HAWAII ARCHITECT

June 1991

Medical Facilities
Kitchen Planning

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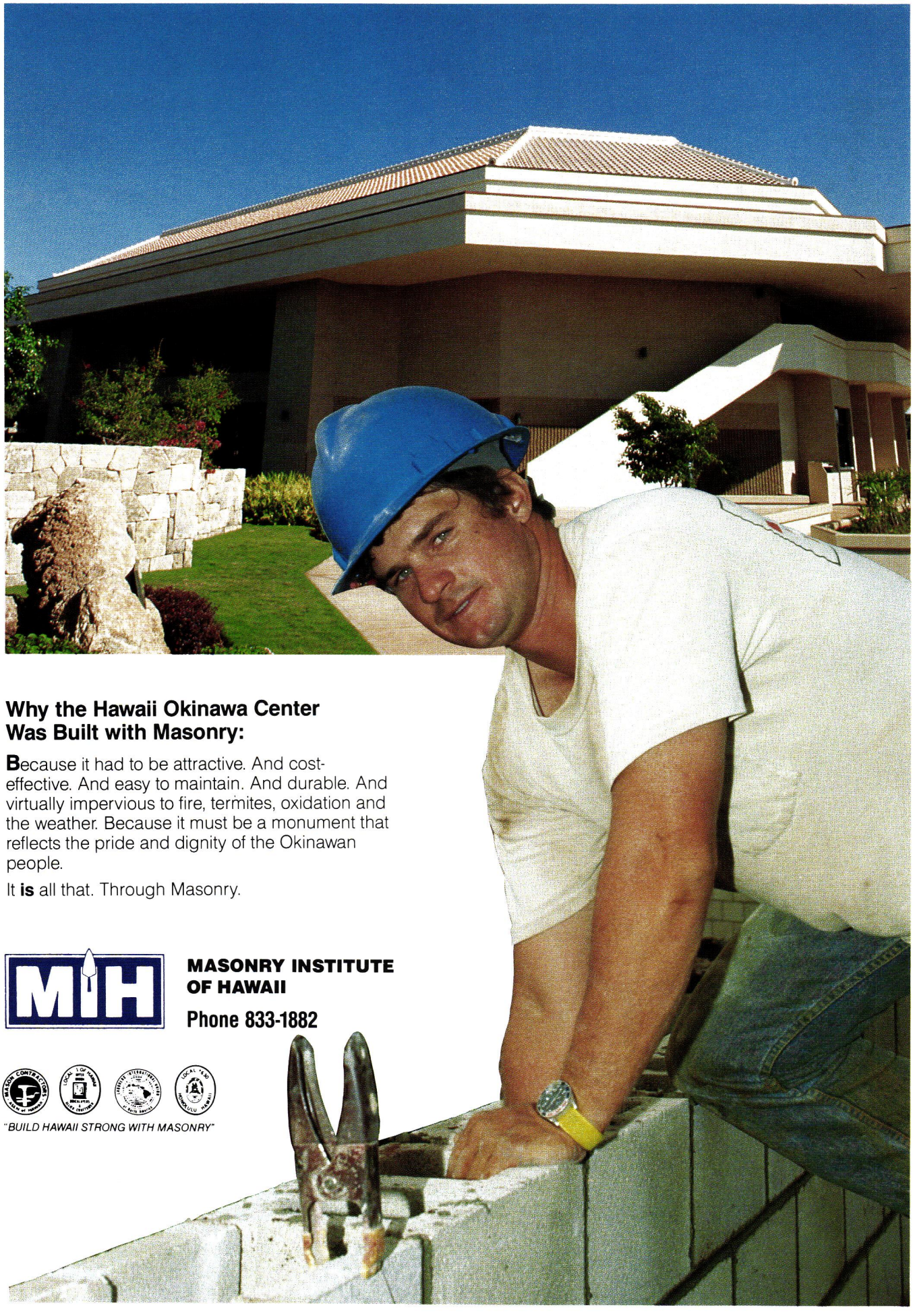

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Volume 20, Number 6 June 1991

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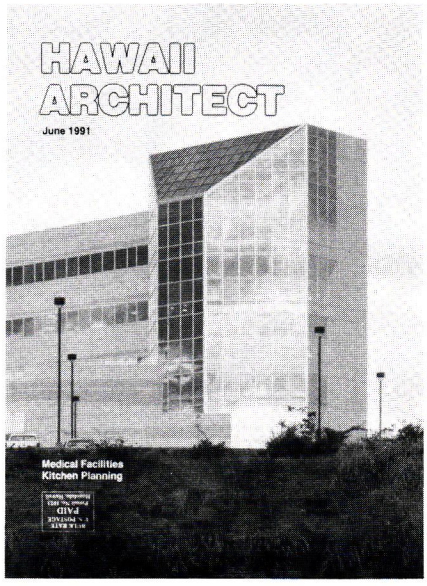

LEONARD MYSZYNSKI PHOTO

Cover: *The glass elevator tower of St. Francis Medical Center West will serve as the focal point for future expansion. Joe Balbona, AIA, of Rochlin, Baran & Balbona, Inc., was in charge of the project.*

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Publishers

1034 Kilani Avenue, Suite 108
Wahiawa, Hawaii 96786
(808) 621-8200
FAX (808) 622-3025

PUBLISHER/EXECUTIVE EDITOR
Peggi Murchison

MANAGING EDITOR
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President's Message

Participation in AIA Vital to Profession

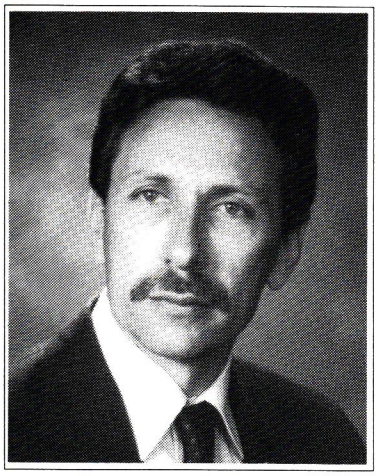
by Robert Hale, AIA
Vice President/President-elect

Architects are frequently required to anticipate the future and writing this article is no different. Although I am writing the article one month prior to the National AIA Convention, you will be reading it one month after.

My guess is that the convention will proceed with necessary actions to strengthen our membership by recognizing the diversity of career levels and career paths in our profession.

We are a profession of young and old, men and women, large and small firms, individual practitioners, partnerships, institutional architects and educators. National, state and local organizations are implementing programs to better serve all these interests.

With diversity comes a need to clearly focus on those common activities and programs which can enhance our role in the community. At the same time, the number of architects in Hawaii has nearly doubled over the past 15 years which compounds our need to clearly communicate with each other and with the public.



Robert Hale

Our profession is facing a period of increasing competition from other groups and interests during this period of economic uncertainty. Your commitment and participation in AIA programs are vital to communicating to ourselves and the public what our future role will be. **HA**

Writers, story ideas sought for *HA*

Hawaii Architect is seeking writers to contribute to the magazine. if you have ideas for articles, know of interesting topics, or need deadline or focus information, call 621-8200 or write: *Hawaii Architect,* 1034 Kilani Ave., Ste. 108, Wahiawa, HI 96786.

St. Francis Illuminates Ewa Plain

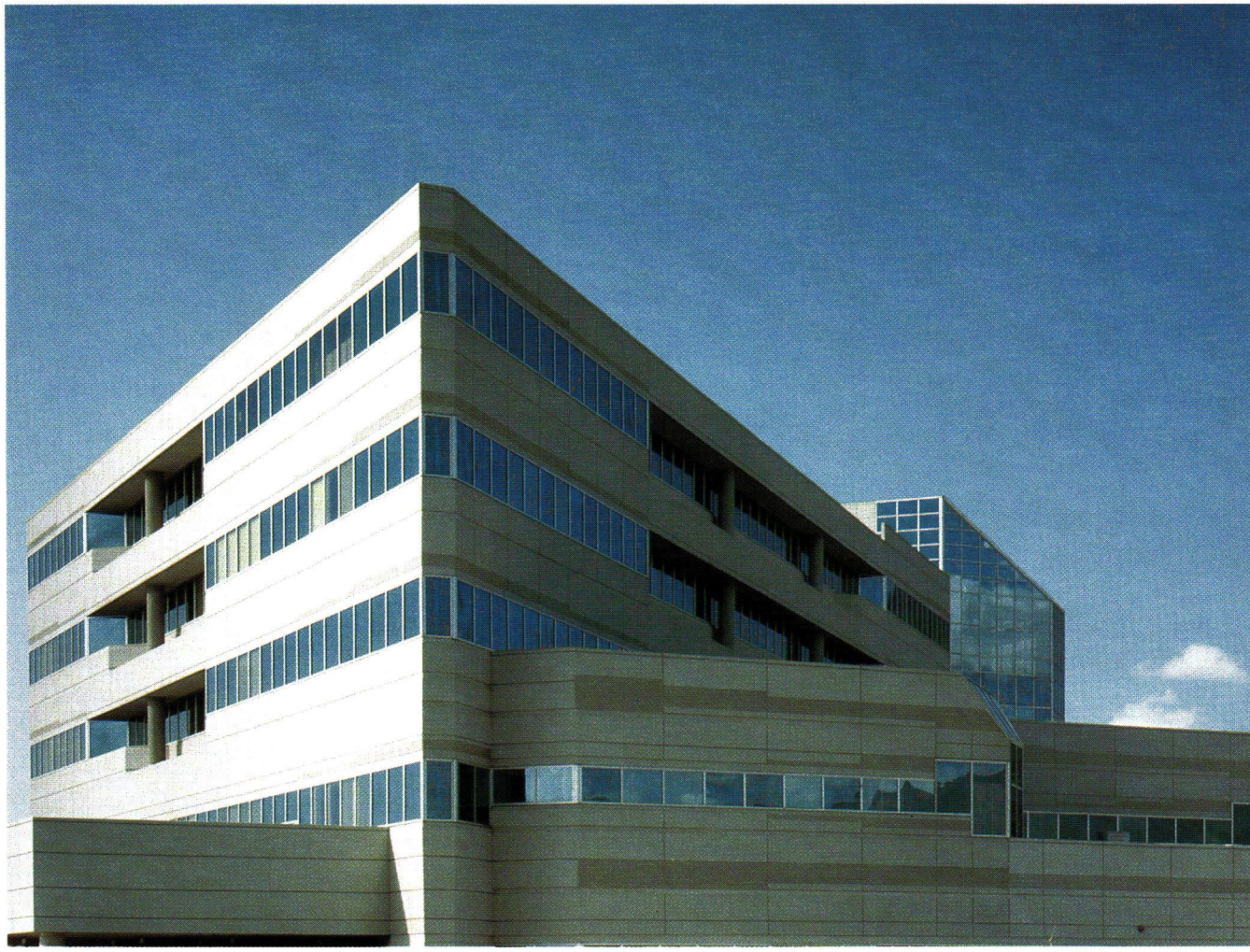
by Joni Ketter

Sugarcane has long dominated the landscape of the Ewa plain. Situated among the cane fields, between the Waianae Mountains and Pearl Harbor, is a five-story, 115,000-square-foot state-of-the-art hospital serving the health care needs of Leeward and Central Oahu.

St. Francis Medical Center West recently celebrated its first year in operation. However, the 136-bed hospital is far from being complete.

The newest hospital on the island, owned by the Sisters of St. Francis, was designed with the future in mind. "The most important aspect of health care planning is providing flexibility for the future," said Joe Balbona, AIA. Balbona, a principal in the Los Angeles firm of Rochlin, Baran & Balbona, Inc., was in charge of the project.

Planning for the future, while at the same time maintaining an operational health care facility, was accomplished in several ways. One of the most obvious is the flat roof of the first floor which provides the opportunity to



LEONARD MYSZYNSKI PHOTO

The geometrical shape of the building provides an alternative to long corridors generally found in health care facilities.

expand outward on upper levels without disturbing the functional atmosphere of the hospital.

We're never sure what's going to happen in five years so we have to leave the facility open-ended," Balbona said. "With this design, the hospital can grow incrementally on the roof of the second floor."

The hospital's master plan looks toward the planned commercial and residential development of Leeward Oahu and calls for the eventual construction of a second building — the mirror image of the existing building — using the main entrance and glass elevator tower as the focal point. "We will never change the main entrance," Balbona said. "Using the elevators and entrance as a centrally-located area, it will be easy to triple the inpatient capacity."

The adjoining three-story physicians' office building also is slated for expansion. The present office building, operational since 1988, was designed to complement the hospital. Its expansion will begin with the construction of additional buildings adjacent to the present structure, Balbona said. The structures will be situated in such a way that a natural courtyard will be created, giving tribute to Hawaii's natural foliage. A concrete walk enhanced by a trellis and skylight will connect the clinic to the hospital.

Additional long-range plans included in the master plan are a medical education center, day care facilities and a health promotion and fitness center on an additional 15 acres of land owned by the hospital.

The general design of the building, which capitalizes on the area's natural beauty, will continue to be utilized throughout future developments. "We managed to take advantage of the view here," Balbona explained. Reflective blue-green glass shows off the mountains and a nearby golf course.

These same natural features are the focus of many inside design plans as well. Exiting the elevator on any floor, one immediately sees the golf course with the mountains serving as a backdrop. Waiting rooms and other public areas have few pictures on the walls. Instead, there are full-length windows throughout, employing the and Pearl Harbor. The use of flat roofs, besides serving as a vehicle for future expansion, allows visitors a panoramic view of the area. "On a clear day you can even see Diamond Head," said Balbona.

The structure's frame is predominantly off-white cast-in-place concrete. Together with the colored glass, maintenance will be minimal, Balbona said. Other than routine cleaning, the concrete will not have to be coated and painted again for many years.

Even though Balbona defined the design of St. Francis West as "modern," he said the concrete and glass exterior is "very simple and sensitive to the environment."

"The design was oriented to take advantage of the view, the landscape, the golf course and the beauty of the area without being detrimental to the environment," he said.

The hospital's interior takes full advantage of the geometrical pattern of the building's base — a square which was dissected into four equal triangles. The use of corridors is minimized, creating open spaces and de-institutionalizing the facility.

The reception area is spacious with a trapezoidal two-story skylight providing natural lighting.

On patient floors, nurses' stations are situated at angles, emphasizing the triangular effect, and shortening the corridors. Walls often face open spaces which intensify the open feeling.

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The interior uses many of the same soft colors as on the building's exterior. "The colors are very much the natural colors of Hawaii." Balbona said.

"When you picture Hawaii, you picture the blue of the sky, the green of the landscape and the sandy-colored beaches. If you look around, that's what we've tried to do here."

Balbona specializes in the design of health care facilities, most of which are located in the Pacific Rim. He first became involved with St. Francis West in December 1983 when he was asked if he was interested in the project: a first-class health care facility in the middle of a Hawaiian sugarcane field.

"I was told they needed the drawings in one week," he added with a slight chuckle. "We did it and actually, we didn't deviate very much from the original drawings."

Balbona said he strives to design health care facilities which are esthetically pleasing — both for patients and their families, but also for the employees who work in them.

"Illness has a lot to do with the state of mind," he said. "It would probably make you feel better to be in an esthetically pleasing environment. It's also good for the morale of the staff. I'd like to work in an environment like this."

The reflective colored glass, the manicured grounds, the nearby golf course and mountains, make St. Francis Medical Center West appear more of a resort.

"It's not a resort," Balbona said. "It just happened to be built on a beautiful site. The ambience, the landscape, the tranquility and the serenity are built in." **HA**

The trapezoidal skylight in the main entrance of St. Francis Medical Center West will be the focal point for future expansion.

Kapiolani Medical Center

Renovations Deliver Homey Atmosphere

by Arturo M. Lucio, AIA

A facility master plan of Kapiolani Medical Center was prepared by Architects Hawaii during the latter part of 1986. The plan established the goal of an attractive facility that would be conducive to better patient care and to a pleasant and efficient working environment for the staff. Renovation of the existing facilities which began in 1987 is the first phase of the implementation of the master plan.

The second level renovation of the centrally-located newborn nursery and Lani Booth Wing post partum unit was identified as a priority project.

Early in the planning process, the following concerns were identified:

- Patient rooms in the Lani Booth Wing which were more than 20 years old were obsolete by today's standards. They were too small and narrow to comfortably accommodate the patient, family and visitors. The colors and finishes were institutional-like and worn. Bathing facilities were not provided with each patient room but were provided in the support core. The toilet alcove, without a door, lacked privacy.
- In the nursery, nursing care area per bassinet and utilities (power, communication systems and medical gas outlets) were inadequate.
- The nursery appeared as one huge space in a very bland environment.

Support spaces such as the nurses' station, utility rooms, equipment rooms, etc. were inadequate and inefficient to suit today's needs.

The overall image needed to be more personal and attractive. A less institutional image was desired.

The new post partum patient room

Architects Hawaii recommended to the hospital that they build a full-size mock-up of the desired patient rooms. Two different room types were built for comparison by the staff. The exercise proved to be a very valuable tool in analyzing and selecting the preferred design. Staff members were able to evaluate the actual space within the room and around the patient bed. Beds, stretchers, carts and equipment were wheeled in and out and positioned to assure the adequacy of the space. Dummy outlets representing power, communication and medical gas outlets were used to determine its appropriate location in the patient headwall.

The new design transformed what were four existing patient rooms into three patient rooms in order to achieve a room size that can accommodate the following functions:

- The "rooming-in" concept of care where the mother, baby and father stay together while in the hospital. In addition to the mother's bed, the room is furnished with an easy chair that opens into a bed for the father. Space is provided for the newborn baby's portable bassinet which is wheeled in from the nursery.
- Private bathroom with shower.

To achieve a home-like feeling, the patient headwall unit was custom designed with extensive use of solid oak. The medical gases, communication and power outlets are concealed in the headwall cabinet. The cabinets also serve as storage for patient's supplies and personal belongings.

In addition to the headwall unit, red oak with natural finish was used extensively for the chair rail, doors, wardrobe, cove light, vanity, flower shelf trims at the window and furnishings.

Soft rose pink is the predominant color. Wall coverings were carefully selected. Wallpaper with fine prints was used as an accent at the headwall. A heavy-duty plastic sheet wainscot was used below the chair rail to withstand impact from equipment being moved in and out of the room. The chair rail was both decorative and functional. It adds warmth to the room and protects the wall.

The room lighting is integrated with the patient headwall unit design. It has up light for general room illumination and down light for reading. The patient can control the lights from a bedside rail console which also has the nurse call button and remote controls for the overhead wall-mounted TV. A recessed

RON STARR PHOTO

A pink and blue color scheme with bears and balloons creates a warm feeling in the new nursery.

fluorescent light fixture is positioned directly over the bed to augment the room lighting level.

The new nursery

To achieve the master plan objective, smaller and decentralized nurseries were designed. Babies are assigned to nurseries in relation to where the mother stays.

Red oak was used extensively for the cabinetwork, window trim, doors and wood rails. Wall covering selections were consistent with the patient rooms in terms of using a wainscot material below the hardwood rail. The soft pinks and blues of the color scheme with bear and balloon prints complete the desired look and feel.

The soft white fluorescent recessed light fixtures of the coffered ceiling create a skylight effect. Perimeter incandescent down lights provide desirable warm colors. The lights can be dimmed to stimulate nighttime and daylight effects.

The nursing support space

Support spaces were designed to achieve the maximum efficiency within the given spaces. The nurse stations have distinct work zones for the ward clerk, physicians and nurses. Its placement provides good visual control of the nursing unit as well as good visibility and easy access to patients.

A multi-purpose room called the Ohana Room was provided in the plan. The design goal which was achieved is a comfortable homelike family room where patients can dine, socialize with other patients and families, watch educational programs on TV, spend quiet time reading or doing

exercise therapy.

New moms and dads are treated to a special dinner in the Ohana Room. During the evening, the room is set up for fine dining complete with tablecloth, silverware and candlelight.

The vaulted luminous ceiling of the Ohana Room has a skylight effect. Recessed incandescent lights also were used at the perimeter of the room. The lights can be dimmed to levels appropriate for the users or functions being conducted in the Ohana Room.

The corridors have perimeter cove lighting which provides indirect lighting and highlight the art work. Placement of the light fixture at the perimeter means that patients on stretchers need not look at ceiling light fixtures directly.

The renovation work was completed early last year and is the result of the combined efforts of Architects Hawaii and the Kapiolani Medical Center's administration and staff. Daniel Design was the interior finish and color consultant and is responsible for the furnishing and art work selections. Allied Builders System was the general contractor.

The new nursery and post partum unit is a demonstration of Kapiolani Medical Center's commitment to provide the best facilities to complement its high quality of care for its patients. The design evokes a relaxed and caring environment and deviates from the familiar institutional image of hospitals. **HA**

Arturo Lucio, AIA is a senior associate of Architects Hawaii with over 25 years experience. He specializes in medical and health care facilities.

The nurses' station is placed in a position which provides good visual control of the nursing unit.

RON STARR PHOTO

Challenges of the Future: Visiting a Medical Center in 2025

by Bob Cleve

Planning and constructing a major medical center is a tremendous task, requiring drawings and specifications almost equal to the weight of the building with attention given to every detail.

The medical center that we decide to build today will not see operational life until close to the year 2000. The investment of resources necessary to produce this center are such that we are not likely to build a replacement for at least 50 years — probably closer to 100. So, the medical center we design for the year 2000 also must serve in 2050, perhaps 2100.

How do we design and build a medical facility that must serve patients and staff for that long and operate as efficiently in the end as it did in the beginning?

We must consider some things that will never change. We will always have patients in beds with nurses to watch over them. Doctors will always make rounds. Human contact between patient and care giver is paramount to recovery and will never be replaced by a robot wearing a nurse's cap.

Keeping that in mind, let's look at a hospital of the future — a facility that has spared no expense in design and construction in order to realize the fullest lifetime savings in both plant operations and staff efficiency, fully utilizing technology of the 21st century. Let's visit a hospital in the year 2025.

As we first approach the hospital, we see no apparent difference in appearance from facilities of a decade ago. However, on closer inspection, we discover the concrete exterior walls have been constructed with the new cement additive "Everdur" which causes the surface of the concrete to form an impervious layer that will not chip, erode, crack or otherwise change and can be cleaned with a garden hose.

> The medical center that we decide to build today will not see operational life until close to the year 2000.

As we enter the main lobby through silent sliding doors, we find a softly glowing, spacious area that welcomes and comforts us. No light fixtures are evident. Instead, the ceiling and walls seem to give off a soothing but adequate level of light.

Directly in front of us is a computer screen with the words "Welcome to Memorial Hospital. Please state the purpose of your visit." We speak to the screen and our words are recognized by the computer.

If we were seeing a doctor, we would be registered automatically, our medical records would be accessed and made ready and we would be directed to the proper clinic. Instead, we tell the machine that we are visiting the resident architect for a tour of the building.

After checking the architect's calendar and determining that he is indeed expecting us, the computer asks us to clip on the ID badges that have appeared in a slot below and to follow the blue guideway. A pulsing blue line, about three feet long, appears on the ceiling and begins to move off at a walking pace. We follow and find ourselves at a door marked "Architect." We notice that the door sign is electric and the name can be changed instantly if the occupant changes. So much for job security!

As we chat with the architect, we discover many features that make this facility efficient and safe. The facility's design was created in three dimensions on the CAD-Real computer design software. This allowed all key staff to walk through, handle and interact with the design in "virtual reality" and eliminated inefficient or unsafe aspects of the design before it was committed to paper.

As we begin our tour of the building, the architect tells us we are being monitored by means of the ID badges we are wearing. These contain a microchip transponder that is triggered by motion sensors in the ceiling.

If we enter a space where we are not supposed to be, a voice will request that we leave. If we linger, a security alarm flashes

and we will be politely escorted out. This same system is used in the ID bracelets that all inpatients wear and the bracelets put on newborn infants. Since this system has become available, not a single baby has been abducted from a hospital where it is installed.

We are naturally interested in the layout of the facility and its support systems. A rather unique feature of this hospital, and one being incorporated into more and more hospitals built since 2010, is the very large interstitial spaces above the floors.

Fully seven feet high, these spaces house all support systems including materials handling and waste disposal. This space also allows renovations to be carried out with relatively little interference to the medical staff.

Since all walls are demountable panels, room configurations can be changed readily and the necessary electrical and plumbing service can be supplied from above in literally minutes. We have learned from experience that as far as a medical facility is concerned, "fixed installation" is a relative term and change is the norm. Whereas technology changes occurred at about five-year intervals in the '80s and '90s, it is changing at three-year intervals now. That is, the machine we buy today will be obsolete technologically in three years.

A walk through the inpatient wing of the medical center is an eye-opener for those of us who remember hospitals in the 1990s. There are no linen, housekeeping or medical carts crowding the hallways. Supplies and medications are delivered to patient rooms via the materials handling and pneumatic tube systems.

Waste, including bed covers (which are biodegradable and cost only cents) are disposed of through a chute that feeds directly to the incinerator. Since the flooring here is of "Armstrong Neverclean" — the new flooring that repels dust and dirt — mopping and disinfecting is done only to clean major spills. The dust and dirt is swept away through slit vents in the lower baseboards.

The patient room itself has all the amenities we have come to expect. Flat-screen TV offers the patient a choice of entertainment, health programming or a view of the outside through rotating cameras on the roof and in the garden.

The bed is the standard patient monitor model which senses heartbeat, respiration, temperature and movement and reports to the nurse's station any unusual condition. Medications arrive at the patient's room in the dosage and interval prescribed by the doctor through the patient care computer system. These come from prestocked, automated "Baker" units. Arrival is signaled to the nurse who then administers the medication.

In the Cardiac Care Unit, we are shown the patient recovery unit, a "bed" that is a vat filled with a saline solution in which the patient can rest, suspended in the warm brine, while his heart heals, largely free from the stress of supporting the body. The architect points out the window to the launching pad under construction. The new CCU will be a Zero-Grav Orbital Unit in geocentric position about 24,000 miles above the old one.

Though it is getting late and we must catch the Maglev shuttle back to the city, we still have a thousand questions to ask. We make another date to visit this marvelous house of healing and to explore more of the departments we have not seen today. As we leave, we realize that though this facility may be costly, it is worth the price for good health. **HA**

Bob Cleve is the facilities manager for the Kaiser Permanente Medical Care Program.

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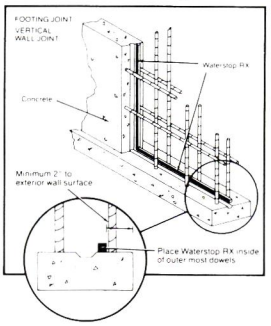

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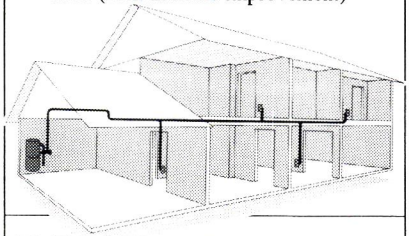

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Western Care in a Chinese Setting

by Bill Hill, AIA

As mainland China moves into the twenty-first century, she is facing a multitude of challenges on almost every front, not the least of which is delivering modern health care to over 2 billion people.

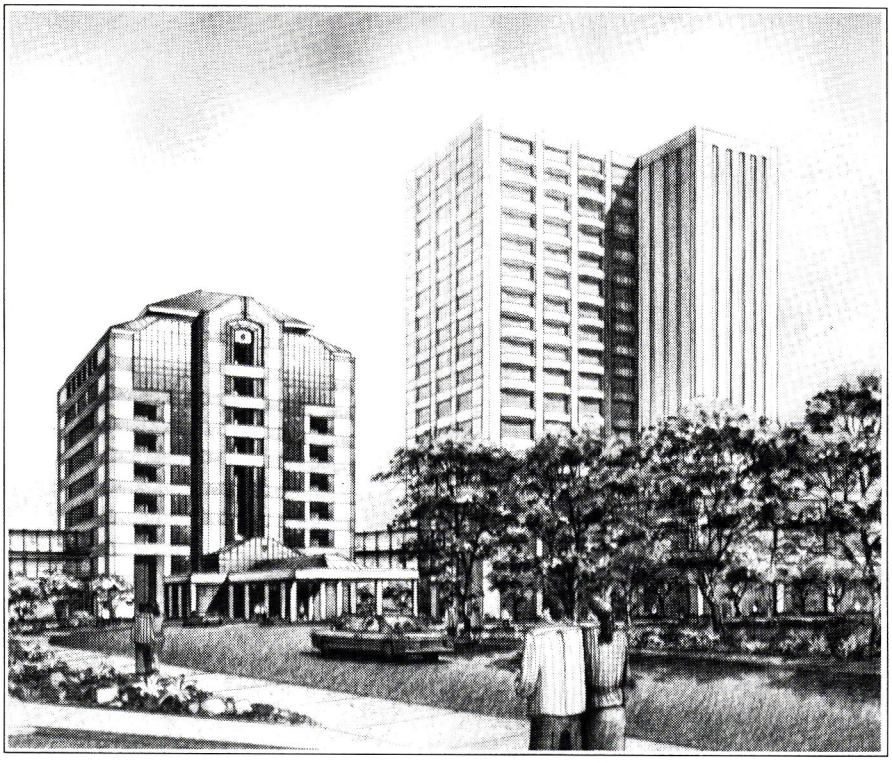
Victims of the cultural revolution and almost 40 years of neglect, the majority of major hospitals and clinics in China need upgrading if not complete replacement.

In 1987, Congress funded the Aid to International Development (AID) program, creating the American Hospital in Shanghai Foundation whose charge was to program and develop a replacement campus for the First People's Branch Hospital in central Shanghai. Architects Hawaii was engaged to design a new facility with 750 inpatient beds, a diagnostic center and an outpatient clinic capable of serving up to 5,000 daily.

As Western architects and planners, we have become quite settled in project development procedures and, generally speaking, can expect our projects to follow a fairly predictable course from start to finish. Not so in China where the unexpected and the unfamiliar are waiting to meet the architect every day. Not only are there the expected challenges of blending differing cultures and communications barriers but there are the sometimes humorous, sometimes frustrating and always fascinating challenges of blending our technological expectations with local craftsmanship and construction methodology.

What surprises were in store for the planning team! It was first discovered that metal studding and gypsum board were not available for this project and in their stead either clay brick or a peculiar styrofoam appearing block would be used. As can be imagined, given this kind of wall section, provision of in-wall conduits for electricity, medical gases and other piping was thought to be a real problem. Not so, according to local building methods. After the base wall system was in place, approximately 1 inch of plaster was troweled on and once hardened, a local craftsman, chisel in hand, came along and dug trenches in the plaster which would then receive the necessary utilities and subsequently be replastered over.

Throughout Asia, and particularly in China, it should be remembered that the sheer volumes of people seeking clinical services is unheard of in Western facilities with the exception of one or two of our most major referral centers. In a clinic planned to see as many as 5,000 people per day, the normally simple logistical process of reception and registration becomes a major consideration. It is customary in China to control



An artist's drawing shows the Functional Diagnostic Center in central Shanghai.

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the numbers of people entering the facility at any given time by a gate system that obliges those arriving late to remain outside regardless of weather conditions.

An organized system of scheduled appointments and reappointments is unheard of. A partial solution to this condition was to create a landscaped plaza with opportunities for shade in summer and shelter in winter.

A first-time visitor to China is somewhat overwhelmed by the number of bicycles used as the primary means of transportation. In much of the Western world, many project solutions are driven by the design of the parking facilities. In China, automobiles are not yet a real factor.

Imagine a similar project in America — 750 beds, diagnostic center and clinic for 5,000 with only 35 parking spaces! On the other hand, planning for up to 1,000 bicycles can have a real impact on site design.

Each project must be approved by a multitude of governmental agencies, both at the municipal and central government levels prior to gaining approval to proceed. There are the usual categories of waste treatment, plant capacities, land use and the like, but perhaps the most unique category for consideration is the number of clay bricks to be used in the project. In almost all instances, materials salvaged from demolished buildings are reused, and in the case of clay bricks, each unit coming from a project is allocated to a succeeding one.

As noted previously, many projects in China are joint ventures between Chinese entities and foreigners. The architectural firms working in China also are obliged to develop a working arrangement with a local "Design Institute." Since there is little or no opportunity for the development of an individual professional practice in China, architects after graduation

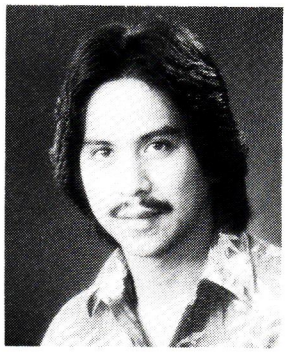
ply their talents within governmental or quasi-governmental units which function incredibly well and prod some very acceptable solutions to many large projects.

Functional design of health care facilities practicing Western style medicine seem remarkably similar the world over, mitigated only by local peculiarities such as the previously noted people processing. Interior design and the use of materials appropriate to a contemporary Western health facility present a much more perplexing series of problems. Local materials are generally found to be lacking in quality, quantity and selection.

At the present time, the project is moving forward with the beginning of underground infrastructure and pilings for the 18-story inpatient element of the campus plan together with the power plant. The 10-story diagnostic center will follow with its completion slated to coincide with the inpatient unit. The outpatient clinic will flow upon completion of the first two elements.

In retrospect of the completed planning process and the successful opening of the remodeling project, the opportunity to participate in the development of health care work in China has been a most stimulating and educational experience for each member of the design team. Our Western building technology and planning methodology makes it easy for us to be aware that there are many in the world who have never heard of a "togglebolt" much less know what to do with it. All those who have worked in China agree that the best prescription for successful projects in China is equal parts of ingenuity, creativity and patience. **HA**

Bill Hill, AIA, is a senior associate for Architects Hawaii with over 25 years experience as a medical planner/architect of facilities throughout the Pacific Rim.



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In-house Medical Architect Meets Challenges

by Coral King, AIA

In 1859 — 100 years before I graduated from high school — The Queen's Medical Center was founded by King Kamehameha IV and Queen Emma.

The population of native Hawaiians was being depleted by Western diseases and Hawaiians were reluctant to go to foreigners' clinics for medical treatment. The young king and queen were so devoted to obtaining a hospital for their people, they personally went from house to house soliciting funds. On Aug. 1, 1859, a temporary clinic was opened on Fort Street.

A year later, the first permanent building was completed on the Punchbowl campus, present site of The Queen's Medical Center. This land was called *manamana,* meaning "branching out." The architect, Theodore Heuck, was a member of the first board of trustees.

Today, Queen's campus is situated on 14 acres and contains about 1.5 million square feet in 20 buildings. In addition to medical facilities, there are numerous ancillary activities: administrative support, physicians' offices, laboratories, laundry, printshop, food services, supply services, a video studio, credit union and an *architect.*

The Queen's Architectural Services department consists of myself, a designer and four drafters. We are charged with performing, in-house, as much of the architectural design and production work for Queen's as we can. In addition, we keep a library of products and samples, maintain the record drawings, and act as a reference center for facilities information. We perform the same services as any other small architectural office.

Medical architecture presents a unique set of challenges. The client is a complex organism composed of three primary user groups.

First, there are the patients, human beings in need of care. Their requirements are acute and they are often incapable of self preservation. Medical procedures can be painful and threatening to human values of dignity and privacy.

The second group is the care givers who attends to the patients. They have specific technical requirements in order to perform their duties and the need for an efficient and pleasant workplace.

The third group is the patients' family and friends. They need psychological support and comforting surroundings during a time of crisis over which they have little control.

Add these elements to the medical design milieu — rapidly changing technology, complex infrastructure requirements, very expensive construction and equipment costs, never enough space, outdated facilities, and a lengthy government approval process.

A health care facility's success is determined by the ability of planners and designers to balance technological and humanistic factors. Empathy is essential in designing facilities that are effective and, at the same time, sensitive.

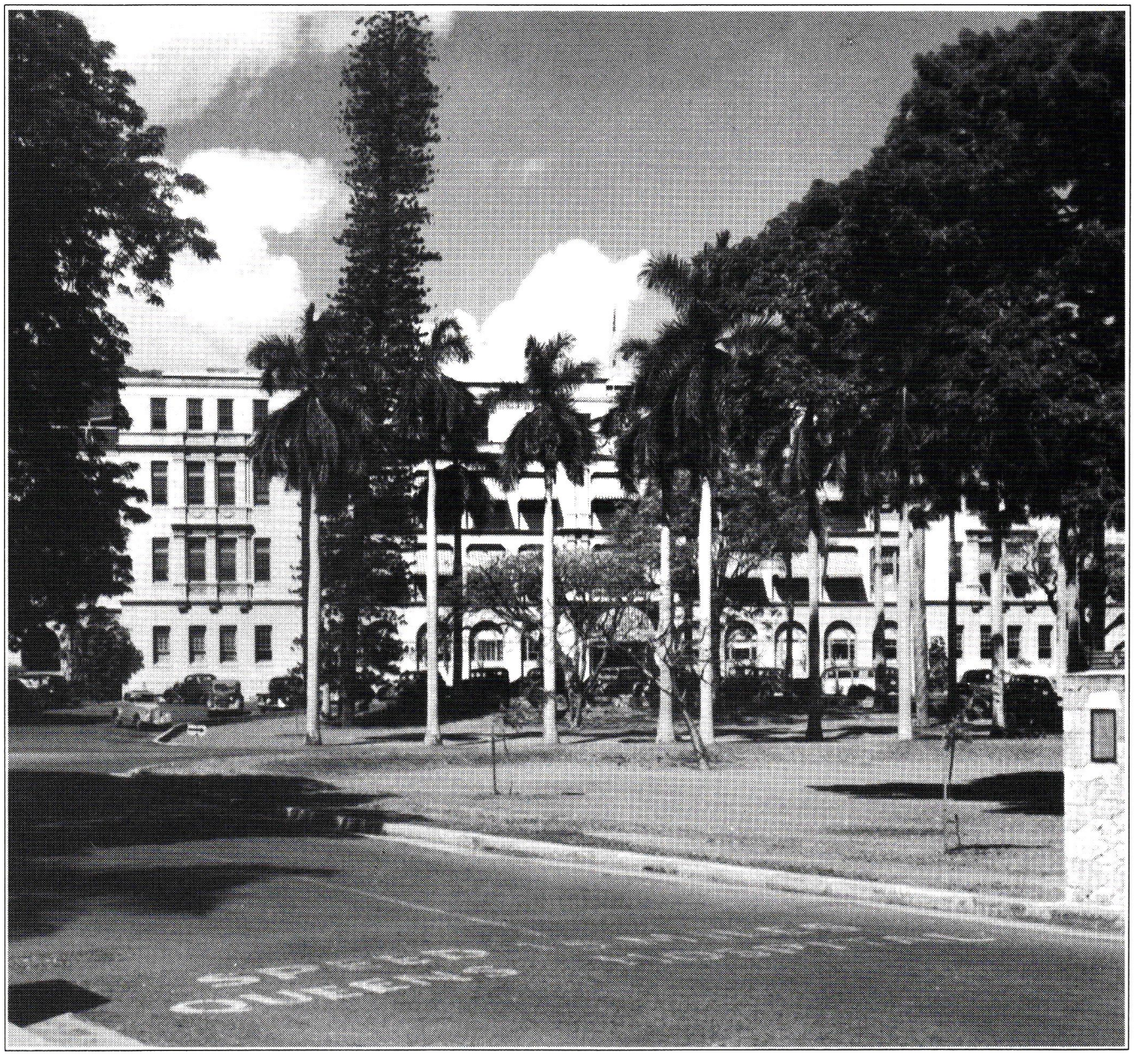
In the early 1980s, Queen's architect, Barry Baker, produced a 1/16-inch scale set of floor plan drawings for the campus. Until recently, this set was still being used.

In 1986, Queen's architect, Bob Hartman, installed a CADD system. It was the CADD system, along with the opportunity to be an architect in a unique role, which lured me to The Medical Center.

Queen's now has a computerized architectural office. The two CADD workstations which Bob set up are still being used. They have been supplemented with three more workstations and networked.

We do our architectural work using a combination of CADD and "cut-and-paste." In addition, word processing and accounting are performed on the computer directly by the technician.

I have written overlays to our software packages. Icons, layering, fonts, formats and other housekeeping tasks are handled silently by the programs. By managing computer standards, I can give each person the freedom to be multifaceted and innovative within the standard framework. Thus, projects are passed around the office, giving us flexibility and variety, and encouraging the



The front entrance of Queen's Medical Center as it appeared in 1936. The Nalani Wing was built in 1923 and was designed by C.W. Dickey.

camaraderie of working together, yet individually.

The computer system also improves our ability to respond to the needs of the user group. Some sensitive plans are worked out with the designer and the group leader sitting together at the CADD station, playing "what if?"

We have spent more than two years updating Barry's floor plans. Building by building, we explored and measured the campus, put the plans on the CADD system, and logged the field notes in a master set.

We now have most of the campus on the system, and it has become very valuable to us. It provides us with accurate backgrounds for our drawings, as well as bonus signage, directional maps, facilities planning, area calculations, etc. The 1/16-inch scale floor plans are updated automatically during design. In addition, we are working on a set of standard details for the Medical Center, and preparing to begin inputting the infrastructure systems.

The Queen's Medical Center is guided by values set down by the king and queen 130 years ago: aloha, compassion, charity, generosity, hospitality, graciousness and humility.

The Medical Center has pledged to carry these values into the future. The real work of an in-house architect is to be sensitive to the organization's values and reflect them in the built environment. It's a challenging and rewarding charge for any architect. **HA**

Coral King is the staff architect for The Queen's Medical Center. She has been a member of the Honolulu Chapter/AIA since 1977.

Accessibility Standards Guide Kitchen Design

by Andrew Charles Yanoviak, AIA, CSI

Architects involved in kitchen design and layout often assume awesome responsibilities. There are a seemingly endless array of design details to coordinate in integrating standardized and customized components.

Generally, the ultimate goal is to provide maximum functional efficiency in an esthetically pleasing space, while minimizing the expenditure of energy and sanitary maintenance. Normally, there also are budgetary constraints for both commercial and residential construction projects.

However, in addition to providing for the hygienic health and welfare of persons involved in food preparation and those being served, architects, kitchen planners and designers have a responsibility to provide for human safety factors.

Ordinarily, commercial kitchen equipment and work counter heights and depths are standardized, even though there may be up to two feet difference in attendant personnel heights and up to one foot difference in arm lengths. Residential kitchen counter and cabinet heights and depths can be customized to a certain extent to suit a particular individual's functional comfort zone.

One assumption that a design professional can make is that there is an "average man" or "average woman." This is especially true in commercial or institutional kitchens when establishing safe widths for circulation aisles between work tables, counters and ranges or ovens, refrigerators, freezers, sinks, dishwashers, mixers, blenders, etc.

With regard to accessibility standards, there are two U.S. federal laws which mandate compliance. The Federal Fair Housing Amendments Act (FFHAA) and the Americans With Disabilities Act (ADA), intended to be complementary, are the two federal laws which mandate compliance. To what extent their provisions will be maintained by federal government agencies in order to avoid conflicts, errors and omissions remains to be seen.

The ultimate liability responsibility for compliance is vested with the owner and their design professionals. How they discharge their responsibilities to other parties and entities in the construction industry through specification clauses and contractual obligations, are not without precedent.

Just as with wheelchairs, legislation is not necessarily a permanent fixture in our society. They both can be modified and amended. Current ADA regulations apply to commercial and public facilities, including accommodations for workplaces, mercantile exchange and recreation. The FFHAA regulations cover only single and multifamily housing projects.

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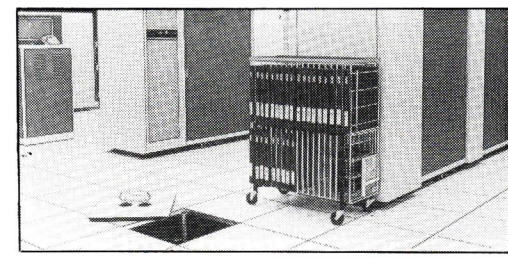

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The accessibility standards environment is already complex, burdensome and costly to practicing architects and designers, and their owner clients. In January 1991, the Architectural and Transportation Barriers Compliance Board (ATBCB) published a historical treatise in the Federal Register on its initiation and growth, as well as its mission in providing guidance to the Civil Rights Division at the Department of Justice on ADA standards development. The Architectural Barriers Act (ABA) of 1968 and the Federal Rehabilitation Act (FRA) of 1973 gave rise to both the ATBCB and the 1982 Minimum Guidelines and Requirements to Accessible Design (MGRAD), as well as the Uniform Federal Accessibility Standards (UFAS) of 1984.

The federal government and several state governments have interfered with the private sector economy in the arena of accessibility standards development. As a consequence, several architectural design projects for new construction and alterations have been aborted or delayed in the process. The American National Standards Institute (ANSI) "117.1" consensus accessibility standards of 1961, 1971, 1980, 1986, and 1991 continue to be incorporated by reference in the U.S. model building codes, and they also have been copied for the most part in the UFAS document. The Board for Coordination of Model Codes (BCMC) has been working diligently for over a decade to advance the ANSI accessibility standards to include provisions for various occupancy classifications and uses. However, ATBCB, UFAS and ADA are embroiled in developing technically inflexible prescriptive rather than performance specifications.

To complicate matters further, the ATBCB published the Notice

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of Proposed Rulemaking (NPRM) in the Federal Register, regarding three options of mixing and matching the MGRAD, UFAS, and ANSI contents and format in developing the ADA guidelines. They received many review comments from the architectural profession on the application of proposed accessibility standards for various uses including office buildings, hotels, restaurants, convention centers, country clubs, airports, auditoriums, etc. which were summarized in the national AIA Memo in May.

To make matters worse for kitchen planners, designers and architects, the ADA guidelines also contain "special application sections" proposed for restaurants, cafeterias, hotels, businesses, commercial shops, libraries, medical facilities, etc. There also will be a Supplemental Notice of Proposed Rulemaking (SNPRM) to the ADA for transportation facilities. Is it any wonder that ATBCB is being recognized as part of the problem by building code officials and design professionals who are calling for their imminent abolition by contacting congressional representatives?

The national AIA Building Performance and Regulations Committee (BP&R) has adopted policy statements, recommendations (including two alternative options for developing accessibility standards based on MGRAD and ANSI "A 117.1," but not UFAS), and general comments on ADA and the development of consensus universal accessibility standards for disabled individuals. In a recent AIA/BP&R "open meeting" in Oklahoma City in April, it was noted that the most contentious and potentially litigious area of ADA has to do with the concept of "disproportionality" as determined under criteria established by the attorney general, regarding the cost and scope of alteration projects.

It also was pointed out during the AIA/BP&R Conference on Accessibility Standards, that ADA covers not only the physically disabled, but also persons with sensory (visual, acoustic, tactile) and mental impairments.

References were made to the recent *Progressive Architecture* article in March covering environmental health concerns including indoor air quality and multiple chemical sensitivity which afflicts 1 to 5 percent of the U.S. population, and may be related to the ADA "breathing" impairment requirements.

What innocently began as an honest attempt to promulgate the use of inclined ramps to accommodate wheelchair access to some parts of building interiors by the "handicapped" (a term now

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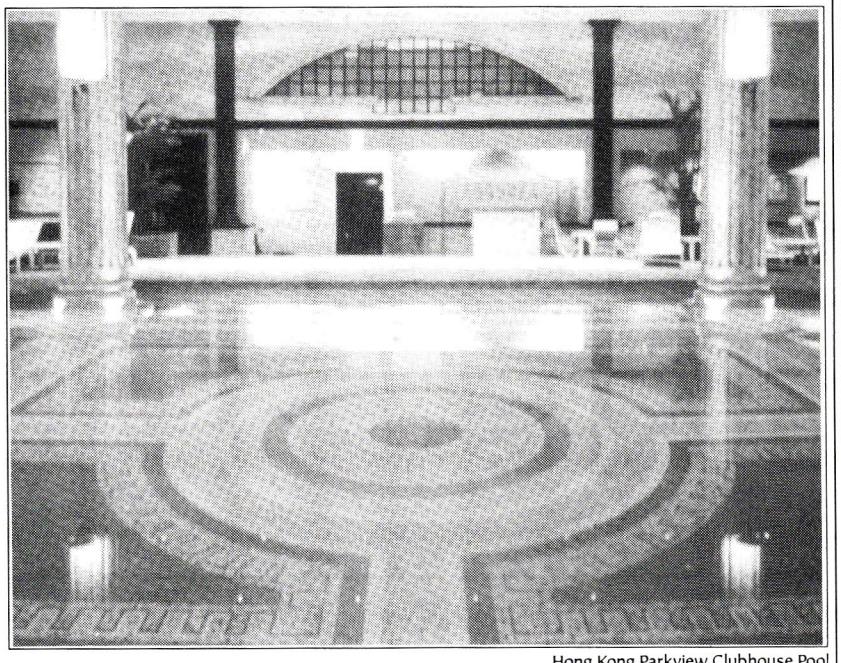

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reserved for the golf course), has grown through radical civil rights legislation into a difficult position, with unconscionable demands for 100 percent access to every seat in an auditorium, and every apartment or town house unit or commercial shop in a condominium project, as well as wheelchair access with 5 feet turning radii in kitchen aisle spaces, etc.

According to the U.S. Department of Housing and Urban Development (HUD), who published the FFHAA guidelines in the Federal Register, an estimated 10 to 20 percent of the U.S. population is currently disabled (conservatively 31 million) with the number growing up to 25 percent by the year 2000. HUD notes that less than 5 percent of our children have physical disabilities, while over 15 percent of the working population are affected.

Attorneys consulted by architects have found several flaws in both the ADA and FFHAA laws. Architects designing kitchens fully realize the incompatibility of laws mandating different standards for access to refrigerators, ranges, ovens, sinks, dishwashers, etc. and the safety hazards involved for the abled (including children) as well as the disabled.

Further graphical design input is required in the commentary on accessibility standards from not only design professionals, but also from kitchen equipment consultants and manufacturers. As has been so eloquently stated in similar circumstances, "Necessity is the mother of invention." **HA**

Andrew Charles Yanoviak, AIA, CSI is Chairman of the HC/AIA Codes and Government Relations Committee, the HC/AIA Environment Committee, the UH School of Architecture Committee, and is on the Steering Committee of the national AIA Building Performance and Regulations Committee.

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Planning for Commercial Kitchens Essential

by Ronald D. Daniels

When planning a commercial kitchen, there are five major considerations:

- the type of operation;
- the menu;
- the availability of space for the kitchen and storage;
- the repair, maintenance and service of the equipment; and
- the estimate of covers or meals to be served.

The type of operation is a main determinant in developing the menu and type of service. While there are many standard features in a commercial kitchen, the needs of a fast food operation will differ significantly from those of a cafeteria-style coffee house or a fine dining restaurant.

The second consideration —the menu — also will be a major deciding factor in relation to the type of equipment and space needed. The menu will impact the number of employees necessary to run the operation efficiently. One can compare the convenience food operation with a traditional setting. The former utilizes items that are pre-cooked; only heating is necessary. Therefore, it may require only one cook and minimum space. The latter operation may require two or more cooks with more space and equipment.

Yet, there are some standard types of equipment that may have more than one use. Basic equipment includes a gas stove with open burners, a conventional and convection oven, a griddle, a stacked steamer, a mixer and a chopper.

Too often restaurants are designed by a person who has not had much experience in the industry. They tend to minimize the space needed to make the working areas adequate for the employees. In addition, storage space often is reduced to trim the cost of construction.

Restaurants are designed for aesthetics and ambiance, disregarding the working applications of the design. Prospective owners should spend time looking, comparing and talking to employees of establishments that are similar or closely related to their expected operation.

Employees are one of the best sources of workable information that can be incorporated into a design.

If a restaurant is located conveniently so that deliveries can be made daily, storage space for food supplies need not be extensive. However, the space for equipment must not be neglected.

There always seems to be extra

chairs, tables and other equipment that will need storage. Two thousand square feet should be the minimum space for a kitchen and storage area. And 36 square feet should be allowed for each person in the dining room.

Too often when equipment is being considered for purchase, price is the main concern. Price, while important, should not be the deciding factor.

For restaurant owners in the islands, the availability of repair and servicing of commercial equipment should be the prime factor. Having to send equipment out of state for servicing has a negative impact in terms of time and money. Restaurant owners should purchase commercial equipment from reputable companies who also have the capability of providing timely and efficient service.

The number of covers, or meals, to be served will determine the size of the equipment and kitchen space which includes dishwashing. Invariably, these areas are too small for the volume of business a popular restaurant generates.

In the dining room, the service areas (bus stations) for the wait staff, again like the washing areas, are often too small, causing much more traffic in the kitchen than necessary. These stations should be fitted to the expected volume and equipped accordingly. Cabinet space, racks and shelves are too often eliminated from the washing and service areas.

The walk-in chill rooms, walk-in freezers and storage for dry goods should have adequate space and be accessible, too.

Ultimately, one must have a comprehensive vision of the entire operation from purchasing to the sale of the product. **HA**

Ronald D. Daniels is the Hotel Operations program coordinator and principal instructor at Maui Community College. He also is a Certified Executive Chef and a Certified Culinary Educator of the American Culinary Federation.

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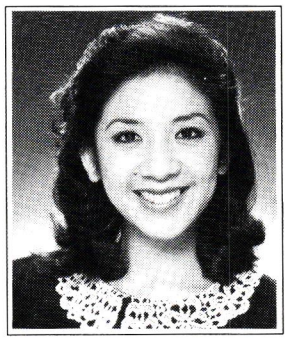
New Members Welcomed to HC/AIA

Seven new members, one associate and one student affiliate have joined the Honolulu Chapter/AIA recently.

Carmelo L. Monti received a bachelor of architecture and urban design from the University of Kansas. Employed by Sam Chang Architects & Associates, Inc., Monti enjoys building plastic models. He and his wife, Mary L. Miller, have a 10-year-old son, Jason.

Robert J. Johnson, an employee of Okita Kunimitsu & Associates, Inc., graduated from the University of Colorado with a bachelor of architecture. The



Laurel Mau

father of two children, Jennifer, 19 and Ryan, 18, he enjoys hiking, boating, woodworking and landscape gardening.

Matthew M.F. Lum, a graduate of the University of Hawaii with a bachelor of architecture, is employed by Wong, Sueda & Associates, Inc. He enjoys fishing and boating. Also a member of the Wong, Sueda & Associates team, **Michael R. Wong** received a

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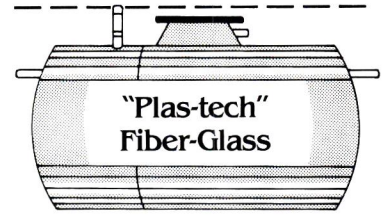

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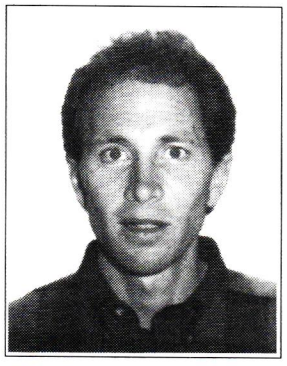
bachelor's degree in fine arts in pre-architecture. He and his wife, Naomi, have one child, Kristopher.

Hong-Ji Kuo received a master of architecture from the University of California, Los Angeles and a bachelor of science in civil engineering from National Taiwan University in Taipei. He is employed by Anbe, Aruga & Ishizu Architects, Inc. He is married and enjoys basketball, softball and computers.

Employed by Lacayo Architects, **James M. Severson Jr.** graduated from the University of Hawaii with a bachelor's in environmental/urban design. He and wife, Jenice, have a son, Kaukahi, 14. Severson enjoys body surfing, cabinetmaking, hiking and softball.

Laurel Mau is a senior associate with AM Partners, Inc. Mau received a bachelor of architecture from the University of Hawaii and likes to sew, shop, play tennis and travel.



Palmer Hafdahl

Associate member **Palmer Hafdahl** is employed by Lanai Co., Inc., a division of Castle & Cooke. He received his bachelor's and master's degrees in architecture from California Polytechnic State University at San Luis Obispo. He enjoys windsurfing.

Student affiliate **Melina Rene'e** is employed by Architects Hawaii. She received her degree from the University of Hawaii and lists photography, flower arranging and snorkeling as favorite pastimes. **HA**

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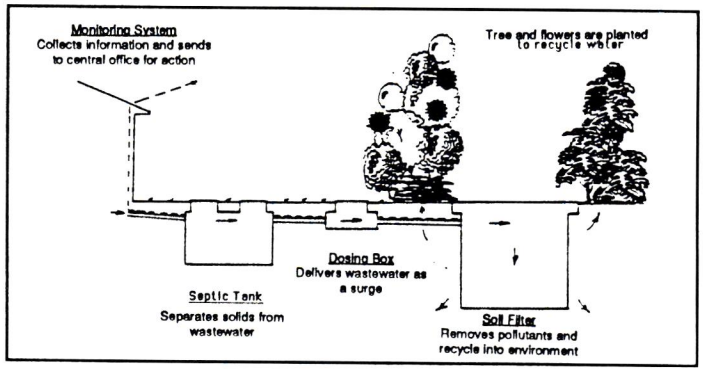

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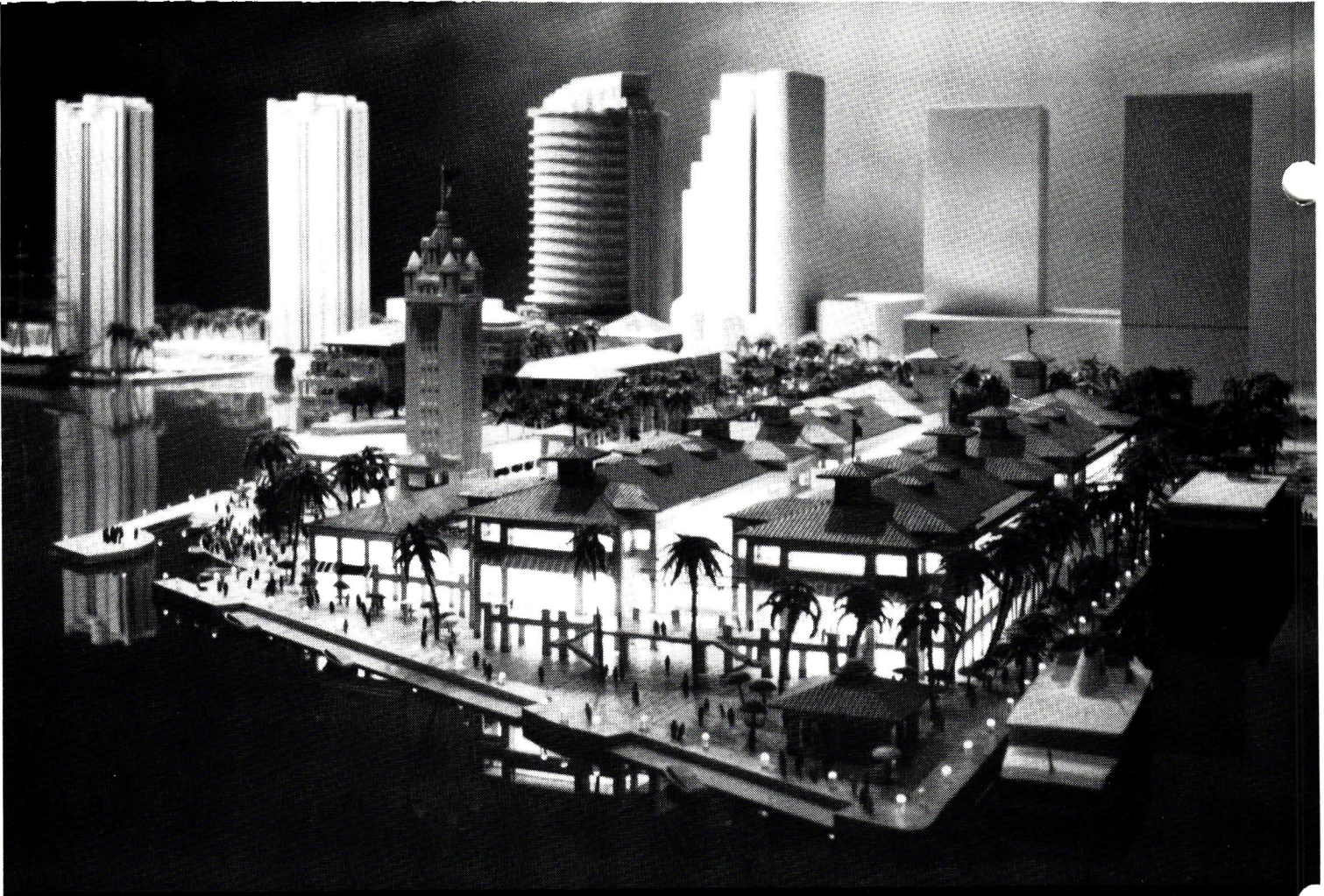

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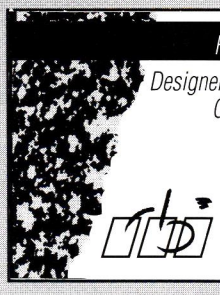

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CADD Revolutionizes Design Industry

by Walter K. Tagawa AIA

When CADD was first introduced, it provided an alternative to design professionals in the execution of design and construction documents. While initial acceptance was slow, CADD has advanced to become more user friendly and greater in capability, causing many local firms to adopt, totally or partially, the computerized system.

This alternative suggests a new view toward resources. For the professional, this electronic "assistant" adds an extraordinary dimension in speed, accuracy, consistency and quality, not subject to human frailties and which does not seek higher compensation, vacation or sick leave. It can even plot 24 hours automatically.

There is no question that technology has come of age where it has revolutionized the design industry. Technology has raised to new heights the ability to communicate and the general overall efficiency in office practice.

3-D Visualization

One of CADD's major advancements is the transition from a 2-D environment to 3-D and more recently a 4-D creative environment—animation. There are new tools to create the highest quality 3-D computer graphics which are photo realistic with ray tracing and radiosity

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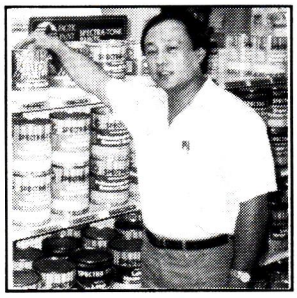

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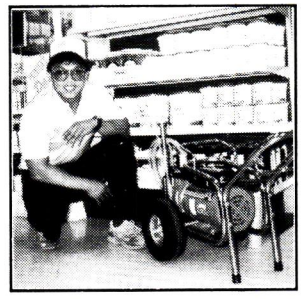

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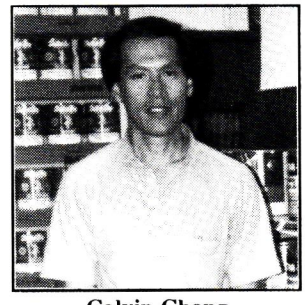

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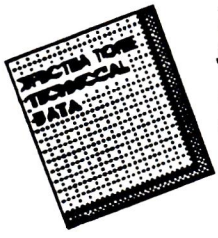

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algorithms to simulation of physical laws. It is a complete integration of all functions within the same program.

The environment is multi-tasking, fast, user friendly and allows for increased productivity and creativity. Examples are illustrated in Figure 1, a composite image which can be used as a still or for animation, Figure 2, a 3-D image, and Figure 3, a 2-D drawing.

The ability to composite various layers of images provides extraordinary potential for a photo realistic created environment. For the design professional, the visualization involving 3-D computer graphics is the insertion of live action, trees, grass, shrubs, cars, etc. to enhance the feel of a new development and to place it into an existing setting.

Current technology even provides the ability to do "walk-throughs" from a conceptual or study mode to a finished product, to relate in a most effective way the feel of the created space to the client. The new system is limited only by imagination in

Figure 1 illustrates a composite image which can be used as a still or for animation.

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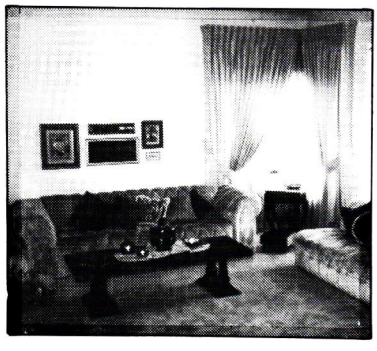

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Figure 2, left, is an example of a 3-D image created with CADD.

communicating values of a product which can be viewed as the most significant challenge to design professionals.

Software programs are supported by PC platforms on the low end and workstations like Hewlett Packard, IBM, Silicon Graphics, Sun, Tektronics and others on the high end. Both hardware and software are becoming more powerful and lower in price. A computer generates millions of bytes of data and computes solutions to thousands of equations. The resulting avalanche of information can overwhelm traditional interpretation techniques.

Drawing Conversion System

The technology to scan "stubby pencil" drawings to a computerized format has been available for several years. The challenge to convert drawings into a CADD database which can be edited is a recent development and significant advancements have been made to accurately convert drawing information.

This raster-to-vector conversion system brings mainframe capabilities to a PC and automatically batch converts raster data files to CADD vector files without operator intervention.

Electronic Document Storage and Retrieval System

Microfilming texts and drawings is still the basic standard for records management. However, there is now imaging technology which has the capability of sorting, scanning, storing, indexing, retrieving and printing/plotting. Together with this system is the optical disk technology which adds another dimension for records storage.

Storage of texts and drawings remains a major problem for the

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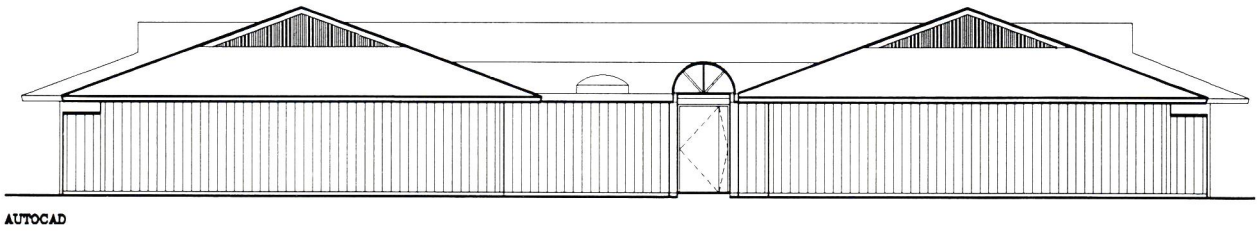

Figure 3 demonstrates a traditional 2-D drawing.

design professional. This problem is further compounded by the ever-increasing cost of space which makes imaging technology a reasonable alternative. This system allows the professional to store a broad range of documents, correspondence, construction drawings, shop drawings, as-built drawings, etc. With its editing capability, files can be retrieved for future application in remodeling of existing structures in CADD format.

Integration of Systems

A new data management and graphic retrieval program has been developed with a wide variety of applications. This program allows rapid retrieval and manipulation of database records, CAD drawings, slide files, raster (scanned) files, video, etc. from a menu-driven CAD drawing environment. This program also can be used for presentations.

Technology as a Value

What has been described is only a sampling of the extraordinary advancements in computer technology where electronics is rapidly replacing paper-based thinking. Value to the design professional appears unlimited and the cost and knowledge-based barriers to moving forward with technology are significant. **HA**

Walter K. Tagawa, AIA , is with GACI, Inc. and has been practicing architecture for over 35 years, using CADD systems for the past seven.

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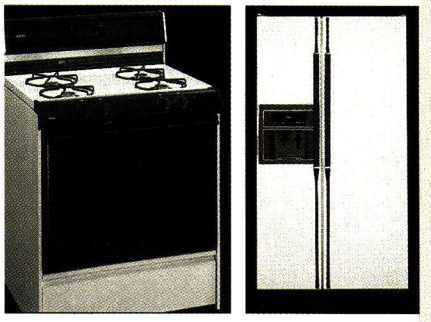

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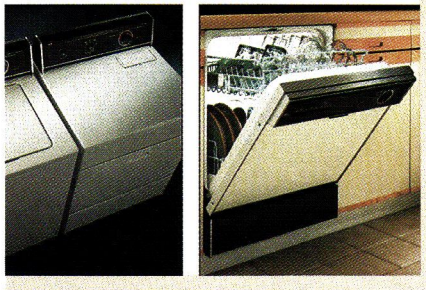

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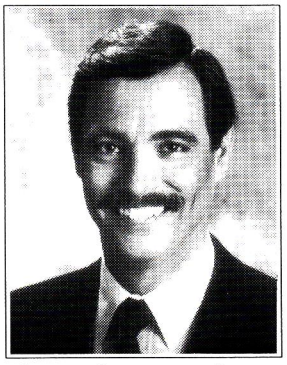
News

Smith Named to Advisory Council

Christopher J. Smith, FAIA, was recently recommended for membership on the Advisory Council of the School of Architecture and Environmental Design at California Polytechnic State University at San Luis Obispo.

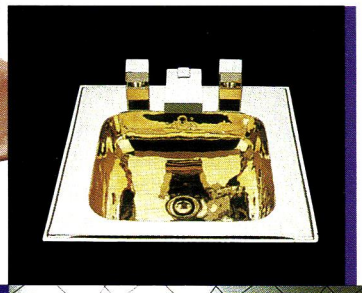


Christopher J. Smith

Smith graduated from the school with a bachelor of architecture and social science.

The purposes of the Advisory Council are to provide the school with the advice and counsel of professionals who have an active interest in the diverse professional educational mission of the school, to provide a communications link between the school and professional community in the private sectors as well as in the industry, to be a source of advice on the long- and short-term planning of the school, and to aid the school in seeking public and private support for its educational mission.

Smith currently serves as the director of the Honolulu Chapter/AIA. President of the CJS Group Architects, Ltd., Smith completed a two-year term as the AIA National Secretary and was advanced to the College of Fellows in 1990. He was a member of the national AIA board of directors from 1985-1990 and Hawaii Society/AIA president in 1984. **HA**



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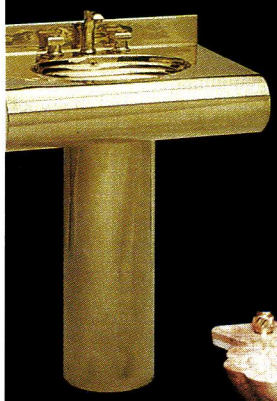

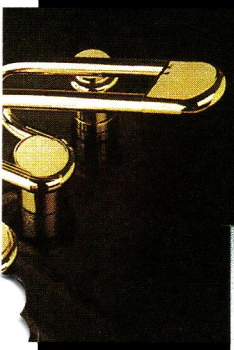

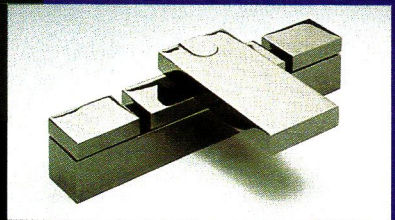

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Letters to the Editor

Dear Editor:

The article "Architects Meet Environmental Challenges" by Andrew Yanoviak in the April 1991 issue of *Hawaii Architect* contains misleading information that we would like to address as it affects the Building Department. Some of his statements are as follows:

1. "Apparently, on some islands, open space setbacks, area and height limits are being ignored and not enforced by government officials."

2. "...engineers and the developers and landowners...are taking advantage of government regarding a marked lack of regulation and enforcement of our codes, ordinances and design standards."

Mr. Yanoviak also states that architect-planners or landscape architect-planners are more qualified and meet the challenges of Hawaii's natural environment and that engineers are insensitive while government ignores and does not enforce its codes and regulations. The article contains many generalized negative statements which cast a broad shadow on all the positive things architects, engineers and government are doing and trying to achieve.

We will continue to do our part as well as we can in the administration and enforcement of all laws and ordinances under our jurisdiction. We are sure the majority of the architects, engineers and other government agencies are also doing their part the best they can.

Herbert K. Muraoka
Director and Building Superintendent
City & County Building Department

Dear Editor:

Mr. Yanoviak's article in the April 1991 edition of *Hawaii Architect* identifies problems that should be of concern to all residents of Hawaii. But his conclusion that civil engineers are the cause of all problems and that only architects can save the world is ludicrous and not conducive to finding constructive solutions to the problems.

There are design professionals in all disciplines who are sensitive to the environment and there are those who are not. The same can be said for government officials.

When engineers and architects work together, they have a lot of clout. When they are divided, their clout is diminished. The holier-than-thou attitudes expressed in this article are not conducive to the cooperation we need in order to solve mutual problems.

Brian L. Gray
Civil engineer

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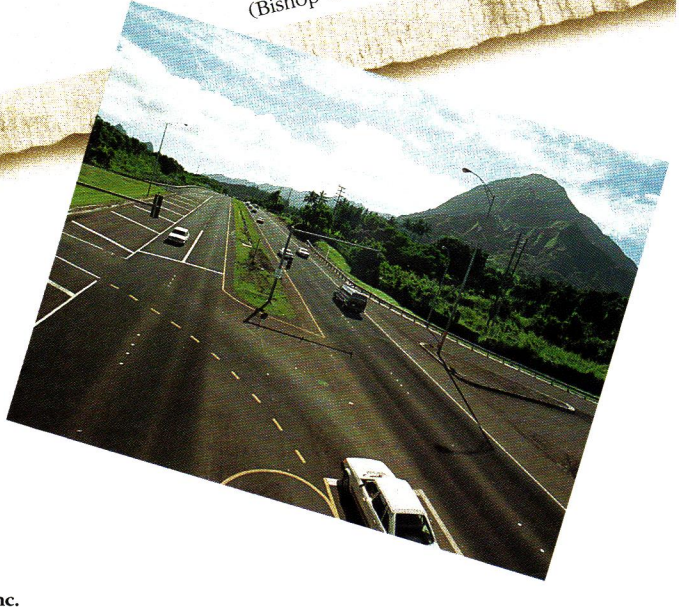

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