Hawaii Pacific Architecture

The Journal of the Hawaii State Council •AIA• April 1995

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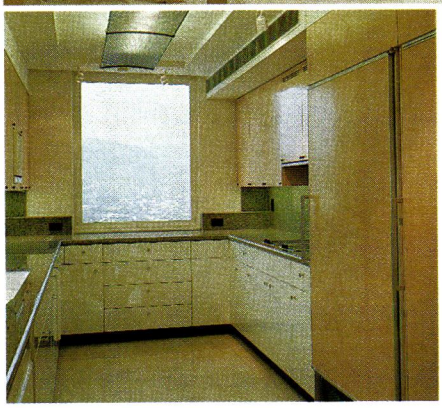

Building Castles in the Sky...

Allied Builders System was pleased to be asked to execute the grand scale remodeling of businessman Robert Taira's 36th story 3,800 sf Waikiki penthouse. Architect Bruce Newell's unique design solution called for demolishing the aging interior and creating a stunning tribute to the *kamaaina* bakery king's many accomplishments.

Today, multi-function cabinetry showcases Taira's extensive art collection, triples home storage and hides infrastructure upgrades. A theater-quality entertainment system and new central air-conditioning, hidden under three-inch ceiling panels also helped pave the way for truly palatial living.

"With the children gone, we opted to have everything light, airy, free-flowing toward the panoramic ocean view," said Taira. "We were thrilled with the plans and even more thrilled with the results..."

Adds Newell: "Allied's reputation for professional organization, quality workmanship and client caring preceded our introduction. They performed as advertised. We look forward to doing business with them again."

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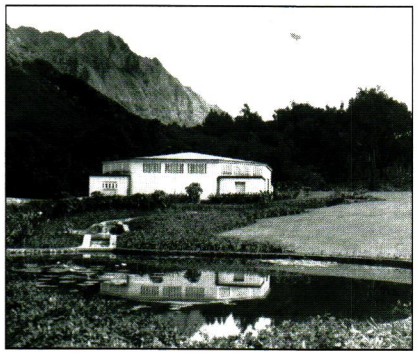

16 Oahu Pumping Stations

26 Design Award

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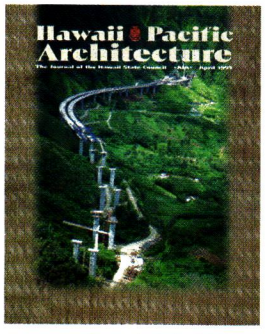
Postmaster: Send change of addresses to *Hawaii Pacific Architecture* (ISSN 0919-83111), 1034 Kilani Ave., Wahiawa, Hawaii 96786.



Cover photo by Ed Gross, Images Photography

IN THIS ISSUE ...

This issue of *Hawaii Pacific Architecture* focuses on the architecture of non-buildings. Two articles address the acquisition and use of water. Raymond H. Sato, manager and chief engineer of the Honolulu Board of Water Supply describes how the pumping stations function to bring water to island residents. Paul Weissich, director emeritus of the Honolulu Botanical Gardens, gives his thoughts on the need for xeriscaping and other water conservation techniques. Janet Thebaud Gillmar talks about structures which have an impact on the urban landscape. Other non-building topics covered include the artillery batteries of Oahu and the island's freeway system. Concrete home-building systems which have revived interest in concrete and masonry residential construction are also discussed. Projects International's Sheraton Waikiki Hotel Porte Cochere and Entry Court renovation is featured as an AIA Award of Merit. This month's cover photo is of the H-3 Windward Viaduct under construction. The Hawaiian Tapa design used on the cover and throughout the magazine is courtesy of the Bishop Museum.

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Everyone loves a "bargain." Saving money is important to consumers as well as trade. And being price-competitive sometimes becomes a frenzied struggle for survival in today's marketplace.

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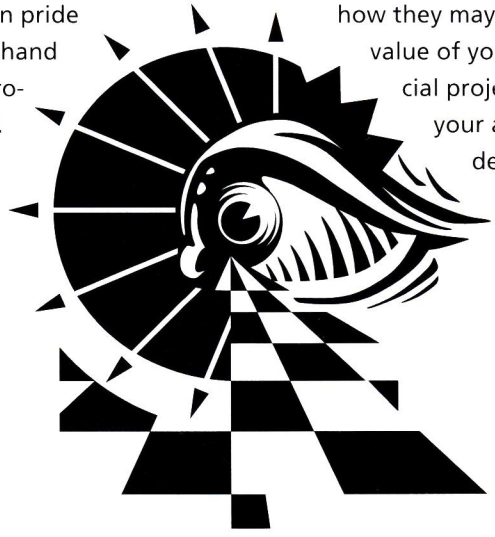
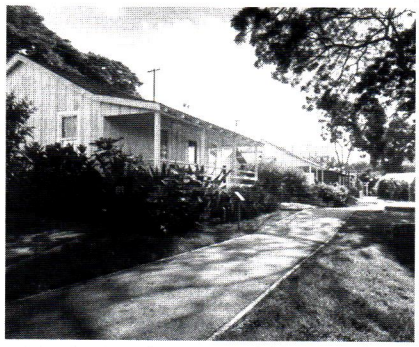


HAWAII CERAMIC TILE, MARBLE & TERRAZZO PROMOTION PROGRAM

News Briefs

Project Selected for 1995 AIA Honor Awards

Waipahu's Plantation Village, designed by Spencer Mason Architects, Inc., is one of 13 entries chosen from 500 worldwide which will receive the American Institute of Architects 1995 National Honor Awards for excellence. Five of the projects are in California; the others are in Hawaii, Massachusetts, New York, Ohio, Pennsylvania, Texas, Germany and Hong Kong.



Waipahu's Plantation Village

The awards will be presented May 5 at the 1995 AIA National Convention and Design Exposition in Atlanta.

The jury looked beyond the requisite of attractive design in conferring the awards. Projects also reflect commitment to social progress, new technologies, environmentally sensitive design and conservation, preservation and restoration.

When commenting on the award-winning designs, Frances Halsband, FAIA, New York City, chair of the architecture awards jury, said this new generation of construction adds "sparkle and life" and provides a new way to view the environments where the projects are located. "They give something back to their communities," Halsband added.

Building Energy Efficiency Standards Adopted

As of April 25, 1995, all plans submitted to the City and County of Honolulu Building Department will be required to include a statement that the design conforms to the Energy Efficiency Standards. This is the date established for the formal adoption of standards based on the State Model Energy Code.

The new code was developed over a two-year period during which national energy efficiency standards were customized to apply to Hawaii. The code applies to all buildings, although different building envelope requirements apply to air conditioned and naturally ventilated buildings.

Hawaii County became the first county in the state to adopt the new standards when they were approved and became effective on Nov. 23, 1994. Maui and Kauai counties are expected to begin deliberations on the standards this year.

Sunday Snoop

The annual fundraiser presented by the American Society of Interior Designers/Hawaii Chapter will be held May 7. Admission for the event which showcases outstanding presidents' homes in Manoa, includes the tour, entertainment and the "affair in the park" with designer displays and sales.

Admission is $20 in advance from any ASID member, all stores at Gentry Pacific Design Center, Remodeling Specialists Hawaii on Waialae Avenue, Mark Masuoka Furniture Sources on Waialae Avenue, Wade Ltd. Realtors® in Kailua, Scan/Line Office Interiors on S. King Street, Homeworld (Pearl Ridge, Windward and 702 S. Beretania Street) and other locations islandwide; $25 at the event itself. For information, call Jim Akina, ASID at 538-7130 or Florence Shibuya at 521-8955.

AM Partners Wins BALA

In recognition of the nation's best new housing designs, the 11th annual "Best in American Living Awards" were presented on Jan. 27 at a ceremony held in conjunction with the National Association of Home Builders' annual convention and exposition. A Grand award in the BALA competition was presented to AM Partners, Inc. for the 218 Plantation Club Drive project.

A total of 75 award winners in 17 categories were chosen from approximately 400 entries. To qualify, homes must have been completed, or a model home must have opened between May 1, 1993, and July 31, 1994. AM Partner's winning entry was a 7,000 square-foot luxury vacation home which commands sweeping views of the adjacent golf course, ocean and Maui's southeast shoreline.

The 1994 BALA competition's panel of 14 judges was comprised of builders, marketing experts, architects, design professionals and building publication editors.

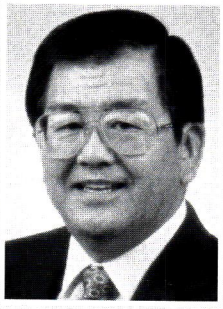
Contest Reminder

The annual AIA Maui/DOE Bridge Building and Lego Contest will be held from 8 a.m. to 10 a.m., April 22, at the Maui Arts and Cultural Center, as part of "Spotlight on Education."

Bridge building is open to junior and senior high students. The Lego division is open to elementary students. The contest, sponsored by AIA Maui and the State Department of Education, is open to public and private school students. A public judging will take place at approximately 11 a.m.

Yokoyama Named BIA Remodelors Council Chairman

Ken Yokoyama, sales manager, National Laminates, Inc., has been named 1995 chairman of the Building Industry Association of Hawaii's Remodelors Council.



Ken Yokoyama

Yokoyama, who is a member of the BIA board of directors, has been active with the BIA for the past 10 years. He served on the steering committee of the 1994 BIA Home Building and Remodeling Show and is currently a member of the BIA Hawaii Renaissance Committee.

Merging functional designs with aesthetics

Oahu's Freeway System

by Amye H. Turner

Highways, usually viewed as practical engineering solutions to transportation needs, also may be considered works of art and architecture. The Brooklyn and Golden Gate bridges are examples of structures which have transcended this utilitarian function to become symbols of their respective cities.

Designers of Hawaii's highways believe they also have created structures which are environmentally responsible as well as aesthetically pleasing. Design team members who represented Wilson, Okamoto and Associates, Inc., the engineering and architectural firm which was in charge of managing the design and construction of the H-3 Windward Viaduct, said that the Viaduct can be viewed as "a piece of sculpture a mile and a half long."

H-3 on Oahu is an architectural/engineering feat that will connect Halawa to Kaneohe Marine Corps Air Station. Through research and observations of the surrounding landscape the WOA team determined that a bifurcated design would be appropriate for the Windward Viaduct. The piers that support the highway accommodate the mountainous terrain, allowing for a harmonious blending

When complete, H-3 will link with H-1 at the Aloha Stadium.
Photo by Ed Gross, Images Photography

Left, the Tetsuo Harano Tunnel, also known as the H-3 Tunnel, is the most advanced tunnel in the state. Below, the bifurcated Windward Viaduct blends harmoniously with the surrounding landscape.
Photos by Ed Gross, Images Photography

with the environment.

When it was determined that the route originally planned for H-3 was historically significant, the Halawa Valley portion of the highway was realigned. This type of planning sensitivity has allowed the preservation of sites which may have Hawaiian cultural significance.

Design team members used the systems approach to define and solve the challenging environmental planning, architectural and engineering problems presented by the Windward section of H-3. As noted in the Windward Viaduct Major Structures Report, this planning management and design decision-making philosophy allowed WOA to focus in a cross-disciplinary manner on quality-control concerns of aesthetics, safety, ecology, economics, utility, construction systems, etc.

The Windward Viaduct was designed and constructed by using a patented, post-tensioned, cantilever construction method, utilizing a steel-trussed horizontal gantry crane. This technique, previously used in seaside resort areas of Europe, does not require extensive shoring and minimizes destruction to the landscape.

Parsons, Brinckerhoff, Hirota and Associates, Inc., overall project management consultants for the entire length of H-3, was the firm which oversaw the design of another unique portion of the highway—the Tetsuo Harano Tunnel, which passes through the Koolau Mountains. The tunnel, 5,165 feet long on the Halawa-bound side and 4,890 feet long on the Kaneohe-bound side, is the state's longest tunnel. Its entrances slope backward to aesthetically follow the slope of the mountain.

When completed, H-3 will join the wind-

ward and leeward sides of Oahu. A major interchange for H-1 and H-3 will be where the two interstate highways connect with Moanalua Freeway at the Aloha Stadium. Architect-planner Andrew Yanoviak, AIA, CSI, said that this type of junction can help spur an area's economic growth by creating a strong structural spine for other networks and subsystems.

H-3 makes up 15 miles of Hawaii's 51-plus miles of interstate highways. H-1, which was completed in 1986, stretches 27 miles from Aina Koa to Barbers Point. The nine-mile long H-2, which links Pearl City to Schofield Barracks, was completed in 1977.

According to Tetsuo Harano, retired Department of Transportation director, the design and construction of H-1 and H-2 did not present the same type of challenges experienced during similar phases of H-3. However, Harano did note that the Department of Transportation obtained the services of architects to assist in the design of retaining walls, planters and other structures to help "beautify" the freeways.

Hawaii architects Alfred Preis, FAIA, (deceased); Vladimir Ossipoff, FAIA; George J. Wimberly, FAIA; George Walters, ASLA, (deceased); served as consulting design architects to the Department of Transportation on the H-3 Windward Viaduct.

"Sometimes landscape architects are brought in on the corridor siting to take into account views and vistas so that the highway will be in harmony with the surrounding area," said Tom Papandrew, AIA, FASLA, president, Belt Collins Hawaii.

Papandrew said that while proper attention to landscape features is needed for functional purposes, such as erosion control on steep slopes, it also enhances the appearance of the roadway environment and makes the commute more enjoyable.

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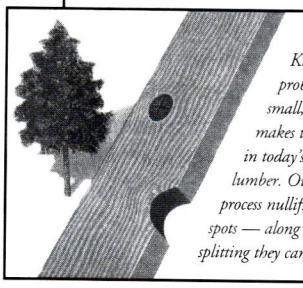

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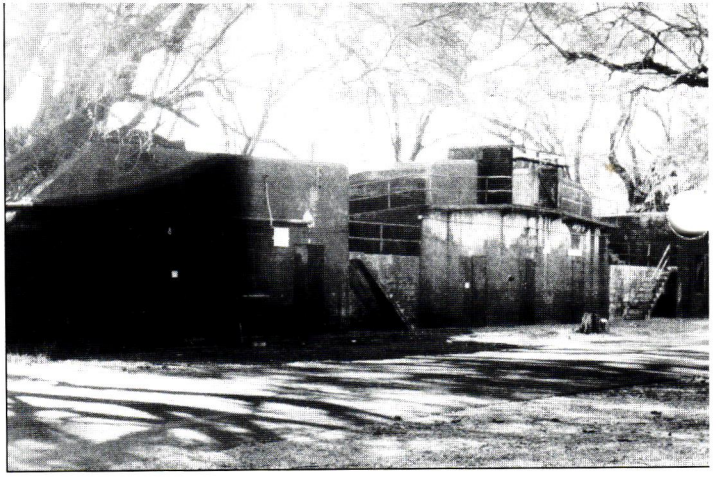
Structures provide coastal defense

Artillery Batteries of Oahu

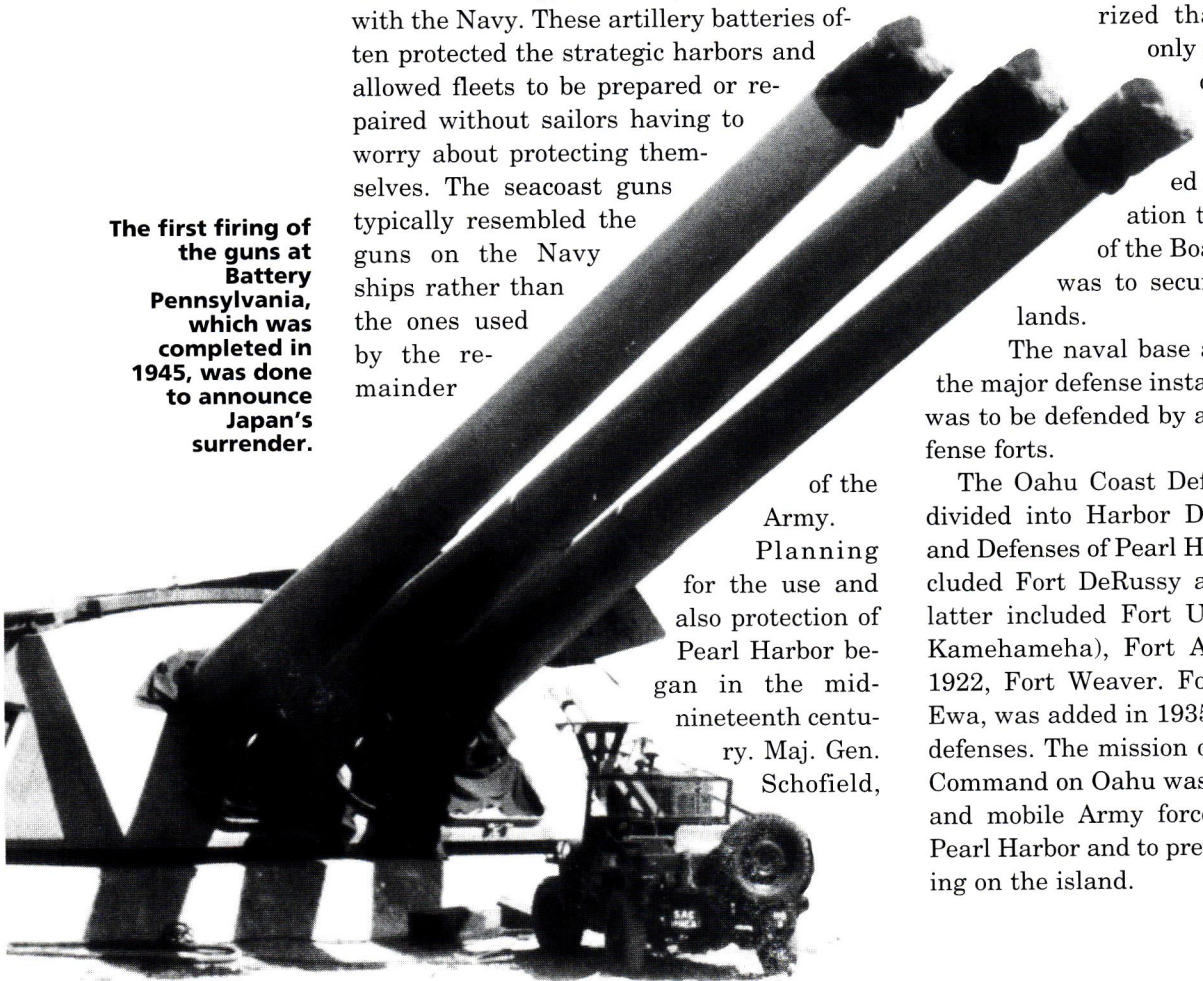
by Katie Bouthillier, AIA



Battery Hawkins at Fort Kamehameha is a good example of how the exterior concrete surfaces were made dark by treating them with linseed oil or lampblack or using bluestone rock as the aggregate in the concrete.

Behemoths lurk in the ground all around Oahu. These monsters are coastal artillery fortifications (batteries), which were built during the first four decades of this century to fend off attacking ships.

Coastal artillery was once a separate branch of the military in Great Britain. In the United States this operation was a function of the Army, but always had close ties with the Navy. These artillery batteries often protected the strategic harbors and allowed fleets to be prepared or repaired without sailors having to worry about protecting themselves. The seacoast guns typically resembled the guns on the Navy ships rather than the ones used by the remainder of the Army.



The first firing of the guns at Battery Pennsylvania, which was completed in 1945, was done to announce Japan's surrender.

Planning for the use and also protection of Pearl Harbor began in the mid-nineteenth century. Maj. Gen. Schofield, commander of the Army Division of the Pacific, inspected Oahu in 1872 to evaluate its military potential for defense of the North American continent. He recommended that Pearl Harbor be developed as a U.S. military base.

In 1905, the Taft Board, under President Theodore Roosevelt, initiated the expansion of the coastal defenses in areas outside the continental United States. The Board theorized that an enemy could only attack the west coast of the United States if it had captured Hawaii and located its main naval operation there. Therefore, one of the Board's major priorities was to secure the Hawaiian Islands.

The naval base at Pearl Harbor was the major defense installation for Hawaii. It was to be defended by a series of coastal defense forts.

The Oahu Coast Defense Command was divided into Harbor Defenses of Honolulu and Defenses of Pearl Harbor. The former included Fort DeRussy and Fort Ruger. The latter included Fort Upton (renamed Fort Kamehameha), Fort Armstrong and after 1922, Fort Weaver. Fort Barrette, west of Ewa, was added in 1935 to the Pearl Harbor defenses. The mission of the Coast Artillery Command on Oahu was to support the Navy and mobile Army forces in the defense of Pearl Harbor and to prevent any hostile landing on the island.

Fort Ruger had three batteries of four 12-inch mortars—each inside the Diamond Head Crater, two 6-inch disappearing guns in a battery near Black Point and one battery (Harlow) on the north outer slope of Diamond Head. The observation and triangulation fire control station for the batteries was near the peak of the crater at the south point (where the public trail now leads).

Fort DeRussy is located in Waikiki at the former site of the Hawaiian monarchy era duck ponds. A battery of two 14-inch disappearing rifles was mounted there in fixed emplacements in Battery Randolph about 1912.

To further strengthen defenses of Pearl Harbor, Fort Weaver was established in 1922. It had one battery with two 16-inch fixed carriage rifles. The field of fire for these guns could reach beyond Oahu's shores at any point.

Battery Hatch at Fort Barrette was completed in 1935 at Puu Kapolei. Guns at this location had a 360-degree range and were modified during World War II.

Fort Kamehameha, located on the east side of the entry to Pearl Harbor, was constructed on marsh lands and historic fish ponds that had been filled in with dredged materials from the Pearl Harbor channel. In 1911, the first battery at the fort was completed and four more batteries were completed by 1920.

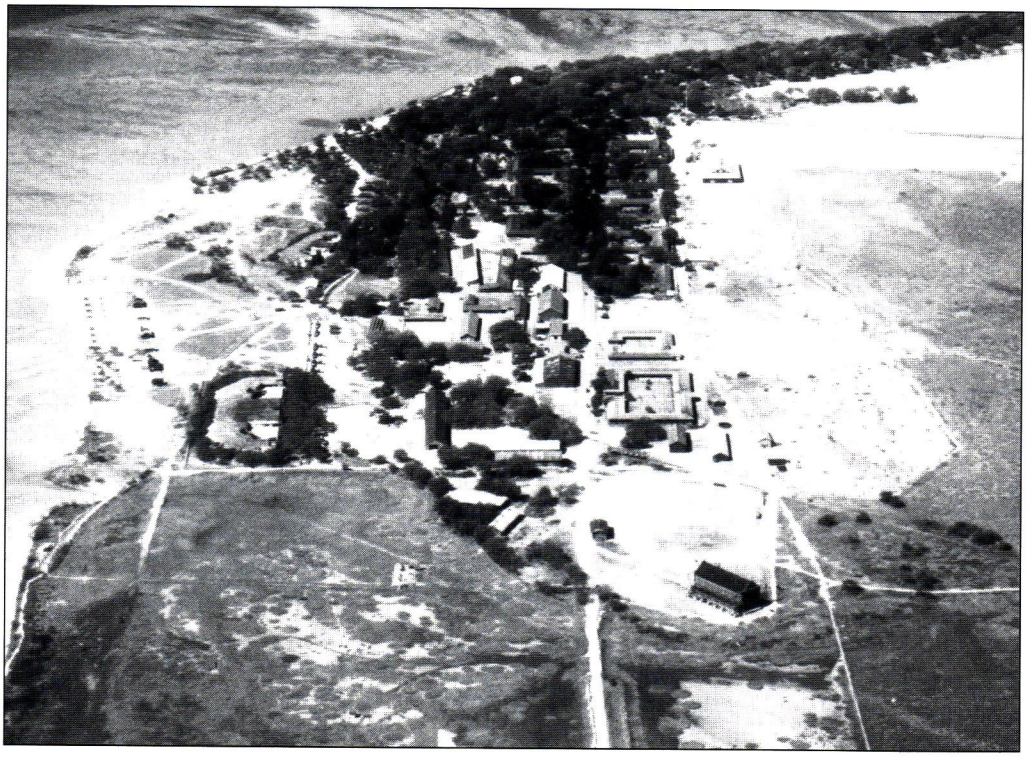
At this time, the Army Corps of Engineers was responsible for the design and building of fortifications. The forts were then operated by the Coast Artillery Corps of the Army. The batteries constructed in the first two decades of the 20th century in Hawaii demonstrate the shift in emphasis from fortification structures to the weapons contained inside them.

In contrast to the exposed vertical walls of older forts, these new designs of reinforced concrete were designed to blend into the surrounding landscape. The massive, low structures all possess concrete frontal walls as much as 20 feet thick behind 30 or more additional feet of earth, and are all but invisible from the sea. The upper roofs are typically 10 feet thick or more.

Sand was used as the barrier wall in front, because it tended to deflect projectiles better than clay or dirt. Sand also provided excellent stopping power for direct hits. Some batteries, such as Battery Selfridge at Fort Kamehameha, have interior hallways that lead to all of the lower floor rooms. These hallways were constructed to allow crews to move from one room to another without going outside while under attack.

The batteries are open at the rear to facilitate access to guns and ammunition magazines. The exterior surface of the concrete used in the batteries was made dark by one of several methods: the surface was treated with linseed oil or lampblack, or typically, in Hawaii, bluestone rock was used as the aggregate in the concrete. This helped decrease the reflected light from the wall surfaces so that the gun crews were not blinded.

Guns were mounted on the roof level. Often "disappearing guns" were used, which were mounted on carriages that elevated the gun to fire. The recoil caused the gun to rotate back and lift a heavy counter weight. At the end of the recoil rotation a latch engaged and held the gun in the lowered position for reloading. Then the gun was re-elevated. Only when the gun was elevated was it exposed to enemy fire. The gun crews were protected by the concrete parapet wall and the



Fort Kamehameha, previously known as Fort Upton, was an installation which served as a defense for Pearl Harbor.

sand fronting the battery structure.

Two-pit mortar battery structures, such as Battery Hasbrouck at Fort Kamehameha and Battery Harlow at Fort Ruger, were also used. This design accommodated eight guns, four to a pit. Each battery typically had its own electrical power generator to avoid depending on a central power station which could be knocked out of service. The batteries used electricity for night lighting and to move ammunition from the magazines.

The early batteries were designed to defend against attacking ships. The great distance the guns and mortars could fire projectiles out towards the horizon was what made the batteries valuable. The two 6-inch breech-loaded cannons on disappearing carriages at Battery Jackson could hurl a 108-pound projectile up to 14,500 yards. The 12-inch mortars at Battery Hasbrouck could loft a 700-pound projectile up to 15,200 yards.

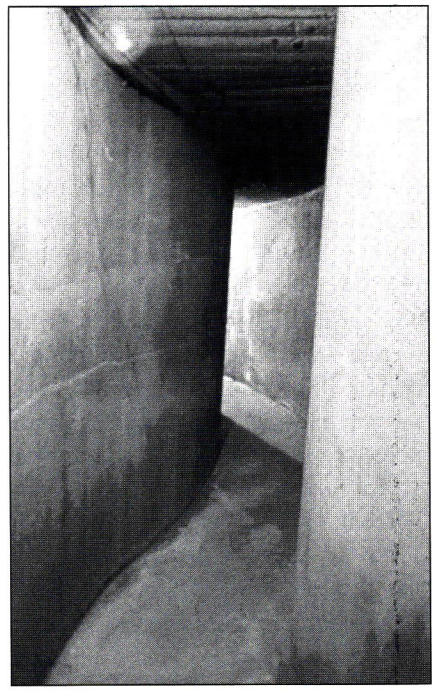
The Dec. 7, 1941, Pearl Harbor attack proved how dangerous an aerial assault could be. Most of the batteries were not effective against this type of attack and many were modified during World War II.

During World War II, additional batteries were constructed on the north and west shores of Oahu. These fortifications included Battery Pennsylvania at Marine Base Hawaii in Kaneohe and Battery Arizona at Kahe Point, which used the gun turrets from the sunken USS Arizona.

The Pennsylvania and Arizona batteries were nearly identical. Each structure consisted of a massive concrete barbette or turret, surrounded by magazine, plotting and radio rooms, storage areas and living quarters. Each battery was designed to be self-contained and self-sustaining with its own power-generating system and air-conditioning equipment.

The focus of the design was the immense concrete barbette. It was designed to prevent the recoil of the gun from shattering the surrounding rock or even dislodging the entire structure. Thus, the area around the gun was built to support a 780-ton load and a firing force of 2,620 tons. The reinforced concrete shell thickness ranged from nine to 15 feet. These immense projects took many years to construct. Battery Pennsylvania was completed in 1945, just in time for its first firing to serve as a test for its guns and to announce Japan's surrender. Battery Arizona was never completed.

By the end of World War II these methods of coastal defenses were obsolete due to the development of air power, new assault techniques and nuclear weapons. The guns were scrapped in 1949 and all harbor defense commands were decommissioned by 1950. Some batteries are still being used by the military as classrooms, storage or office space. Others have been designated as air raid shelters while some are not used at all.



Interior hallways like this one in Battery Selfridge at Fort Kamehameha allowed crews to move from room to room without going outside while under attack.

These structures serve as reminders of a passed warfare era. The batteries' massive design, intended to protect service members from the exploding ammunition of attacking enemies, has served to discourage alteration of these structures during the last 80 years.

The difficulty of actually removing a battery was revealed when during construction of the Hale Koa hotel, Battery Randolph at Fort DeRussy proved too difficult to remove. Instead it was made into an Army Museum, which exhibits history and artifacts of the Army in Hawaii, while allowing the public to view the historic battery itself. The success of this adaptive reuse shows that batteries can serve as assets to be cherished and displayed rather than burdens that cannot be removed.

↔ *Katie Bouthillier, an architect and architectural historian at Spencer Mason Architects, has written National Register Nominations and Historic Resource Surveys of many military bases in Hawaii, the Marianas Islands and Japan.*

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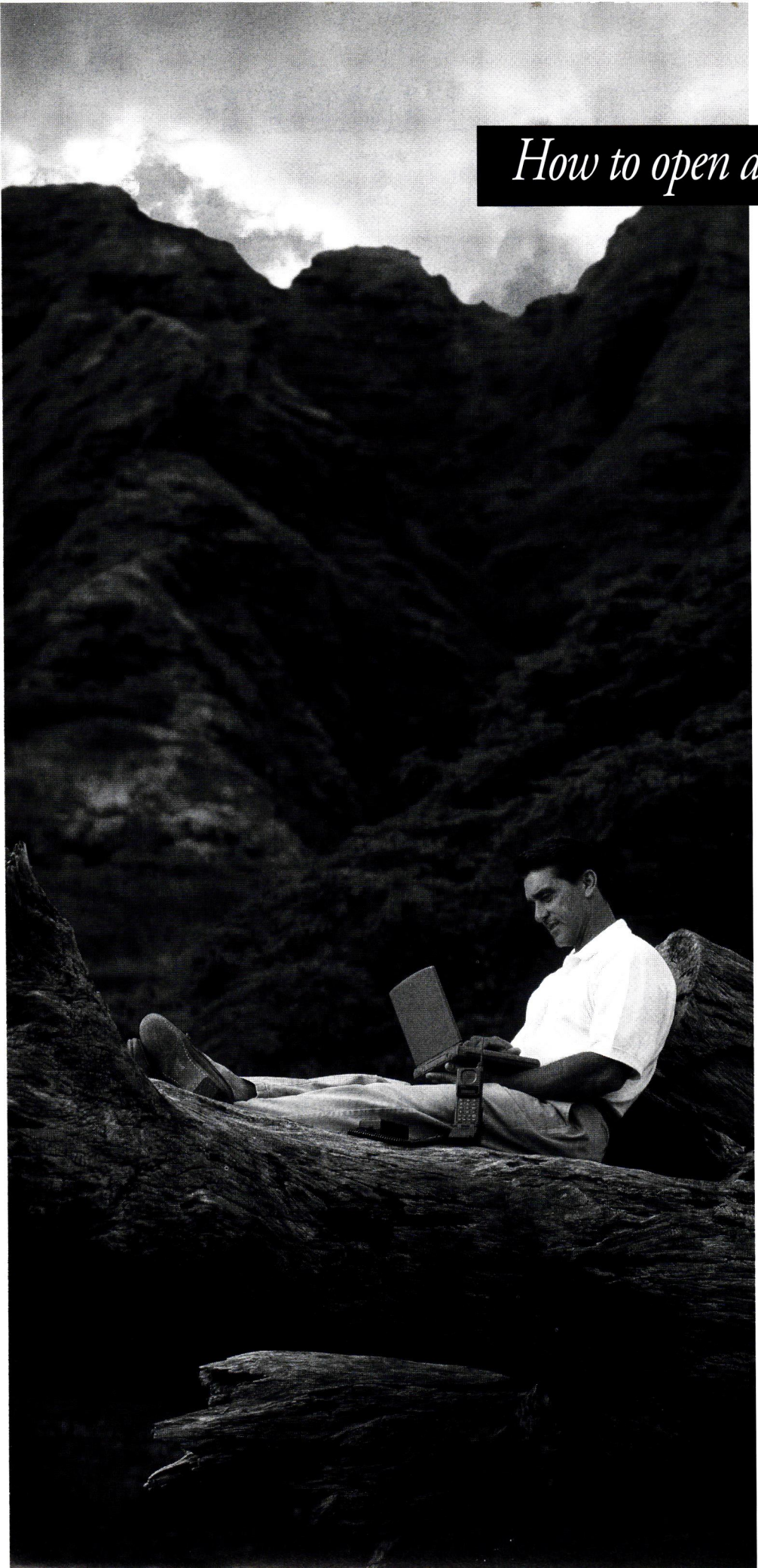

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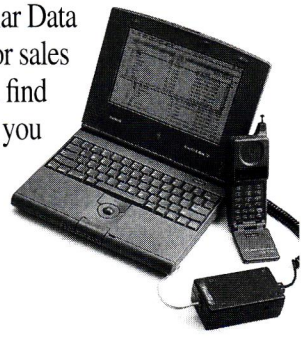

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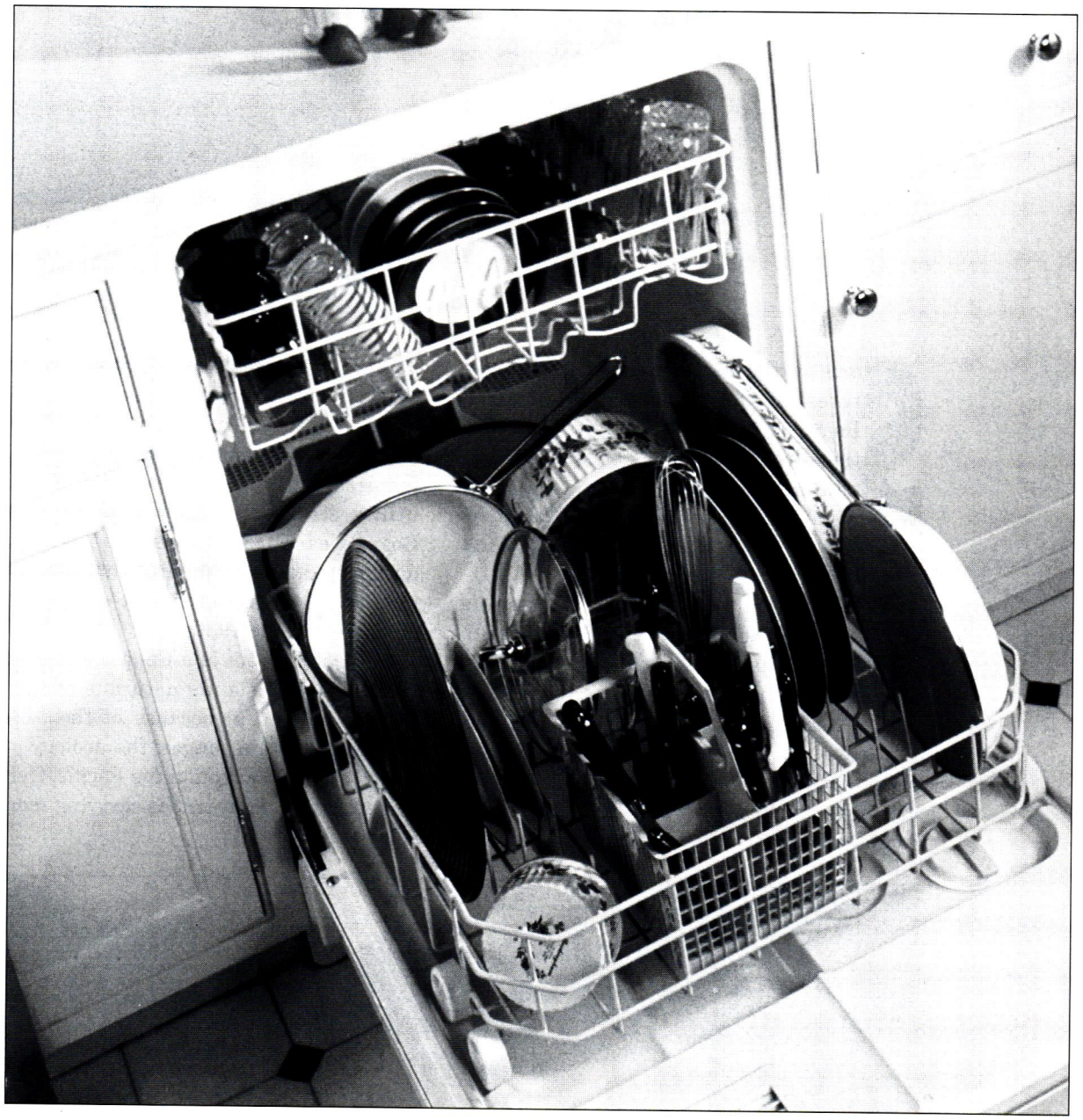

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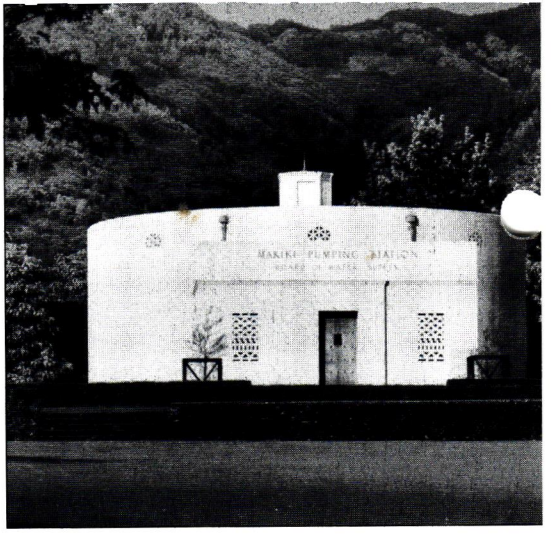
Water supply facilities boast unusual architecture

Oahu Pumping Stations

by Raymond H. Sato



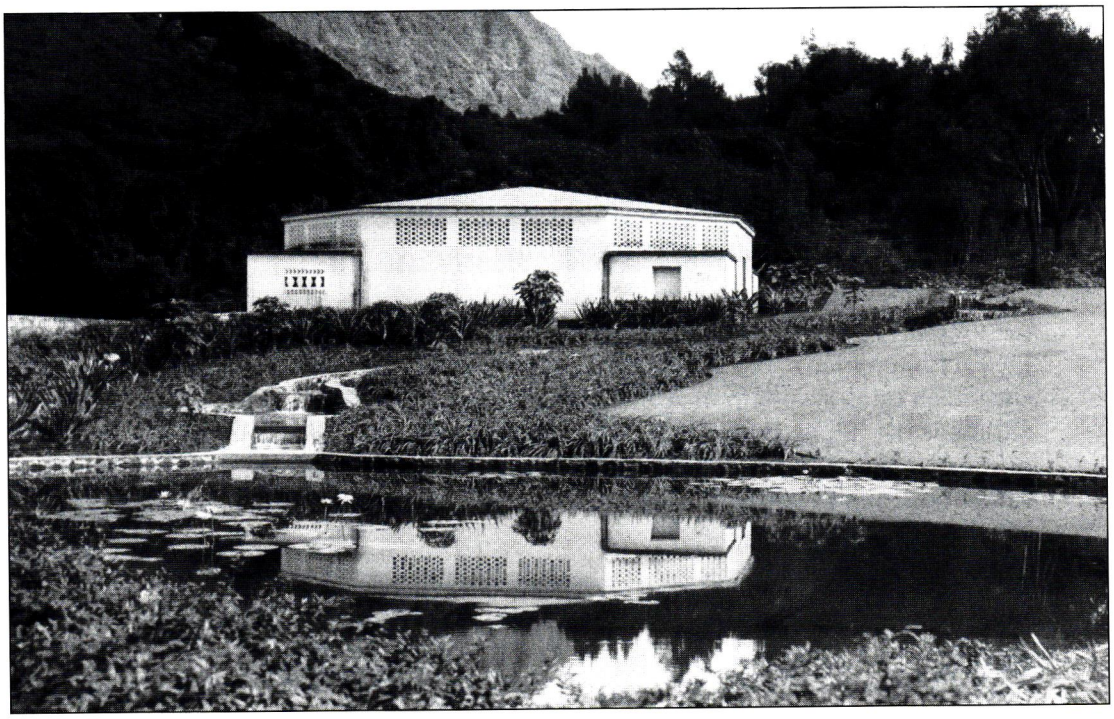
The Makiki Pumping Station, built in 1935, is an example of a building permanently integrated into its environment.

Some of the least-noticed public structures on Oahu are the hundreds of Board of Water Supply pumping stations, reservoirs, booster stations and administrative buildings, many of which are somewhat camouflaged by shrubbery or painted with colors that blend with their surroundings.

The Honolulu Board of Water Supply's Beretania Public Service Building, 630 S. Beretania St., is an example of architecture that has won national and local recognition for its design. As administrative headquarters, this building is the heart of major operations for the island's water systems. It was designed by Hart Wood, FAIA, in 1951 and completed shortly after his death in 1957.

Numerous other water facilities are tucked away in neighborhoods and in the "backwoods" of urban and suburban Honolulu. Many of these display unusual architectural features that set them apart from typical utility structures. They demonstrate the Board's early commitment to high quality design work on its pumping stations which began with the hiring of Hart Wood for its design work in the 1930s.

On Oahu, there is a unique water supply because of the island's natural environment. Water is plentiful because of the towering Koolau mountain ranges, the geology of this island and its location in the Pacific. Oahu intercepts the Pacific trades carrying moisture toward the island.



The Upper Nuuanu Aerator, built in 1935, was originally designed so that passersby could see the machinery at work.

An average of two billion gallons of rain falls on this island daily. Of that, approximately one-third is used by vegetation and lost through transpiration. Another third runs off into the ocean through streams, or evaporates. The remainder seeps into the slopes of the Koolaus and slowly percolates through the porous lava rock that stores it as ground water, much like in a sponge.

It takes about 25 years for rainwater to filter down through the Koolaus into island aquifers. In the process, Oahu's water is naturally purified. Because it is stored underground, island water is considered to be very good quality and requires little or no treatment to make it safe for drinking.

Because fresh water is lighter than sea water, this fresh water "floats" atop the body of salt water which is absorbed into the base of the island. This water is drawn out through wells and shafts, and pumped into reservoirs and transmission mains around the island.

Electric pumps create suction to draw water out of wells into pipelines that carry the water to higher elevations, where it is stored in reservoirs along island hillsides. As consumers turn on the tap, water is released from the reservoirs into distribution systems through gravity flow.

The Board's average water production is about 157 million gallons daily in a normal year. The Board serves an estimated 1 million people and provides water for domestic consumption, fire protection, industrial, commercial, institutional and agricultural use.

As the population continues to grow, the demand for water will increase accordingly. Development of the second urban center at Ewa is a masterminded effort in which water supply plays an integral role. During the next 20 years, an estimated 15 million gallons per day will be needed to support the new Ewa communities.

Some of that demand is being met from supplies imported from the Pearl Harbor aquifer, as well as from sources within the Ewa area. Additional water may be available with the ending of some plantation activities, and the resulting decrease in pumpage from the Pearl Harbor and Ewa/Waianae aquifers.

Natural population growth in the years ahead will require the populace on Oahu to use water more efficiently and require the Board of Water Supply to develop additional water by:

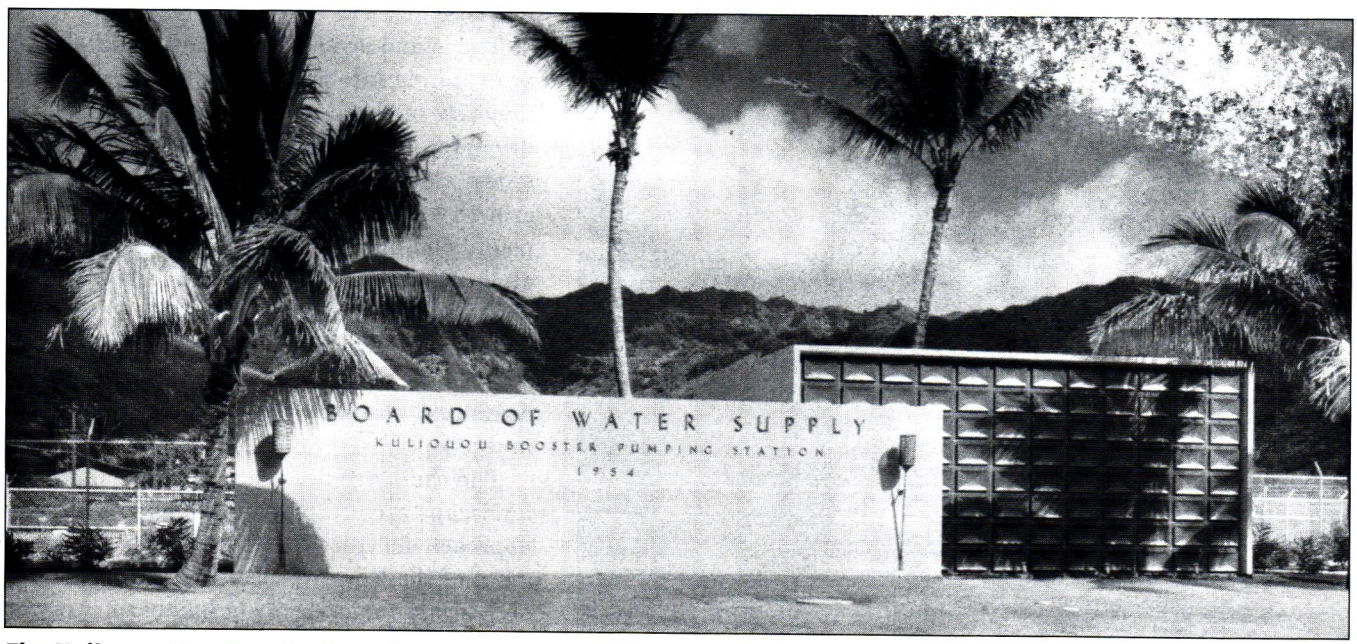
- Developing additional ground water resources.
- Developing non-potable sources for irrigation and non-domestic use.
- Implementing demand management—promoting efficient water use through conservation practices, retrofitting to more water-efficient plumbing fixtures, conversion to xeriscaped landscapes and discouraging water waste wherever possible.

"The development of the island's water supply may include the larger development of desalinization plants," said Glenn Mason, AIA, of Spencer Mason Architects.

Campbell Estate and the Hawaii State Department of Land and Natural Resources built a demonstration desalinization plant near Barbers Point Naval Air Station as part of Campbell's development of the Ewa plain. A desalinization plant also has been in use by the Kona Village Hotel on Hawaii for a number of years.

"These types of facilities are a new building type and form which may become increasingly more important on Oahu and areas of other islands where water supplies are severely limited," Mason said.

↔ *Raymond H. Sato is manager and chief engineer of the Honolulu Board of Water Supply.*



The Kuliouou Line Booster Pumping Station, built in 1954, boasts the most contemporary design by Hart Wood, FAIA, and Edwin Weed. Its more technological look was designed to reflect the machinery housed within it.

Water Usage

Oahu's Leeward Coast

by Paul Weissich, ASLA

Landscape architects in Hawaii are faced with an immediate, demanding challenge: the creation of a new, visually acceptable landscape which aesthetically reflects the realities of Hawaii's leeward coasts' natural environments and water availability. Oahu is a classic example.

Statewide the overwhelming concentration of population is on the island of Oahu. More than 900,000 people live on Oahu. More than 50 billion gallons of water are used annually or, in more understandable figures, about 138 million gallons per day—roughly half of which is used in the landscape.

User figures climb steadily each year. There is the potential that within a few years, the daily withdrawal of water from Oahu's resources may be more than Mother Nature can deposit. No business can survive for very long with that kind of balance sheet. Wise water management practices will prevent us from coming close to that situation.

These plantings at the Mauna Kea Beach Hotel can survive without a great deal of water.

Most people are already aware of potable water use—restrictions placed on large developers by the Oahu Board of Water Supply and the partial use of brackish well water, water that becomes increasingly salt-laden with each year of pumping.

The public has been made aware of wise water use through educational programs widely publicized by the Board of Water Supply. These programs encourage water conservation through the application of xeriscaping, landscaping techniques which can cut water usage by as much as 60 percent.

The need for water conservation programming will become increasingly acute in the future. The population is predicted to increase. And, the state is ever courting more tourists.

The island is not running out of water. We are running into too many water users. The majority of these users want to live on the dry side of the island. The tourists want to enjoy cloudless, dry beaches. Population growth and the location of that growth compound the problem. Yet, we stubbornly and almost blandly proceed to devise landscapes for residents and tourists as though water were unlimited. We continue to create landscapes as though we were dealing with a rainforest climate. This unwise water use must stop.

The challenge lies in the creative ability of landscape architects to develop a new design approach for the dry tropics—the environment of the leeward coasts of all the islands and, for that matter, about half of the world's tropics.

A proactive approach will require the

searching for and the importation and careful testing of plant materials which remain visually acceptable under near drought and partially salty conditions. Some are already available.

The world's dry tropics offer a wealth of trees, shrubs, vine and ground covers unknown in Hawaii. There are grasses which demand far less water and still present green surface and ground covers with exciting color and texture.

Naupaka and other dryland native plants thrive at Kaena Point on Oahu.

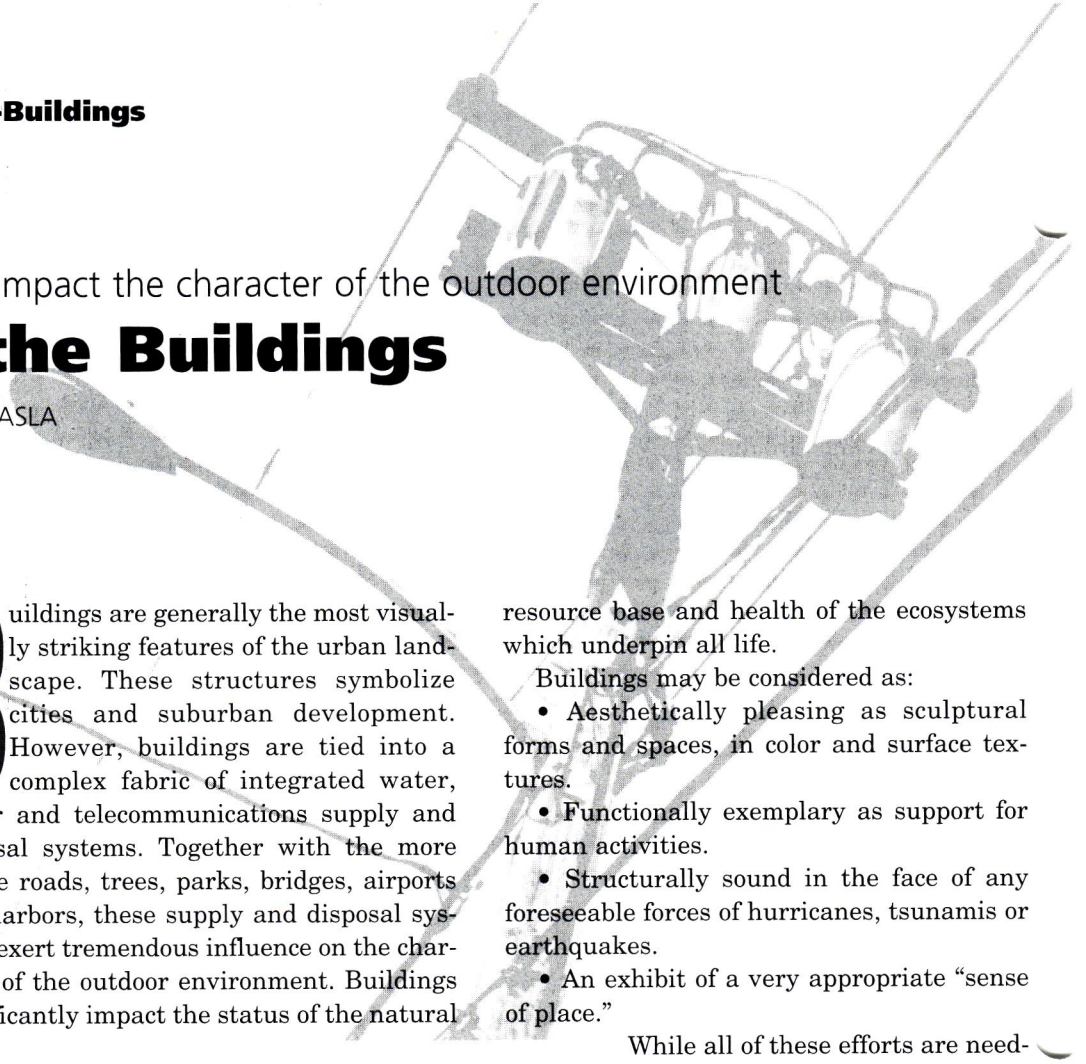
In Hawaii emphasis has always been placed on importing species which will provide the "tropical" look—the large, glossy foliage, magnificent aroids, striking Heliconias and other "jungly" exotics. Unfortunately these plant varieties require heavy irrigation, unless one is gardening in Hilo or Hanalei. However, neither place is noted as a population center or major tourist resort area.

Part of a "new" look, which will take a lot of selling, will be the acceptance of flowering trees that go leafless during the dry season or the use of trees which have attractive bark or fine-textured foliage patterns. Perhaps the traditional moist area lawn could be replaced with patterns of sweeping, low ground covers which provide color and textural interest, a design approach long-used by the late Roberto Burle-Marx.

Other cultures in other times have developed great landscape designs completely reflective of their environments. The Hindu garden, Italian Villa, the Moorish gardens of Spain as well as the lush, moist gardens of Western Europe are striking examples of the successful marriage of environment and design.

Landscape architects in Hawaii must take a hard look at the water-use situation; take some deep proactive breaths; and confidently move toward the creation of a great new design approach for Hawaii's and the world's dry tropics.

Paul Weissich, landscape architect, is director emeritus of the Honolulu Botanical Gardens.



Support structures impact the character of the outdoor environment

Beyond the Buildings

by Janet Thebaud Gillmar, ASLA

Buildings are generally the most visually striking features of the urban landscape. These structures symbolize cities and suburban development. However, buildings are tied into a complex fabric of integrated water, power and telecommunications supply and disposal systems. Together with the more visible roads, trees, parks, bridges, airports and harbors, these supply and disposal systems exert tremendous influence on the character of the outdoor environment. Buildings significantly impact the status of the natural resource base and health of the ecosystems which underpin all life.

Buildings may be considered as:

- Aesthetically pleasing as sculptural forms and spaces, in color and surface textures.
- Functionally exemplary as support for human activities.
- Structurally sound in the face of any foreseeable forces of hurricanes, tsunamis or earthquakes.
- An exhibit of a very appropriate "sense of place."

While all of these efforts are needed and appreciated, the reality is that the qualitative effect of individual buildings is diminished unless supported by complementary attention to the entire landscape.

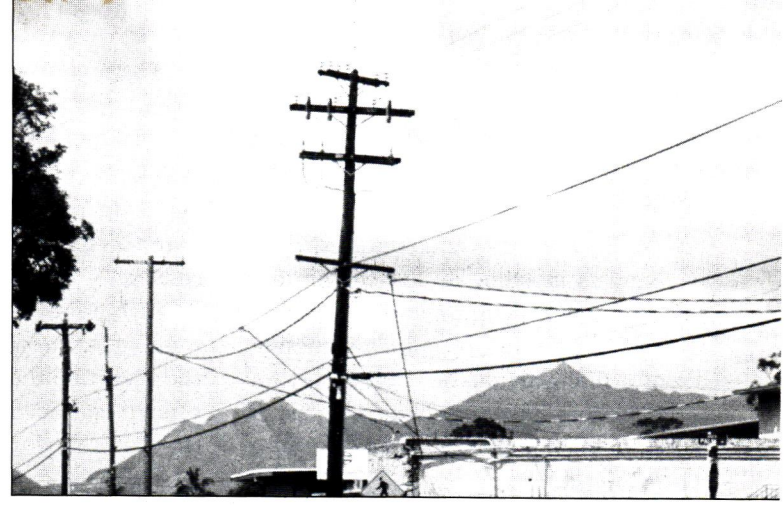
The concept is not only "first we shape buildings, and then they shape us." This observation of reciprocal influence is equally true for people's actions in the matrix beyond the buildings, including transportation, open space and utility systems. So while buildings do much to shape the urban environment, that environment in turn greatly affects the appearance and use of individual buildings in ways both seen and unseen.

Beyond the buildings, each component of the transportation, open space and utility systems needs to be designed to be functionally and structurally responsible within itself. However, attention must be paid to the aesthetic and social effects of these structural entities on the whole natural and cultural landscape.

The aesthetic effects are mainly visual and include a range of options,

beginning with forming a strong visual image which contrasts with its surroundings markedly enough to become either an accent or intrusion in the landscape. Conversely, such elements as power poles and lines, water tanks and roads can be designed to become visually absorbed into the surrounding landscape to greater or lesser degrees, depending upon the analysis of the situation.

While there are exceptions, such as the well-designed Board of Water Supply pumping stations and their grounds on Oahu, the components of transportation, power and water systems historically have not been designed with a great deal of regard for visual effect. Where the visual effect has been a conscious concern, generally there has been an effort to minimize the intrusion of the power lines, water tanks or roads.



Utility poles and lines are elements that can create a negative visual effect.

One such case is the high-voltage power line along Queen Kaahumanu Highway in the north Kona/south Kohala area of the Big Island. Laurance Rockefeller had just put a great deal of effort into the development of the first destination resort on Hawaii, the Mauna Kea Beach Hotel. He was concerned about the negative visual effect that a power line, which was initially planned to be located right along the highway, would have on the visually very open lava field landscape.

With similar concern, Aaron Levine, the landscape architect who headed the Oahu Development Conference and its community planning advocacy program, arranged for a detailed visual resource analysis of the views from the highway by Belt Collins Hawaii. This study resulted in the inland location of the controversial power line where its visual intrusion is so minimal that most people who have driven on the highway probably do not even notice its presence.

In the early 1970s, C. Brewer and Company under the leadership of John Kay began assembling a set of visitor industry properties on the Big Island. These properties were linked together to form a more interesting variety of choices and experiences than any single part could provide by itself. The resort area was to stretch 60 miles, from the coastal rainforest environment of

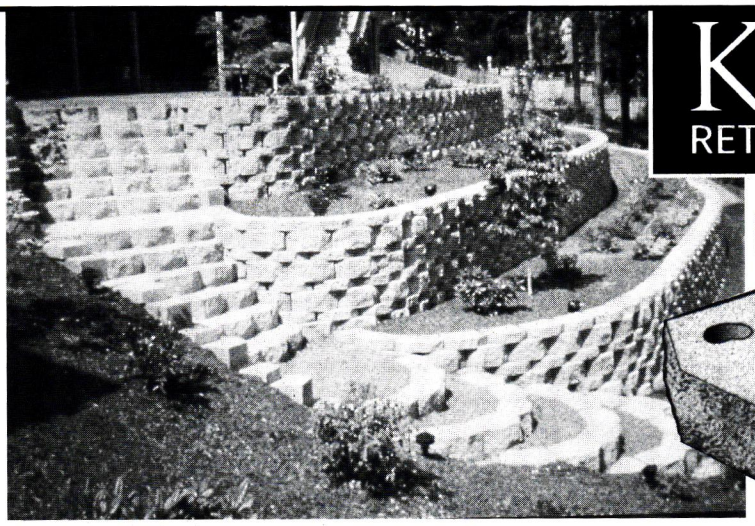
Hilo up to the 4,000 foot-high Volcano area and down to the semiarid black sand beach and coastal ponds of Kau.

Kay built the Walakea Resort on lagoons in Hilo. He leased the historic Volcano House and the nearby golf course and began construction of a 500-acre destination resort on the shore below the wide sweeps of canefields, pastures and macadamia orchards of Kau.

While financial and other difficulties forced the company to abandon this particular resort master plan, perhaps there is merit in the concept of "dispersed resorts."

Such an evolution in resort planning today would be analogous to the traditional *ahupuaa* of pre-European contact Hawaii. In this era the watershed unit of the *ahupuaa,* which extended from the mountain ridges down to the off-shore reef, provided the whole range of food, fiber and construction materials needed by the inhabitants. The entire ahupuaa formed a person's extended home territory.

↔ *Janet Thebaud Gillmar, landscape architect, is a lecturer at the University of Hawaii School of Architecture.*



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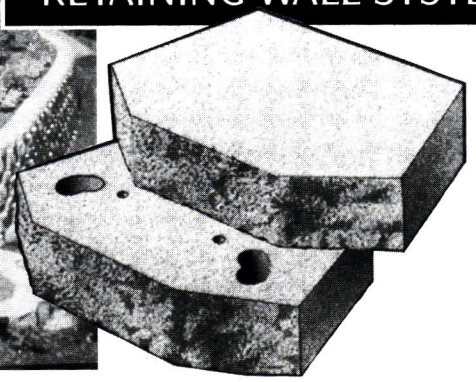

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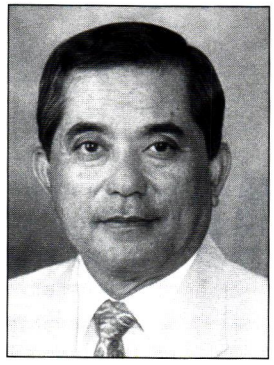
Riding the Asia-Pacific Wave into 2001

by Stanley S. Gima, AIA
President



Stanley S. Gima

With speakers and participants from the far corners of the globe, the recent symposium on Asia-Pacific architecture was a catalyst for many thought-provoking discussions. It was a rare opportunity for professionals in Hawaii to share so many varied perspectives in such a short time.

In decades past, Hawaii residents lamented due to a feeling of isolation, which was fostered by being located at the westernmost part of the United States. Today, however, Hawaii residents need lament no more. The state is well-connected and moving toward the high-tech 21st century, which will place Hawaii in the middle of the "main event" of world economics—the rapidly developing Asia-Pacific economic region.

With many factors falling into place for Hawaii, including the mushrooming of communication linkages throughout the major Pacific rim countries, possibilities for the future are beyond imagination. Add the constant improvements in computer technology, and Hawaii residents need no longer be burdened by the distance factor. In fact, Hawaii is fortunate to be located at one of the most advanced centers along the information superhighway.

What will this mean for professionals in Hawaii in the year 2001? It will mean new frontiers, new doors opening, new challenges. For young professionals, an important factor of the coming Asia-Pacific wave is that they can still choose to live and work in Hawaii because the transfer of ideas and plans will be performed predominantly via the electronic highway.

It is interesting to speculate on agenda topics of future Asia-Pacific architecture symposiums. As the decades go by, the topics are likely to include an ample share of weighty planning and environmental questions of international scale. It is highly probable that some of the environmental studies for a distant Asian site will be done by a Hawaii firm using computer modeling on a super computer located in Hawaii.

The year 2001 is only six years from now, yet it seems like several decades away. Perhaps we have fantasized that the 21st century is "out of this world" and therefore unattainable. In reality, the foundations have been prepared, and the threshold to the next century awaits our move. It's up to the young architects and professionals, to step up and make their move—beyond 2001.

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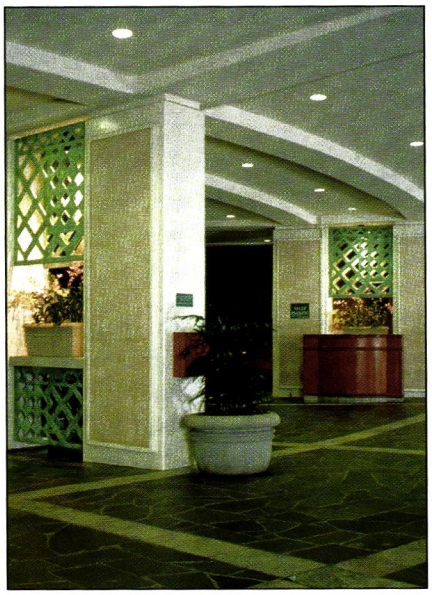
Sheraton Waikiki Hotel Porte Cochere and Entry Court



The new Sheraton Waikiki valet station provides a warm welcome to visitors.

Visitors entering the Sheraton Waikiki this past year have been greeted with more contemporary Hawaiiana in the design and atmosphere of the always busy hotel.

The objective of the Sheraton Port Cochere and Entry Court renovation was to brighten an outdated look and create a more dynamic and tropical atmosphere through material and pattern, lighting and landscaping.

The most obvious change is the alta quartzite stone imported from Norway that replaced dark carpeting in the Porte Cochere. A ribbon pattern in the stone floor helps create a sense of movement that draws the visitor through to the lobby.

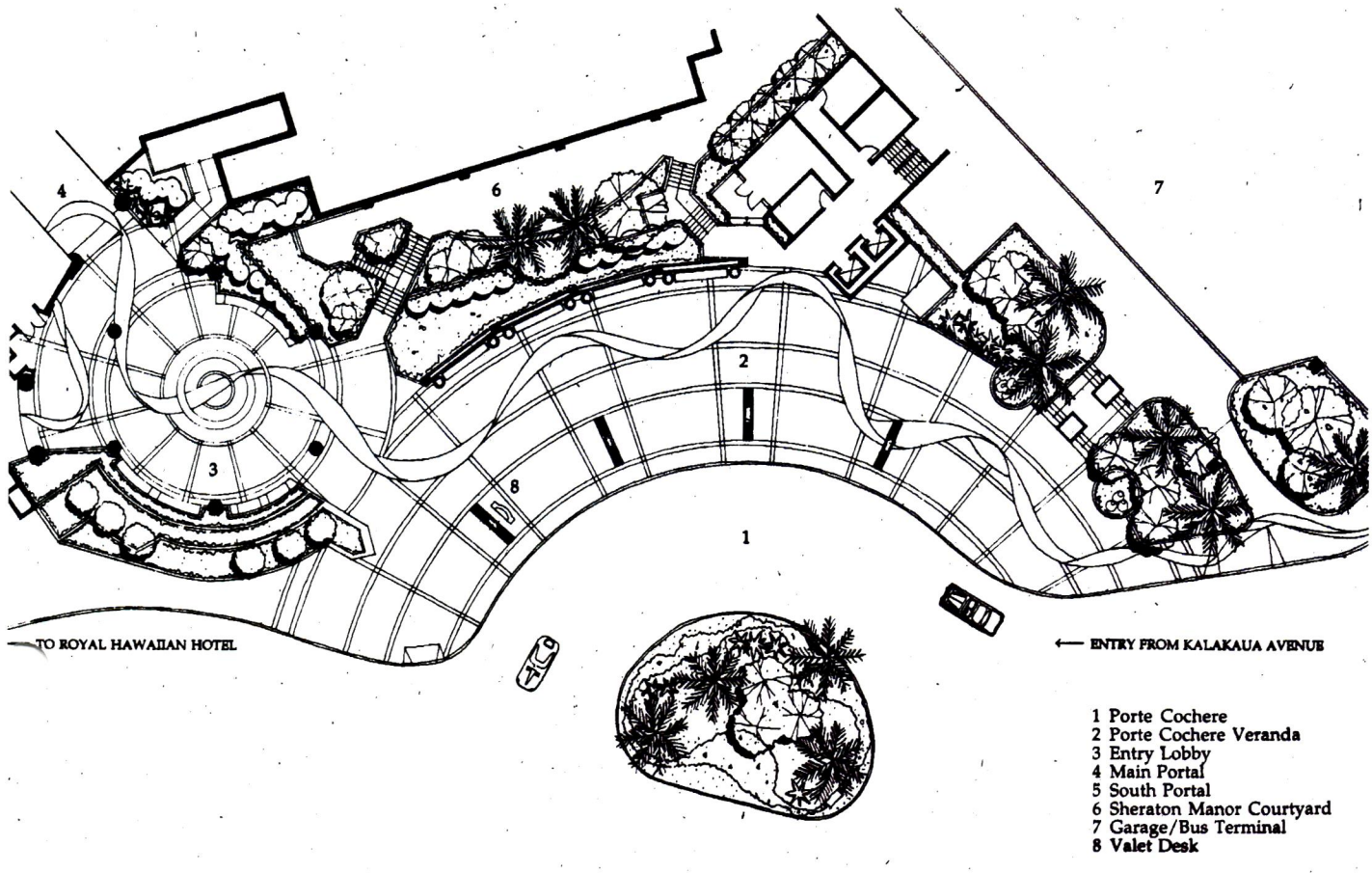
Custom-designed sconces and dramatic downlighting and backlighting emphasize teak benches and tapa screens made of form composition waterproof material in a non-paint verdigris finish.

Planters filled with native blooming flora, and a lighter paint scheme provide a lush but airy feel.

Lighter colors and an introduction of patterns dramatically changed the atmosphere of the entry area.

Jury's comments

"Wow! What an improvement! Interesting use of faux materials. A fresh and welcoming entrance to a busy hotel as well as an inviting space to relax."



A ribbon pattern inlaid in the stone floor leads the way from the Kalakaua Avenue entrance through the lobby.

Credits

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Sheraton Waikiki Hotel & Kyoya Company Ltd.

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Before the renovation, the Porte Cochere sported a darker, more institutional design.

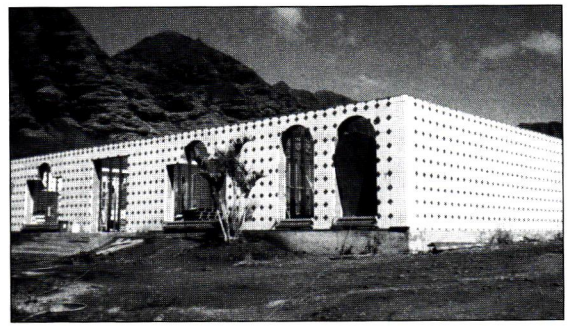
Taking another look at masonry houses

Concrete Home-building Systems

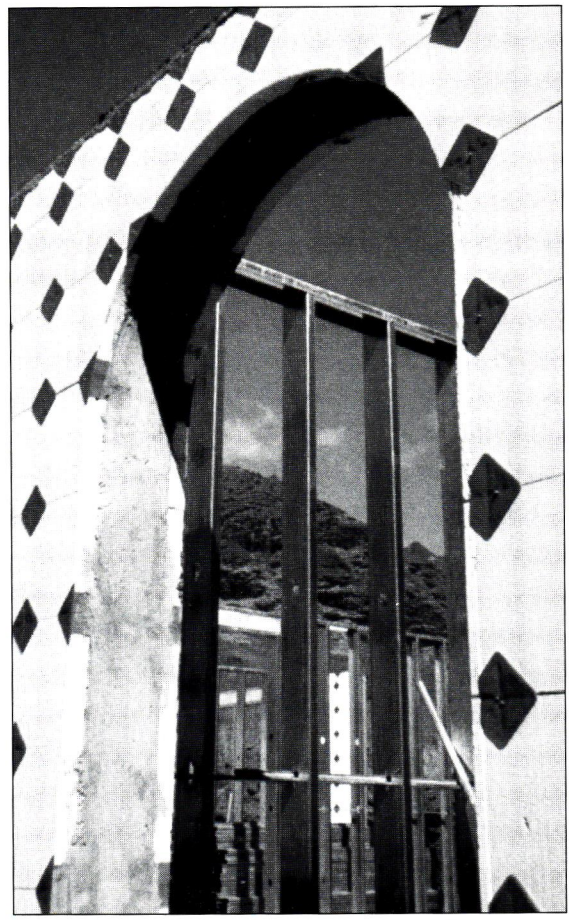
Consumers in search of a building material which is wind resistant, energy efficient, durable and easily maintained may find what they are looking for in concrete. As Hawaii building professionals and consumers become more ecologically concerned, concrete may also emerge as a "green" alternative for residential building.

Concrete, primarily used in the past for foundations and driveways, has been "reborn" in the form of concrete home-building systems. These systems are causing builders and potential homeowners to take a second look at concrete houses. Usually categorized by the way the concrete is applied, systems which have been used frequently in recent years include mortared block, poured-in-place concrete and precast panelized concrete.

According to Steve Fong, Cement and Concrete Products Industry of Hawaii president, the mortared block concept is the most familiar of the concrete systems and one that has been used the most in Hawaii. Fong said that residential construction using the traditional concrete block has increased in the past few years due in part to the home-owner's desire to have more hurricane- and termite-resistant homes.



This Makaha residence was formed, braced and poured in one week using a concrete forming system.



This stay-in-place form provides insulation, backing for siding or a fastening surface.

Poured-in-place systems, where the concrete is poured into form work, are being used more and more in residential construction. "In Hawaii, the more popular systems have included removable forms and the use of stay-in-place forms," Fong said.

Use of removable forms is a traditional concrete construction technique that involves the use of temporary forms, typically made of aluminum. Generally this type of construction has been used for the higher priced single-family houses or multi-family residences in Hawaii.

However, Glen Shiihara stated that Shiihara Construction has been able to build smaller-sized concrete homes at prices comparable to wood-framed home prices. The Shiihara Company uses a poured-in-place system with aluminum form work. After the structure is in place, the form work is removed and used on another residence.

There are two basic types of stay-in-place forms, both of which involve the use of foam. One uses hollow polystyrene blocks that stack, while the other uses processed 1' by 8' foam panels with a system of

plastic ties to space the panels. Both types can build a variety of wall thicknesses. These forms, which are designed to be a part of the wall after the concrete is poured, act as insulation, backing for siding or a fastening surface.

Locally, Pacific Allied Products, Ltd. offers an expanded polystyrene (EPS) stay-in-place forming system for concrete construction. Recently a residence in Makaha was built using this system and another house is projected to be built in the near future.

Precast panelized concrete systems have gained popularity because of the time-efficient construction of the precast concrete panels. Recent innovations have made this construction method more aesthetically pleasing and competitively priced. Several homes, which utilize this concrete system, are currently being built on the leeward side of the island of Oahu.

George Stewart, manager of marketing and sales, Hawaiian Cement, pointed out that although concrete residences initially cost a little more depending on which system is used, the houses become basically maintenance free throughout the residences' life cycle.

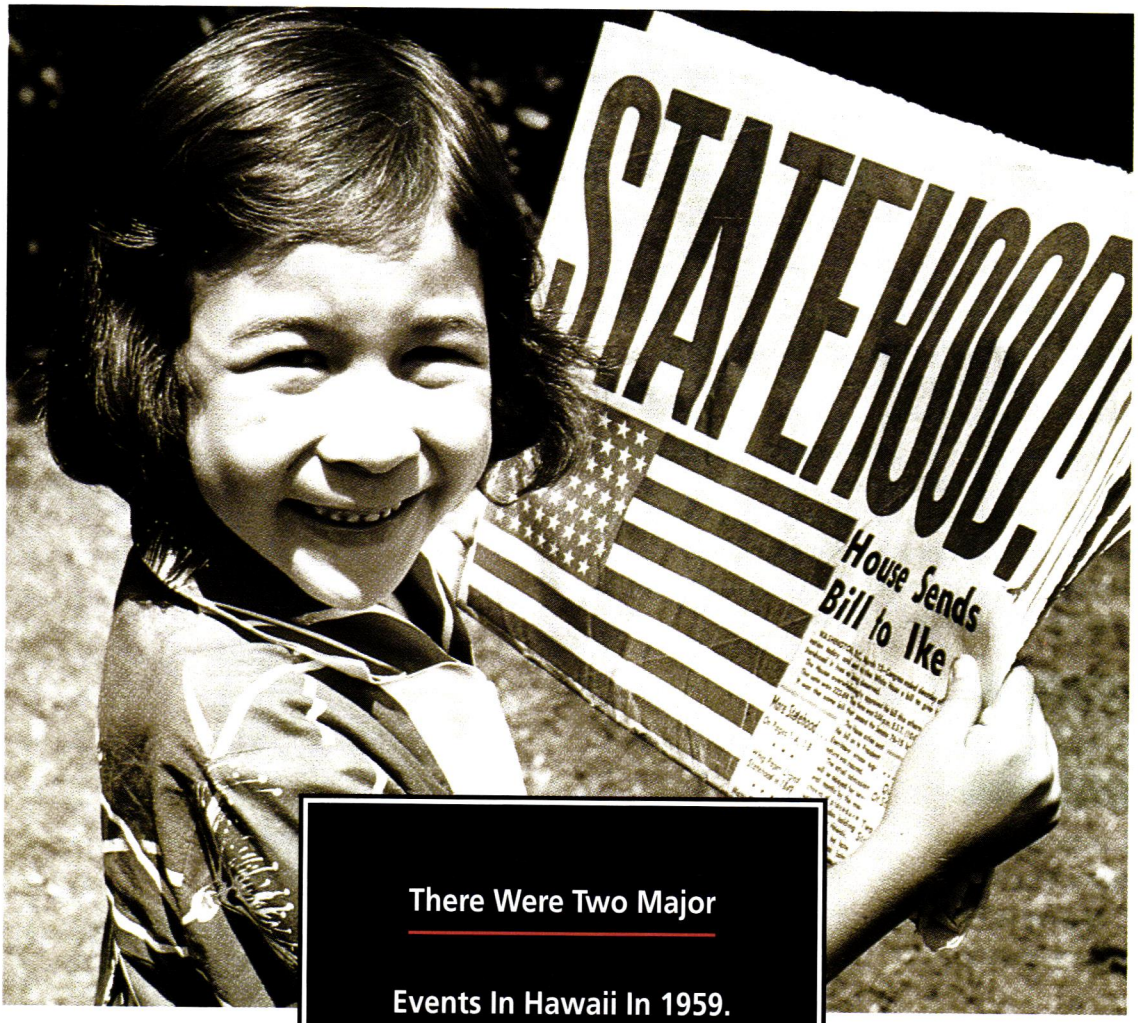
Concrete building systems have made it easier for building professionals to produce houses which are wind, fire and termite resistant.

Consumers who choose to own concrete homes do not only appreciate the safety, durability and beauty of the structure, but the economic impact that this type of construction has on insurance rates as well. "The Hawaii Hurricane Relief Fund, a state administered hurricane insurance fund, provides specific discounts for masonry and concrete homes," said Keane Murahaka, market specialist, HHRF.

According to Stan Wada, chairman of Quality General Inc., a company that specializes in concrete and masonry construction, concrete houses can be constructed in approximately the same time or less time as traditional-framed houses, but the concrete houses are more durable and have better insulation values. Wada added that if designers are familiar with using concrete, these houses provide an opportunity for a great deal of design flexibility. He suggested that concrete homes finished in rock or brick veneer portray a certain "richness."

"Concrete home-building systems are the best thing to happen to the residential construction industry in years, said Jim Ballentine, president of EPS Building Company, Oregon, who supervised the construction of a model concrete home at the 1995 National Association of Home Builders trade show held in Houston.

Ballentine noted that in addition to other attributes, concrete houses do not allow outside noises to penetrate the walls. He also added that concrete's strength increases as it cures. Thus, concrete houses get stronger with age.



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