

Hawaii Pacific Architecture

Touring lesser-known military sites



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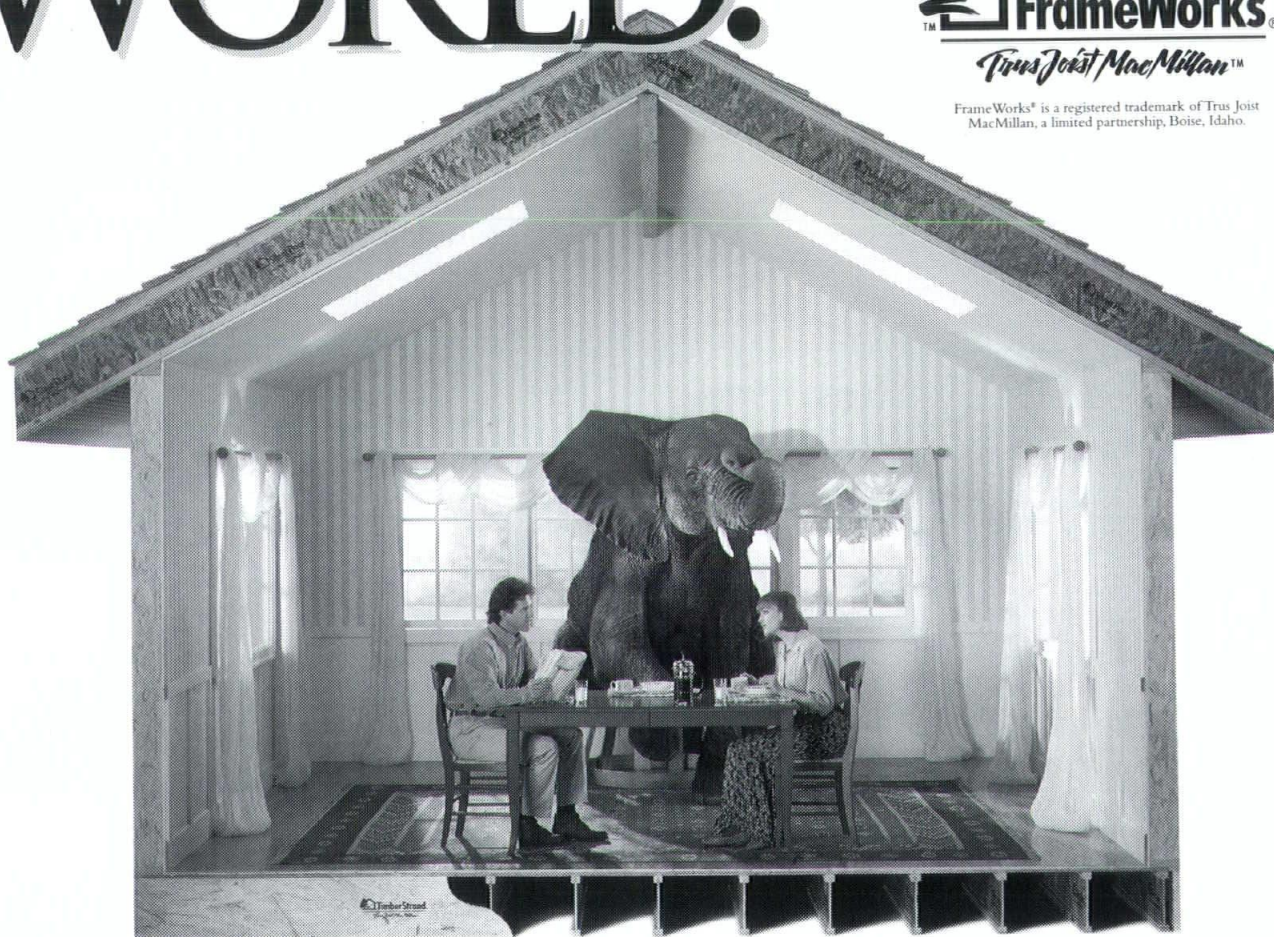
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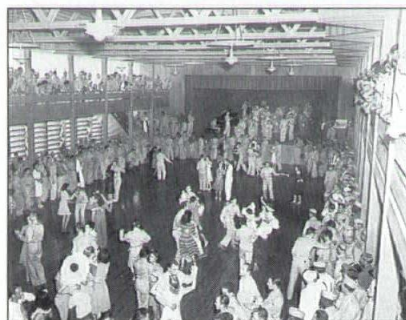
16 Air Force One

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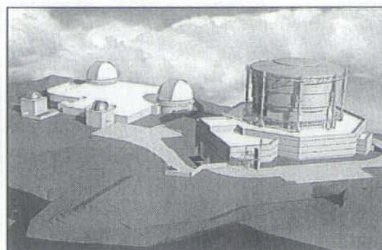
Hawaii Pacific Architecture focuses on military architecture. Glenn Mason takes readers on a tour of various lesser-known military sites, many of which date back to World War II. Katie Bouthillier's story on Hickam Air Force Base reveals the design concept of the base constructed in the 1930s.

This issue also looks at the military projects under construction. This month's cover features the submarine base diving tower at Pearl Harbor built in 1933.

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



6 Military Landmarks



14 Under Construction



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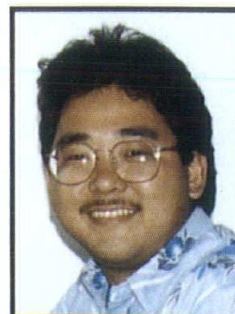
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A New Generation of Leaders.

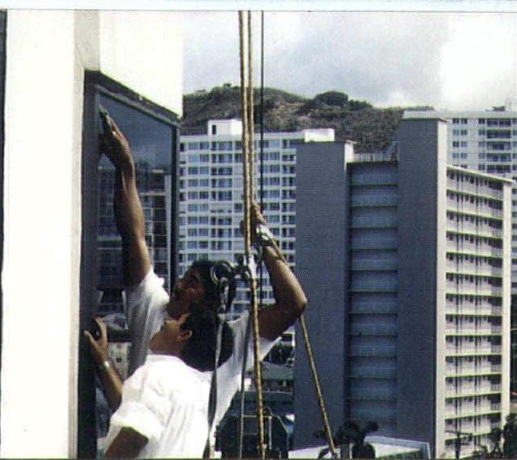
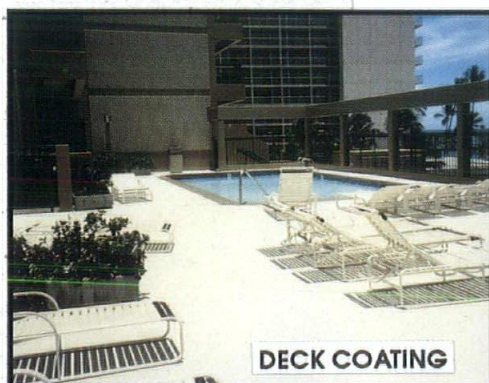


Heading a team of over 40 technicians are left to right:
Alvin Nishikawa, Ken Matusumura, John Kobayashi,
Al Gardner, Steve Kramer, and Jim Hiramatsu

Meet Alvin Nishikawa.



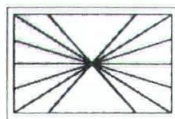
Alvin is Vice President of The American Coating Company. He is in charge of all field and estimating operations. Previously, Alvin was employed with an engineering firm in Chicago and Honolulu where he focused primarily on restoration and water infiltration problems. Alvin holds a M.S. and B.S. in Engineering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



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Quildon Heads Editorial Board

Sandi P. Quildon, AIA, has been named chairwoman of the *Hawaii Pacific Architecture* editorial board.

Quildon is a practicing architect with more than 10 years experience in diverse project types, ranging from commercial and corporate to custom residential design.



Sandi P. Quildon

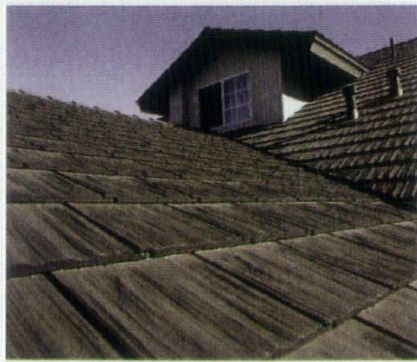
Quildon said *Hawaii Pacific Architecture* has undergone many changes over the last couple of years with increased emphasis in several areas, including:

- improving content to provide increased public awareness of Hawaii's unique architectural environment and the diversity in cultural influences affecting buildings, interiors and landscape
- providing more informative and "public interest" articles that seek to expand understanding on issues/concerns of living in Hawaii
- providing a medium for explorative commentary on articles.

She added that she encourages "Letters to the Editor." "It is your comments and opinions that create greater focus for HPA's editorial board and PMP Publishing, generating articles that are stimulating and draw attention to issues and concerns relating to the built environment and its effect on all of us," Quildon said.

Auwe

The article "Natural Trend" in the July issue of *Hawaii Pacific Architecture* should have read "Dynastystone is 100 percent natural granite with pre-polished and pre-finished edges." Also, the cost of installation and materials for Dynastystone is less than Corian and Avonite, however, regular plastic laminates are cheaper.



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A tour of lesser-known military sites

Military Landmarks

by Glenn Mason, AIA

Probably the most famous military structure in Hawaii is the Arizona Memorial, visited by hundreds of thousands of people each year. Its pure form floats above the Pearl Harbor waters, visible from Aiea Heights or from most of the airplanes landing at Honolulu International Airport. Some

military structures, such as Tripler Army Medical Center, are just as prominent. Others are not yet as obvious, but may soon be due to base closings and the increase in accessibility of some bases. The following are some of our favorite military landmarks.

Diamond Head Fortifications

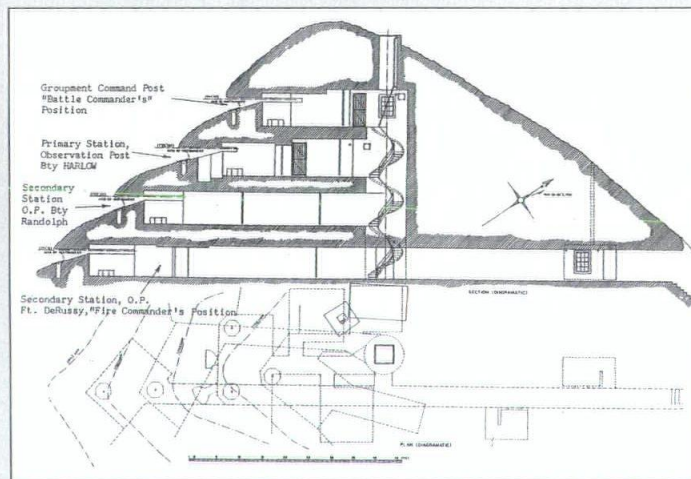
Almost everyone who reads this will probably have hiked to the top of Diamond Head through the tunnels, up the tortuous stairs to arrive at the great view of Waikiki and the ocean beyond.

What hikers see is the "Fire Control Station" for the entire battery complex, only a small part of the hidden wonders of what used to be Fort Ruger. From this station, directions were given for firing the guns at Battery Randolph, Fort DeRussey (where the Army Museum is today), Battery Dudley and Battery Harlow.

Battery Harlow (a portion of which is pictured on the right) is an impressive structure built in 1910 that lies on the mauka side of Diamond Head. It is the oldest of three mortar batteries built on Oahu. The eight giant 12-inch mortars that it used to house are gone, but the structure is otherwise completely intact.

Located on the back side of Diamond Head, the firing crews relied completely on the fire control station to aim the mortars, which had a range of 13,259 meters — more than eight miles.

The remnants of three other batteries and other fire control stations still remain in Diamond Head.



Diamond Head Fire Control Station sectional view



Battery Harlow in Diamond Head

Aircraft Revetments at Barbers Point

On Dec. 7, 1941, very few aircraft made it into the air. Planes on the ground were grouped together for better protection from sabotage, but that made them vulnerable to attack from the air and almost all of them were destroyed or damaged.

As a reaction to the proven vulnerability of exposed aircraft, 72

concrete revetments were constructed at Barbers Point in 1942. This is by far the largest revetments grouping of any kind in the Pacific area. They each span 52 feet at the opening and have about a 17-foot clear height at the front. Formed as quarter ellipsoids, the shells were covered with 10 feet of

sand for additional protection.

Today, about 14 of the revetments are used as horse stables and the remainder are vacant. They will become more readily accessible after the closure of Barbers Point as a naval air station.



David Franzen photo

Maluhia Hall

As you make the turn from Ala Moana Boulevard onto Kalakaua Avenue, a long wood building surrounded by spacious lawns is visible at that corner of Fort DeRussey. Maluhia (haven of rest) Hall was opened April 27, 1943, as a recreation center for enlisted men.

During World War II, between 1,000 and 2,000 people a day visited Maluhia Hall during the week and sometimes more than 4,000 a day visited on weekends.

The building contained a large auditorium/dance hall with a balcony (see photo) and a restaurant and bar that could serve 1,200 in its open, covered terrace. The walls of wood louvers, open terraces, decorative grill-work and covered, yet open entry were all part of its very successful use of natural ventilation.

The echoes of its days as the

recreation center for enlisted personnel at DeRussey have faded into history. Today, a portion of the building is used for offices, but the

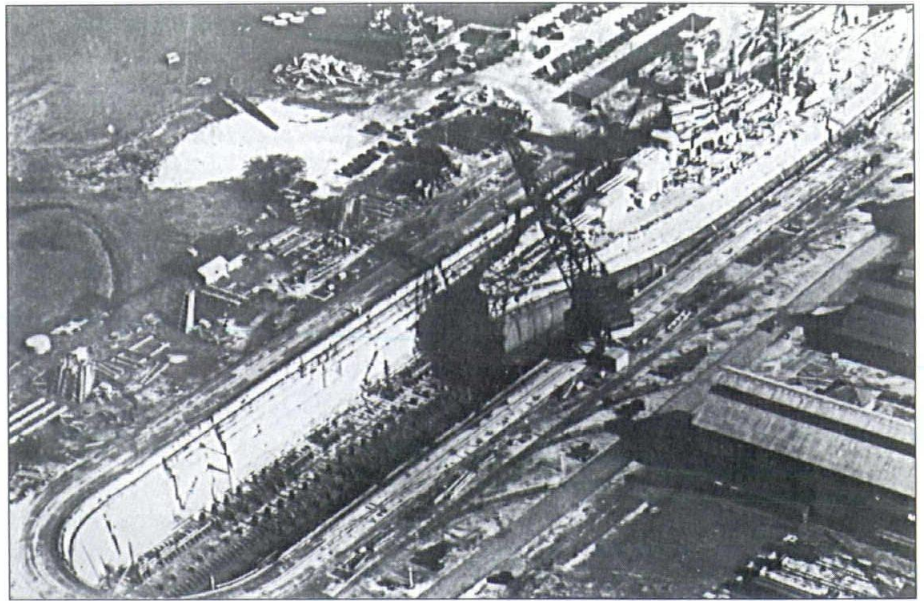
recreational purpose of the building has long ago been replaced by the facilities near, and in, the Hale Koa Hotel.



Pearl Harbor Dry Docks

As it neared completion in 1913, the first dry dock at Pearl Harbor was blown out of its foundation by hydrostatic forces greater than Navy engineers had predicted. After blessings to appease an angry Shark God, the dry dock was finally completed in 1919.

Two more dry docks were under construction at the time of the Pearl Harbor attack and completed almost immediately thereafter. A fourth was completed during the war. These dry docks were vital to the success of naval operations in the Pacific, because Pearl Harbor was a major ship repair facility during the war.



Aerial view of Drydock No. 1 with a large battleship in for repairs.

Hickam Air Force Base Water Tower

Built in 1938, the water tower was one of the first structures finished on Hickam Air Force Base.



Its 171-foot tall, 12-inch thick concrete shell is designed in an Art Deco style and houses a steel water tank capable of holding 530,000 gallons of fresh water.

The top of the tower is reached by what is probably the state's longest spiral staircase, located between the steel tank and concrete shell. A 20-foot di-

ameter octagonal room, located about 122 feet up the tower, was reportedly used as a radio transmitter room during the war.

During the war, the tower was painted in camouflage colors, which were removed by sandblasting after the war. In 1985, the tower was officially named the Freedom Tower.

Building 1 and Water Tank/Signal Tower



Although not easily visible from off base, the red-and-white-painted tower is visible from some locations on Kamehameha Highway. Built as a two-story building in 1913, a third floor was added in 1934. Building 1 was the location of the intelligence unit

that cracked the Japanese naval code and helped the United States defeat numerically superior Japanese forces at Midway. At the onset of the attack on Pearl Harbor, flag raising ceremonies were under way at the 1925 water tank/signal tower.

Bombproof Buildings



The bombproof Barbers Point NAS Command Center Building

David Franzen photo

Bombproof buildings were constructed on most permanent bases during World War II. They housed functions vital to the operation of the bases, such as central operations or power plants. Oahu is riddled with tunnels and underground buildings that house or housed command functions or munitions. In flat coastal areas like Pearl Harbor or Barbers Point, building up was considered more practical.

Like most other bombproof struc-

tures, the Barbers Point Naval Air Station command center has a 6-foot thick concrete roof and 4-foot thick walls. The interior is reached through a vestibule at each end protected by two sets of heavy steel doors.

The command center was designed with a second floor that was partly open to house water and generator equipment. The first floor had no windows and was intended to offer refuge and work space to the command staff.

Mount Kaala Radar Station

The white domes glinting in the sun on top of Mount Kaala represent a footnote in the history of radar development. The first radar sets received in Hawaii were five mobile sets delivered in July 1941.

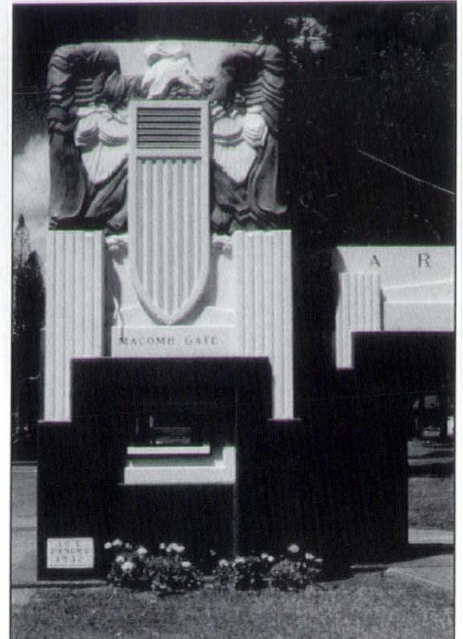
The remote, 4,000-foot Mount Kaala was selected as one of the first sites in Hawaii for a permanent radar installation. It also proved to be one of the most difficult to build on. Only a hiking trail led to the 4,025-foot-high site, so a cable way was constructed from the 2,000-foot elevation to bring construction materials up the mountain. This remained the only way to transport materials until the road to the peak was completed in 1964.

However, the site proved too

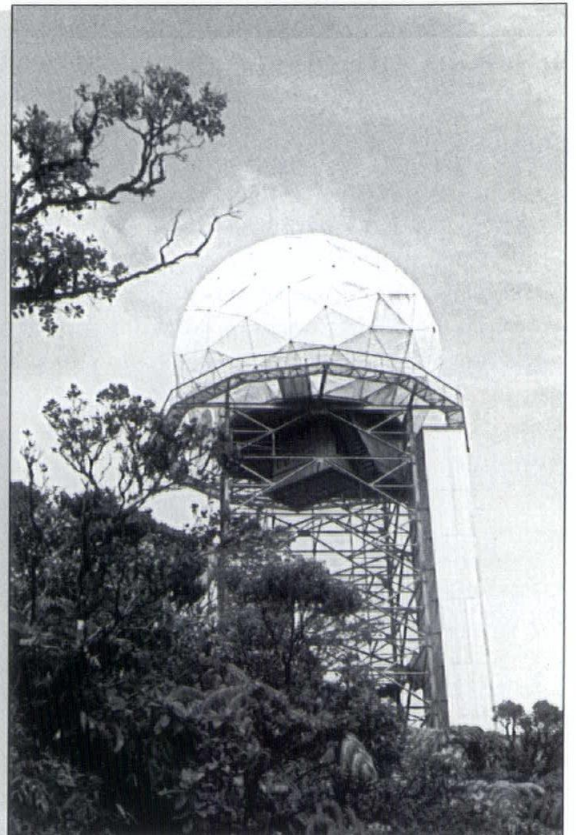
high for early radar because aircraft would go undetected if they were low to the water. As a compromise, the site was converted for use as a VHF fighter control station.

Almost all the structures at the Kaala site today were constructed after 1965. The Mount Kaala Air Force Station and Kokee AFS are the two radar sites that serve the Hawaii Regional Operations Control Center based at Wheeler Army Air Field. This center provides 24-hour surveillance information to the Hawaiian Air Defense Network. There are two height-finder facilities (the domed structures), administrative centers and a microwave station on the 6.6-acre site.

Schofield Gates



This pair of brightly painted guardhouses and walls has marked the main entry to Schofield Barracks since 1932.



Tripler Army Medical Center



Tripler is one of the most visible buildings on Oahu, partly due to its location on top of a large, grassy knoll and partly because it's pink.

The construction of the main building was begun in 1944 after it became obvious that the original Tripler Hospital, at nearby Fort Shafter, was inadequate. The Mod-

erne style main building was completed in 1948.

The architect for Tripler was the New York firm of York and Sawyer, which also did the Hawaiian Electric Building and the Old Federal Building and Post Office in Honolulu. The building was designed to take advantage of natural light and ventilation and

stepped down the hill to take advantage of spectacular views.

The complex was named in honor of Brig. Gen. Charles Stuart Tripler (1806-1866), who was medical director of the Army of the Potomac during the Civil War and who authored the Army's manual on recruit standards.

Hangars

Hangars are landmarks because of their size and the fact they are often the pre-eminent buildings on the bases. The four main hangars at Marine Corps Air Station Kaneohe are visible from almost any vantage point along Kaneohe Bay. Those at Hickam and Wheeler are also visible to many outside the base boundaries.

Their visibility and importance made them good targets during the Dec. 7 attacks. The only completed hangar at Kaneohe (Hangar 101) was set ablaze and one of the seaplane hangars on Ford Island (shown right) was almost destroyed.

The Art Deco flavor of many of the hangars reflects their 1930s design period and the desire of military architects to make them more than utilitarian boxes and to fit into the base community.

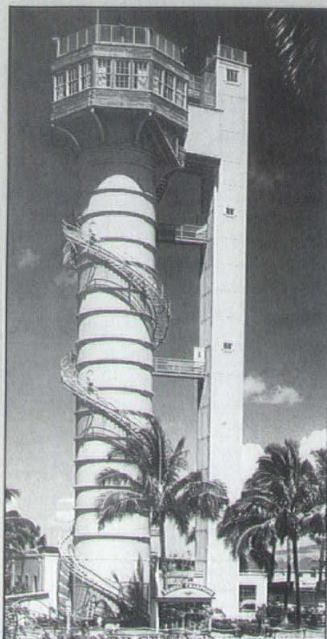


Hangar No. 9 one of many at Hickam Air Force Base.



Ford Island hangars burn during the Dec. 7, 1941 attack.

Submarine Base Dive Tower



The submarine base diving tower was completed in 1933. It is a riveted-steel tube 119 feet tall and 18 feet in diameter, upon which sits an octagonal room 31 feet across. A square elevator tower rises alongside and is connected to the top level by a bridge. The tower was filled with water and used to train submariners in underwater escape techniques.

Today, the small concrete building around the base houses offices and the upper octagon has been converted to a conference room with a 360-degree view of Pearl Harbor.

Schofield Quadrangle Barracks



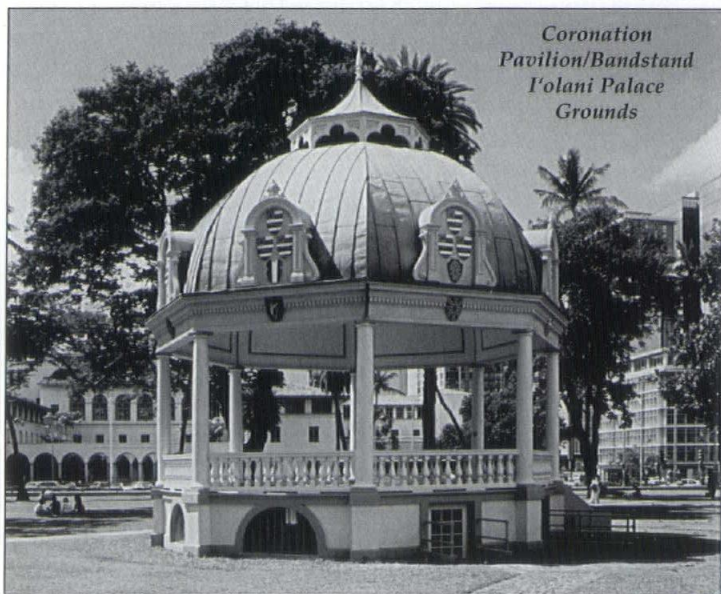
There are eight quadrangle barracks, each three stories tall, that were built at Schofield between 1914 and 1948. They typically contain one administrative building and three barracks separated by narrow driveways at the corners.

The first six built between 1914 and 1923 were constructed in a Second Renaissance Revival style with classical elements such as arcades, arched openings and cornices with decorative brackets, dentils and friezes. The quadrangles became famous as one of the main settings for the movie "From Here to Eternity."

The central area of each quadrangle is an open area more than 300 feet across. The buildings form a square more than 500 feet on a side.

Originally the barracks each contained eight 50-by-90-foot squad rooms. These were broken into individual rooms in the 1970s and current plans call for renovation of the barracks once again to meet current codes and living standards.

♦ Glenn Mason, AIA, Spencer Mason Architects, is the 1996/97 president for the American Institute of Architects Hawaii State Council.



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Contract awards increase for 1996

Military Money

In September, the end of the 1996 federal fiscal year, the value of Navy awards for both construction contracts and design fees will nearly double the total for fiscal year 1995. This is good news for an otherwise painful year for Hawaii's construction industry.

The Navy estimates its construction contract awards for the 1996 fiscal year will total about \$283 million, nearly double the \$144 million in 1995 and exceeding the 1994 total of \$227 million by 24 percent. The 1994 figure was enlarged by a significant amount of work done in Guam because of the Subic Bay closure. Therefore, the net effect on construction in Hawaii was actually more on par with the 1995 figures.

The current construction upsurge is fueled by several large improvement projects, in-

cluding construction to relocate functions from Barbers Point Naval Air Station and major housing construction projects.

The housing projects include town house developments, new barracks and the renovation of existing barracks and family housing areas. This is all part of the military's commitment to meet housing standards common in the private sector.

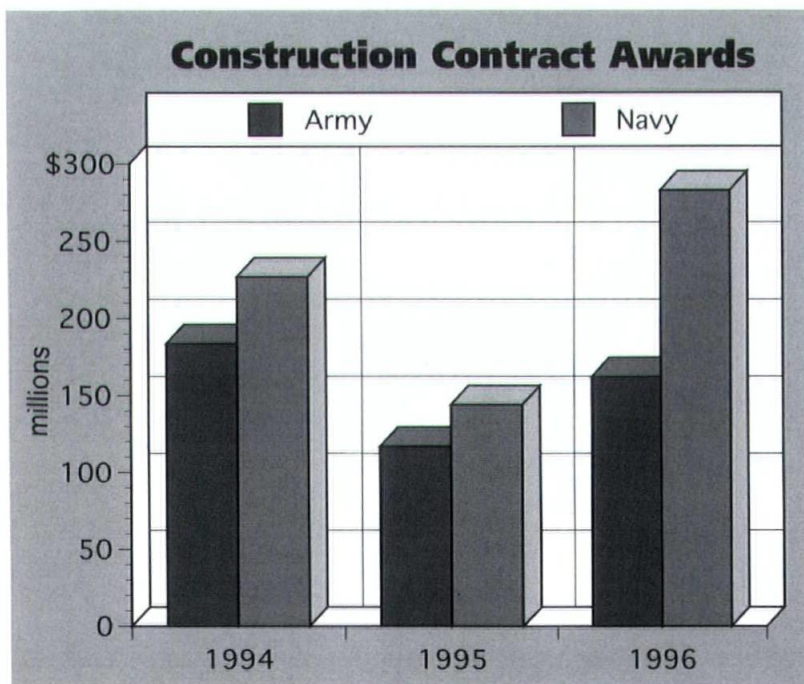
The design fee awards are projected to total almost \$39 million this year, more than double the 1995 total of \$18.4 million and 30 percent higher than the 1994 figure of \$29.7 million.

The U.S. Army Corps of Engineers' figures show a steadier expenditure history over the last three years. Construction contract awards for fiscal year 1996 are estimated to total \$162.1 million, up from the \$117 million awarded in 1995, but down from the \$183.6 million in 1994.

The fees for architect and engineer design work have been more consistent, with an estimated \$8.9 million in fiscal year 1996 fees compared to \$9.1 million and \$7.8 million in fee awards for fiscal years 1995 and 1994 respectively.

While the overall health of the military portion of our construction industry is good news, the volatile nature of funding for military construction does not mean that this trend will continue. In fact, the 10-year average of Navy design fee awards is closer to \$20 million per year, significantly lower than the award figures for fiscal years 1994 and 1996.

One characteristic of military construction that probably affects design professionals more than contractors is the use of the design-build procurement method for Hawaii's large housing and some of its larger special-



ized construction projects. These project types are dominated by large contractors or joint ventures based in other states, which usually hire design experts from a different state.

One example of this is the Hunt Building Corporation, based in El Paso, Texas, which has become one of Hawaii's largest contractors on the strength of its design-build housing projects for both the Army and Navy.

The future for military construction contracts in 1997 looks promising. The work at Kaneohe Marine Corps Air Station, resulting from the realignment and closure of Barbers Point and the continuation of large housing projects, will cause fiscal year 1997's Navy construction to be close to the total for fiscal year 1996, or about \$270 million. The architects and engineers will not be so fortunate, however, as the Navy expects total fee awards to be in the \$20- to \$30-million range.

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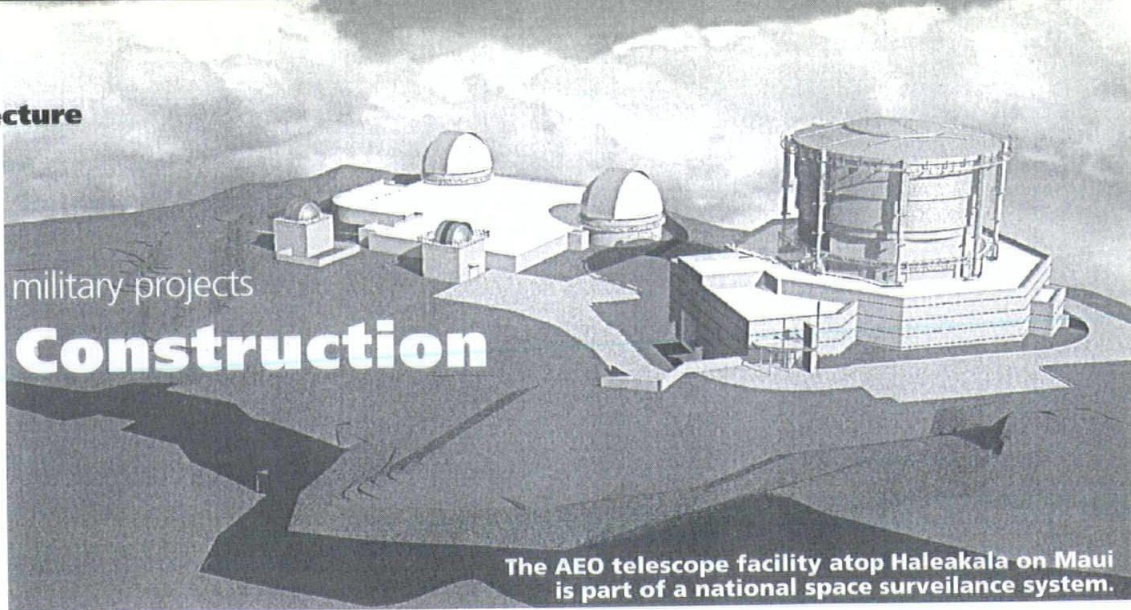
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A look at island military projects

Under Construction



The AEO telescope facility atop Haleakala on Maui is part of a national space surveillance system.

The biggest military project currently under construction is the Ford Island Causeway, scheduled for completion in May 1998. The causeway is being built by Dillingham-Manson, a joint venture of Dillingham Construction Pacific Ltd. and Manson Construction and Engineering Company. Proceeds from the sale of the Navy's Manana property to the City and County of Honolulu are being used to pay for the \$78-million project.

The causeway includes a 3,638-foot long, pile-supported, fixed bridge and a 1,035-foot long movable bridge element, for a total bridge length of 4,673 feet. The bridge will have two lanes with shoulder/bike lanes on each side, and it will be capable of expanding to three lanes in the future.

When retracted, the bridge will provide a 650-foot wide navigational channel for ships as large as aircraft carriers. The bridge will also include a 100-foot wide small boat channel with a 30-foot high vertical clearance.

All bridge controls will be managed from a control house located at the bridge's high point. The project will also involve extensive work at the Ford Island and Oahu shorelines

to integrate it into the traffic patterns at each end.

Parsons Brinckerhoff is providing engineering services to the joint venture and its subconsultants include Moffat & Nichol Engineers, designers of the fixed bridge.

While the Ford Island Causeway may be the biggest single project under construction by the military, the aggregate construction value of Hawaii's housing projects and improvements far exceed the causeway's value.

Currently under construction, or about to be awarded, are family housing improvements totaling \$129 million and barracks improvements valued at more than \$32 million. Some of these projects are highlighted in the following list, along with other large military projects currently under construction.

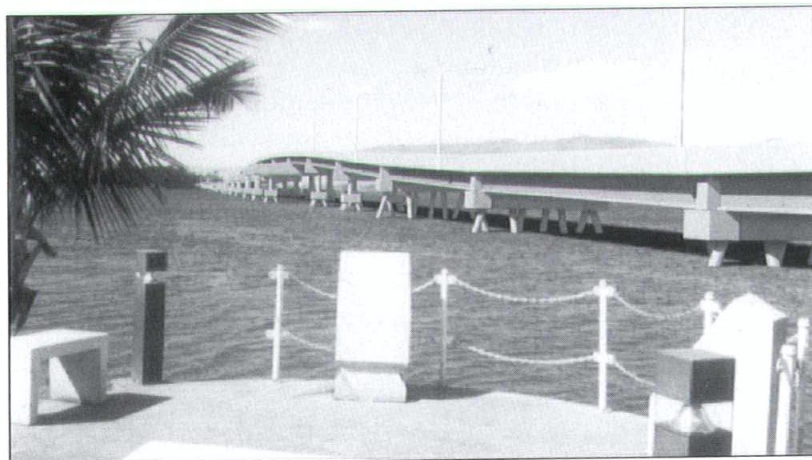
The Advanced Electro-Optical 3.67-meter Telescope Facility is an \$18.2-million project being built by Kiewit Pacific Company on the summit of Maui's Mount Haleakala. It is part of an overall \$55-million project that will produce the nation's premier space surveillance site, supplementing installations at Albuquerque, N.M., and Cape Canaveral, Fla.

This facility will let the Air Force Space Command determine the trajectory and launch times of future satellites by tracking and predicting orbits of the 7,700 man-made objects currently circling our planet. The system's 60 tons of lens housing is designed to move swiftly enough to track F-15 fighters from horizon to horizon without creating any vibration.

The architect of record is GYA Architects, which teamed with the design architect, Homes Sabatini Architects Associates of Albuquerque.

Moanalua Terrace Family Housing Phase 2 work, valued at \$18 million, will provide

The Ford Island Causeway will span 4,673 feet linking the island in Pearl Harbor with Oahu.



136 new units for the Navy, replacing older units at the site. The project is being done by the Hunt Building Corp., which completed the project's \$13-million first phase last year.

The Army's Reserve Training Building, designed by Johnson Tsushima Luersen Lowrey, is an \$11.4-million facility that will complete the Army Reserve Center at Shafter Flats. The three-story training facility, being built by Metric Construction, will help complete the relocation of the Army Reserve from Fort DeRussy in mid-1997.

This final phase will provide administrative offices, classrooms, a library learning center and new storage area for three Army Reserve units. The building will also

is the \$17-million Phase IA Whole Barracks Renewal Project at Schofield Barracks. This first phase includes the construction of two five-story barracks buildings and a single-story community center.

A third barracks building, which will form a quadrangle with the three buildings currently under construction, will be constructed in the next phase of work. This next phase is scheduled to be bid later this year and will cost in excess of \$10 million.

The completed four-building complex will be the prototype for additional barracks construction on Schofield planned for the next few years.

S & M Sakamoto recently began construction of a \$1.9-million eleva-

Naval Computer and Telecommunications Area Master Station, located in central Oahu near Whitmore Village.

The first project is being built by the Niking Corporation. The second project, designed by Peter Hsi, AIA & Associates, is being built by the Kato Corporation. The first phase of this project was just completed, and phase two began in mid-August. Work on the three buildings being modernized will be completed next year.

The new Berthing Wharf Y-2 at the Naval Submarine Base at Pearl Harbor was an in-house design by Pacific Division, Naval Facilities Engineering Command. The wharf was required to service the increased number of submarines sta-



The Army's Reserve Training Building at Shafter Flats will complete the reserve's relocation from Fort DeRussy.

complete the quadrangle concept of the four buildings in the complex, whose Royal Palm-lined formal space reflects the traditional military orientation of buildings to a parade ground or quadrangle.

A total of 348 new family housing units are being constructed by G.W. Murphy Construction on three sites under one contract with the Army. One of the sites is at Schofield Barracks; the other two are at the Helemano Military Housing area located in central Oahu.

The new town house units will replace 136 substandard single-family housing units at a construction cost of almost \$32 million. The project, designed by Design Partners, is scheduled for completion at the end of 1996.

Another project under construction by G.W. Murphy Construction

tor and stair tower addition to the Joint Intelligence Building at Makalapa. Designed by SSFM Engineers Inc., the project is scheduled for completion in mid-1997.

S & M Sakamoto has also nearly completed a major addition to, and renovation of, the Medical Dental Clinic at Hickam Air Force Base. The \$12.2-million project was designed by Architects Hawaii and is scheduled for completion next month, wrapping up nearly four years of construction at the site.

Two bachelor enlisted quarters repair projects for the Navy are the beginning of similar repair projects being planned for the next few years. The two currently under construction include the \$1,161,000 phase II repair to BEQ 654 at the Submarine Base and the \$9.6-million BEQ Modernization at the

tioned at Pearl Harbor due to base realignments and closures elsewhere.

Designed to hold a 100-ton mobile crane load throughout its deck, the \$14.7-million project is being built by the Nova Construction Group, and is scheduled for completion by the end of this year.

Other major projects include the Army's Kaena Point Power Plant, a \$5.7-million project being built by San Juan Construction; the hotel pier repair, a \$10.9-million project being built by Healy Tibbitts Builders; and a \$9.7-million project to build Phase III, Industrial Waste Treatment Complex near Fort Kamehameha. The waste treatment facility is being built by R.P. Richards Construction Company.

Hickam design pioneers base planning

Air Force One

by Katie Bouthillier, AIA



The Art Deco-style headquarters building is typical of the building design found on Hickam.

The plan for Hickam Air Force Base (originally called Hickam Field) represents the best military base planning of the 1930s and has resulted in a community of enduring quality for its residents and workers. Hickam reflects the changes in military planning that occurred during that period in response to changes in both military function and human demand.

By the turn of the century, the military had become sufficiently specialized, requiring designated areas for training, recreation, living and morale activities. Modern civilized soldiers demanded an environment that was more than simply life and mission supporting. Their need for beauty, recreation and comfort became recognized as essential to maintaining personnel's good spirit.

Traditionally, the design of an Army installation contained a central parade ground surrounded by barracks, officers' housing and administration buildings, such as the Palm Circle area at Fort Shafter.

The Army Air Corps' base designs generally included the typical Army requirements, as well as the flying field, hangars, technical buildings and other requirements for airplane operation. The bases were generally segmented into airfield, technical, administration/recreation and housing areas and were focused around the main administration building, other important structures and open areas, such as the parade ground.

Hickam Field, along with all Army installations of this period, was designed by the

Army Quartermaster Corps, under supervision of the Quartermaster General in Washington, D.C. The Quartermaster Corps was responsible for the master planning of the base, as well as the design of almost all the individual buildings at Hickam.

The Army purchased approximately 2,200 acres of land adjacent to Fort Kamehameha and Pearl Harbor in April 1935. The airfield was dedicated May 31, 1935.

Capt. Howard B. Nurse, AIA, was named construction quartermaster for Hickam Field. Nurse had previously been involved in the design of several other Army bases and airfields, including the Air Corps Primary Flying School at Randolph Field, San Antonio, and Hamilton Field, San Rafael, Calif. Hamilton Field, described at the time of its completion as the most beautiful of all Air Corps posts, utilized the Spanish-mission style of architecture and was designed with a grand master plan.

Hickam Field design and planning

At Hickam, Nurse's goal was to design a base that would operate functionally and efficiently in terms of military requirements, but also reflect the architecture of both the period and region. He also wanted it to provide an attractive and comfortable place for the residents.

The base was designed with a master plan that provided separate but integrated areas for housing, administration and technical functions. The areas were organized around major and minor axes, with boulevards in the

public areas and narrower streets in the residential areas. This design was quite advanced compared to previous military base designs.

Nurse believed it was essential to adhere to the master plan throughout base development, and stated, "... whatever the plan may be, when once decided upon, it should be adhered to in its essential features, notwithstanding the opposition and insistent demands for a departure from it which are likely to be encountered from those who, regardless of their sincerity, cannot possibly visualize the situation as a whole"

When Nurse left Hickam in April 1938 to design another field elsewhere, he was relieved by Capt. John A. Hunt, with Jozef B.A. van Oort acting as the Quartermaster Corps chief architect. Recognizing the importance of adhering to the original design and architecture, they altered little during the development of the base in the next decade. It appears the architectural style was adhered to in most building designs.

A majority of the buildings at Hickam were designed with an Art Deco and/or Hawaiian/tropical style of architecture in response to the style of the period and region. The housing areas were designed with the "Garden City" concept, common in military planning at the time, using smaller residential roads leading off the broad avenues, tree-lined streets and spacious yards.

Nurse listed five "Laws Considered in Post Planning:"

- Unity — any work of art must possess unity, must seem to proceed from a single impulse and be the embodiment of one dominant idea

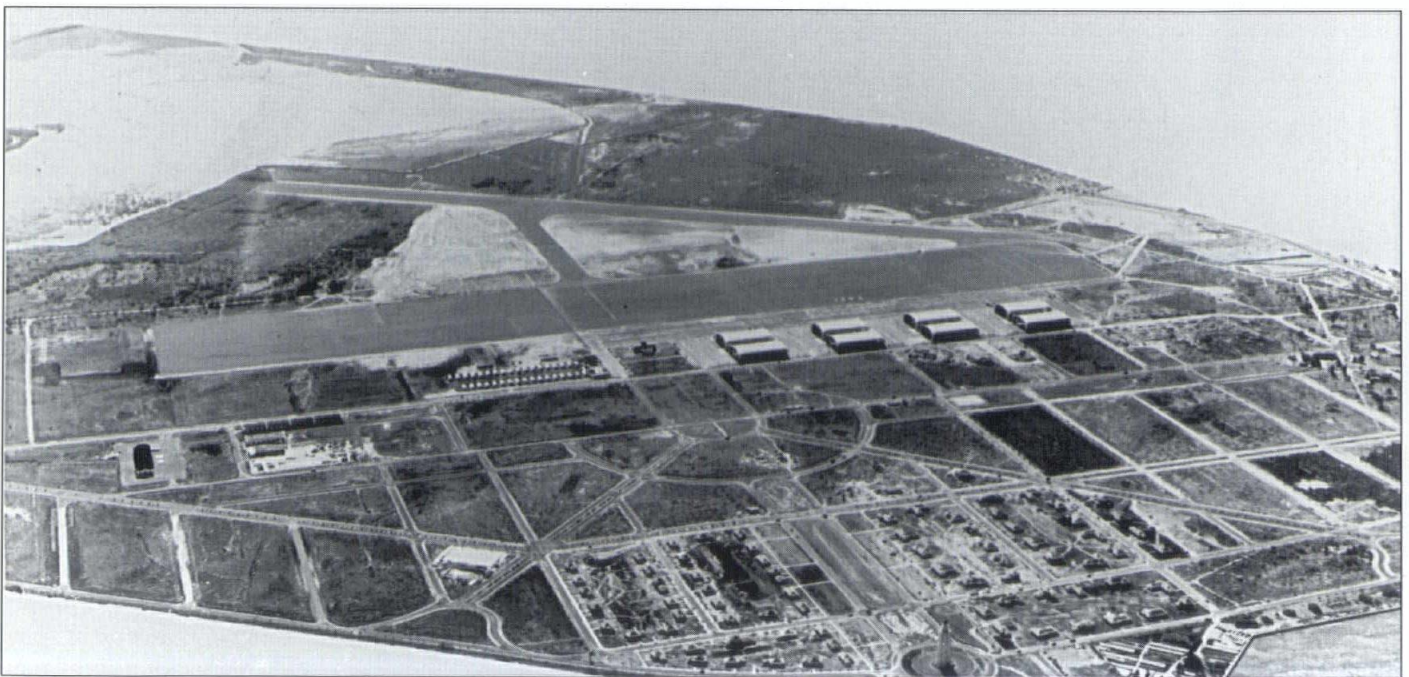
- Consonance in Design — the form of recurring geometrical figures, parallels, diagonals and the like, and the adherence to one method of construction and manner of ornament

- Diversity and natural beauty — ensuring that diversity does not exclude individuality

- Balance — the symmetrical disposition

"The long axis of the post was made to parallel the principle (original) runway. The shorter axis bisected the latter at its midpoint. Three through, parallel roads in the longitudinal direction defined the barracks and technical areas and established a parked strip or buffer between them and the residence area. The shorter axis was made the center line of a broad mall on one side of which lay the officers' area. A semi-circular plot in which were placed the administration building, post exchange, theater and other community buildings joined the mall and the technical area. Radiating from the circle two long boulevards reached out into the residence areas affording ready access to the latter and providing long, pleasant vistas terminating at sites of the more monumental buildings."

Quartermaster Review, 1940



Hickam Field in 1939 was ahead of its time in design.

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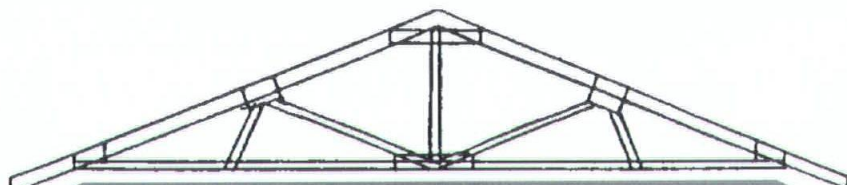
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of the elements on either side of axial lines

• Radiation — various parts of any organism radiate from or otherwise refer back to common centers.

In the Hickam plan, Nurse incorporated these and other elements that had often been used in city planning, but had rarely been used in military base planning before the 1920s.

Nurse's Hickam plan acknowledged the importance of separate building functions, axiomatic conforming to natural and man-made boundaries and inclusion of major and minor axes linked and terminated by landmark buildings and open spaces.

Nurse included open areas in the master plan not just for functions that demand large open spaces, but to define axes and create order and formality, separate designated function areas, create a sense of place and enhance the monumentality of important structures.

He stated "the architectural effect of buildings is greatly enhanced by their becoming units of a large composition and by being visible across the necessary open spaces at a far more effective angle than when seen merely along a street."

Landscaping was also an integral part of the base design, and was planned early in the project. A nursery was one of the first projects started at the field so that plants would be of substantial size when the buildings were ready for occupancy. Many of the plants and cuttings were donated to the nursery by the citizens of Hawaii. More than 175 varieties and 300,000 plants were utilized at the base.

By the time the United States entered World War II in 1941, Hickam had a landing field, hangars, technical buildings, administrative buildings, more than 80 single-family homes, the first apartment buildings constructed by the Quartermaster Corps, a hospital, the largest single barracks building in the world and athletic and park fa-

cilities. Hickam had become a self-sufficient, unified community.

The construction of Hickam Field was the largest peacetime project the Quartermaster Corps had ever undertaken at that time, and about 2,000 men were employed at the peak of operations. At the time of completion it was the Army's largest airfield.

Continuing the planning of Hickam

Due to the thoroughness of Nurse's planning, and because nearly all of the originally planned buildings were completed, the early, pre-World War II area of Hickam remains relatively intact. Other than temporary World War II construction, few pre-1950 buildings have been demolished or radically altered.

A few portions of Nurse's plan were not completed as he had intended. These areas within the original plan have become muddled.

The first is the area northeast of the parade ground (Area 1), where Nurse had planned a group of barracks mirroring those planned for the opposite side. Instead of these barracks, the existing barracks building (now PACAF HQ) was constructed on the southwest side in 1941, and temporary structures were built during the war on the northeast side. These temporary buildings were later demolished, and several buildings were later constructed in the area that did not conform with the base in orientation or architectural style.

Another area that has lost Nurse's strong



The original houses on Hickam further the cause for preservation.

use of separation by axial boundaries is the area northwest of the large shop buildings (Area 2), where technical buildings are interspersed between housing. The 1959 housing is not organized in Nurse's linear style.

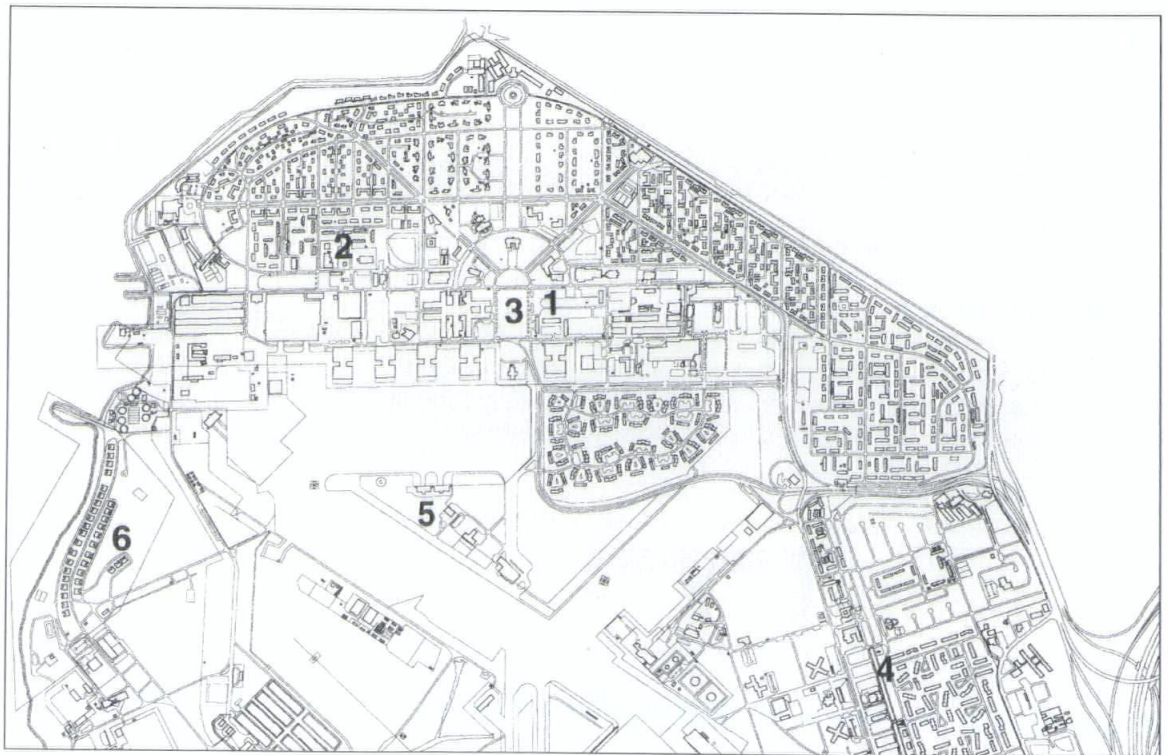
A third area is the parade ground (Area 3) adjacent to the operations building and former large barracks, which was paved over to become a large parking lot. This former open area is part of the major axis of the Hickam plan, which was a large, open grassy area with the landmark Art Deco-style water tower at one end and operations building at the other.

This area was further blighted

by a well-meaning but unfortunate beautification project done two years ago. Royal palms were planted in the middle of the converted parade ground at 90 degrees to the major axis of the parade ground.

Most post-World War II construction at Hickam has occurred to the east of the base's original portion, occupied by warehouses (Area 4). During the 1960s and 1970s, housing areas were constructed at the north end of the flight line and in several groups in the east portion of the base.

These houses were built in the International style with flat roofs and box-shaped facades along curved roads with cul-de-sacs. Al-



Areas on Hickam Air Force Base that were not completed according to Howard Nurse's plan.

though this style was common during that era, it hardly complemented the architectural or planning style of the base's original portion.

The desire during that period was for new and modern. Preservation of historic buildings was of little concern. In fact, up until the last five or 10 years, there was little interest in preservation in military planning.

A new potential area for the Coast Guard, southeast of the base

runway (Area 5), incorporates the Art Deco style of the original base technical and administrative buildings.

One of the architectural planners at the Office of Hickam Base Civil Engineer said he hopes the areas in the base's original section that have strayed from Nurse's plan will be made to better complement the original design and architectural style. This is particularly important in areas along the major axis of the

base plan, as these have the most significant visual impact on the perception of the execution of the design.

Another challenge for Hickam's planners was the addition of Fort Kamehameha's historic area (Area 6) to their jurisdiction after the Army and Air Force exchanged Fort Kamehameha and Wheeler. This area contains two 1914 coastal batteries and 34 1916 bungalow-style houses, as well as other historic buildings. Much of the area's original layout was lost following the demolition of several early buildings, but this area is now generally considered historically significant, and will likely be retained.

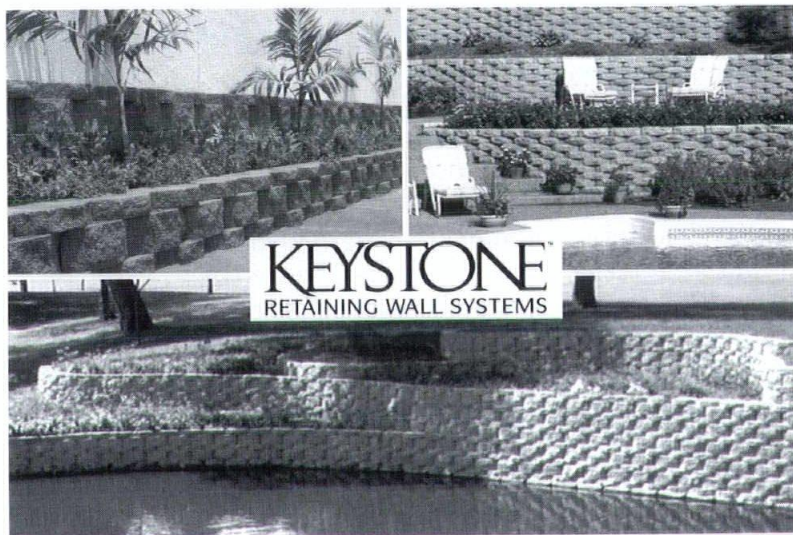
Recently, more military members at various levels have become aware of the value of preserving historic structures. They are encouraging new work to complement, or at least not be detrimental to, historic buildings and sites. This is because the value of preservation is spreading and many of the properties at Hawaii's military bases are 50 years of age, the minimum age for the National Register of Historic Places to regard a site potentially historic.

Currently, many of the planners involved with renovating or designing new buildings at Hickam would like the buildings to reinforce the integrity of the original base layout and architectural styles.

This view isn't yet an established general goal for Hickam base planning, but is the goal of some of the professional planners. Architecture and urban planning at military bases is often quite limited by federal standards and tight budgets, but if the contextual designs don't cause budget or planning problems, they aren't discouraged.

Several recent and potential projects that attempt to incorporate the original base master planning and architectural styles. These include the renovation of the 1960s and 1970s housing, in which new hipped roofs will be added, jalousie windows will be replaced with sin-

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gle-hung windows and exterior finishes and colors will be changed to complement the original 1930s Hawaiian/tropical-style houses.

Planning is also ongoing to include some of Nurse's planning ideas, such as strong axes with focal end points, wide landscaped boulevards and separation of different land uses, in the base's newer areas. Some of the newer buildings in this area also have been designed with architectural elements that will complement, rather than compete with or copy, the historic architectural style of the base.

Most of Oahu's military bases contain numerous historic buildings, some of the few remaining examples of Hawaii's architecture and planning from the early part of this century. Although Hawaii still has some historic buildings, including houses and public buildings, they have typically been renovated. New structures are now interspersed with the old, destroying much of the historic uniformity. Prime examples of this are the Manoa and Kaimuki neighborhoods, where historic structures are often overshadowed by new concrete block buildings.

Military bases are some of the few places one can see intact neighborhoods of basically unaltered houses from the 1910s, 1920s and 1930s.

Schofield Barracks, Wheeler Army Air Field, Lualualei Naval Magazine, Pearl Harbor and Fort Shafter all have historic neighborhoods and public buildings, but none can rival the formal planning, consistent architectural style and combination of response to the environment as well as the style at Hickam Air Force Base.

♦Katie Bouthillier, AIA, an architect and architectural historian at Spencer Mason Architects, has written National Register nominations and Historic Resource surveys of many military bases including Hickam Air Force Base.



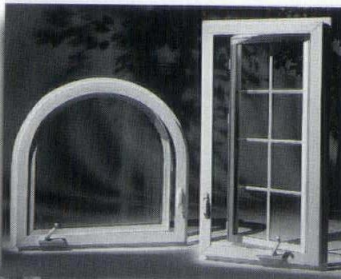
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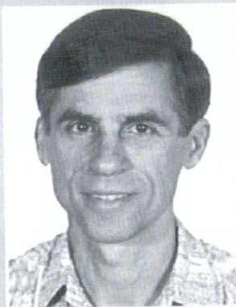


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Mason Named President of AIA State Council

Glenn E. Mason, AIA, a principal of the architectural firm Spencer Mason Architects, has been elected 1996-97 president of the Hawaii State Council of the American Institute of Architects. He succeeds Charles A. Ehrhorn, AIA, land planning coordinator with the Estate of James Campbell.



Glenn E. Mason

Other new officers include Vice President/President-elect Paul H.W. Louie, AIA, president of Paul Louie & Associates Inc.; and Secretary/Treasurer Allen Y. Kajioaka, AIA, president of Kajioaka Okada Yamachi Architects Inc.

Members elected to the board of directors are: Steven H. Heller, AIA, and Marie E. Kimmey, AIA, of the Maui Chapter, Theodore E. Garduque, AIA, N. Robert Hale, AIA, Eugene E. Leucht, AIA, Kurt H. Mitchell, AIA, and Darrell G. Welch Jr., AIA, of the Honolulu Chapter, AIA.

UH Sponsors International Symposium on Asia Pacific Architecture

The University of Hawaii School of Architecture recently announced that the second International Symposium on Asia Pacific Architecture: The East-West Encounter will be held April 9-12 in Honolulu. The theme is "The Making of Public Places in the Asia Pacific Region."

Papers are invited on:

- Historical and cultural considerations in the planning and design of public places

- Changing purposes and values of public places, including functional, economic, social and political

- Policies and processes in the development, design and maintenance of public places

- Urban infrastructure and contextual issues as related to transportation, land-use, security, aesthetic and environmental concerns

- Case studies of public places in major cities of the Asia Pacific region.

Submit a 250-word abstract of proposed topic by Oct. 25 to: Symposium Coordinator, School of Architecture, University of Hawaii at Manoa, 2410 Campus Road, Honolulu, Hawaii 96822, or fax to 956-7778. The school has asked that proposals indicate types of visuals to be used.

Mitchell Appointed WAT&G Vice President, Principal

Ronald L. Mitchell, AIA, was recently elected vice president and principal of Wimberly Allison Tong & Goo Architects, said Ronald J. Holecsek, AIA, WAT&G president and chief executive officer.

Mitchell, an architect with extensive design experience, joined WAT&G in 1990. He became a WAT&G associate in 1992 and a senior associate in 1993.

He holds a master of architecture degree from the Harvard Graduate School of Design and a bachelor of arts degree from the University of Rhode Island. He also attended Cambridge University in England and studied design



Ronald L. Mitchell

at the Boston Architectural Center.

At WAT&G, Mitchell is a project architect for hospitality and leisure-oriented projects in urban and resort settings. He is currently working on several major projects in Asia, including the 650-room Mandarin Oriental Hotel in Kuala Lumpur, Malaysia; Kemensah Heights, a 2,300-unit Kuala Lumpur residential development; and Sun City Resort/Entertainment Center, a South Korean mixed-use development consisting of two 300-room hotels and entertainment, retail and food and beverage outlets.

ASID Hosts Trade Expo

The Hawaii Chapter of the American Society of Interior Designers' Industry Foundation will sponsor the 1996 Pacific Interiors Expo from 1 to 8 p.m., Oct. 10 at the Hawaii Prince Hotel, Mauna Kea Ballroom.

This event is open to architects, contractors, designers, engineers and hotel purchasers and specifiers. Those attending will be able to preview the latest products and services available to the trade. Refreshments and pupus will be served.

The Pacific Interiors Expo was created by ASID Industry Foundation members to present their products and services in a convenient location and relaxed atmosphere.

CSI Presents MasterFormat Seminar

The Honolulu Chapter of Construction Specifications Institute will present "1995 Changes to MasterFormat: A Seminar for Designers, Contractors & Product Representatives" from 8 a.m. to noon, Sept. 14.

The seminar, being held at the University of Hawaii's School of Architecture, will address how these changes affect the construction industry. Warren

L. Sampson, AIA, chief specification writer for Architects Hawaii, will be the guest speaker.

The cost is \$60 for CSI members and \$80 for nonmembers. The registration fee includes the 1995 edition of Master-Format. The seminar is accredited for four American Institute of Architects' continuing education units.

For more information about the event, contact Sandy Tottori at 487-8291.

Internet Service for Architects Formed

Six months after the demise of *Progressive Architecture* magazine, its top executives joined forces with a leading on-line service developer to revive the spirit of the magazine on the Internet.

This new service, ArchitectREACH, will debut later this year as a private community for architects that will combine original editorial content with updated news and information. The service will also offer subscribers access to product databases and reference resources and feature moderated interviews with consultants and discussions with architects.

A completely private network that will offer Internet access, customized news and e-mail capabilities, ArchitectREACH will use a proprietary technology called Private Information Exchange, developed by Reach Networks, a partner in the service.

ArchitectREACH's creators include Thomas Fisher, former editorial director of *Progressive Architecture* and *Building Renovation*, and professor of architecture at the University of Minnesota; Gloria Adams, former vice president and associate publisher of *Progressive Architecture*; John Morris Dixon, who led *Progressive Architecture* for 24 years; Philip Hubbard Jr., former publisher of *Progressive Architecture*; and

Kevin Lippert, founder and head of the Princeton Architectural Press and a multimedia spin-off company, Design Systems. Lippert's company will help design ArchitectREACH.

Zweedyk to Chair BIA Home Building & Remodeling Show

James Zweedyk, president of TKC Inc., was recently named chairman of the third annual Building Industry Association's Home Building & Remodeling Show. Ken



James Zweedyk

Pai, senior vice president of First Hawaiian Bank's Commercial Real Estate Division, will serve as vice chairman. The show, co-sponsored by BIA and First Hawaiian Bank, will be held Dec. 5 to 8 at the Neal Blaisdell Center Exhibition Hall.

"The 1996 show will incorporate several new features and be bigger and better than ever," Zweedyk said.

For information or to reserve booth space, contact BIA Home Building & Remodeling Show administrator Barbie Watanabe at 847-4666, Ext. 202.

Gentry Pacific Celebrates Design Resource Week

Gentry Pacific Design Center will celebrate Design Resource Week with open houses to the showrooms from 5 to

8 p.m., Sept. 19.

Architects, designers, builders and members of trade-related organizations are invited to visit the showrooms and get acquainted with the current market trends. The 34 entries of the Building Industry Association's Renaissance will also be on display throughout the week.

Cocktails and pupus will be provided by Shaw Industries. There will also be door prize drawings.

Molokai Affordable Rental Community Dedicated

Nani Maunaloa, an affordable rental community developed by Molokai Ranch, was recently dedicated in a ceremony attended by Maui County Mayor Linda Crockett Lingle and Patrick Kawano, Maui County Council vice chairman.

Nani Maunaloa is located in the heart of Molokai's Maunaloa Village, close to the community's school and newly built park. Its 61 single-family rental homes range in size from one to four bedrooms. Members of the Maunaloa community were first offered homes in the development last year. Earlier this year, the few remaining units were offered to residents throughout Molokai.

From roof style to paint colors, the homes at Nani Maunaloa reflect their pineapple plantation heritage, while offering all the convenience of modern housing. Many of the homes have ocean views, and all have private back yards. All Nani Maunaloa homes have a front porch and open carport.

Nani Maunaloa was developed utilizing the state's Housing Finance and Development Corporation's Low-Income Housing Tax Credit and Hula Mae Revenue Bond financing programs. Total development cost was around \$8.1 million.



Ken Pai

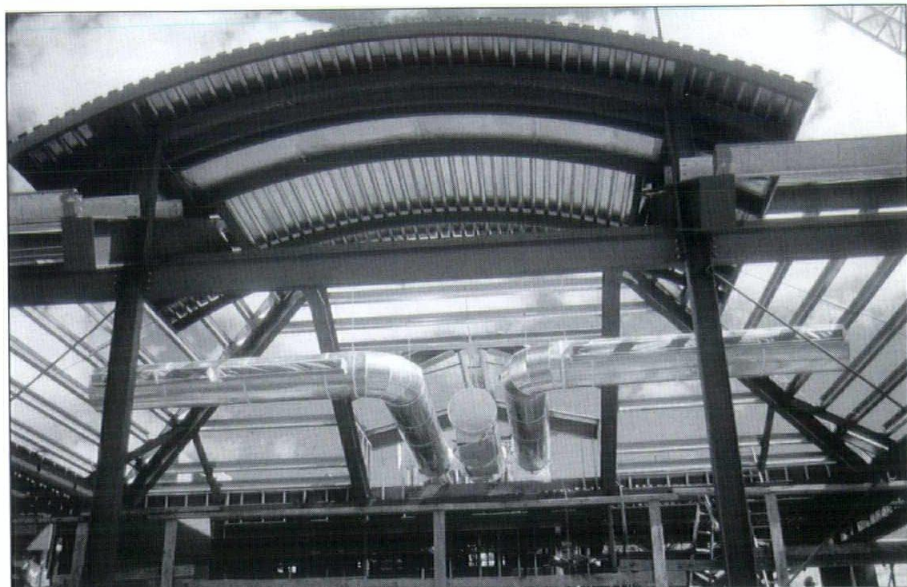
STEEL STYLES

Project Profile:

ZIPPY'S

Many Zippy's restaurants throughout Hawaii have been built with wood framing, but the architects for the new Zippy's in Pearl City took a different approach. AM Partners and lead architect Lloyd Baker chose steel for several different reasons, from design opportunities to long-term costs.

The use of steel gave the architects an opportunity to create a unique design. The architects used steel to create a light, elegant, industrial structure that fits in its neighborhood. Since steel is



The use of steel allows for unique design opportunities.

a relatively slender, high-strength material, long and wide free spans could be simply achieved

with elegance.

The supporting steel structure occurs outside of the dining



The hip roofs are made of prefinished metal roof panels on gage metal purlins.

STEEL STYLES

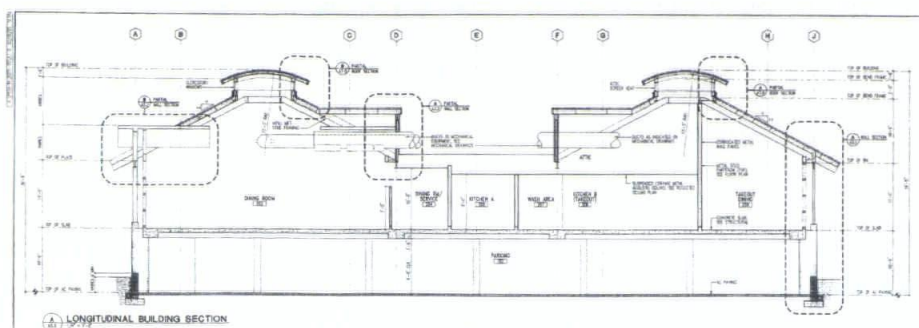
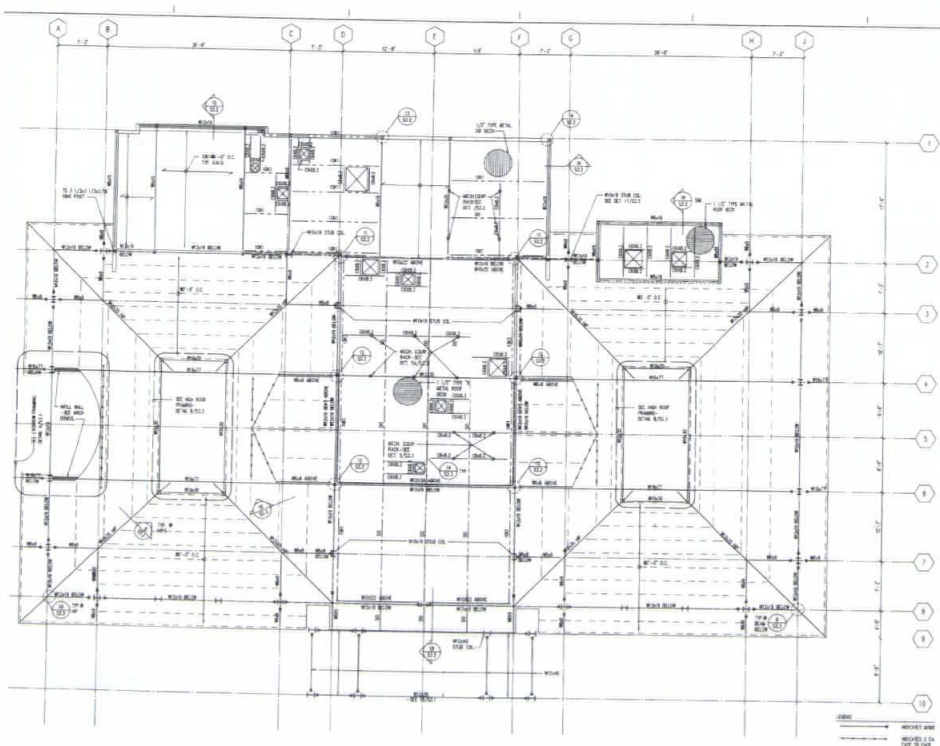
rooms' glass skin. It is designed to support cornerless windows. This design achieves a light delicacy that could have only been practically achieved through the use of steel.

Steel was also used in the superstructure, which consists of three major sections — two hip roof sections separated by a flat roof section. In all areas of the roof, the framing balance consists of structural steel beams and columns. The hip roofs are made of prefinished metal roof panels on gage metal purlins, while the

flat roof is framed with metal roof deck on steel joists.

The greatest practical advantage of steel for this project is its resistance to termites. Although rust can be a problem with steel, it will be controlled with a combination of proper painting and a well-planned maintenance schedule.

Although the initial cost of steel is greater than wood, the architect found that the life cycle cost of the steel structure was actually considered to be less than the cost of wood.



ZIPPY'S

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Zippy's Inc.
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Architects

AM Partners
1164 Bishop Street, #1000
Honolulu, HI 96813

Structural Engineer

Richard M. Libbey Inc.
210 Ward Avenue, #122
Honolulu, HI 96814

General Contractor

S & M Sakamoto Inc.
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Protective Coatings

The Hawaiian climate is extremely harsh on any man-made products exposed to daily weather cycles. Roofing is exposed more directly than most other products. After several years of continual exposure to the elements, the roofing system will start to fail.

New technology in protective coatings for existing roofing has given Hawaii's industry a second chance to save existing roofs rather than resort to costly replacement. Now, a variety of existing built-up roofing, metal and other types of roofing can be saved from further degradation by coating them with elastomeric membranes. This means the building owner can avoid costly tear-off and replacement, in many cases, by sealing off the weather forces with a proper coating system.

Protective coatings can preserve built-up roofing by keeping out moisture, salts and algae, which cause degradation of the asphalt base. The coatings can also prevent the asphaltic oils from baking out under the sun, prolonging the flexibility of the existing roof system.

On metal roofing, the effects of moist, salt air, which can cause corrosion, are sealed off from reaching the metal. Again, the heat of the sun is reflected, preventing extreme ther-

mal flex. This protects fasteners, seams and flashing from opening up and creating leak points.

The use of coatings on roofing is not a permanent fix. Every product used in direct weather exposure will require maintenance. However, if the roof is put under a planned maintenance schedule, with periodic inspection and additional topcoat application, the effects of weather on existing roofs can be managed without roof replacement.

United Coating Inc. submitted this article.

Advantages of Trusses

An analysis of today's construction market indicates the need for highly engineered, quality systems that are quick, yet economical to install. One solution gaining momentum into the 1990s is the use of preassembled light gauge steel trusses. The advantages of trusses include:

- **Weather factors** — Trusses fabricated off-site in a controlled environment are unaffected by inclement weather. Construction proceeds without uncontrollable delays.
- **Quality and productivity** — A good manufacturing environment, coupled with increased and efficient supervision, provides high levels of quality and productivity.
- **Time savings** — Truss fabrication occurs while foundation and structural systems are being constructed on-site. Construction schedules can be compressed reflecting this parallel in activities.
- **Efficiency** — On-site erection of pre-assembled light gauge steel trusses is among

the most efficient construction systems in terms of square footage erected per man.

- Reduced equipment needs — Scaffolding systems and job site clutter are eliminated allowing increased access to other trades.

- Lower labor rates — Off-site truss fabrication can often be performed at reduced labor rates. This is particularly true when the project is located in a high rate labor market.

- Varied finish possibilities — Preassembled light gauge steel framed trusses can serve as the structural frame for all types of roofing systems.

This article was submitted by Hawaii Metal Truss and Panel Inc.

IRMA turns roofs upside down

Protected Membrane Roofing Systems have been used for centuries dating back to sod roofs.

Modern day Inverted Roofing Membrane Assembly now enjoy the discovery of water-resistant thermal insulation such as extruded polystyrene.

By simply reversing conventional design, insulation above the membrane rather than below, the cause of many life-shortening roofing problems can be eliminated. This unconventional, but simple, method is commonly referred to as the upside-down roof.

There are a number of specifications available for IRMA roof systems, using almost any type of roof membrane, from built-up-roofing through single-ply to liquid membrane systems. IRMAs can conceivably double or even triple the normal life span of an otherwise mediocre membrane. The top side insulation not only reduces thermal stress, but physically protects against foot traffic, vandalism and is especially useful in eliminating

any exposure to the damaging effects of the sun. There is also a very sophisticated system design which integrates photovoltaic panels in the insulation.

IRMAs seem to be coming into their own, as observed through a conservative national growth and a growing number of respected roofing consultants and architects who are expanding their specifications to include these systems. Roofing Industry Education Institute (one of the most respected educational facilities for roofing) now offers a course on the subject. In the August 1996 *Professional Roofing Magazine*, Tom Smith, AIA, author of "Tech Transfer," a popular column in the monthly periodical, describes IRMA as "an approach to enhanced membrane longevity."

Advanced Roofing Technology submitted this article.



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Monier Answers Complex Roofing Needs

The Board of Directors of Bluestone, a luxury 53-acre town house complex on the edge of the Mid-Pacific Golf Course in Kailua, recognized that the 16-year-old wood shake and galvanized metal flashings on its roofs were in need of replacement. The board wanted a durable, lightweight, fade-resistant roof material that would blend harmoniously with the lush, tropical surroundings and stand up to Oahu's rigorous weather conditions.

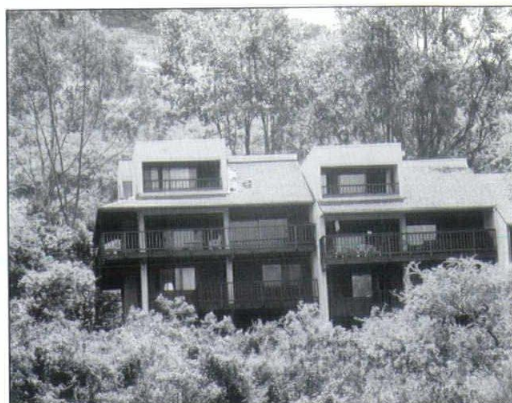
The Bluestone Apartment Owners' Association was in unanimous agreement that its new roofs blend naturally with the tropical surroundings. In the past it seemed that wood shake was the only type of roof covering that would answer

this aesthetic requirement.

The Board of Directors established a roofing committee to study possible replacements.

The committee members went to trade shows, lectures and exhibitions in search of the best roofing product. After selecting several roofing products as the finalists, they conducted their own primary research by soaking all the products in water, weighing them and recording the amount of wear and color fading. They also contacted homeowners who had used the various roofing products they were considering, as well as getting the homeowners' opinions on the various roofing contractors that were bidding their project.

The committee concluded that Monier's Cedarlite roof tile was the only product that resolved all the



Monier Cedarlite roof on the Bluestone complex blends in with the lush surroundings.

special issues in Bluestone's reroofing project.

The committee, after extensive research, noting the Class A fire rating and 60-year warranty, recommended Monier Cedarlite to the Bluestone Board of Directors.

Cedarlite is a concrete roof tile specifically designed to replace wood shake. Its realistic cedar shake appearance is achieved by multiple color shading and texturing. Because it is made of concrete,

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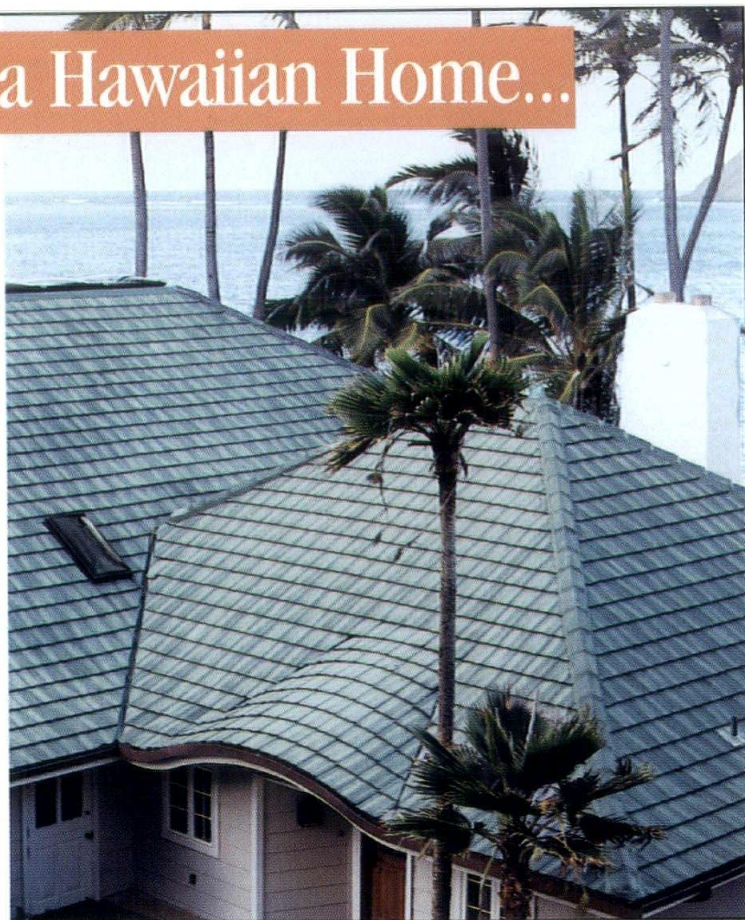
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it contains no wood fibers to hold water, fade or deteriorate, making it very lightweight, color-fast, durable and termite resistant. Cedarlite can also be fastened down with screws instead of corrosion-prone staples.

After the Bluestone Board of Directors' decision to use Monier's Cedarlite "Muirwood" tile, the

reroofing of 136 units began in March 1996. Tear-off materials were hand-carried off the roofs to minimize noise and mess so as not to disturb the residents and golfers on the adjacent Mid-Pacific Golf Course. All galvanized metal flashings were replaced by custom fabricated copper flashings and dormer vents. Two layers, not just one, of

ASTM type-30 felt underlayment were laid over fillspace pressure-treated wood sheathing brought directly from a wood mill in Portland, Ore., to ensure its superb quality. Approximately 1,000 squares of Cedarlite tiles were fastened with two stainless steel screws per tile and stainless steel wind clips were installed along the eave courses.

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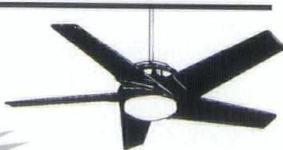
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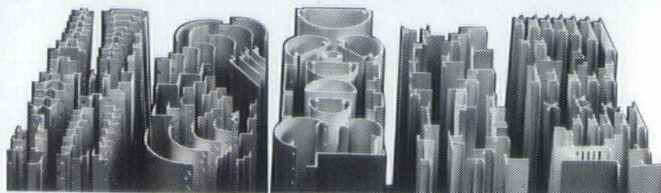
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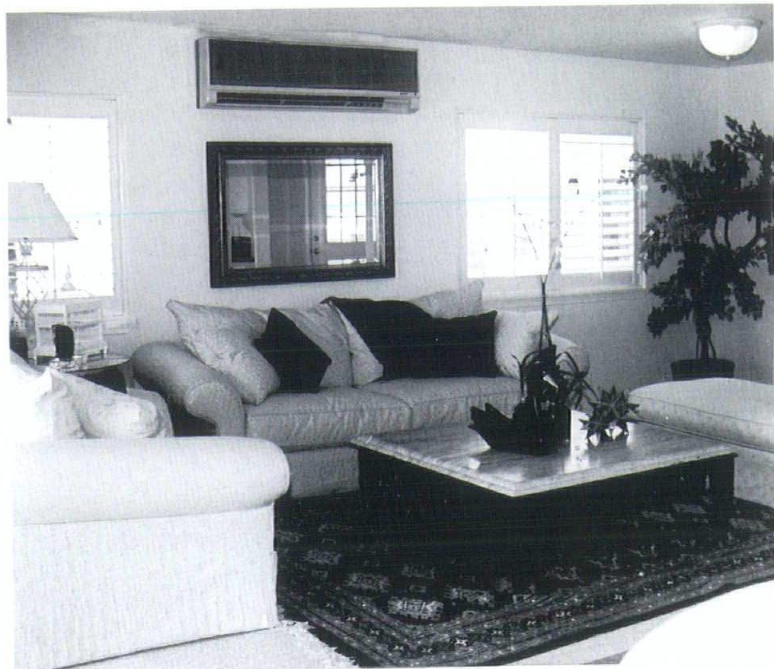



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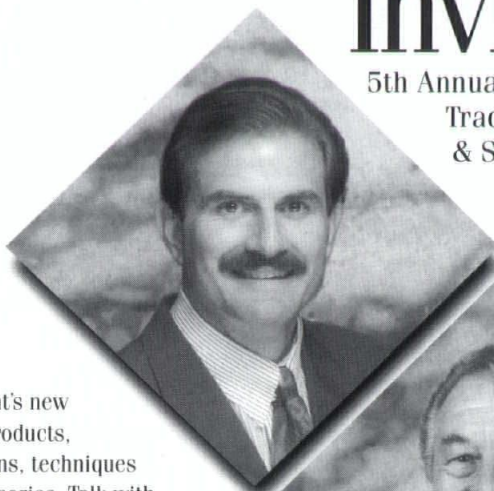
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E. RICK BALDINI, 4:00 p.m. "Care and Maintenance of Ceramic Tile and Stone"

Rick's more than 16 years experience in the industry is highlighted this year by his recent appointment as president of Aqua Mix, Inc. He is past president and chairman of the board of the Ceramic Tile Institute of America and currently serves on the Western States Ceramic Tile Association board of directors.

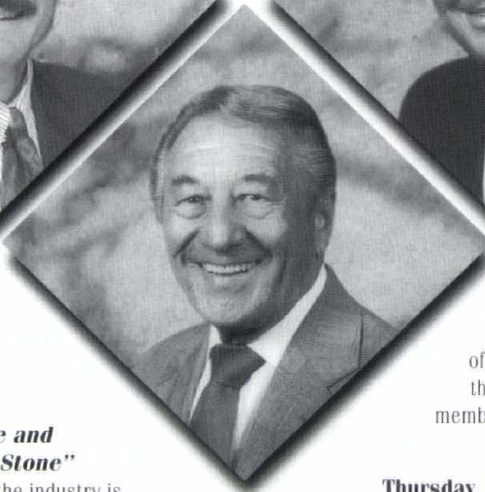
HANK HINMAN, CSI, 4:30 p.m. "Everything You Should Know About Sound Rated Floors"

Hank is a senior consultant for Akzo Nobel Geosynthetics Company and vice president/sales for Park Pacific Noise Control. A WWII veteran with more than 40 years industry experience, he is chairman of the Sound Rated Floor Committee of the Ceramic Tile Institute of America.



RAYMOND LOWE, 5:00 p.m. "How Porcelain Tile is Manufactured, Installed and How It Differs from Other Tile"

A true tile veteran with over 28 years of experience, Raymond is regional manager of Crossville Ceramics. He is past president of the Tile Contractors Association and a current member of the Seminar Committee of the Ceramic Tile Institute of America.



Thursday, Oct. 24, 1996, 3:30 p.m. to 8:00 p.m.

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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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