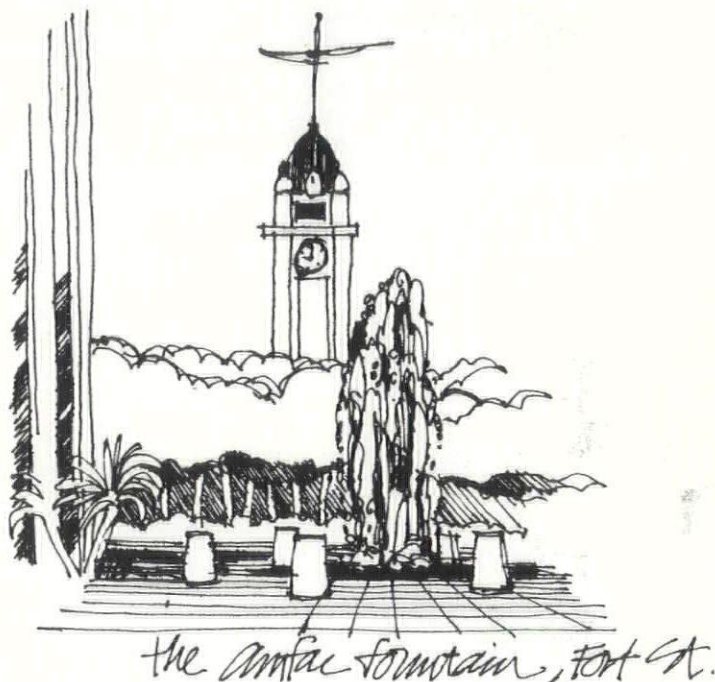
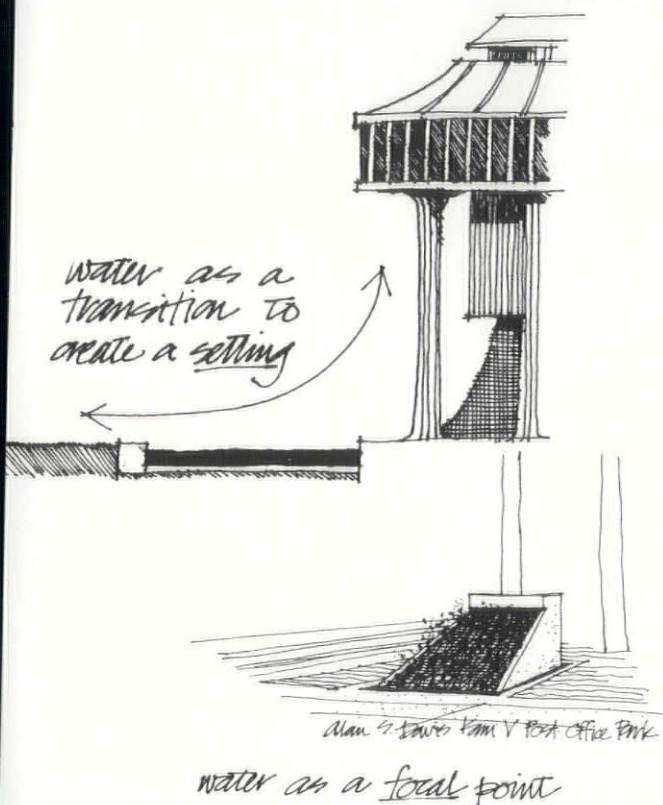
Water serves many different functions, creating a setting for architecture, for instance, such as the State Capitol or the chapel at Punahou, where water acts as a base and transition from building to land.

It can also provide a sense of unity, direction, and theme. Examples where water becomes the common thread that weaves different parts into a cohesive whole are

HAWAII ARCHITECT

Water As a Landscape Design Element

by MIKE MIYABARA



found at the Ethnic Gardens, Honolulu International Airport, and Waimea Falls Park.

Water can be an audial screen, substituting undesirable noise with pleasant sounds of water in motion, such as the use of water in the pedestrian underpass at King and Fort streets.

A feeling of enclosure can be achieved by forming barriers and edges, actual or implied, evidenced at the Blaisdell Arena.

In the majority of instances, however, water is the primary focus of visual attention. Some familiar examples are the Amfac fountain (and other fountains along Fort Street Mall), the Federal Building sculpture, and fountains at the Financial Plaza, Davies Pacific Center, and the Alan S. Davis Kam V Post Office Park on Merchant Street.

Some water features, by virtue

of location and visual impact, have become landmarks, such as the Kapiolani and Aala Park fountains.

Water is a very special design medium for two unique reasons. The first is that water assumes the shape and volume of its container and secondly, acts according to the universal laws of gravity. Together, these obvious characteristics allow water to achieve an almost infinite variety of effects. However, water appears in basically two forms or states—moving and nonmoving.

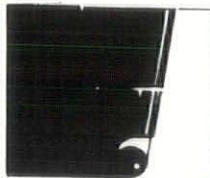
Water in motion, usually perceived as falling, spilling, flowing, or jetted, evokes a sense of aliveness and action, varying in degree from the intimacy of a private garden to the raw excitement of an urban fountain, depending on volume, velocity, and surface texture.

Nonmoving, or static water is, in most cases, a pool or pond, varying widely in size and shape. Generally,

a still body of water encourages a feeling of calm and passivity. Form becomes a very critical factor—rectilinear edges of containment reflect a formal character and conversely, free-form more relaxed.

In any case, whether moving or not, used to form a setting or be a focal point, to unify or diversify and add interest, the success of the aesthetic use of water depends on how it satisfies essential design functions. Any water element in the landscape must be in scale using the correct mass and volume, be contained in the appropriate form, perform with the proper texture, and reflect the presence of color and light.

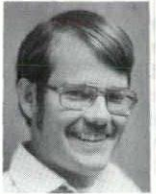
In terms of its almost unlimited possibilities, the aesthetic use of water seems barely touched. By understanding and becoming sensitive to the way water acts and reacts, we can begin to realize this vast potential. HA



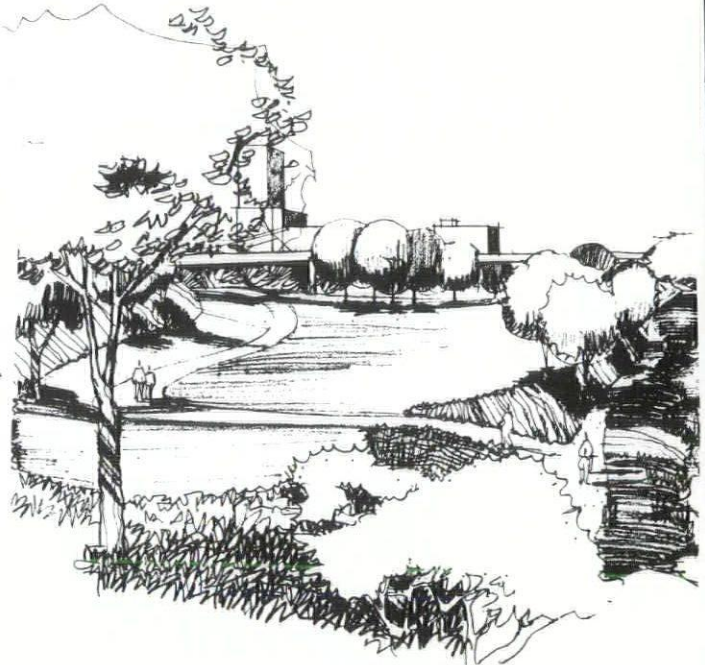
**BALLPOINT
Commentary**

Manoa Stream Park Plan

by **CHARLES A. EHRHORN, AIA**
Chief Planner, Architects Hawaii, Ltd.
Served as project planner for the
Manoa Stream Study.



MAKAI VIEW NEAR
MAIALAE AVENUE OVERPASS



MAUIA VIEW NEAR
LUNALILO FREEWAY OVERPASS

In the past, the location of urban settlements was often related to the proximity to major water features. Rivers, lakes, streams, and the sea coast were often utilized for transportation, food, and defense. Over time, mankind came to appreciate the relationship to water as an amenity that can enrich the urban environment.

Throughout the United States today, the presence of beautifully developed water features is being seen as a major contributor toward the enhancement of adjacent property values. This is frequently the case of large residential developments which often go to the extreme of creating artificial water features to create value and recreational amenities.

Today, cities are rediscovering streams that flow through their central core areas. While these streams formerly played a role in

the original surrounding urban development, they fell into disuse and neglect as commerce became less dependent upon water.

These cities are viewing their waterways as a major resource to planning and urban design. A lively streamway with its variety of characteristics and moods offers many aesthetic attractions and numerous recreational and open space opportunities within the urban fabric. Streamways can serve as natural exciting linkages between urban elements, becoming circulation corridors safely separated from automobile traffic.

Within this context, urban planning for Manoa Stream Park was conducted under the direction of the Office of Physical Planning and Construction, University of Hawaii, Manoa Campus. Planning was completed by Architects Hawaii and Hawaii Design Associates, a

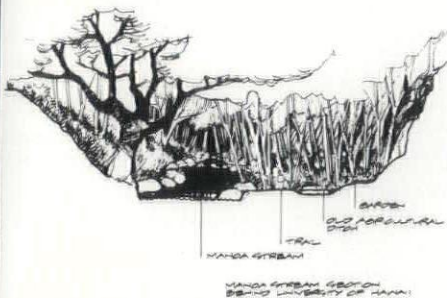
joint venture. That study demonstrates the feasibility and potential for a six- to seven-mile parkway running from Ala Moana Beach Park to Manoa Falls.

Two objectives or elements were addressed.

The first was the development of an overall conceptual plan illustrating both short- and long-range implementation strategies. The optimum stream concept showed the development of a significant recreational resource through the use of natural features and urban qualities. Continuous passage between land use and open space elements was proposed using the stream's natural linearity. Secondary connecting elements such as Palolo Stream were noted for their potential to extend the primary concept to areas not immediately adjacent to Manoa Stream.

A second element was the presentation of urban design

A 14-member citizen's advisory committee of community, university, city, and state representatives served as a reviewing body. DeLos Seeley, formerly director of the Department of Parks & Recreation, served as chairman. All work was discussed with the committees and the University of Hawaii's planning department.



standards to guide the physical development of a stream park concept, the redevelopment of abutting properties, and aid in formulating appropriate legislative controls. These illustrated how specific areas might redevelop over time and how future development can affect and be affected by desirable park development.

Planning looked at those lands immediately exposed to the Manoa Stream waterway. The study approach was based upon the premise that the entire streamway system is an opportunity for long-range park development. The changing characteristics of the stream as it flowed through natural, suburban, and heavily urbanized areas were considered. Each of these three types of areas were found to relate to the streamway in distinct ways.

The overriding goal has been to increase the public's awareness and involvement with Manoa Stream and to inform the public of the stream's many aesthetic features and recreational opportunities. This is of particular concern as it has been found that many owners of abutting land are unaware of those portions of Manoa Stream above the Ala Wai Canal.

The Manoa Stream Park study also found that state, city, and university lands and facilities comprise by far the greatest amount of land along Manoa Stream. This includes existing parks, schools, play fields, vacant undeveloped properties, and highway fragments. These represent a significant potential for immediate and partial stream park development. This can include

Continued on Page 18

WHOOSH

IT
DON'T WALK IT!

move items—messages
with a **PNEUMATIC
CONVEYANCE SYSTEM**

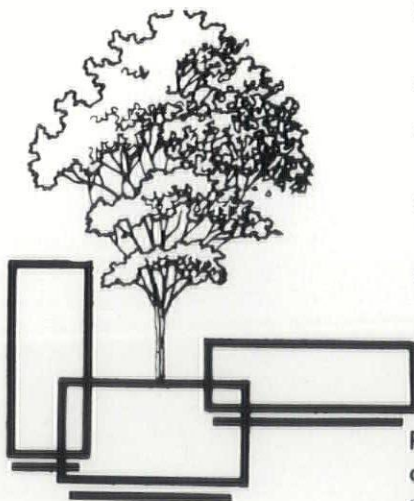
Move messages, parts, medicine, orders, money, you-name-it! Faster. Cheaper. Safer. Two-way pneumatic travel using ONE tube. Lightweight, durable, operates on 110 volts. And it's on **ONLY** when sending something! Installs anywhere. Several satisfied Honolulu firms. Free estimates & cost studies. Full details without obligation. Give us a call now,

PHONE 947-5050



**DISTRIBUTED, INSTALLED
AND SERVICED BY
MIDSEA MARKETING**
Post Office Box 23297
Honolulu, Hi. 96822

PLANT RENTAL SPECIALISTS FOR OVER 30 YEARS



- Quality shade-grown, acclimatized potted plants
- Our specialty — Areca Palms
- We provide contemporary styled, watertight, fiberglass planters
- Weekly check and watering — monthly rotation of all plants
- Service from Hawaii Kai to Pearl Ridge

SAVE YOUR CLIENTS MONEY

Plant leasing and maintenance is the only way to insure healthy, attractive plants. Let us prepare a proposal before you begin ordering expensive planters and greenery.

NURSERY ASSOCIATES, LTD.

46-336 Haiku Road

Kaneohe, Hawaii 96744

247-2734

The Less Thirsty Tropical Garden

by PAUL WEISSICH, ASLA, and
JANET THEBAUD GILLMAR, ASLA

Photos courtesy of Deborah J. Ward
and Foster Botanical Garden

**Abundant supplies of irrigation water
traditionally important in Hawaii.**



**Resistance to change to less thirsty
landscape.**

**Begin discussion in response to new
situation.**

Limit to urban landscape.

**Assume continuing shortage without
total cut-off of landscape irrigation.**

New approach to design.

Inspiration from other cultures.



No one in Hawaii, especially landscape architects, likes the new problem of water shortages. Water is not only literally part of our lifeblood, but most of the vegetation of the man-shaped, urban and agricultural environment in Hawaii is dependent upon irrigation water for its life.

Life in Honolulu for many people has traditionally been the opportunity to live in the sunny climate of the arid coastal areas while surrounded by the lush foliage of a tropical rain forest. The archetypal Hawaiian house and garden for many people springs from such a setting. Relatively few people have chosen to live in the valleys where such water-loving plants grow without help from irrigation.

A paradise aspect of Hawaii has been this best-of-both-worlds situation. For most people here, including landscape architects, the first reaction to the thought of suddenly having to design or live in a "less thirsty landscape" is one of resistance and real concern about the loss of a familiar landscape of proven attraction to resident and visitor alike.

Turning-off-the-faucet conjures up alien images of desert landscapes on the Mainland and a loss of an important part of the special identity of Hawaii.

The jolt for landscape architects, in particular, is somewhat analogous to that which architects are starting to feel in the area of limits to building energy appetites—or if architects wake up one day to find concrete would no longer be readily available as a construction material.

It would seem useful at this point to begin discussion about how we can respond to the implications of water supply limitations for the landscape in Hawaii—first a discussion among landscape architects, expanding to include the landscape industry, relevant government agencies, and other design professionals, such as architects, and then, of course, the public, which ultimately has the most say over what the landscape will be.

Since most landscape architectural practice concerns the urban landscape, rather than the agricultural, the discussion should begin there. Further, we suggest assuming, for purpose of this dialogue, that the traditional luxury of unlimited supplies of public water for urban landscape irrigation will *not* be restored—either by curtailing further population growth or by success of any of the various current proposals for increasing available public water supplies.

This is not to expect that there will be no water at all for landscape irrigation but that we can no longer assume unlimited supplies. Population growth is likely to continue and is destined for dry to nearly dry areas, mostly, so more and more water will be taken out of the supply while the replenishment remains constant.

To start the discussion, we suggest first recognizing that a new, aesthetically pleasing approach to design within a "water budget" just as we have always designed within a construction cost budget. This challenge certainly will make our lives even more complicated than they already are, but there is also the chance that some exciting new solutions will be inspired as a result of grappling with the problem.

Many ways will be found to respond to this new problem of stretching the water budget. First, we can look back on how the many other parts of the world with water limitations have solved the problem. A number of those places are represented in the diverse background cultures of the people living in Hawaii today.

For instance, there is the remarkable way that the mere suggestion of water can effectively establish a garden containing few plants as a pleasant place to be—examples being the small fountain of the Middle Eastern or

Spanish courtyard or the urn containing a few water plants in a Chinese garden. The paved courtyard at La Pietra at Diamond Head, now the Hawaii School for Girls, with its single tree and small central pool provides a local example based on the Italian garden.

The colorful mosaic paving patterns and wall tiles of Portugal are other examples of ways to reduce dependence on vegetation in landscape design. But plants don't have to be banished, for there is the evolving response of Americans in the arid western regions of the U.S. to their own recent water supply limitations, which includes more interest in drought-resistant native plants.

Ways of stretching the water budget.

Ways of stretching the water budget, then would include:

- 1— Supplement the public water supply.
 - A. A rain barrel or cistern under the gutter—or a variation of the Roman *impluvium*, a basin under the opening in the atrium roof.
 - B. Make a "watershed" of paved surfaces draining to a tank or other reservoir.
- 2— Increase the effectiveness of the supply that is available.
 - A. Use automatic sprinkler systems regulated by moisture sensors and operated at night. Hand-watering tends to increase water use because it generally is done during the day when evaporation losses are higher, and water is usually applied faster so run-off is increased.
 - B. Use drip irrigation, thus further reducing run-off and evaporation losses, although this type of system involves more careful control of impurities in the water which may clog the system.
 - C. Use new, more efficient components of sprinkler systems as they become available.
- 3— Reduce water loss by evaporation, not only as in 2A and 2B above, but through use of:
 - A. Mulches
 - B. Shade
 - Trees, perhaps the less thirsty varieties or ones using fresh or brackish groundwater near the surface, such as occurs in some coastal areas.
 - Trellises or pergolas, perhaps supporting a vine, which may be one of the less thirsty varieties.
 - C. Windscreens of various types, including plants and fences and walls.
- 4— Use the fresh or brackish groundwater near the surface (as mentioned in 3B above). This occurs in Waikiki, for example.
- 5— Use plants requiring less fresh irrigation water.
 - A. Substitute less thirsty ground covers for lawn areas, which typically require large amounts of water. Where lawns are needed, reduce their draw on the water supply by aerating the soil, applying water at a slow rate to maximize absorption, water at night to minimize evaporation, avoiding over-fertilizing, and mowing at a high level to shade the root zone more and hold the water better.
 - B. Research propagation and use of more drought-tolerant plants in design.
 - Hawaiian plants native to the drier coastal areas.
 - Exotic plants are already here.
 - Other ornamental exotics available in other lands which may be suitable to Hawaii's dry climates.
- 6— Zone the planting areas into sections requiring regular irrigation and those requiring water only to get the plants established.
- 7— Reduce the amount of ground covered by vegetation.
 - A. Use more paved surfaces.
 - B. Use rock and gravel as groundcovers.
 - C. Use trellises, arbors, pergolas.

The possible, or necessary, use of less-thirsty plants (5B above) is an especially challenging and interesting point. It is true that incorporating these plants into the palette of local landscape architectural practice will mean some changes in the complexion of that palette. But first of all, the situation will probably not require that every single plant used will have to be drought-tolerant, and secondly, all drought-tolerant, or semi-drought toler-



Christmasberry

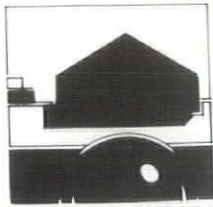


Naupaka



Use of less-thirsty plants.

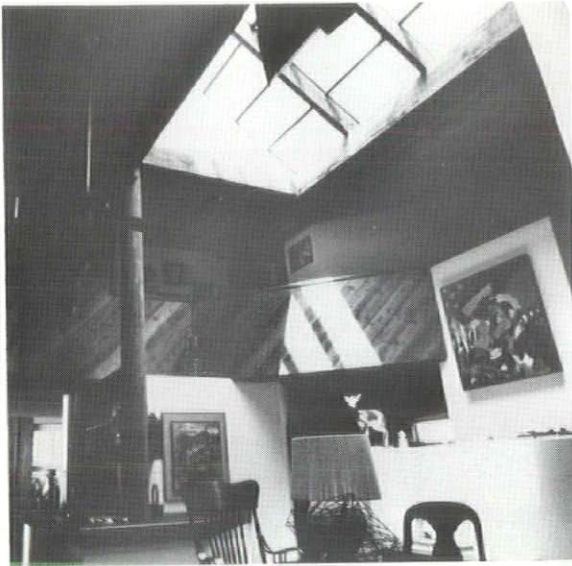
Continued on Page 22



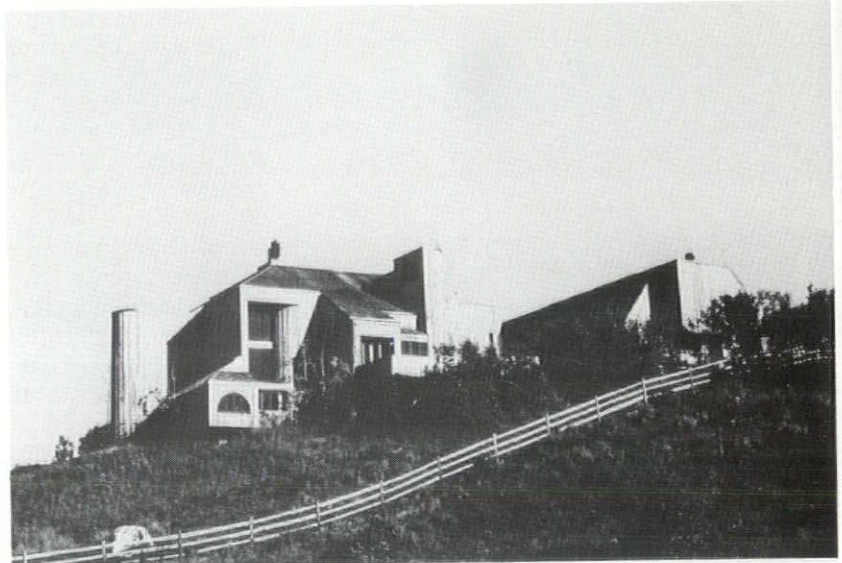
WIDE-OPEN
photo feature

1978 HS/AIA Honor Awards

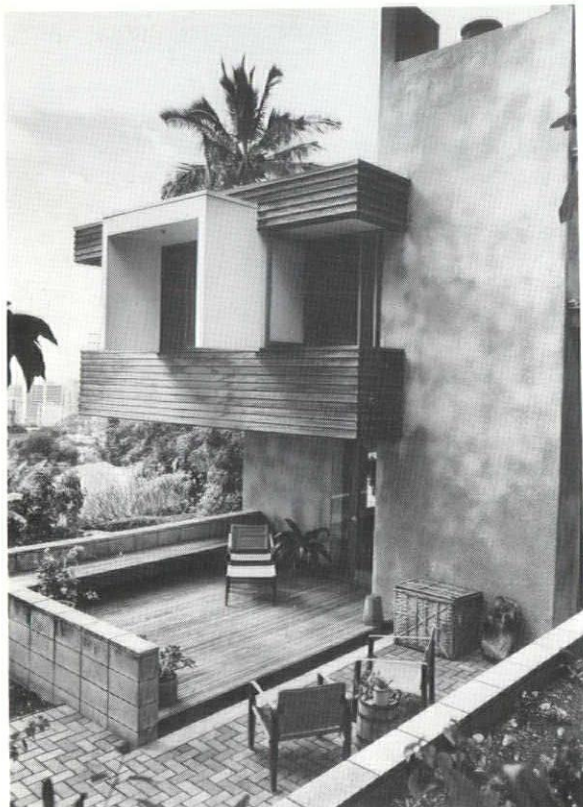
Photos courtesy of: Wayne Thom Associates
Angie Salbosa Photography
Glenn M. Christiansen



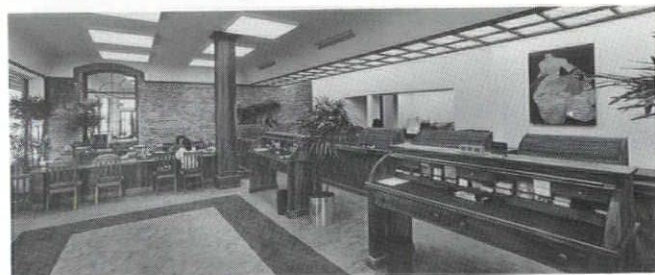
HONOR—Residential
Norman Lacayo, AIA
A residence in Honolulu



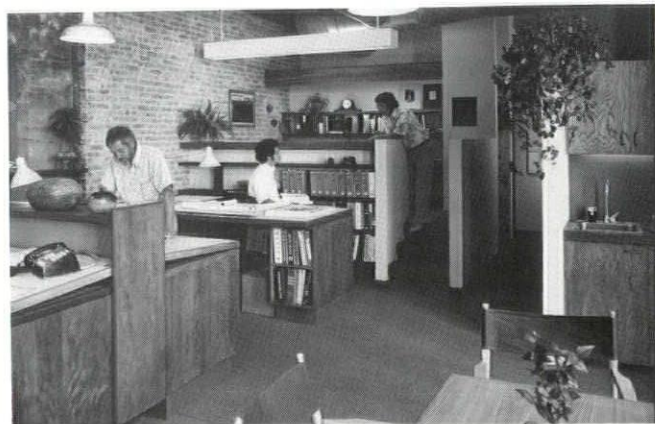
MERIT—Residential
Norman Lacayo, AIA
A residence in Aspen, Colorado



MERIT—Residential
Meyers/Detweiler & Associates
The Detweiler Residence

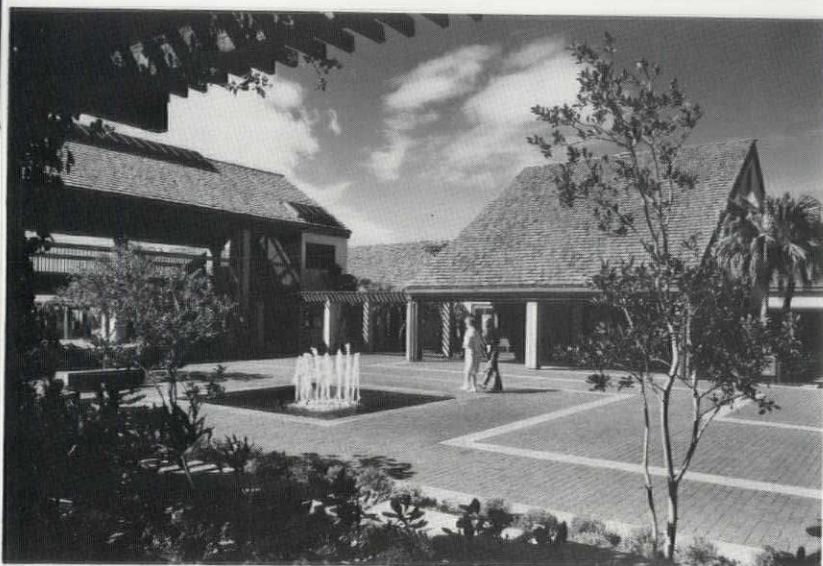


MERIT—Renovation
Ishihara Oda Wong & Partners
Island Federal—Downtown Branch

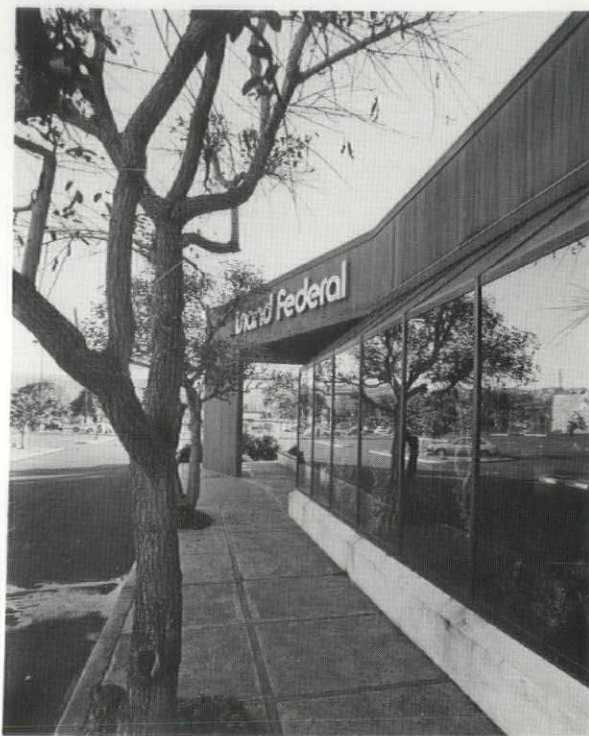


MERIT—Renovation
Johnson-Reese & Associates, Architects
Offices for Johnson-Reese & Associates

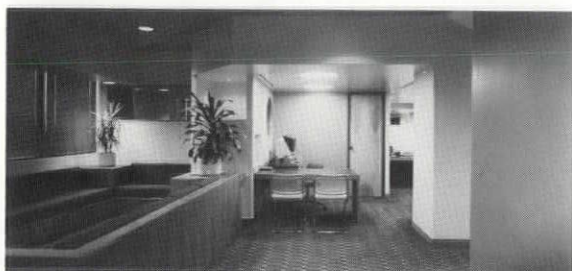
This year's award program was juried by Allen Johnson, AIA, Franklin Gray, AIA, Christopher Smith, AIA, Frank Brandt, ASLA, and Ralph Anderson, an architect from Seattle, Washington. Each project will be featured in upcoming Hawaii Architect issues.



HONOR—Commercial
Edward Sullam FAIA & Associates
Wailea Town Center, Maui



MERIT—Commercial
Ishihara Oda Wong & Partners
Island Federal—Waimalu Branch



MERIT—Interiors
Media Five Limited
The Straub Satellite Clinic



MERIT—Commercial
Au, Smith & Haworth, Ltd.
The Ward Warehouse



MERIT—Commercial
Johnson-Reese & Associates, Architects
Restaurant for Church's Fried Chicken

Fixtures

Continued from Page 5

present models look a little different from conventional units, which may lead to some consumer resistance.

Manufacturers include: Microphor and Enviroscope.

PRESSURIZED TANK TOILETS

This involves a specially designed tank which uses water supply line pressure to build up tank pressures sufficiently to provide much more force to flushing waters, thereby reducing water requirements to two and one-half gallons per flush. It is noisier. The tank is easily installed by the layman and 1976 cost figures place it at about \$40.

This unit is available from Water Control Products, Inc., of Troy, Mich.

OIL FLUSH TOILET

This unit uses a clear, odorless mineral oil not readily distinguishable from water. Waste is separated from the oil and stored, the oil then being reused—an expensive application which still leaves the wastes, which must be either pumped out or incinerated. This system has been used in at least one small Vermont office building the author is aware of and is included simply for the demonstration of a fairly high-technology solution.

VACUUM TOILETS

These operate in an opposite manner to pressurized flush toilets. It combines a low water flush with the vacuum transportation of wastes through specially designed toilet, pipes, and storage unit. It is not designed for application to single-family dwellings but to apply to groups of houses or a multistory complex. It has a toilet which resembles conventional equipment. The manufacturers claim cost competitiveness with conventional systems in larger installations. The system requires smaller pipes, can transport wastes vertically to 30 feet, will not work in power outages, and must be emptied once a year. It uses only one and one-third quarts of water per flush.

Manufacturers include: Colt, Electrolux, and Mansfield.

COMPOSTING TOILETS

A relatively simple, self-contained unit which uses no water, has no sewer hookup, and with a by-product of rich humus soil conditioner. It takes kitchen garbage and human wastes and aerobically decomposes the material to a total quantity of three to 10 gallons per person per year.

Initial cost is high but offset in certain cases by the cost of sewer lines or collection of wastes.

The larger units include the Mul-Toa and Clivus Multrum. The latter is available locally from Joni Schreier who has installed one in her home, designed by Jim Pearson and Clifford Terry in Pukukea's Sunset Hills. The firm of Pearson & Terry is presently working on a proposed development of 15 houses, all of which will use the Clivus Multrum unit.

Smaller composting toilets have some problems with maintenance of proper temperature and moisture balance within the unit. While

MASONRY



A view of Waipahu Estate Subdivision, 135 fee simple masonry homes with Monier tile roofs; a development of NHK Builders, Inc.

Home Team Advantage!

More and more homes in Hawaii are now taking advantage of every one of the many benefits of masonry construction. And they come home a winner because the true cost is well below the cost of comparable old-fashioned (and non-local) construction materials.

Durable block walls make any project more salable and more lastingly satisfactory to the user. Masonry offers:

- Sound resistance
- Architectural versatility
- Termite and rot resistance
- Load-bearing capabilities
- Lower fire insurance rates
- Cooler interiors
- Hawaii labor & materials



**CEMENT AND CONCRETE PRODUCTS
INDUSTRY OF HAWAII**
Suite 1110 / Control Data Building
2828 Paa Street / Honolulu, Hawaii 96819
Phone (808) 833-1882



**MASONRY INSTITUTE
OF HAWAII Inc.**
Suite 206 / 905 Umi Street
Honolulu, Hawaii 96819
Phone (808) 841-2844

they are less expensive initially they require more frequent emptying and often come equipped with heating coils and thermostats. Some may object to the input of energy in these toilets.

In addition to the different toilet systems which conserve water there are many attachments or replacement valves which can help to conserve water. These cost a few dollars more than conventional units but can save water in a variety of ways. Leak signaling ballcocks avoid leaking problems of conventional ballcock assemblies, which usually occur in the needle valve or seat. The water leaks into the toilet tank and then down the overflow pipe. Even a 1/32-inch leak can translate to 8,000 gallons of water per year.

Flapper tank balls also can reduce leakage by fixing the tank ball to the overflow tube in such a way as to avoid the improper sealing of the ball seat. Many manufacturers of new toilets are using the flapper tank ball now, but it pays to check out the valve characteristics of new toilets.

Another innovation involves the use of a dual flush mechanism. These may be dual function valves or double tank containers. In most cases the lever is pushed in one direction to dispose of liquid wastes and in the opposite to dispose of solid wastes. When the partial flush cycle on most dual units is used, up to half the water is saved.

Dual flush toilet systems are now in wide use in Britain.

One type is available locally: Econo-flush, from Hawaii Exchange.

SELECTED BIBLIOGRAPHY

Residential Water Conservation: Murray Milne; California Water Resources Center Report No. 35; University of California/Davis; 1976. Revised and reprinted 1977. \$7.95.

An excellent all around summary of the state of the art in water conserving methods and products. Can't be too highly recommended for anyone interested in utilizing water conservation in buildings.

Stop the Five Gallon Flush: The Minimum Cost Housing Group; School of Architecture; McGill University, P.O. Box 6070, Montreal H3C 3G1, Canada; 1973, \$2.

Good descriptions of various water saving toilets, ranging from some very low technology solutions

to very sophisticated apparatus. Includes many foreign units not included in the first reference.

Water Conservation Fixture List: Washington Suburban Sanitary Commission; 1976.

Hawaii Home Energy Book; Jim Pearson, AIA, with Clifford Terry and Carl Bovill; The University Press of Hawaii; 1978. Chapter 11. Available at local bookstores for \$8.95. Largely advice for the homeowner but of interest to architects as well. Saving water saves energy.

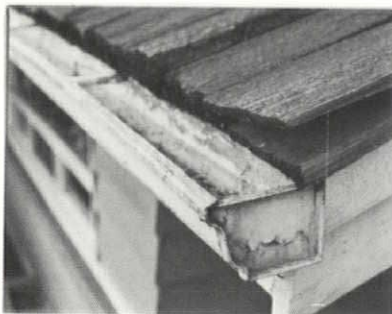
In addition, various reference ar-

ticles in the April and September 1977 Sunset and the January 1978 Popular Science.

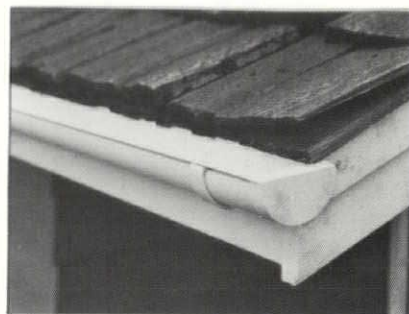
Frank Ifuku of the local Board of Water Supply has been collecting catalogues, brochures, and other information from many manufacturers and welcomes any data or inquiries architects have relative to water conserving fixtures. In addition, he has put together a list of water-saving devices which includes local distributors, most of whom are selling water displacement devices and/or flow controls. **IA**

Plastmo

.... IN THE **ALOHA** GROUP OF BUILDING MATERIALS



Metal gutters crack, chip, and peel after a few years.



Plastmo will not crack, chip, or peel in any type of weather.



Seams on metal gutters are not always leakproof.



Plastmo rain gutters are completely leakproof and designed to prevent mold and overflows.

For Information Call Mike Jordan
Industrial Product Manager

ALOHA
STATE SALES CO., INC.

Maui: Ph. 877-7951

2829 Awaawaloa St. Ph. 833-2731

Preferred Credit

Now you can borrow from \$2,000 to \$7,500 on your signature.* And you can do it all by mail. Call, write or come in today for your Preferred Credit application.

It's fast. Confidential. Affordable.

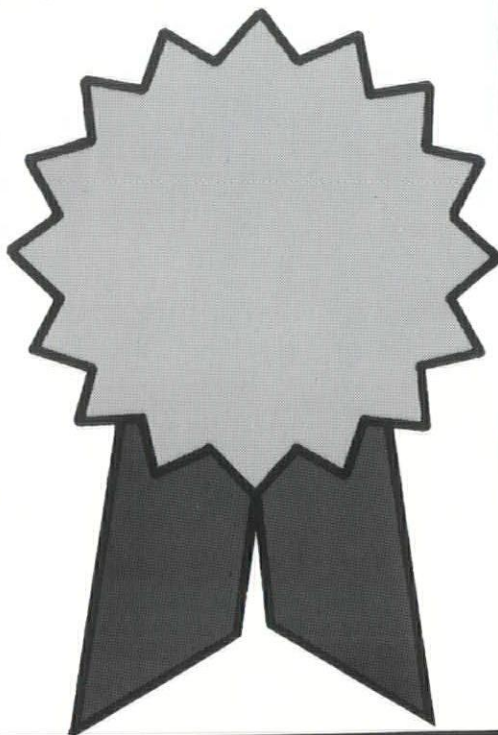
Amfac
FINANCIAL

Downtown
Amfac Center Shopping Mall
Queen Street between Fort & Bishop
Phone: 546-2953

Ala Moana Center
Ala Moana Building
3rd Floor Mall Phone: 941-9161
Kaimuki
3617 Waialae Avenue Phone: 735-2477

Waipahu Shopping Village
94-226 Leoku Street Phone: 671-4547

* Subject to credit qualification



Manoa Stream

Continued from Page 11

modifying the interface between developed land such as parks and schools to facilitate access to the streamway and developing adjacent vacant property as stream oriented parks.

A final note should be made as to how the Manoa Stream Park conceptual plan can fit into governmental controls and planning process. It may be appropriate to include the Manoa Stream Park concept in the new development plans for the City & County of Honolulu.

The City Charter directs that development plans are intended to accomplish the objectives and policies of the General Plan. In addition, they are "to contain statements of standards and principles with respect to the land uses for residential, recreational, agricultural, commercial, industrial, institutional, open spaces and other purposes." This means that for each type of land use, planning principles and standards will be prepared.

Also of importance is the consideration that will be given to the inclusion of urban design principles and standards in the development plans. The overall stream concept and related urban design recommendations can be incorporated partially or wholly into both the land use and urban design elements of the development plan for Central Honolulu.

The city is relying on the elected neighborhood boards to provide the principal citizen input for their respective areas. The groups most affected, the Manoa, McCully and Moiliili communities and Waikiki must remain involved in the development planning process to give these park concepts needed support.

Professional groups and others interested in urban design can also play a significant role in implementing a successful stream park concept. This is important, not only to the communities of Manoa Valley and Waikiki, but can lead to new legislation recognizing other stream systems throughout the State of Hawaii. **HA**

Aquaculture

Continued from Page 6

tion of energy, and so on.

Salt or brackish water aquaculture is an extremely promising field, especially in areas such as Hawaii where fresh water supplies are uncertain. Saltwater species now under cultivation in Hawaii include mullet, milkfish, at least four species of oyster, two species of clams, and certain seaweeds. Aquatic Farms, for example, will produce in excess of 100,000 pounds of oysters and clams this year for sale to local markets, with no significant impact on potable water supplies.

Public water policies and the future of aquaculture are closely intertwined. As these policies are discussed in response to changing circumstances, we in the aquaculture community look forward to informing the public about our industry's water needs, its potential social and economic benefits, and

the potential for increasing available water supplies through advanced waste treatment and other practices involving aquaculture technology.

Aquatic Farms has real confidence in the long-term ability of aquaculture both to have a significant positive impact on the social and economic life of Hawaii and, beyond that, to play a role in meeting world food needs. At the same time, we recognize that both the technology and the economics of our industry have a long way to go before any meaningful impact will be felt in either area.

One of the most crucial needs in aquaculture at present is for a clear demonstration of economic viability. We feel that it is the absence of such demonstrations, more than anything else, that currently poses the most serious obstacle to rapid infusion of new private development capital into the industry. The role of private enterprise in this area is absolutely crucial.

Government can help, but only the private sector can effectively provide the resources and incentives to achieve really meaningful aquaculture expansion. HA

For a smooth running project from top-to-bottom... get Chaney in on the ground floor.

If you think of Chaney as a real estate firm dealing in general brokerage and property management, you're only partly correct. Chaney's complete services also include expert advisory and consulting capabilities.

We're here to help you even before the birth of a blueprint.

This preventative counselling will help you design a building which will operate economically, safely and with the best interests of the owner and tenants in mind. Before you even sharpen your pencil, give Chaney a call. You may never have to use your eraser.

If it's a question of Real Estate... the answer is

CHANEY INC.

Phone 521-6971 • Suite 400
Davies Pacific Center
841 Bishop Street



**we
save
the
sun!**

HEI WAI WONG, Developer, has installed the largest Solar Water Heating System of its kind in Hawaii in the new 55-unit Banyan Street Manor.

"I am naturally concerned about saving energy. I think we all should be. This is a HUD development and the additional \$15 to \$20 a month savings for each apartment on utilities will help the tenants. That's about \$13,000 annual savings on electricity, that's a lot of fuel. I chose CODY CO. because I have been dealing with them for many years and feel they are very reputable, also they distribute the RAYPAK system which is HUD approved. In addition to the Thermosiphon System, which also saves electricity, RAYPAK has all copper tubing, that's important in Hawaii our salt air."

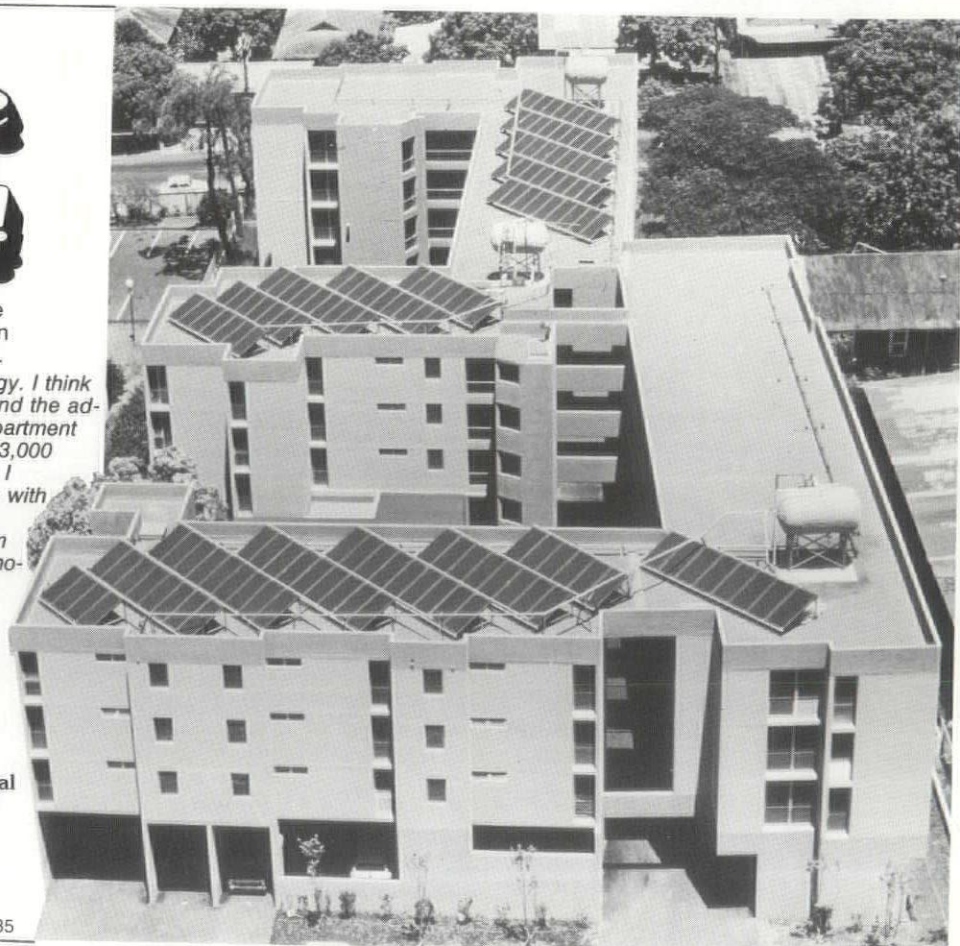
SOLAR ENERGY

The Cody Co., Inc.
since 1946

More experience in commercial solar water heating than all other companies combined in Hawaii.

Raypak

Contractor's License No. C-8942



1168 Waimanu Street, Honolulu, Hawaii 96814 ph 537-5285



Why is Walter the source for contract floor coverings?

Good

Good people to work with who really know how to help you with your selection so you get the right product for the right job at the right price.

Better

Better service than anyone else in the business from our large stock maintained in our own warehouse.

Best

We give you the best names in the business:

Walter Carpets by Ludlow 113 years of leadership with the newest in commercial, institutional, office and industrial carpeting.

Congoleum More colors, more patterns in no-wax cushioned vinyl floors.

Crown Mats A notable difference for floor protection; famous for anti-fatigue construction.

Ludlow Cushion A full line of cushion for every contract application.

Walter Carpets *by* Ludlow

2869 Mokumoa St. Honolulu 96819. Phone 833-3071



New Members

MICHAEL T. OKADA. Corporate up from Professional Associate; Allen Kajioka & Associates, B. Arch., Univ. of Washington. Wife: Kathy. Children: Misa 4, Mari 1.



STEVEN R. DAVIS. AIA Member; Architects Hawaii, Ltd. B. S. Arch., Univ. of Cincinnati. Wife: Janice. Children: Paul 4, Michael 1. Hobbies: Golf.

WESLEY M. YOSHIKAWA. AIA Member; self-employed. M. Arch., Univ. of Hawaii 1974.



DOUGLAS B. SNELLING. AIA Member; self-employed. ARIBA, FIA, AALA. Children: Christopher A. G. 14, Duncan R. G. 12, Andrew A. G. 10. Hobbies: Golf, tennis, swimming, Asian antiques.

Canon

ELECTRONIC CALCULATORS

Start with research. Add features. Add reliability. Multiply by value, and your answer is Canon. Here's 3 of many models.



P-1420D

The outstanding 14 digit, 2 memory printer/display. Item counter, mark-up/mark-down key, broad percentage function, reverse and non-add print key.



CP-1210

12 digit printing calculator with convenient accumulative memory. Features include: Grand Total key, two-key rollover with buffered key-board. Wide selection of decimal positions.



CP-1231D

12 digit, printer/display with 3 memory versatility. Performs four column totaling. Dual functioning item count, mark-up/down, delta percent, shift key and sign change.

HONOLULU
740 ALA MOANA
524-0220

KAUNAKAKAI
STAR ROUTE 142
558-8956

KAHULUI
261 LALO STREET
877-7331

HILO
101 HOLOMUA
935-5401

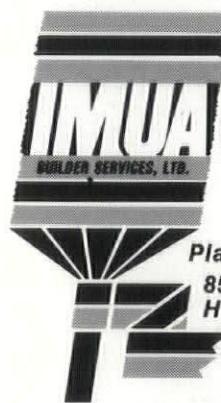
TRY ONE!



**Specialists in
CUSTOM WORK for
Bars, Restaurants,
Discos, Stores, Offices,
Public Areas ...**

**ON YOUR TIME
SCHEDULE AND ON
YOUR BUDGET**

Call for a representative
and a copy of our
illustrated folder on how
we can work for you as
we have hundreds of other
satisfied customers.



833-1811

**BUILDER
SERVICES, LTD.**

Plant & Warehouse:
855 Ahua Street,
Honolulu 96819

LIFETIME

TERMITE PROTECTION

peacock
ROOFING & TERMITE CO., LTD.



UNDERGROUND TERMITE PROTECTION SYSTEM

NOW a patented system is available which gives lifetime protection from subterranean termites.

- Installed prior to slab pour
- Allows periodic retreatment of sub slab soils.
- Transferrable lifetime guarantee
- Proven system
- Low in cost

Please call us at 841-3615
For further information.

ADVERTISER INDEX

ALOHA STATE SALES	17
AMELCO ELEVATOR	24
AMFAC DIST. CO./DEROCHER	8
AMFAC FINANCIAL	18
C.C.P.I.	16
AARON M. CHANEY	19
THE CODY COMPANY	19
COLUMBIA INN	23
FLAMINGO RESTAURANTS	23
GARDEN COURT	23
H.M.S. BOUNTY	23
HAWAIIAN ELECTRIC	7
S. D. HILL & ASSOCIATES	8
IMUA BUILDERS	21
EARLE M. JORGENSEN CO.	4
MIDSEA MARKETING	11
MR. SUB	23
NURSERY ASSOCIATES	11
OFFICE THINGS	21
PACIFIC BUREAU FOR LATHING & PLASTERING	22
PAGODA	23
PEACOCK ROOFING & TERMITE	21
SMITTY'S PANCAKE HOUSE	23
TERUYA RESTAURANT, INC.	23
TILE, MARBLE, & TERRAZZO	2
WALTER CARPETS	30

Keeping Hawaii Plastered



FIRESAFE



Metal lath and plaster fireproofing offers ratings ranging from two to four hours. And it's been shown to last far longer than the official ratings.

It positively will not shrink or spall. It can't be brushed off. Or casually chipped off. It's exceptionally strong, lasts practically forever (about 100 years is the record so far), and is largely unaffected by varying atmospheric conditions.

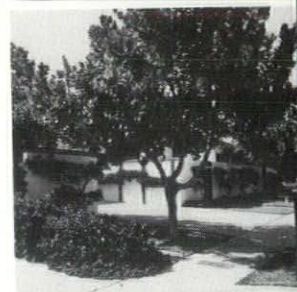
The reason is simple. Unlike most others, metal lath systems are not dependent on either chemical or adhesive bonds. The lath holds plaster in place by firm mechanical keys—over 1,000 in each square foot.

Moreover, temperature transmissions through the various metal lath assemblies are lower than for other systems.

Plaster Information — Don Morganella
PACIFIC BUREAU for
LATHING & PLASTERING
905 Umi St. — Rm. 303 Ph. 847-4321

Less Thirsty Gardens

Continued from Page 13



Carissas and autograph

ant plants do not *look* like desert plants—fleshy, cactus-like leaves, grey color, sparse foliage and/or spiny character.

It is true that the tree which perhaps epitomizes "tropical," the palm, is not drought-tolerant—the coconuts which grace dry tropical shores drink the brackish groundwater near the surface. In general, the less-thirsty plants have relatively small leaf texture, and this fact affects the character of the design. But consider how well-furnished with lush, glossy dark green leaves the branches of both the Chinese banyan and the native alahe'e are, for instance, and it starts to become clear that a less-thirsty landscape need not look like a desert.

A list of some drought-tolerant plants follows. This is, of course, only a very small beginning. Considerable research and discussion with the local nursery industry is needed for progress in this area. Nurseries propagate plants which landscape architects and the public will specify and buy, and until recently there has been little incentive to work along these lines. Other lists of plants of varying degrees of drought-tolerance can be developed, also.

- Native Hawaiian plants, many of which are wind and/or salt-tolerant as well, include the following:

Naio, scaevola coriacea (native dwarf naupaka), common beach naupaka, akia, ulei, mao (native cottons), alahe'e, ilima, dodonaea, Maunaloa vine, wiliwili.

- Exotic (originating outside Hawaii) plants:

Kiawe, Kolomono (cassia), be-still, Chinese banyan, carissas (natal plum), poinciana pulcherima, koa haole, lantana, Christmas berry (male).

- Exotic plants already naturalized in Hawaii which require groundwater but tolerate brackish water:

Coconut, hau, milo.

There are also problems in immediate implementation of some of the other suggested ways of stretching the water budget. For instance, there seem to be no local sources of significant amounts of rounded pebbles which have been successfully used as a water-saving "dry groundcover" in places in the American West. The local basalt gravels are sharp to walk on and cinders and coral chips tend to stick to feet. These materials can be and are used already, but their limited use as walking surfaces restricts their use. Good organic mulches at reasonable prices are not available on Oahu, especially, macadamia shells are readily available on the Island of Hawaii, but their lack of fire-resistance limits their use.

Clearly, the less-thirsty landscape likely to be necessary in the future in Hawaii poses a significant challenge to both local landscape architects and the public which continues to buy and live in the dry urban landscape. Present tropical design concepts require heavy watering. We will have less and less water, so let's start now to find aesthetically satisfying design solutions in our naturally dry living environments. HA



Coconut, hao, milo



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

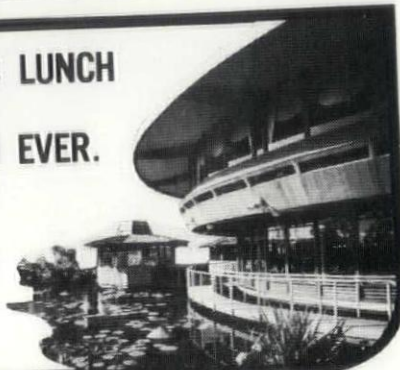

TOP OF THE BOULEVARD

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



Closed for remodeling



H.M.S.

BOUNTY RESTAURANTS

Served
11:30 A.M.
TO
2:00 P.M.

RAINBOW BAZAAR
HILTON HAWAIIAN VILLAGE HOTEL
CALL 955-5588
FREE VALIDATED PARKING Aloha

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.

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.

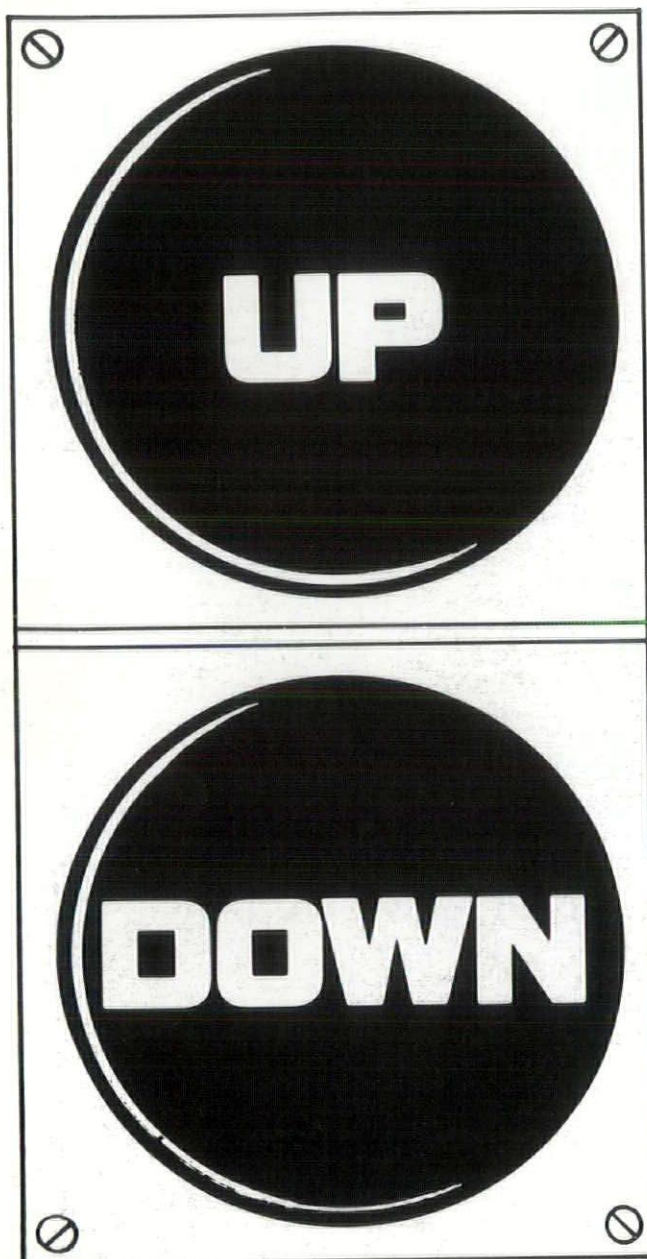


teruya's

1333 River Street
Phone 533-1218

PEGGY MC CARTHY, AIA
A COMPONENT SERVICES
1735 NEW YORK AVE, N.W.
WASHINGTON DC 20006

32545 2 4 LGD



Concerned About Your Elevator Maintenance Costs?

For a fast free estimate of preventive maintenance costs on your installation at your office or apartment building, call Amelco Elevator today. Most people take an elevator's instant response to their signal for granted. That's how *you* can take Amelco Elevator preventive and emergency service.

CALL 845-3291.



Amelco Elevator

An Hawaiian Company

2308 Pahounui Drive / Honolulu, Hawaii 96819 / Phone 845-3291