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Open Spaces and Gathering Places

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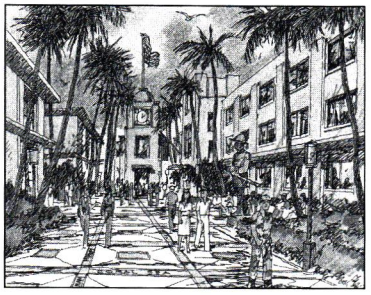

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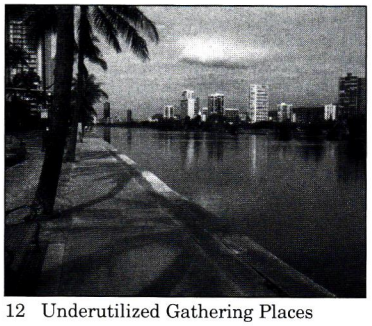

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DEPARTMENTS

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IN THIS ISSUE ...

Good architecture is more than designing buildings. It includes careful consideration for open spaces and how those spaces can best be enjoyed by the users...hence the theme "open spaces and gathering places." Articles on planned or "wished-for" improvements to Ford Island, Waikiki and Honolulu provide food for thought on this important and timely topic.

COVER: Dole Cannery, itself a gathering place, received an Honor Award in the 1997 AIA Honolulu Design Awards competition. Photo by Hal Lum

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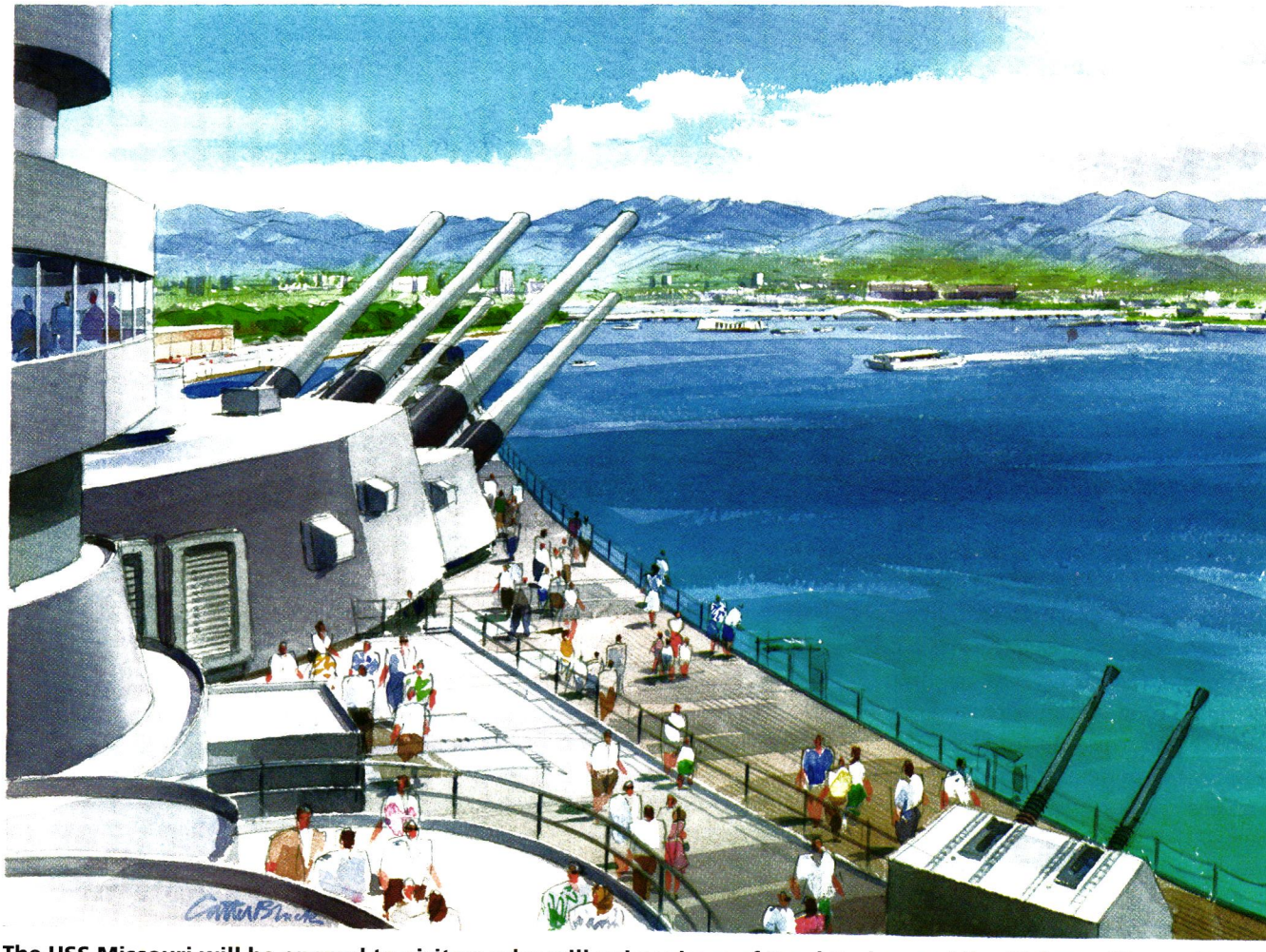
The USS Missouri comes to Hawaii

Aloha to the "Mighty Mo"

by Rob Hale, AIA



The USS Missouri will be opened to visitors who will enjoy views of Pearl Harbor and the Waianae Mountains as they walk her historic decks.

Rendering by Carter Black

Cheers arose throughout Hawaii in 1996 when the Secretary of the Navy made it official that Pearl Harbor would be the final home of the famed battleship USS Missouri. A partnership among Hawaii's community, government and business leaders succeeded in showing the Navy that Pearl Harbor was the ideal setting for the historic ship, which is scheduled to arrive in May.

The "Mighty Mo" had passed through the waters of Pearl Harbor many times during and after World War II and again when she was recommissioned from 1986 to 1992. But the ship secured her place in history in 1945 when aboard her decks in Tokyo Bay, the Japanese government signed the documents that ended World War II.

It seems only fitting that the USS Missouri rest in Pearl Harbor. Nearby, the USS Arizona, a powerful symbol of the beginning of World War II, lies in its solemn grave beneath the timeless memorial that thousands visit each year. The addition of the Missouri will form the "bookends" of the war. The battleship is an integral part of Sen. Daniel K. Inouye's vision for Ford Island, and along with the USS Bowfin submarine, the area will form a memorial park that will teach, honor and inspire for generations to come.

(Continued on next page)

Including the USS Missouri in the Pearl Harbor landscape provides a noteworthy turning point in planning for the area. For the first time, the public will have access to the shoreline on Ford Island when they visit the historic ship. The visitor center and other attractions planned afford opportunities to shape how the community and visitors use the area.

While designing structures, parking and support facilities, planning the layout and discussing transportation and operational issues, we must remember that ultimately, the thread that weaves the entire complex together will be the skillful integration of open space. Because of the physical split in location, the open space includes not just land but the entire harbor area as well. The memorials, structures, land and water form a greater entity together than individually. In essence, the atmosphere of the whole park will be greater than the sum of its individual parts. The pivotal point, then, is how the space is to be used.

This determination requires a combination of observation and vision beginning with how the space is currently used. Navy and civilian personnel conduct time-honored ceremonies and work in the area. Navy families live in nearby housing, local families picnic, people jog and tourists learn about history. World War II veterans from both sides visit the area to reunite and reflect.

The Navy's plans include a historical and cultural complex on Ford Island which would be open to the public and incorporate Navy housing. Planning the complex requires vision of what the Ford Island of the future will mean to the community and visitors. The Pearl Harbor area means something different to every person, yet all these activities occur in the same space.

The concept of one continuous landscape comprising land and water is important in Hawaii. Living on a series of closely-knit islands, our geographic and cultural connection to the ocean blurs any separation at the shoreline. The people of Hawaii see the landscape as one continuous entity to be explored and revered.

We must learn from the success stories in areas where the public has regained access to the ocean. Examples include a number of wa-

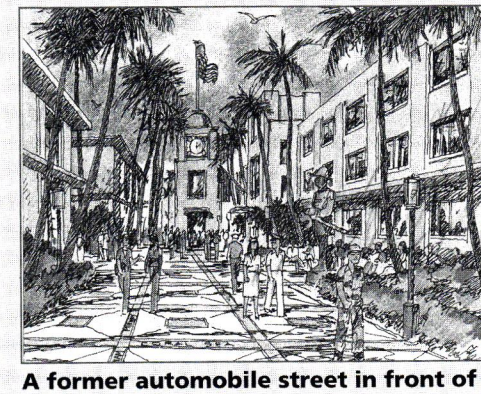
The Ford Island plan creates a new gathering place

A Place of Pride in Pearl Harbor

by Mark Hastert, AICP, and Robert Odermatt, FAIA

The land use concept for Ford Island creates a community with all the amenities necessary for an island environment. However, it is also important that the island be integrated into the operations of Pearl Harbor. The opening of the Ford Island Bridge, the closure of the airfield and the impending arrival of the USS Missouri bring new opportunities for land uses which capitalize upon the island's historical assets and its role in defining the Navy's place in the Pacific.

The island's land use plan divides the land into three major sectors. The north side is devoted to family housing and support facilities. The south side is primarily comprised of operational uses and bachelor housing. The center of the island will be maintained as a large, landscaped open space band which will serve the community's recreational needs.



A former automobile street in front of Building 55 will be converted into a pedestrian mall.

At the apex of the southern coastline lies "Navy Square," a proposed historic and cultural complex which will build upon the experiences imparted by the Arizona Memorial and the USS Missouri. Historic island features including the control tower, a hangar and the runway (transformed into a field of green), will be incorporated into this historical setting.

terfront spaces from Waikiki to Pearl Harbor — Ala Moana, Kakaako, Sand Island, Keehi Lagoon and Aloha Tower. On the Neighbor Islands, Lahaina and Kailua-Kona are good examples. Water is an integral part of our lives and a living part of our landscape.

Our commitment in helping to shape what Pearl Harbor will look like incorporates respect for the solemnity of the Arizona Memorial; the history and lessons of the vessels and the area itself; the fact that Pearl Harbor remains an operational naval facility; and the multiple meanings of this area to visitors.

The atmosphere created by this park-like setting will be vital to ensure a quality experience for all who visit. With careful planning, people who work or play in the area will experience links to the past and the future. The success of this project goes beyond the specifics that are built — it will be a cumulative effect that imparts the site's significance, dignity and vitality. We don't want to create the Pearl Harbor experience. We want to foster it.

Rob Hale, AIA, is president of Architects Hawaii, Ltd., Honolulu.

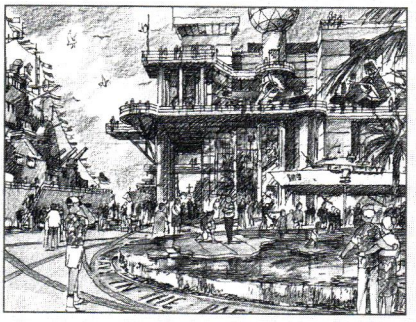
Pedestrian-Friendly

Land uses will be linked by a loop road connected to the bridge at the island's east end. However, the island's size and topography lend themselves to walking, jogging and biking. To encourage pedestrian activities, a round-the-island walkway/promenade and three major cross-island pedestrian links are proposed. These links will be defined by open space corridors which tie the family housing areas at the north to the operational facilities and water-borne transit at the south.

The residential community on the north side includes a variety of low and medium density housing bound together by a traditional Hawaiian landscape. The residences are planned in small neighborhoods around common open spaces and streets which open out onto the shoreline with views of Middle Loch and the Waianae Mountains. Support facilities include a child development center, recreation area and marina.

The center of the island will be developed into a large open space park which recognizes the important axis of the historic runway. The space is visually tied to a park on the northeast quadrant of the island which will be made available to the public.

Existing training facilities on the island's south side will be augmented with new operational uses including berths and administrative facilities. Bachelor quarters are located in close proximity to the berths with views to the water. Pedestrian circulation is emphasized with the development of promenades along the water and streets. Parking will be screened from view. New club facilities are envisioned on the west end of the island overlooking the entrance channel to Pearl Harbor.



Navy Square will include displays of ships, submarines and planes and a fountain depicting historic battles.

The plan envisions important improvements relating to the history and future of the Navy in the Pacific. A new landing is planned for Navy Square, the new focal point of the island. A fountain located in the center of the square will depict sites of major World War II battles.

Flanking the square will be museums and theaters which describe the history, current and future roles of the Navy in the Pacific. Visitors will be able to tour museums, view historic structures and walk the shoreline promenade. The historic control tower will be restored to become a major focal element for the island.

The master plan was prepared by Helber Hastert & Fee, Planners, Inc. and The Odermatt Group for the Commander of the Naval Base at Pearl Harbor and the Naval Facilities Engineering Command, Pacific Division. The plan demonstrates a successful working partnership between private planners and the Navy to create a viable community with attractive amenities for both residents and visitors to Ford Island.

Mark Hastert, AICP, is principal of Helber Hastert & Fee, Planners, Inc., Honolulu.
Robert Odermatt, FAIA, is president of The Odermatt Group, Berkeley, Calif.

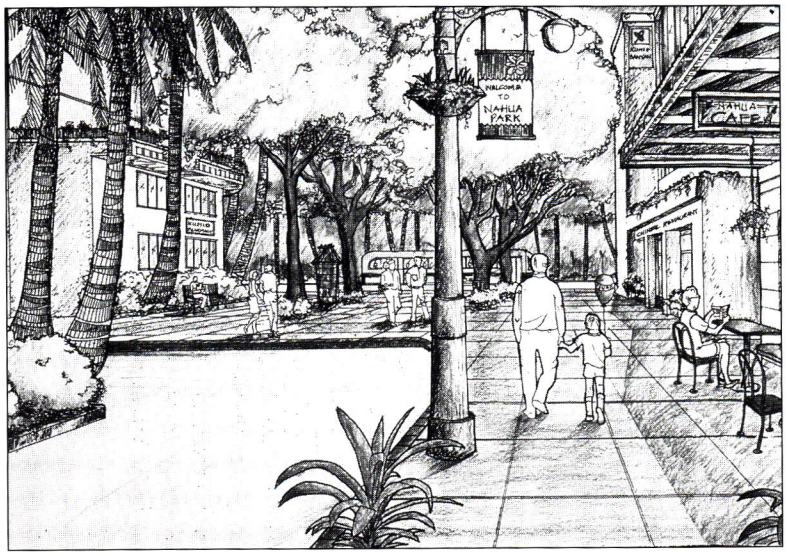
Out of vehicles and onto the streets

Pedestrian Pleasure in Waikiki

by Charles Wallace, AIA

One of the most overlooked and underappreciated aspects of the dialogue on how to improve Waikiki is the importance of pedestrian pleasure.

There's a lot that can be done – now and without massive infusions of money – to make Waikiki more inviting to visitors and residents alike. Without minimizing the importance of long-range planning and other aspects of Waikiki improvement, improvement of the pedestrian experience of paramount concern.



Pedestrian malls and streetside cafes could help make Waikiki more inviting to pedestrians.

Waikiki should be for pedestrians. The area is only a half-mile wide and one mile long. It has 35,000 hotel rooms anchored at one end by Diamond Head and the other by the new Hawaii Convention Center. It would make sense to manage Waikiki as a theme park, giving great emphasis to the pleasure – and empowerment – of pedestrians.

We can do that. We can improve and enrich the Waikiki pedestrian experience through the creation of small park-like nodes of activity and better pedestrian linkages throughout Waikiki, the Convention Center and Ala Moana Park.

In my role as adjunct professor for the University of Hawaii at Manoa School of Architecture's Design/Professional Practice Program, I've guided upper level students in research studies on the pedestrian experience in Waikiki. In the process, I've become a strong advocate of the merits of pedestrian pleasure and a believer in the feasibility of undertaking improvements that would enhance the potential of Waikiki as a joyful place to walk.

Walk, Don't Drive

Waikiki should be all about street life. From one end to the other, it's 30 minutes on foot. It's a mere 10 minutes from Hilton Hawaiian Village to the Convention Center. Why stand in line to ride a bus?

The vitality of Waikiki will be rekindled when conventioneers discover that getting to the convention center from their hotels can be a delightful, interesting, informative experience – better than a humdrum bus or taxi ride.

The research we've done with the UH students is very encouraging. It outlines possibilities that include the creation of a five to seven-mile network of pedestrian paths that would open up and greatly improve pedestrian linkages throughout Waikiki.

This network of walkways would feature small nodes for activity, adequate and attractive lighting, landscaping, visitor information, places to sit, and signage that gives directions, information about points of interest and Hawaiian history, and descriptions of native plants. Another interesting and promising proposal is an under-the-Ala-Wai

A gathering place is needed

Bringing Residents Back to Waikiki

by Donald W.Y. Goo, FAIA

To assure Waikiki's long range health and vitality, we must stay focused on the aloha spirit as our most appropriate and distinctive way of attracting visitors and keeping them happy. The concept "aloha spirit" assumes interaction between and among people. In the context of the visitor industry, this means interaction between visitors and residents.

Travelers want an experience of the place visited, complete with opportunities to see, rub shoulders with and interact with the people who live in that place. When this happens, it can be mutually rewarding for both visitors and residents.

Over the years, Waikiki and the rest of Oahu have grown apart, leaving Waikiki a visitor ghetto largely lacking in heart and soul, and definitely not the place local people gather. This shortchanges both populations.

(Continued on next page)

linkage between Waikiki and the Convention Center.

Kuhio Avenue research reveals that this now noisy, smelly thoroughfare could be converted into an avenue of dignity and charm, where pedestrians can walk with increased comfort and safety.

Those who are already working to transform the quality of life in Waikiki should be commended for their efforts. This includes the Mayor's Office, which is focusing heavily on Kuhio Beach improvements, the Waikiki Improvement Association and various private sector entities.

We are highly pleased not only with the caliber of work the UH students have done on the pedestrian research but particularly by the reception this work has received. It was presented to and received favorably by the City and County of Honolulu Planning Department, where officials showed signs of intent to initiate some of the ideas.

I am sure of the desirability and feasibility of improving the pedestrian experience in Waikiki and want people to think about shoe leather. We have enough vehicles – cars, trucks, cabs, limos, trolleys, tour buses, city buses and shuttle vans, and now we're hearing talk about a fixed-rail people mover. What we really need is management of the resources we already have – coordinated, seamless control, like DisneyWorld which, incidentally, is bigger than Waikiki.

It is my firm belief that considerable progress can be made in the direction of lofty, complex goals by the accomplishment of multiple modest goals, in lieu of exclusive focus on projects of great magnitude requiring mammoth funding.

Charles Wallace, AIA, is a principal at Wimberly Allison Tong & Goo, Architects, Planners and Consultants.

(Continued from previous page)

Visitors Meet Residents

We need places in Waikiki where people of both groups – residents and visitors – can gather to do things that appeal to them, give them pleasure and offer a sense of satisfaction. These spaces would include markets, performance, display and forum venues, and eating and drinking establishments. In short, the ingredients for a rich street life.

My vision is to create in Waikiki a cultural center to be enjoyed by both Islanders and visitors. By virtue of its dedicated space and the many activities it could accommodate, this bustling town square-like resource would become a central focal point now sorely lacking in Waikiki.

Over the years, Waikiki and the rest of Oahu have grown apart, leaving Waikiki a visitor ghetto largely lacking in heart and soul, and definitely not the place local people gather.

Far from being conceptualized as one more building in an already dense area, this cultural complex is envisioned as a series of spaces – both open and enclosed – for performances, receptions, classes, exhibitions, dining, shopping and just plain hanging out.

Events and activities would be chosen by virtue of their relevance to residents as much as to visitors. Imagine, for instance, a Korean film festival; slack key guitar concert; Filipino celebration; Bon dance; classes in martial arts, Chinese, Japanese, Portuguese, Thai cooking – all running on a rolling schedule of activities from morning to late evening. The possibilities are almost endless. Visitors would be attracted by the authenticity of the happenings and the accessibility of such a gathering place.

The Place to Go

To be sure, creating "the place to go" within Waikiki is not simply a design challenge. The cultural complex would require full-time professional management, and the concept of getting residents to embrace the idea of returning to Waikiki includes providing abundant, affordable parking.

To create the complex itself requires innovative thought and a public/private partnership. No open space is currently lying vacant in the heart of Waikiki. However, a new initiative of interest is Mayor Jeremy Harris' recent proposal to convert the Ala Wai Golf Course to a park, and the clubhouse, presumably, to general community use. Perhaps the city and/or state could negotiate a quid pro quo to offer landowners in exchange for development rights for neighboring properties.

Without doubt, accomplish-

Cluttered sidewalks, too many vehicles and the lack of affordable parking have caused many local residents to avoid Waikiki.

ment of the cultural complex concept demands bold action on the part of our government officials to change some of the rules which created the environment we have today.

Economic incentives will be necessary to create major and minor squares that are natural gathering places for people to congregate. These prime locations often have buildings on them that need to be demolished and turned into open space. The economic incentives I envision would be an alternative to increased taxes. Although we hear that Waikiki is already "too dense," some additional density for an active open space may be a fair trade for a selected location.

To believe in the future of our state we must believe in the future of Waikiki. The vision of Waikiki as a charismatic destination complete with a complex of gathering places that affords people a reason to stop and stay for awhile, and a chance to satisfy the human need for connectedness with other people and places, is neither far-fetched nor out of reach. Perhaps the time is at hand to gather the courage to change.

Donald W.Y. Goo, FAIA, is chairman of Wimberly Allison Tong & Goo, Architects, Planners and Consultants.

Poor design compromises potential

Underutilized Gathering Places

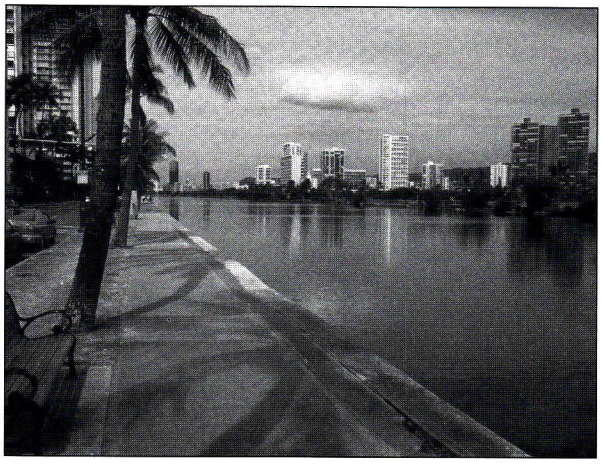
by Nick Huddleston, AIA

Have you ever looked around and spotted areas that have great unrealized potential as parks or gathering places? Wonder why spaces that offer great possibilities continue to lie dormant? Wonder how you can get involved? Opportunities depend on scope, approach to development and good design.

Grand scope has its place and plenty of projects require it. Opening the Honolulu Harbor waterfront was an obvious need, but it took decades to develop the Aloha Tower piers. Progress has been made in Kakaako Makai with the Waterfront Park, but many acres are still devoted to warehouse and industrial use.

Kawainui Marsh in Kailua is a wonderful resource that remains poorly integrated with the community. The University of Hawaii campus could benefit from more attention both to the campus and the need for gathering places nearby.

The focus of effort for urban revitalization is critical. Kakaako may hold greater promise than Kapolei. And, perhaps we should realize the potential of the Manoa campus before we take on a second Oahu site.



More amenities could attract more people to the Ala Wai Canal.

Photos by Nick Huddleston

The Tale of Two Parks

Good design creates maximum use. Poor design compromises potential. For example, Tamarind Park in Honolulu has a wealth of attractions including water features, beautiful plantings, sculptures, places to eat, a coffee bar, a grand stair and elegant stone-faced benches. The park has shaded places to sit but is still very light and open.

Wilcox Park, just around the corner, is dark and damp feeling, the result of too many huge trees and a looming water feature at the back of the park. Seating and raised planters block much of the perimeter and entries are narrow. The mall side entry is cluttered with a sign listing prohibited activities, a garbage can and two plastic portable toilets. The park attracts vagrants and is shunned by pedestrians. The difference is design.

Design that looks only at the smaller picture can have negative consequences. Golf courses, gated communities and sprawling resorts designed for a select group of users can block access to inland trails, waterways and beaches.

Broad vision is essential, but small efforts and incremental programs can also make a big difference. The Nimitz Highway Beautification Committee, working with no funding, has encouraged landowners and businesses to landscape their highway frontages. The committee also facilitated the transfer of a strip of abandoned railroad right of way

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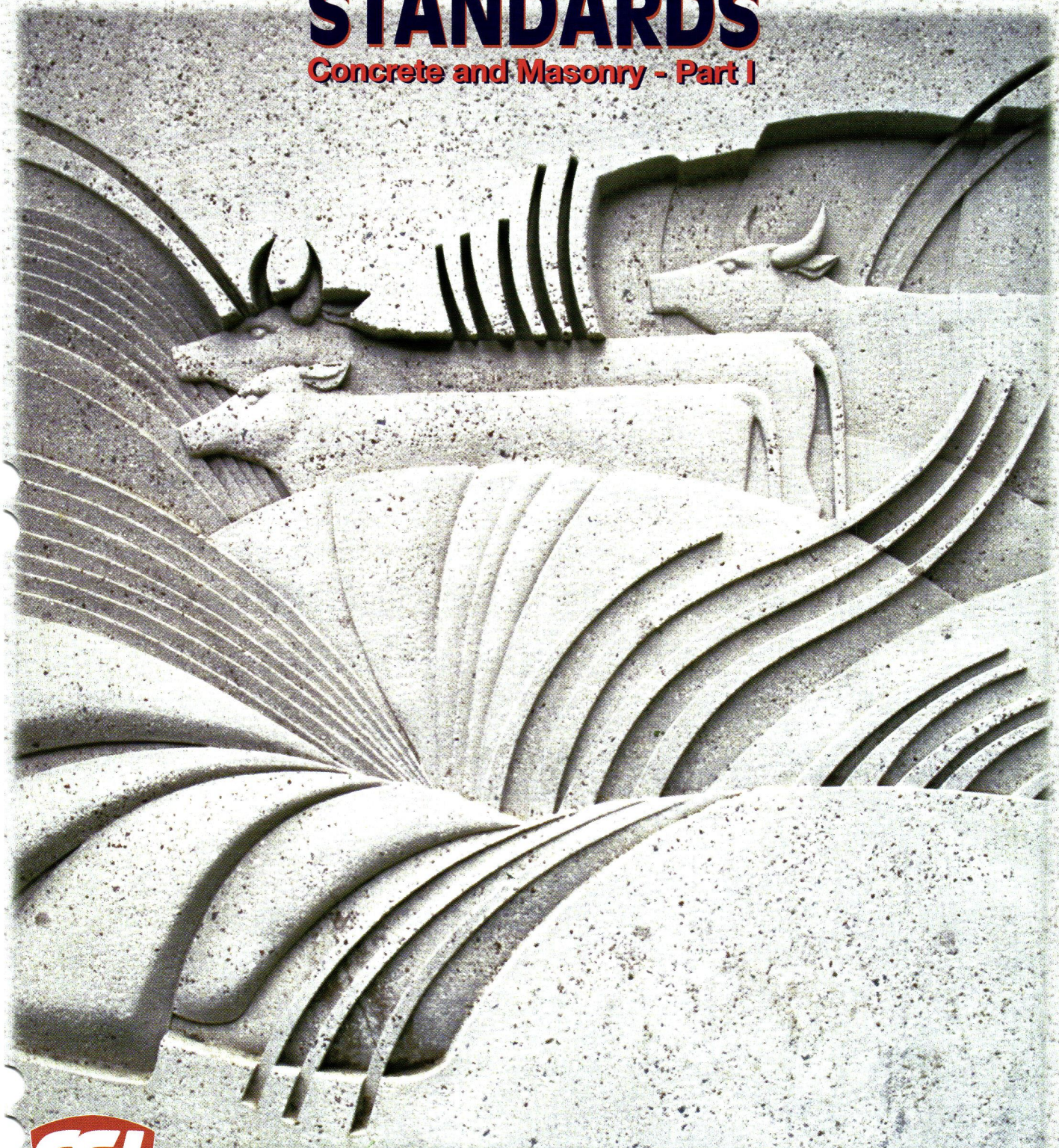
Pacific Rim

SPECIFICATION STANDARDS

Concrete and Masonry - Part I



Advancement of Construction Technology

Compiled and Edited by Honolulu Chapter, CSI

Pacific Rim SPECIFICATION STANDARDS

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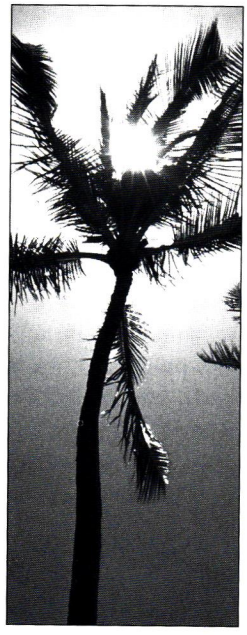

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Ed. note – Since concrete and masonry are very broad construction topics, this issue is Part I of a two-part issue. Part II is planned for early 1999.

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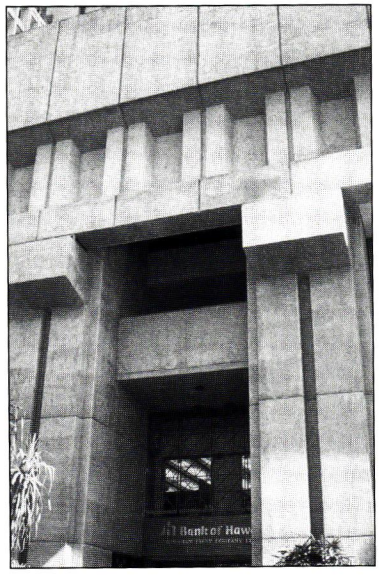

CONCRETE: A Material for All Seasons

Before any discussion of concrete and cement begins, one needs to understand that the two are not the same. There is no such thing as a cement driveway. When cement, gravel, sand and water are combined, a chemical reaction takes place. The resulting mixture hardens and is known as concrete.

Concrete is defined in ASTM Terminology Relating to Concrete and Concrete Aggregates (C 125) as a composite material that consists essentially of a binding medium within which are imbedded particles or fragments of aggregate; in hydraulic-cement concrete, the binder is formed from a mixture of hydraulic cement and water. Hydraulic cement is defined in ASTM Terminology Related to Hydraulic Cement (C 219) as a cement that sets and hardens by chemical interaction with water and that it is capable of doing so under water. Portland cement is the most important hydraulic cement.

Aggregate is defined in ASTM C 125 as granular material, such as sand, gravel, crushed stone or iron blast-furnace slag, used with a cementing medium to form hydraulic-cement concrete or mortar. In Hawaii, because the formation of the land mass was predominantly volcanic, manufactured coarse and fine basalt aggregate is the most common aggregate used in concrete production. Other aggregates used include coral, dune sand and volcanic cinder.

History

The earliest masonry probably consisted of sun-dried clay bricks, set in regular courses in thin layers of moist mud. When the moist mud dried, a solid clay wall resulted. Construction of this kind was common in the dry desert areas of the world. Early Egyptians developed burnt gypsum as a cementing material in the construction of some pyramids. Later, both Greeks and Romans learned that certain fine soil, when mixed with lime and sand, produced a superior cementing material. The Greek material, a volcanic tuff from the island of Santorin, is still used in that part of the world.

The best of the materials used by the Romans was a tuff or ash from Pozzuoli near Mt. Vesuvius, hence the name "pozzolan" is used to identify a type of mineral admixture used in concrete today. Cement produced by the Romans was a hydraulic cement; it had the capability of hardening under water.

During the Middle Ages, the art of making good mortar was nearly lost. However, by the 14th century the use of pozzolans was again practiced. In the mid-18th century, engineering and scientific development moved rapidly. Gypsum, limestone and other natural materials were being investigated as cementing agents.

In 1824, Joseph Aspdin, a brickmason of Leeds, England, took out a patent on a material he called portland cement, so called because concrete made with it was supposed to resemble the limestone quarried near Portland, England. Aspdin is credited with inventing a method of proportioning limestone and clay, burning the mixture at high temperature to produce clinkers, then grinding the clinkers to produce a hydraulic cement. Although cement production was well established in Belgium and Germany by 1850, the first portland cement made in the United States was produced in Pennsylvania in 1871.

Mechanics

When portland cement comes in contact with water, a paste is formed. Within this paste a chemical reaction called hydration begins. It is this paste that binds the particles of aggregate together to form concrete. The rate of hydration is affected by the composition of the cement, fineness of the cement, temperature, the amount of water present, and the presence of admixtures.

When concrete materials are first mixed together the concrete is said to be in a fresh condition. One of the properties of fresh concrete that concerns those on the job is the workability of the concrete. Workability is the ease with which concrete can be handled and placed with a minimum loss of homogeneity. The slump test (ASTM C 143) is a good indicator of the potential workability or placeability of fresh concrete.

After an initial period in a plastic condition, the paste starts to stiffen and eventually loses all plasticity. When the concrete is several hours to a few days old, it is defined as green concrete. It still has a high moisture content and relatively low strength. After curing, the concrete matures and becomes hard. It now develops the required qualities of strength and durability.

Characteristics

Concrete that is considered durable and of high quality meets the structural and aesthetic requirements for the required life of the structure at maximum economy. The properties this concrete must have are:

- Workability in the fresh condition;
- Strength in accordance with design, avoiding over-strength (uneconomical) as well as understrength (dangerous);
- Durability to resist weather or substances;

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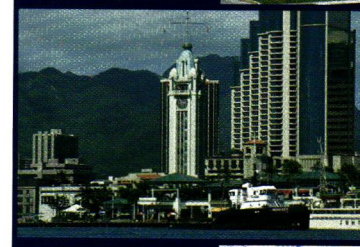


Aloha Tower
CONCRETE STRUCTURE BUILT BEFORE 1940 AND STILL IN ACTIVE USE

Country Club Village
NEW PRIVATE BUILDING AWARD

Hale Koa Hotel
REMODELED/ADDITION BUILDING AWARD

Maui Arts & Cultural Center
NEW LOWRISE BUILDING AWARD

Pier 39 Improvements (Phase II)
CONCRETE PAVING AWARD

Sims Residence
NEW SINGLE-FAMILY RESIDENCE AWARD

Makai Pier, Phase II, and Ground Transportation Court
NEW PUBLIC BUILDING AWARD

- Volume stability to minimize changes in volume and drying shrinkage caused by moisture and temperature variations;
- Freedom from cracks by reducing tendency to crack (volume stability) and installation of joints and crack-control devices;
- Freedom from blemishes such as rock pockets, scaling, popouts, surface softness and bug holes;
- Watertightness (where applicable)
- Economy; and
- Good appearance.

In order to obtain a high-quality concrete, it is essential to start with good materials, properly proportioned, mixed and placed, with adequate inspecting and testing to verify the quality. To provide this kind of concrete, responsible management is necessary from the time the project is conceived to throughout its life.

Fundamentals

There are five fundamentals that help create good, durable concrete. They are investigation of the site, design of the structure, selection of materials and mix, workmanship in handling materials and concrete, and maintenance of the structure throughout its life.

Investigation of the Site. An evaluation of the site is important for proper design of the structure and has a significant influence on selection of the materials and mix. It involves investigating the ability of the location to suit the requirements of the structure, analyzing the ability of the foundation to carry expected loads safely, and uncovering the existence of forces or substances that may attack the concrete.

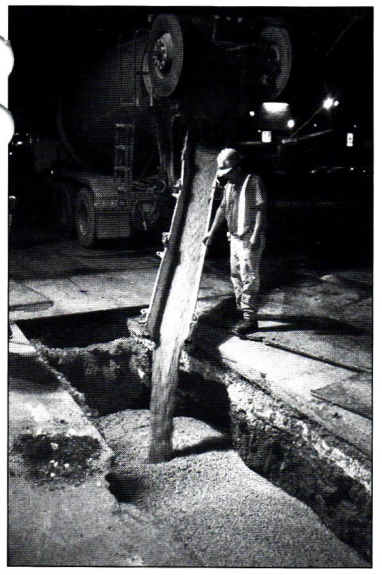
Design of the Structure. The design must include knowledge and experience of the characteristics of concrete and the capabilities of workers and machines so that formwork and other construction procedures are facilitated.

Selection of Materials and Mix. Concrete mix proportioning has as its objective the production of concrete of maximum economy having sufficient workability, strength, durability and impermeability to meet the conditions of placing, exposure, loading and other requirements of the structure.

Workmanship in Handling the Materials and Concrete. This not only includes site preparation, placing and curing, but also the preparation of aggregates and batching, mixing and transporting of the concrete.

Maintenance of the Structure. The structure must be inspected at reasonable intervals to determine whether unusual deterioration is taking place and provided adequate protection or repair to minimize the deterioration.

Concrete has undergone a remarkable transformation in the last four decades. Formerly a gray, utilitarian construction material used in dams, foundations, pavements, structural columns and beams, concrete is now used to create dramatic and striking structures. Thanks to the pioneering efforts of a few outstanding architects and engineers, there is an imaginative aesthetic expression in textures, colors, shapes and sizes that illustrates the unlimited versatility of concrete. High rise building frames, hyperbolic paraboloids, barrels, precast and prestressed elements, tilt-up, slip-forms, lift slabs, and free-form shotcrete all lend their unique characteristics to the construction scene.



CONTROLLED LOW STRENGTH MATERIAL

Controlled low strength material (CLSM), is the generic term for material known as flowable fill, flowable mortar, controlled density fill, plastic soil-cement slurry, and other terms. CLSM can be used in place of compacted granular fill and in applications such as erosion control. The material self-levels and compacts without equipment and typically hardens within a few hours.

Composition and Materials

Controlled low strength material should not be considered as a type of low strength concrete, but rather a self-compacted backfill material that is used in place of compacted fill. It is a fluid mixture usually consisting of portland cement, water, coarse and fine aggregate and/or fine fillers (fly ash, rock dust) and occasionally admixtures.

CLSM provides a durable backfill in lieu of compacted fill. It has been used extensively for trench backfill, filling subterranean cavities, open excavations adjacent to structural foundations, subbase for pavement construction, and as fill material for pavement section replacement. Low-density CLSM, for use as backfill for retaining walls where lateral pressure is a concern, can be produced by adding either foaming agents, lightweight aggregates or about 30 percent entrained air.

The Hawaii Department of Transportation added "Section 313 - Controlled Low Strength Material (CLSM) for Utilities and Structures" to its Standard Specifications in 1997. ASTM standards used to test concrete are applicable for CLSM with some modifications.

Use in Hawaii

In 1994, the Cement and Concrete Products Industry of Hawaii (CCPI) began a series of seminars to promote the advantages of using CLSM as a backfill material. Earliest uses of CLSM have been in filling abandoned cesspools, underground pipelines and tanks, and other cavities during construction in and over Hawaii's porous coral substratum. The material is faster and less labor-intensive to place than aggregate granular fill.

In Liliha, an old fish pond was filled in preparation for a concrete slab for the remodeled extension of an existing home. Flowable fill was pumped into a theater in Honolulu to level the floor so that the room could be converted into a recording studio. A Schofield Barracks water run-off system was upgraded by backfilling a trench. In Wahiawa, an abandoned cesspool was filled to stabilize the ground under an existing house extension.

During construction of a bridge in Nanakuli, flowable fill was used to backfill under precast sections near the abutments. An abandoned cement plant fuel line was filled in Campbell Industrial Park. Utility duct-lines were quickly backfilled at Kona Street and Kapiolani Boulevard. An abandoned sewer line under the Ward Street and Kapiolani Boulevard intersection was filled without disturbing traffic.

The Kamehameha Highway underground duct line facilities project is the largest CLSM project in Hawaii to date. The total length of the project is about 5 miles. Its purpose is to beautify the Pearl City section of the highway by placing utility lines underground.

The primary reason flowable fill was chosen was greater

Lightweight Cellular Concrete Technology

Isle CellCrete is a structural light-weight cellular concrete developed to provide additional performance and economic advantages to the many superior benefits of normal weight concrete.

Strength

Durability

Termite Resistance

Low Maintenance Cost

All the advantages of normal concrete and more:

- Lower construction cost
- More economical foundation  and structural requirements
- Faster and easier placement and finishing

- Lower shrinkage
- Greater sound control
- Improved insulation values
- Greater moisture resistance
- No honeycombing

Isle CellCrete

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Island Ready-Mix Concrete, Inc.
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public convenience. Because any section of trench can be filled in a single night and paved the following night, trench work is completed in a three-day cycle. The civil portion of the project will be completed within six months, minimizing the impact on traffic. An additional benefit of CLSM is the ease of access it provides to the ductlines for future modifications, additions and repairs.

Design and Performance Criteria

Ready mix producers can utilize locally available material components in varying proportions to meet specific performance requirements. Typical 28-day compressive strengths range from 50 to 1000 psi, with densities of 115 to 145 pcf. Compressive strengths below 150 psi are desirable for ease of subsequent excavations.

Placing Procedures

CLSM can be batched and mixed at central mixing plants or in transit mixers in accordance with procedures for concrete, then delivered to the jobsite by ready mix truck. Chutes, conveyors, buckets or pumps are used to place CLSM depending on the type of void to be filled and its accessibility.

Because CLSM flows and self-levels, it is possible to discharge material from one spot to fill restricted-access areas. When filling large open trenches, moving the discharge point helps spread the material. For most applications, CLSM can be placed continuously. It is sometimes necessary to allow each lift to stiffen before placing the next lift. For pipe bedding, placing in lifts prevents floating the pipe. Standing water in a trench does not have to be pumped out before filling the trench as it will displace the water and force it out. Loose debris in the trench can remain and become encapsulated.

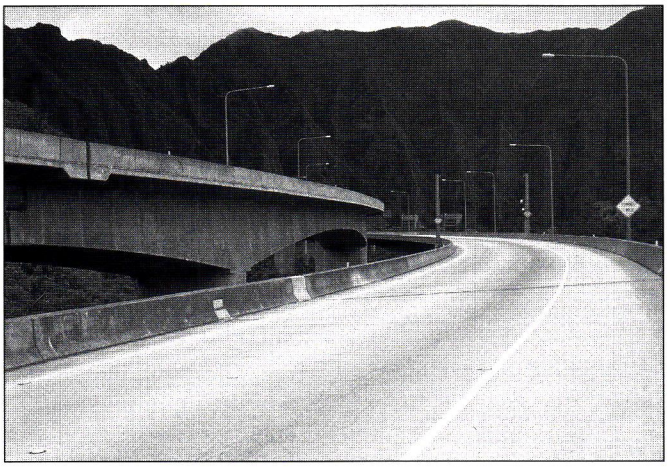
CLSM needs little or no spreading or finishing. When using it as fill for pavement section replacement, the surface can be smoothed with a square shovel if the surface is below pavement grade. If placing the fill up to pavement grade for use as a temporary driving surface, it may be finished with a wood float.

Because of its high water content, CLSM may bleed. The bleedwater is not a problem and can be allowed to run off or evaporate.

CLSM usually costs about 65 to 80 percent of the price of standard concrete. It is more expensive per cubic yard than most soil or granular fills; however, its advantages compensate for its higher costs. Ready mix suppliers will develop mix proportions for CLSM that will make economical use of local materials.

CCPI has qualified technical personnel available for consultation. Specifiers are encouraged to contact member firms.

The use of CLSM in Hawaii is gaining wider acceptance. Flowable fill is a reliable, versatile and economical product suited for many local construction applications.



CONCRETE DETERIORATION, MAINTENANCE AND REPAIR

Considering the number of concrete structures in Hawaii, their maintenance and repair do not receive the attention they deserve. Attention is usually directed only after concrete deterioration is evidencing itself by spalling, a situation that could have been prevented or postponed. If not spalling, then cracking, failure of cement wash or other problems emerge. Most are expensive to repair and easy to avoid.

Many conditions detrimental to concrete, either during placement and curing or after it is placed into service, are Hawaii's hot, windy and salt-laden ocean surroundings. An understanding of the conditions that contribute to concrete deterioration is beneficial in establishing a maintenance program and performing remedial repairs.

Deterioration Due to Corrosion

Concrete normally has a pH range of 12 to 13 that protects the embedded reinforcing steel from corrosion. A passive oxide layer is formed on the surface of the steel that remains stable in the highly alkaline environment. Concrete deterioration is often a result of rebar corrosion or rusting, usually due to chloride penetration but sometimes due to carbonation. The pH of the concrete is reduced and the normally passivating oxide layer is rendered unstable.

When conditions promote rust, the volumetric expansion of the rebar causes cracking and spalling of the surrounding concrete. Spalling is frequently seen on horizontal surfaces such a a lanai or the top level of a parking deck, the perimeter edge of slabs, or at formed reveals in a concrete wall. Investigatio often exposes insufficient concrete cover over the rebar in the corroding areas, most commonly due to misplacement of the reinforcing steel rather than a reduction in the specified thickness of the concrete.

Chloride ions are one of the primary initiators of rebar corrosion. In Hawaii salts are deposited on exposed concrete surfaces and, over time, increasingly higher concentrations of chloride ions find their way deeper into the concrete.

Carbonation is a process by which atmospheric carbon dioxide reacts with the concrete and lowers the pH level, thereby reducing concrete's corrosion protection ability. As with chloride ions, carbonation moves from the outer surface inward, toward the rebar and, with the presence of water and oxygen, results in rebar corrosion. Because carbonation-induced rebar corrosion progresses more slowly than chloride-induced corrosion, resultant damage is usually seen in structures older than those in Hawaii. Consequently carbonation concerns are wrongly disregarded. Both chloride and carbonation advancement is accelerated along cracks.

Deterioration Due to Cracking

It is commonly accepted that hardened, reinforced concre cracks in the tensile zone when subjected to externally imposed structural loads. The additional stress can result from placir more load on a floor than it was designed to carry, consolidation of the subgrade material and differential settlement, or even a seismic event.

Less well known is that concrete can crack in both the plas-

tic and hardened states due to stresses that it intrinsically sustains by the nature of its constituent materials. The three major types of intrinsic cracks are plastic, early thermal contraction, and long-term drying shrinkage. These cracks appear at various times after placement: plastic cracks appear within the first few hours; thermal contraction between one day to two/three weeks; drying shrinkage after several weeks or even months.

Cracks allow for the penetration of chloride ions and atmospheric carbon dioxide, both leading to rusting rebar and concrete spalling. Cracks in below grade walls or at the top level of an uncoated parking deck allow for water infiltration into a structure. Cracks in a warehouse slab subjected to forklift traffic commonly experience edge spalling.

Deterioration Due to Other Causes

A common Hawaii practice has been cement wash applied on formed concrete surfaces in order to even out irregularities and provide a smooth surface for painting or other visual considerations. Unfortunately, much of Hawaii's cement wash material has been produced on the jobsite by adding gypsum and lime to the mixture of cement and water. The added products allow the cement finisher to easily apply a smooth, quick-drying topping; however, water can cause the hardened material to soften and break down. Gypsum-based cement wash can contribute to premature paint failures and is often seen delaminating from the building surface.

A large number of Hawaii's high-rise structures have concrete lanais with indoor/outdoor carpet applied directly over the concrete. The absence of a waterproofing membrane below the carpet contributes to surface spalling. The carpet traps salt-laden moisture. While the moisture eventually evaporates, the salts remain in ever-increasing concentrations and, over time, surface spalling is inevitable.

Gypsum-based material also has been used to fill the pockets into which railing posts for corridor and lanai railings are embedded. To maximize the usable slab area, railing posts are typically located close to the slab edge with a rebar placed in the limited space between the post and the slab edge. Over time, rainwater accumulates within the post, turning the fill material into soft mush. Even worse, the trapped water and chloride ions corrode the rebar. Spalling concrete at the slab edge is a commonly observed condition adjacent to railing posts.

Other factors contributing to concrete deterioration include inappropriate mix design, poor materials, and improper concrete placement and curing.

Maintenance of Concrete

Understanding deterioration assists in the development of a maintenance program to reduce or eliminate future repairs. When maintenance is ignored, costly repairs result.

Even the periodic application of a concrete sealer can act as water repellent to provide some alkaline-stable protection against rebar corrosion and surface spalling. Unfortunately, sealers are not effective in bridging cracks. Many slabs may be cracked or have shallow concrete cover. A properly selected and applied deck membrane can protect the surface from corrosion by providing an impermeable barrier to salt-laden water and bridging small cracks. The removal of carpet from lanai decks, even without any follow-up maintenance or repair, will usually decrease the rate of concrete deterioration.

On vertical surfaces, paint can significantly decrease concrete deterioration; however, timely and periodic repainting is a necessity. On prior painted surfaces with underlying gypsum-based cement wash, applying elastomeric paint may significantly extend the life of the surface.

Concrete Spall Repair

When a concrete remedial repair is needed due to corroded rebar, proper concrete removal, rebar cleaning and surface preparation are critical for long-term effectiveness. Performing these operations improperly causes many repair failures.

Exposing and undercutting rebar may be the single most critical step. The object is to both replace the contaminated concrete surrounding the rebar with new, uncontaminated patching mortar as well as increase the mechanical adhesion of the patch.

Remedial patching in Hawaii is usually confined to small areas; thus light 12-15 pound pneumatic hammers are normally used to remove contaminated concrete. Larger hammers may be more productive above and between rebar but are too heavy for vertical and overhead work. Larger hammers may reduce the service life of the repair through vibration in the remaining reinforcing and/or creating micro-fractures in the existing con-

crete. After chipping, a needle scaler can be used for corrosion product removal from reinforcing or fine detail work.

Epoxies are widely used as bonding agents because of their excellent adhesive properties. While they perform best on dry surfaces, most today are moisture-tolerant so they can be used on slightly damp substrates. Like cementitious bonding agents, epoxies must not be allowed to dry before placing the repair material. Proper bonding is perhaps the most critical issue of the concrete repair process. Whether a scrub coat or an epoxy, properly applied bonding agents condition the substrate and improve the adhesion of repair mortar.

Polymer-modified mortars are a typical choice for small spall repair. A short time ago, the polymer was a separate, liquid component that was added on site by the applicator to the manufacturer's prebagged mix. Most repair mortars are available today with the dry polymer already in the bag and require only the addition of water.

Many of the corrosion inhibitors are relatively new products. Used as an admixture or as a surface-applied liquid, they extend the initiation period of corrosion and reduce the rate of corrosion once it begins. Properly selected and applied, corrosion inhibitors "buy" time in the life of a concrete structure. Limited testing has been generally confined to new construction. Their benefits with repair mortars are not clear-cut. Certain types of inhibitors that migrate from the repair to adjacent areas may mitigate the effect of corrosion at the boundary of the repair area that sometimes corrodes at an even faster rate than the original anode area.

Crack Repair

In addition to surface preparation for coatings, crack repa is also done for visual, structural, protective and waterproofing considerations. Repair procedure selection is impacted whether a crack is moving or non-moving, wet or dry.

Applying polyurethane sealant into a crack that has been routed with a grinder is a common step in preparing a concrete deck to receive an elastomeric coating. Absent an applied coating, a caulked crack is hardly adequate to combat chloride and carbonation advancement in concrete.

Epoxy injection is often the best solution to address most crack concerns and may be the only practical choice for structural considerations. Injection resins can vary in viscosity and pot life; thus crack width and depth are important considerations in selecting a particular injection resin. Dispensing mechanisms include both low and high-pressure injection pumps. Inflatable and spring capsule systems are just as effective as injection pumps and are preferred by many contractors.

A common specifying error is to have injection commence at the port at one end of a crack and continue until resin is observed flowing from the adjacent port, at which time the injection is moved to that port. This approach provides no assurance that resin has penetrated the full depth of the crack. Because of operator fatigue, dual component cartridge guns are generally acceptable only for small, non-critical projects.

Polyurethane grout is an alternative to epoxy injection in addressing water infiltration through cracks. These materia are not cementitious grouts, but rather a liquid that cures into a foam. If there is running water through the crack rather tha mere seepage, then it may be the only practical repair. Both hydrophobic (water hating) and hydrophilic (water loving) grouts are used. If water is flowing slowly through a crack, then either resin may be used to initially stop water flow. If water is gushing through the crack and surface sealing methods do not stop the flow, a hydrophilic gel resin might be injected behind the leak. Several factors influence the choice of grout.

Cracks in concrete floor slabs subjected to frequent forklift traffic can be repaired by routing the crack and either gravity feeding an epoxy resin or applying a joint filler.

Summary

There are a myriad of considerations in providing concrete maintenance and repair. What is the condition of the structure? How extensive of a condition survey is required to identify the root causes and extent of corrosion damage? What is the client trying to achieve — a long-term solution or a quick fix?

Only after key questions have been answered can possible repair and protection options be considered. Th choices are many: repair only; repair and protect repair, protect and add inhibitors; implement an electr chemical process; remove and replace contaminate concrete; or even fully replace concrete elements of the structure.

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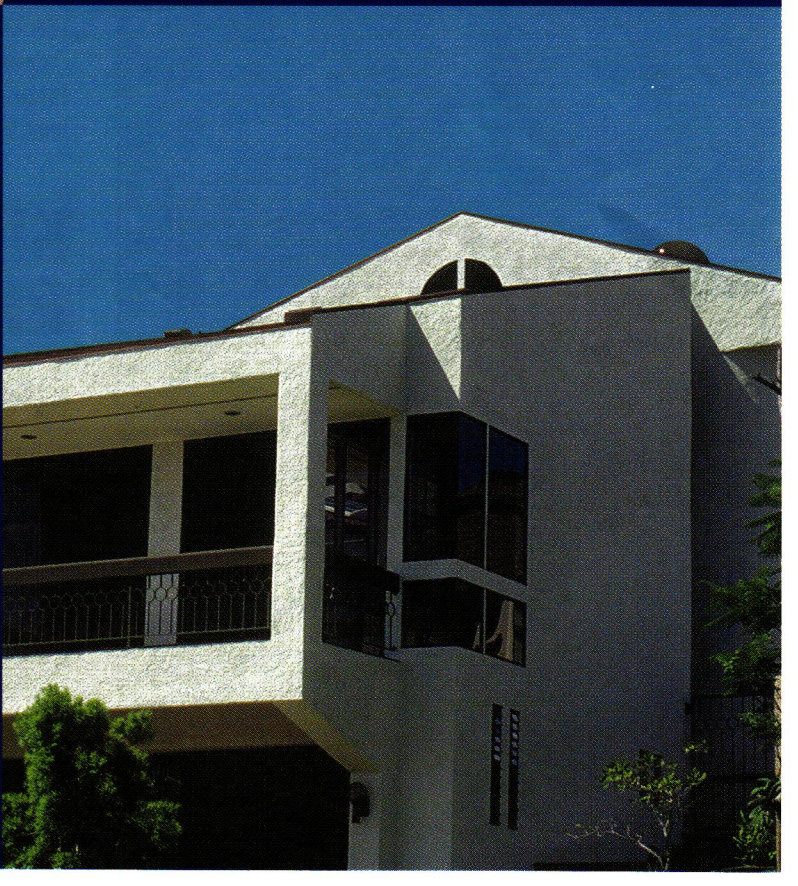
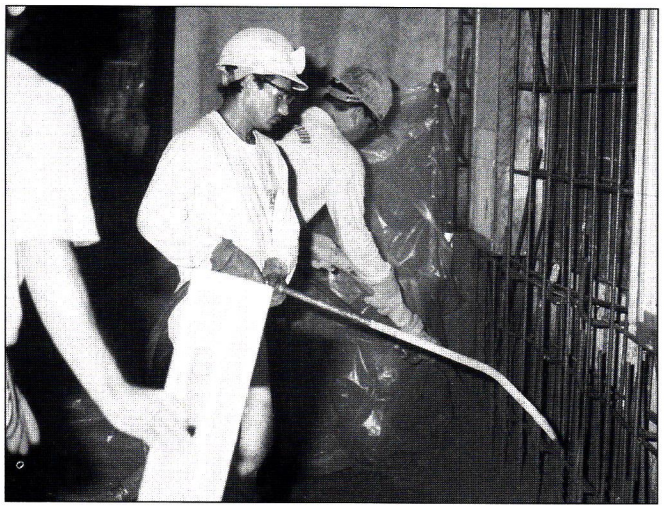




SHOTCRETE SHEAR WALLS

Structural shotcrete is an efficient alternative to commercial cast-in-place concrete for shear walls. This was exemplified by a recently completed seismic upgrade project at Ala Moana Center.

The project consisted of constructing new cast-in-place reinforced concrete shear walls and footings in existing tenant-occupied retail and storage spaces on the street level of the retail complex. The walls were tied into the existing mall level concrete girders, beams and slabs.

The structural shotcrete used a wet mix process where all concrete ingredients were ready mixed. The maximum 3/8-inch aggregate, low slump concrete was then pumped to a special pneumatic nozzle where compressed air blew it into single sided formwork.

Shotcrete construction simplified the work by reducing the labor-intensive formwork that is usually associated with cast-in-place concrete. Reducing formwork created a cost savings to the center. It also reduced work space requirements and construction duration. Since the top of the shear walls butted up against existing beams, girders and slabs, it would have been difficult to form and pour the walls with cast-in-place concrete.

Shotcrete requires light formwork or backing on one side. It is placed and built up horizontally from the side. Therefore, constructing the top of the shear walls around beams and girders and up to the underside of the existing slab is easily handled.

Quality control is an important part of the shorcrete process. An experienced and knowledgeable crew is needed. On the Ala Moana project, the nozzlemen had at leas 3,000 hours of experience and were certified according to the American Concrete Institute's shotcrete guidelines. T account for delivery and extended placement time, a special concrete mix design with a workable state of two and a half hours was developed and tested. Also, prior to construction, mockups of the actual shear wall and reinforcement were constructed, "shotcreted," sampled, cored and tested. Finally, continuous special inspection with concrete testing was provided during the entire process.

SEGMENTAL RETAINING WALLS

Segmental Retaining Walls (SRWs) have been around for over a decade. These walls consist of modular concrete units that are dry stacked and interlocked with pins and gravel, which is placed within the cells of the units.

This system requires a 6-inch-thick crushed stone leveling pad and, under special applications, a 6-inch-thick unreinforced concrete leveling pad. SRWs are a cost-effective alternative compared to other retaining wall structures.

SRWs are an aesthetically pleasing system, highlightin deep shadows and a rock-faced texture. They can be manu factured in a variety of colors, placed in curved shapes ar can be used in a variety of terrains.

Gravity walls can be built up to a maximum height of 6 feet, depending upon the type of soils and surcharge behind

the wall. A gravity wall relies on the shear mass of the stacked modular concrete units to retain the soils behind it.

Reinforced SRWs use geosynthetic grids placed between the layers of the units. These grids are tied into the soils behind the wall for structural reinforcement. Because of the additional reinforcement provided by geosynthetic grids, walls can be built more than 40 feet high.

SRWs were introduced to the Hawaii market in 1994. They are used by homeowners and developers who level and thereby maximize the usable potential of their property. Since then, these walls have been constructed throughout Hawaii. The tallest wall built as of March, 1998 is 26 feet high. The Departments of Transportation, Army, Navy and Coast Guard, along with developers and homeowners, have been using these walls either as site retaining walls or for landscaping applications.

CONCRETE PAVEMENT

Hawaii has used asphalt as a typical construction material for streets and parking areas. However, the disadvantages of asphalt include potholes after a heavy rainfall, patching of streets within a year after being paved, and road crews resurfacing streets that were paved only seven years previously. New technology and superior performance under extreme conditions have made concrete a viable alternative choice in highway paving.

Economic Considerations

Most foundation designs for concrete pavement do not take full advantage of the capabilities of concrete. Therefore, most foundations for concrete pavement are the same, more expensive foundations that are used for asphalt pavement. This inequity raises the initial cost of concrete pavement to 50-80 percent more than asphalt.

Most asphalt parking lots last about seven to 10 years. A comparable concrete pavement normally is designed to perform for 25 to 30 years. This makes concrete pavement 30-50 percent less in initial cost per year of actual service when compared to asphalt. If concrete pavement is properly designed, the initial cost per year of actual service can be up to 50-70 percent less than asphalt.

Because the service life of concrete pavement is three to five times greater than the life of asphalt, concrete pavements have substantially less maintenance and repaving schedules.

Concrete can be placed on compacted earth instead of subbase and base coarse material which an asphalt pavement requires. Today, most concrete pavements are designed without wire mesh. They rely on aggregate interlock and proper saw-cut joints to control random cracking.

Maintenance Advantages

Properly designed concrete pavement will not have loose aggregate or potholes. Its rigid surface will not rut, and it's designed to resist deterioration due to leaking oil from parked vehicles.

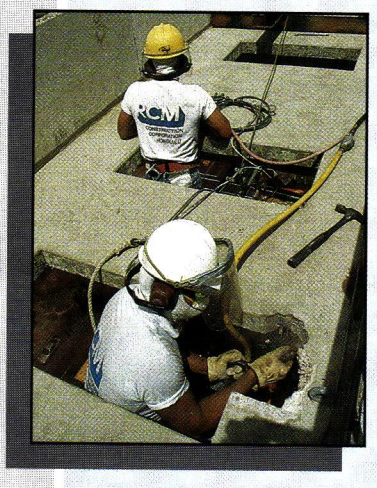
Concrete pavement adds to the perceived value of a project. It presents a clean look and the age of a project will be less evident. Because concrete is perceived to be durable, the public perception is that the establishment will be around for a long time.

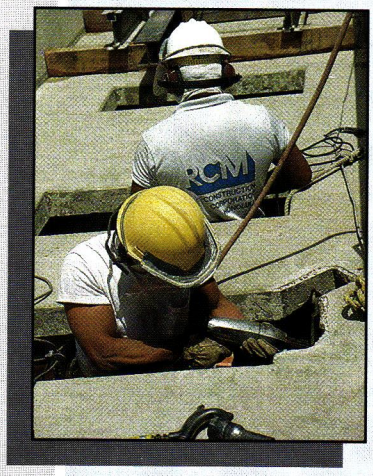
Concrete pavement also saves energy. Ambient temperature on concrete pavement is considerably less than on asphalt, which reduces the amount of air conditioning needed to cool down a building.

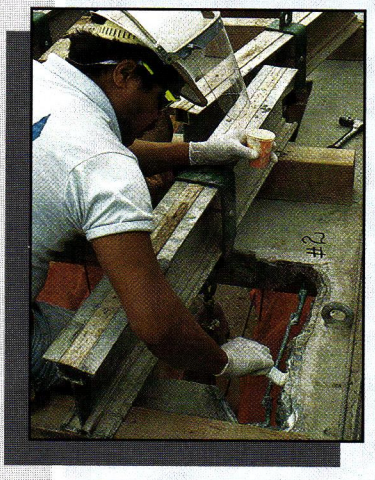
It also has a higher reflectance level than asphalt which can lend itself to dramatic lighting effects. The wattage or number of light fixtures can be reduced in designing a parking lot. Lit concrete pavement areas are a deterrent to crime and enhance building security.

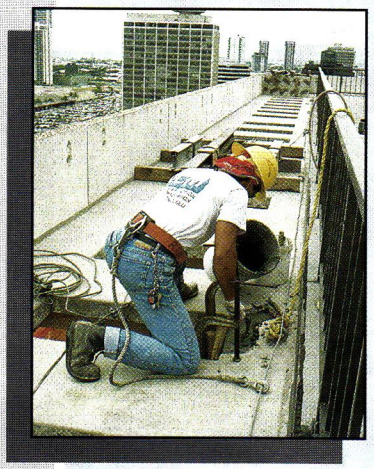
Excellent drainage and uniform skid resistance of concrete provide for firm pedestrian footing and dependable tire traction.

Concrete paving's many benefits make it a superior material to use in pavement design.









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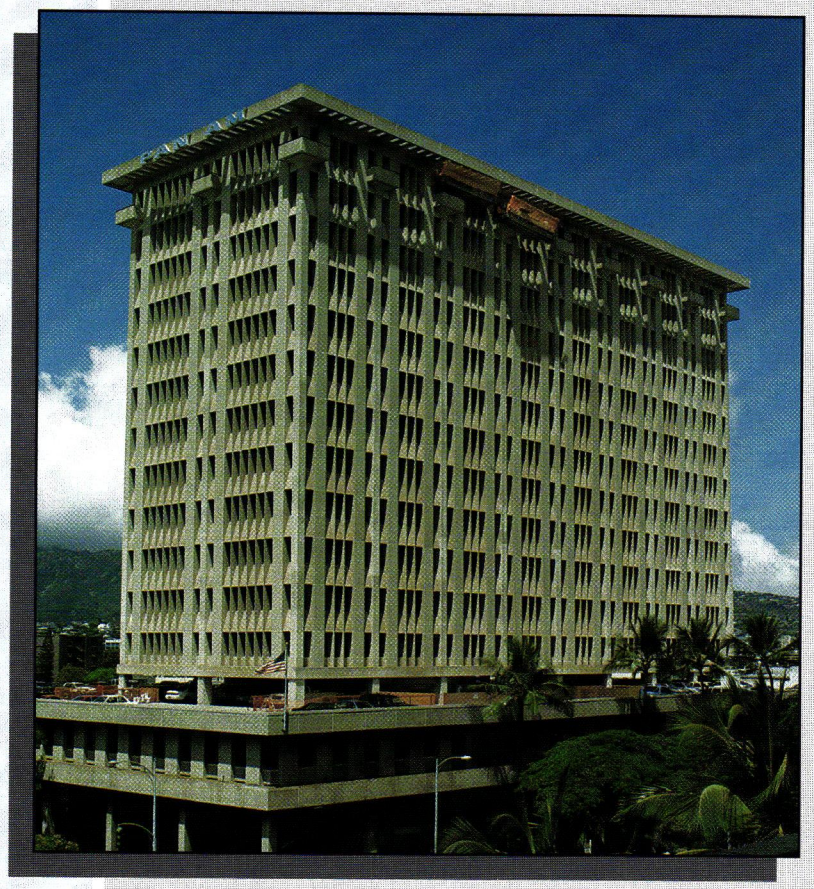

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(Continued from page 12)

fronting Nimitz Highway and Puuhale Elementary School to the school. That strip of land, formerly littered with trash and abandoned cars, is now a pleasant drop-off area for the school.

Hawaii has a wealth of trails that offer quick access to natural areas and wonderful views. The Waahila Ridge trail and Lyon Arboretum are excellent examples. Boardwalks and trail improvements could increase access, reduce accidents and environmental damage, and open new horizons to visitors.

People gather along River Street Canal but the atmosphere needs improvement.

Canal Area Needs Work

River Street Canal bordering Honolulu's Chinatown is a resource begging for appreciation. Most businesses along the canal turn their backs on the waterway. Some newer facilities have blank facades and chain link fences on the canal. Neglect encourages greater use by the homeless and makes the area less desirable for pedestrian circulation. The cycle is self-reinforcing and destructive.

Poor amenities compound the problem. Benches along the walkways are uncomfortable, blocky concrete. The lighting at seating areas features glaring, parking lot-type fixtures.

Despite these problems, the canal attracts many people who gather to play board games or relax. Tai Chi groups practice along the canal. A beautiful temple and several apartment buildings face the waterway. An inexpensive upgrading of amenities and an effort to work with businesses that front the canal could encourage a broader range of users to enjoy it and boost business profits and property values.

Canal strolls could be a treat if the lighting and atmosphere were improved. The old-fashioned style street lights on the Chinatown side of the lower canal are the right approach and a world away from the arc lights that bathe Aala Park on the other side of the canal with their baleful glare.

The Ala Wai Canal is another underutilized opportunity in the heart of the city. The makai side of the canal is sparse in amenities, too exposed to traffic during midday and isolated from the attractions on the mauka side which include bike paths, pleasant seating areas, charming vegetable gar-

dens, play fields and canoe paddling clubs. Allowing parking throughout the day along Ala Wai Boulevard would create a buffer between the traffic and the makai walkway. A bike path and additional seating areas could serve the same purpose. A series of gracefully arching pedestrian bridges could open up the mauka side attractions and provide an avenue for people to walk to Waikiki attractions.

Cluttered Sidewalks

Kuhio Avenue in Waikiki attracts throngs of people but suffers from constricted sidewalk areas. Kuhio Avenue needs a major overhaul, but big expensive plans are not the only alternative.

For example, the city parking lot at the Kaiolu Street pump station fronts one of the most congested sidewalk areas along the avenue. Moving makai from the heavily trafficked roadway mauka of the parking lot one finds a very narrow sidewalk with numerous palms creating an obstacle course for pedestrians, a concrete block wall, two rows of parking, a drive lane that is wider than it needs to be, a second sidewalk(!) and the pump station.

Reconfiguring the parking and removing the interior walk, which no one ever uses, could provide at least 6 feet of additional sidewalk width for most of a city block and transform the existing palms from obstacles to highly desirable shelter from the street traffic. The cost/benefit ratio would be tremendous.

Grand scope and vision are essential to spearhead projects that can change the islands for the better. But smaller projects abound that offer opportunities for positive change which can be implemented with community effort and little cost. Everyone benefits from better gathering places. More amenities mean more people, more business, greater security and healthier communities.

Nick Huddleston, AIA, is an architect in private practice and a board member of the Honolulu Chapter AIA.

Cohousing may be an alternative for Hawaii

Making Home a Gathering Place

by Alan Ewell

Two thirds of United States housing stock is designed for single wage-earner families with two to four children, but the most common family type today is the dual-income family. Twenty-five percent of households consist of a single person, and 27 percent of households are headed by women. Along with these family changes have come the loss of close social connections, support networks and traditional extended families.

More than 30 years ago, a group of Danish families led by architect Jan Gudmand-Hoyer met to voice their concerns about two-hour commutes, lack of child care options and loss of extended family support. The kind of housing they could afford was either isolated in the suburbs or too dense and urban. Their children were equally isolated and as a result spent too much time watching television.

It took almost a decade of planning before the first Danish *bofaelleskaber* or "living together housing" project was completed. Designed by Gudmand-Hoyer, now revered as the father of cohousing, the project paved the way for 35 other cohousing projects in Denmark and over 200 in Europe.

San Francisco architects Kathryn McCamant and Charles Durrett brought "living together housing" to the United States with the publication of their 1988 book, *CoHousing: A Contemporary Approach to Housing Ourselves*. They found a sympathetic audience for their message of "intentionally creating community" among disenchanted suburbanites across the country. Today there are two dozen occupied cohousing communities in North America and another 150 projects in various stages of planning.

The typical elements of cohousing are:

(1) Shared Facilities
Most communities share at least dining and kitchen facilities, but many projects include laundries, saunas, darkrooms, music rooms, teen centers, business centers, guest rooms, cafes and craft workshops.

(2) Private Dwellings
Individual dwellings allow residents to choose the amount of privacy they wish. Shared amenities are made affordable by reducing the size of dwelling units while retaining their ability to function independently.

(3) Design for Social Contact
Common buildings and outdoor areas are centrally located so that residents can see what is happening in the community. Cars are restricted to the perimeter. Children can play outside or visit friends' homes without constant parental supervision or chauffeuring to distant locations.

(4) Resident Management
Residents manage and maintain their communities at monthly meetings. Decisions are resolved by consensus, and committees are assigned to deal with specific details and research issues.

(5) Resident Participation in Development
Groups developing a cohousing community take an active role in its design and implementation. Developers are most often invited into the process by a core group of residents to facilitate financing or construction management.

Cohousing in Hawaii

The idea of cooperative housing is not new to Hawaii. It often translates here as *ohana*, or extended family living. While many ohana living situations are the result of economic hardship, others have evolved from plantation lifestyles which relied on shared facilities and extended family for security, food production and child care.

This rich cultural history, high housing costs, and the same social problems that confronted Jan Gudmand-Hoyer and his Danish pioneers make Hawaii fertile ground for cohousing. For more information about cohousing, call Alan Ewell at 945-3853 or Nancy Wilcox at 395-7439.

Alan Ewell is an architect and builder who specializes in energy-efficient residential design and construction practices.

"Regreening" the dream

Honolulu's "Lei of Green"

Thomas P. Papandrew, FASLA, AIA

The "Lei of Green" for the Island of Oahu has been generally defined as a system of parks and public open space paralleling the shoreline around the island. The history of the concept for an integrated park system traces its origin to the Boston park system designed by Frederick Law Olmsted in the late 19th century. A report written for the City of Honolulu in 1906, "The Beautifying of Honolulu" by Charles Mulford Robinson, addressed those same concepts.

Top: One of our visitors' first impressions of Oahu is Nimitz Highway, which is sorely lacking in landscaping and other amenities. Why not follow the lead of places such as Singapore (right), in which visitors see a landscaped green parkway to and from the airport?

We have not been able to determine when the term, "Lei of Green" originated. However, Olmsted referred to the Boston park system as the Emerald Necklace, and we believe therein lies the genesis of the "Lei of Green." More recently it has been referred to as a "Lei of Parks."

It has been more than 90 years since this concept was first presented to the city fathers of Honolulu. It seeks to integrate the parks as a system, linking individual parks with each other as well as other elements of the urban fabric including the transportation system and disparate land uses.

The Lei of Green proposes tying parks and open spaces together using greenways with pedestrian and bikeway systems paralleling natural drainage courses and waterways. Major links paralleling the coastline would be the parkways and boulevards alongside major street connectors.

The Missing Links

Currently Oahu has parks and open spaces within our communities. Many of these parallel the coastline; however, the

links are missing that would tie the areas together as a system. In addition, the all-important penetrations mauka into the valleys are almost nonexistent.

Why look at the city from the point of view of its parks, open space, plazas and playgrounds? Lewis Mumford, in his 1938 essay "Whither Honolulu" said, "...park planning, from the very nature of things, touches every other aspect of the city's existence. The quality of space, which is a matter essential to urban health and beauty, is a quality that comes especially within the province of the Park Department. Space is no less essential an element than place and building — just as in music, the interval may be as important for the musical effect as the notes that are actually struck."

...parks provide important pedestrian and bicycle links from one area of the city to another in a manner that provides a pleasurable and safe experience for the user.

Part of the Whole

Ann Winston Spirn in her book *The Granite Garden* says.... "Every building and group of buildings, with its surrounding plazas and landscape, every park, and every street and highway should be designed both as a system in itself, as a part of a larger district which is a subsystem of the city, and as a tiny piece of the overall metropolitan ecosystem. Each park would be designed to fulfill not just one function, but many functions."

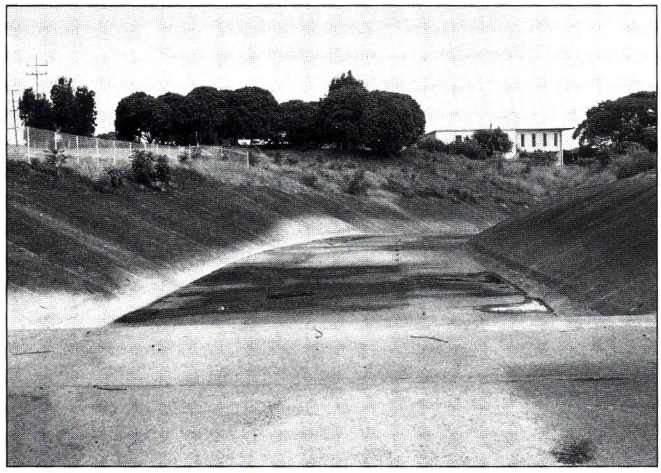
The streets, highways and other transportation routes comprise corridors along which people move from place to place. They comprise important open space corridors in our city and should be thought of as parkways rather than roadways.

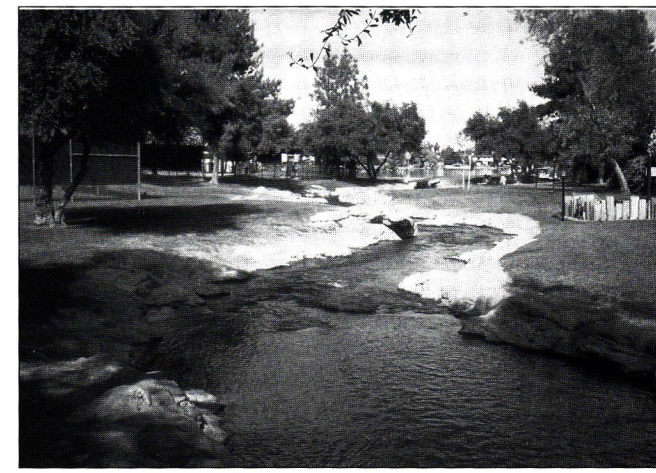
Viewed in the broadest sense, parks range from the most intensively used plazas and playgrounds to large tracts of "wild" areas that receive little use (our mauka lands).

Good for the Earth

Parks, plazas and playgrounds provide delight to many but serve other purposes besides play. Trees and plants absorb air pollution, reduce heat load on adjacent buildings and in abundance even reduce the heat island effect in an entire downtown.

Parks can be designed to reduce or mitigate the effects of flooding, as well as retain and filter storm water. When integrated with transportation networks, parks provide important pedestrian and bicycle links from one area of the city to another in a manner that provides a pleasur-





Oahu's drainage ways (left) are strictly utilitarian, but this drainage way in Arizona (above) has been converted into an attractive park.

able and safe experience for the user.

In Honolulu, with its scarce land resources and major open space given over to the public realm in the form of major streets, the concept of using these areas to connect our parks and open spaces makes great sense.

The historic importance of mountain and sea... mauka and makai... lends cultural credence to using the natural drainage courses as connective tissue, tying the valleys to the sea and using these as open space.

"Regreening" the Dream

The subtitle of this article could be, "'Regreening' the dream." It reintroduces a concept that has been around for almost 100 years. If determined that the concept is worth implementing, it is valid to ask the next question — is it too late? Has too much development already occurred in some parts of the island to implement this idea? Should we spend the effort to resurrect it? And even if it is no longer "at wonderfully little expenditure," (Robinson, 1906) is the expense worth the effort?

About 20 years ago, Richard Tongg, FASLA, one of the pioneer landscape architects in the Territory of Hawaii, told me a story. Tongg

said, "We mobilized all the Boy Scouts on Oahu (sometime in the 1940s) to bury coconuts randomly about 5 feet apart along the Nimitz Highway corridor from the airport to Waikiki."

On the weekend when the scouts under his direction were to accomplish this, one of the territorial agencies from whom he had previously obtained approval rescinded the approval and stopped the group.

Tongg pulled me by my shirt, and, as we stood nose to nose, said, "Can you imagine what that corridor would look like today if we had been allowed to bury those coconuts?" I'll never forget what he said next. "Tom, *it's never too late.*"

Mumford espoused the greater need for parks and open space in the economically deprived areas of the city. Ironically, the areas of the city where parks and open space would be most beneficial to improve the lives of the people in the adjoining neighborhoods were the most neglected in Mumford's day (60 years ago), and they continue to be the most neglected areas today.

Now is the Time

In concluding, let me repeat that it is never too late. We will redevelop much of what we see today over the course of the next 25 to 50 years. We need to develop a more expansive view of what makes up our park system and have an overall plan and a system in mind that integrates land use, transportation and drainage.

Today we see community groups working toward improving the stream corridors of Nuuanu, Manoa and others. The city and state continue to promote plans for better parks, sports and play areas for the community. Our respective professions (AIA, APA, ASLA) need to be a voice promoting a better, more beautiful and functional city. The life-giving, connective tissue that will accomplish this is the Lei of Green.

Tom Papandrew, FASLA, AIA, is chairman of Belt Collins Design Group.

Kitchen and Bath Showcase

Before

After

Studio Becker Zeyko

The new owners of this Kahala home felt the general architectural styling and design details did not suit their taste and living needs. One of the main goals was to give the new kitchen an Asian flavor while meeting the requests of the owners. These included an informal eating table, warming drawer for frequent entertaining, and a professional-quality gas cooktop with a high-powered hood. The Asian feeling of the room was created through the use of warm yet contemporary materials. This remodeled kitchen captured the 1996 BIA Hawaii Renaissance Grand Award.

Abracadabra Cabinets, Inc.

This custom remodeled kitchen in Kailua reflects the homeowner's desire for a clean look using light-colored natural wood. The doors are lacquered maple veneer with solid maple edges. Custom features include pullout shelves in the pantry, base cabinets and 14-inch-deep upper cabinets to accommodate oversized dinner plates and bowls.

After

After

Before

Kott Inc. & Bathtub Refinishing

The owner of this 1940s-style home wanted to preserve the retro theme of the house while incorporating a new look. By reglazing the tub, tile, walk-in shower, and toilet, a new remodeled look was achieved in just two days without the high cost of replacement.

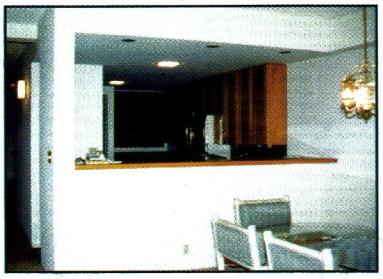
Companies featured here are advertisers in this issue of *Hawaii Pacific Architecture.*

After

West Maui Cabinets

Despite unavoidable condominium utility stacks and other remodeling restrictions, the design team at West Maui Cabinets turned this dark, cavern-like space into a room with elegance, excitement and functionality.

The wall of mirrors on the left reflects the beauty of the Pacific Ocean and the dramatic peaks of Molokai throughout the home, while the kitchen reflects the gourmet taste of its owners. A 10-inch-thick solid concrete wall separates this unit from the neighboring unit. To overcome this serious limitation, a glass block facade with dimmable lights and silk leaves behind it creates the illusion of an exterior window.



Before

Hallmark Construction

This Manoa home's total renovation features SieMatic's classic framed kitchen cabinet doors with a contemporary interpretation and represents a new trend in kitchen interior design by Hallmark Kitchen and Bath. The inset panel doors pay homage to the interior designs of the 1920s; soft jade green lacquered doors are combined with black granite counters and stainless steel toe-kicks. Over-sized stainless steel handles contribute to the authentic look.

After

After

Marmol Export USA

This transitional kitchen is easily integrated into a traditional home in the peaceful valley of Manoa. The light touch of contemporary furnishings complements the traditional textures of wood flooring and subtle beige cabinetry. The working area is at a lower level than its surrounding ledge. All the granite surfaces are topped off with a 4-inch backsplash of the same material. The granite top is beautifully executed by Marmol Exports. Its elegance adds to the transitional look of mixing contemporary with tradition.

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Award of Merit

Historic Preservation/Adaptive Reuse

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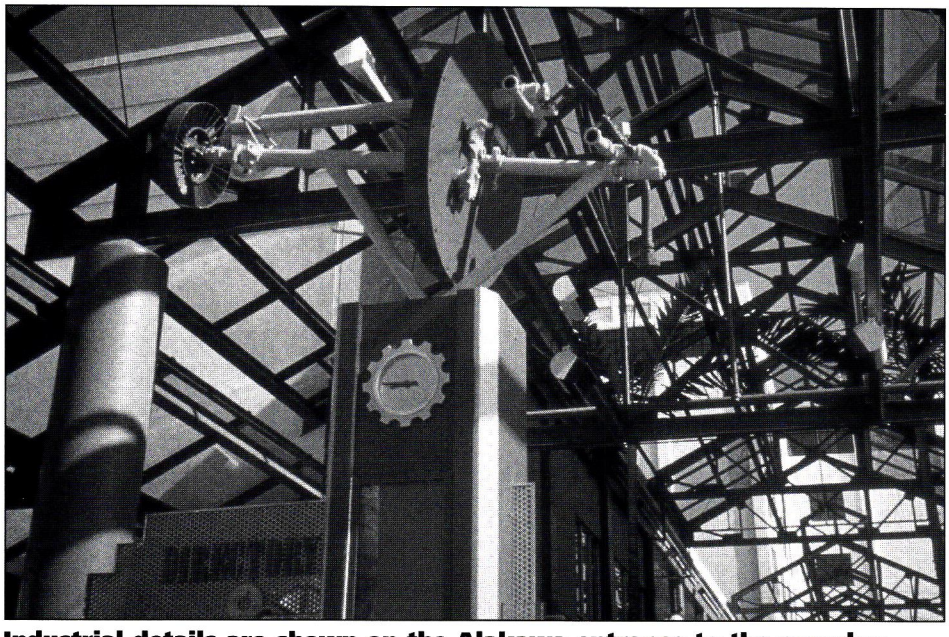
Outlets at the Dole Cannery



Industrial details are shown on the Alakawa entrance to the complex.

Credits

Developer:
Horizon Group, Inc.

Owner:
Castle & Cooke Properties, Inc.

Architect:
Architects Hawaii Ltd.

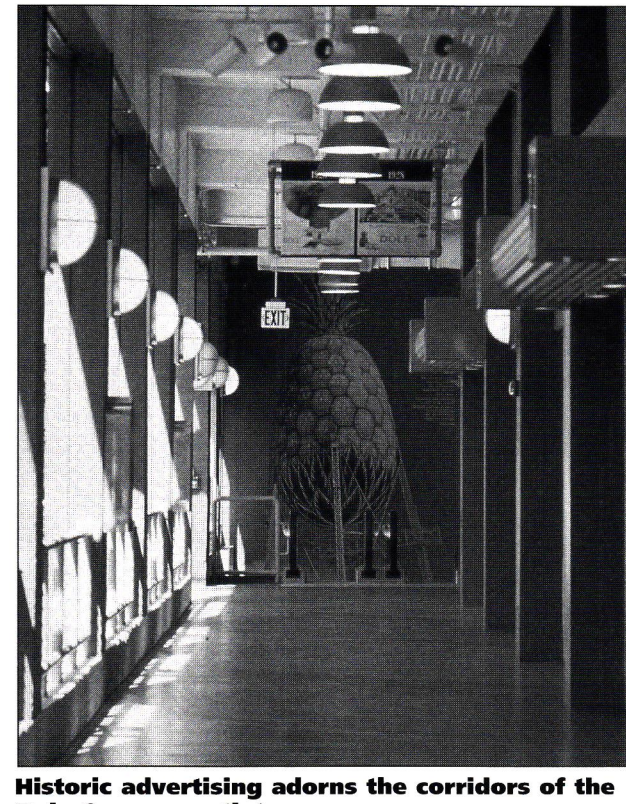
Contractors
Reedesign Builders, Inc.
Mortenson Construction
E. Kent Halvorson, Inc.
Structural & Civil: SSFM Engineers
Mechanical: Lincolne Scott & Kohloss Inc.
Electrical: Moss Engineering, Inc.
Architectural Graphics and Signage: Nick Kaars Associates, Inc.
Landscape: Walters, Kimura, Motoda, Inc.

The goal of this project was to transform the Dole Cannery industrial buildings into a retail complex reflecting the site's history and sense of place in the community. To develop the design theme of metal imagery, steel trusses, painted corrugated-metal panels, galvanized steel and similar industrial elements were incorporated into all-concrete buildings. Electrical and mechanical equipment was treated in a simple and exposed aesthetic, while a steel truss portal was developed to emphasize main entrances.

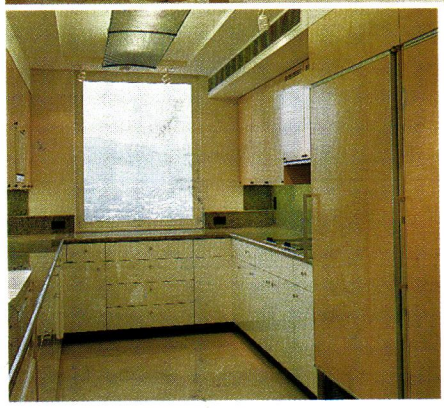
Archival photos and advertising were used to bring in cannery history. A soft green color palette was developed to recall the industrial character of the times.

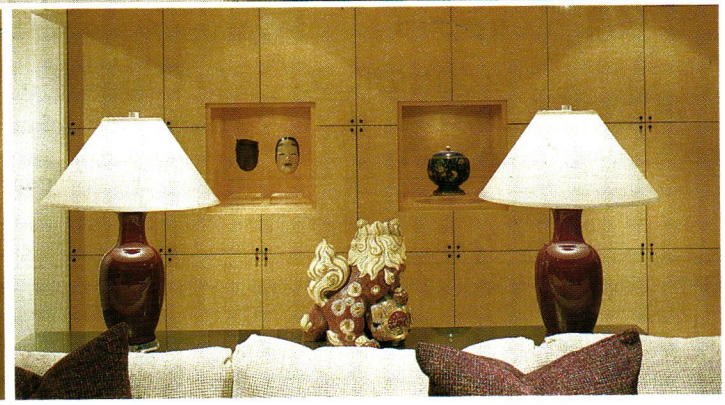
Jury's Comments:

"Nice retail architecture within an industrial setting. This has the potential to be an exciting shopping space."



Historic advertising adorns the corridors of the Dole Cannery outlets.





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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