1989
CHIEF OF ENGINEERS

DESIGN AND ENVIRONMENTAL

Awards program

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FROM THE CHIEF

At no other time in world history has there been such recognition of the benefit of competition and free tradc. The Berlin Wall has fallen. Warm winds of change are altering the current of the Cold War. And all because nations now know that nothing can replace the benefits they accrue when individuals are not only free but spurred on to do their best.

We believe we arc the best public engineering agency in the world and are determined to make ourselves better to serve our nation's needs. One of the ways to make us better is to encourage more innovative projects through that same spirit of competition.

I believe the Design and Environmental Awards Program provides a unique opportunity to showcase the Corps of Engineers commitment to design and environmental excellence and to recognize the professionals who make it happen. On the next few pages, you'll find projects as unique as they are outstanding. The winners reflect environmental, engineering, architectural, and landscape architectural applications that exhibit excellence in function, economy, resource conservation, aesthetics, creativity, and harmony with the environment.

This year, twelve prominent design and environmental professionals spent two days pouring over more than 100 entries. As one of the judges stated in reviewing the awards, "It's exciting to see the size, variety and quality of what the Corps is doing."

As you turn the pages of this brochure, please join me in celebrating the leaders in excellence—the winners in the 1989 Chief of Engineers Design and Environmental Awards Program.

H.J. HATCH
I.ieutenant General, USA
Chief of Engineers

THE PROGRAM

First held in 1965, the Chief of Engineers Design and Environmental Awards Program recognizes excellence in design and environmental achievement of recently completed Corps projects. This year's competition was particularly noteworthy in that it marked the twentieth time the program has been held.

Impartial panels of design professionals chose winners in the categories of Environment, Architecture, Engineering and Landscape Architecture, and recognized private sector firms and Corps offices which accomplished these projects. Each entry was judged on the basis of fulfillment of its criteria, including the solution to its own particular problems. Projects in both the civil works and military construction arenas could compete, rcgardless of the agency for which the work was done.

Judges in each category chose no more than three projects for Awards of Merit. At its discretion, the category jury also conferred an Honor Award to recognize exceptional achievement. A judge from each category then formed a panel to select from among the Honor winners one project deemed worthy to receive the Chief of Engineers Award of Excellence.

The jury also granted Honorable Mention Awards to projects that exhibited design features or concepts that should bc recognized, but did not qualify for a higher award.

The objectives of the program are to recognize and encourage the development of quality projects which are functional, economical, creative and in harmony with the environment.

AWARD WINNERS

Chief of Engineers Award of Excellence

Lower Pool 5 Channel Maintenance/Weaver Bottoms Rehabilitation, Upper Mississippi River, Wabasha County, Minnesota

ENVIRONMENTAL Honor Award

Lower Pool 5 Channel Maintenance Weaver Bottoms Rehabilitation, Upper Mississippi River, Wabasha County, Minnesota

Award of Merit

Sand Stabilization-Vegetation Program, Buhne Point Shoreline Erosion Demonstration Project, California

Award of Merit

Upgrade of Industrial Waste Treatment Facility, Kelly Air Force Base, San Antonio. Bexar County. Texas

Honorable Mention

Archaeological Site CA-Ven-110, Calleguas Creek Flood Control Channel, Ventura County, California

Honorable Mention

Mount Hebo Air Force Station Hazardous Waste Cleanup, Hebo, Oregon

Honorable Mention

North Pacific Division Curation Facility, Bonneville Lock and Dam, Bonneville, Oregon

Honorable Mention

Project Huck Finn, Vicksburg, Mississippi

Honorable Mention

Dual Fuel Steam Plant, Red River Army Depot, Bowie County, Texas

ARCHITECTURE Honor Award

Secure Operator Training Facility, Fort Devens, Massachusetts

Award of Merit

Composite Medical Facility, Minot Air Force Base, Minot, North Dakota

Honorable Mention

United States Army Intelligence and Security Command Headquarters, Fort Belvoir, Virginia

Honorable Mention

Youth Activities Center, Fort George G. Meade, Maryland

Honorable Mention

Resource Manager s Office, Walter F. George/George W. Andrews Lakes, Alabama/Georgia

Honorable Mention

Commissary, Fort Jackson, South Carolina

ENGINEERING Honor Award

Johnston Atoll Chemical Agent Disposal System, Johnston Island, Central Pacific

Award of Merit

Downstream Guidewall, Main Lock, Melvin Price Locks and Dam, Mississippi River, Alton, Illinois

Award of Merit

Fisherman s Wharf Breakwater, San Francisco, California

Award of Merit

Stonewall Jackson Lake Dam on the West Fork River, Weston, Lewis County, West Virginia

Honorable Mention

Clinical Hyperbaric Facility, Wright-Patterson Air Force Base, Dayton, Ohio

Honorable Mention

West Williamson Local Protection Project, Williamson, Mingo County, West Virginia

Honorable Mention

Upgrade of Industrial Treatment Facility, Kelly Air Force Base, San Antonio, Bexar County, Texas

Honorable Mention

Blade Repair Facility, Tinker Air Force Base, Oklahoma City, Oklahoma

Honorable Mention

Lenox Bridge, Lakewood Development. Dyer County, Tennessee

LANDSCAPE ARCHITECTURE Honor Award

Blue Heron Recreation Area, Big South Fork National River & Recreation Area, Stearns, McCreary County, Kentucky

Award of Merit

Knights Ferry Recreation Area, Stanislaus County, California

Award of Merit

Ceiba Tree Park, Ponce, Puerto Rico

Honorable Mention

New River Dam, Maricopa County, Arizona

Honorable Mention

Sergeants Major Academy, Fort Bliss, Texas

Honorable Mention

Simulated City (MOUT Facility), Hohenfels Training Area, West Germany

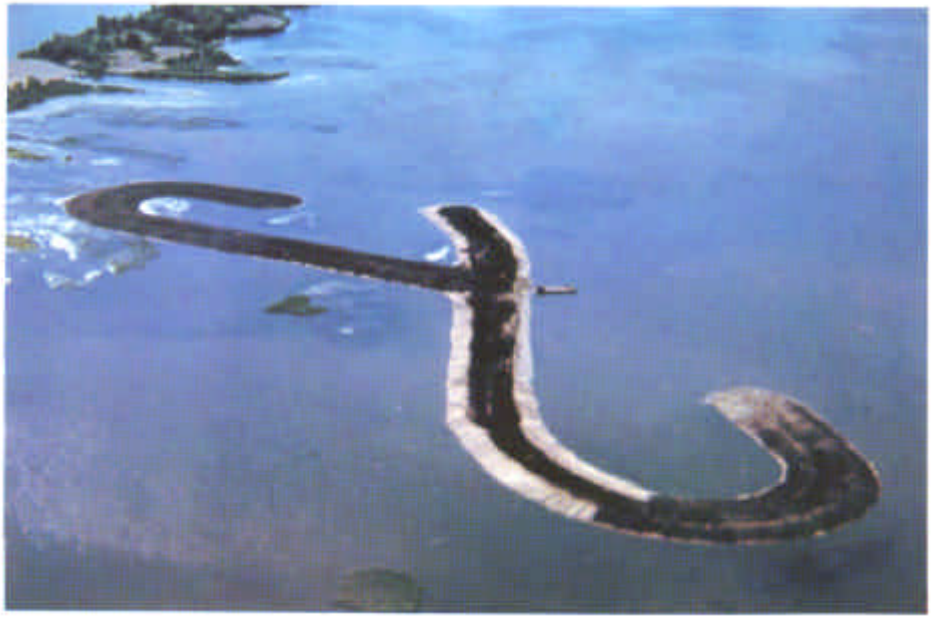
Lower Pool 5 Channel Maintenance/Weaver Bottoms Rehabilitation, Upper Mississippi River, Wabasha County, Minnesota

Designers U.S. Fish and Wildlife Service, St Paul, Minnesota
U.S. Army Engineer District, St. Paul

In recent years, the habitat quality of many backwater areas has declined. One of these, Weaver Bottoms, covers 4,000 acres and is part of the Upper Mississippi River National Wildlife and Fish Refuge. Shortly after impoundment in the 1930s until the mid to late 1960s, about three quarters of Weaver Bottoms contained marsh vegetation. However, in the late 1960s and early 1970s, the great diversity of habitats and plant and animal species dramatically decreased due to two major floods, uprooting and removal of vegetation by ice, changed flow and sedimentation patterns, and reduced water clarity caused by wind-induced wave erosion. What s more, Weaver Bottoms was rapidly accumulating sediment that was projected to fill the area completely within the next 60 years.

The Great River Environmental Action Team I (GREAT I), composed of state and federal agencies, was organized in 1973 to identify and assess the problems associated with multipurpose use of the Upper Mississippi River. The team developed a 40-year dredged material disposal plan that recommended using the dredged material from lower pool 5 to rehabilitate Weaver Bottoms.

In a joint effort between the Corps of Engineers and the U.S. Fish and Wildlife Service, five alternatives were developed and evaluated to implement the earlier team s recommendation. The evaluating agencies used a state-of-the-art system of two-dimensional, finite element models to design and evaluate the changes that each alternative would have on hydrodynamics and sedimentation



The plan they selected includes the construction of six barrier islands and the modification of 14 side channels entering Weaver Bottoms.

The 1,367,000 cubic yards of fill material used to construct the project came from two nearby dredged material containment sites, freeing them for use again over the next 40 years and reducing dredging requirements by 266,000 cubic yards.

The rehabilitation project has had many positive environmental benefits for Weaver Bottoms. The reduction of sediment preserves Weaver Bottoms as a valuable backwater. The reduced flow from side channel modifications and reduced wave-generated erosion and turbidity from the barrier islands benefits the aquatic plant community, and will eventually return Weaver Bottoms to a more productive marsh, water and island ecosystem.

This project, which also earned the Environmental Honor Award, captured the unanimous vote of the judges to receive this year s Chief of Engineers Award of Excellence. Not only does it offer significant environmental benefits, but it also reduced material in containment sites. The Corps of Engineers is certainly to be congratulated on this kind of thinking and this kind of project planning, the judges noted.

Jurors' comments: *"An outstanding example of interagency cooperation resulting in substantial environmental and economic benefits. This project is the best of the entries, stressing ecological conservation and enhancement while resulting in lowered maintenance costs for navigation. The project was win-win-win, in cooperation, in the environment, and in economics."*

ENVIRONMENTAL

AWARD OF MERIT

Sand Stabilization-Vegetation Program, Buhne Point Shoreline Erosion Demonstration Project, California

Designer: U.S. Army Engineer District, Los Angeles
Design Agent: U.S. Army Engineer District, San Francisco

Located about 250 miles north of San Francisco, Humboldt Bay is the largest and most important harbor between San Francisco and the Columbia River at Oregon s northern border. Dredging for navigation in the bay began about 1883, and during the 1890s the Corps built major jetties projecting seaward from the north and south peninsulas at the harbor entrance. The Corps has maintained and rebuilt the breakwaters for nearly a century and, while essential for the harbor, most likely the breakwaters have focused wave energy on Buhne Point which lies directly in line with wind and waves entering Humboldt Bay from the Pacific Ocean. The point and the entire community of King Salmon, which includes commercial and sport fishing facilities and hundreds of homes, were threatened.

Using extensive physical modeling at the Corps Waterways Experiment Station and phased construction, designers came up with a project whose central feature was the dredging of 600,000 cubic yards of sandy material from the harbor and restoring 23 acres of Buhne Point using native plants.

To shelter and stabilize the sand on the north, the project called for a 1,050-foot shore-connected, rubble mound breakwater. To prevent sand from being transported to the south, a 1,250-foot groin was built of steel H-piles and timbers, then extended 625 feet with a rubble mound structure. The final phase established vegetation to prevent wind erosion.

Until this program, there was very little data, either published or unpublished, on dune revegetation using native plants instead of non-native species which can cause adverse effects to dune ecology and structure. Through experimental plantings, then full scale revegetation, followed by detailed monitoring of methods, costs, and success of plantings, the Corps has gained a great deal of useful information which will serve as models to other shoreline protection projects.

The groins and breakwaters have halted water-borne sand migration from the Buhne Point project site, and native plantings have virtually eliminated wind erosion. Buhne Drive and the community of King Salmon are now well protected from Humboldt Bay.

Jurors comments: *...an innovative approach, with results that appear to be, long lasting and beneficial to many. The environmental aspects were undertaken with excellent concepts and practice. The project provides a stimulating national model.*

AWARD OF MERIT

Upgrade of Industrial Waste Treatment Facility, Kelly Air Force Base. San Antonio, Bexar County, Texas

Designer: Albert H. Halff Associates, Dallas, Texas
Design Agent: U.S. Army Engineer District, Fort Worth

The task for this project was a formidable one: to eliminate discharge permit noncompliance at the base s industrial wastewater treatment plant and improve the base s environmental image with the Texas Water Commission and the Environmental Protection Agency.

The city of San Antonio s sole source of drinking water is the Edwards Aquifer which lies directly beneath Kelly Air Force Base. The effluent from the treatment plant discharges directly into Leon Creek just south of the base. Past reports of frequent fish kills in this creek directly attributable to the old treatment plant made waste treatment at Kelly a highly sensitive issue.

The base generates a tremendous variety of wastes, and flows vary drastically during the operating day, making consistent permit compliance difficult. To make matters worse, the sludge produced by the industrial wastewater plant is Class I hazardous material and must be disposed of in an appropriate landfill at a cost of some $250 per ton.

The design solution provides a central industrial wastewater treatment plant for the bulk of the flow and separate pretreatment facilities for the more concentrated runoff, while minimizing the amount of sludge produced at the new facilities to approximately one-fourth of the previous tonnage. The final design features a laboratory, three parallel treatment systems and remote pretreatment facilities located at five separate sites, 40,000 feet of new industrial waste collection, and more than 270 pumps. The state-of-the-art computer network which runs and monitors the plant operation saves energy, reduces the amount of needed treatment chemicals, and maintains discharge permit compliance.

The old plant has been replaced with a new group of facilities that is consistently in compliance with EPA drinking water regulations and has eliminated reports of fish kills. The effluent itself is now considered to be a valuable water resource and Kelly Air Force Base has plans to use it for nondomestic purposes, which will reduce their withdrawals from the Edwards Aquifer by 50 percent.

Jurors comments: This is a state-of-the-art plant combining innouative biological and chemical treatment methods. The design provides maximum flexibility through the use of a unique computer network and an extensive process monitoring system. While a great deal of attention is beingpaid by the public and media these days to the cleanup of hazardous wastes generated in the past, it is essential that federal agencies ensure that their current practices are not creatingproblems for future generations.

HONORABLE MENTION

Archaeological Site CA-Ven-110, Calleguas Creek Flood Control Channel, Ventura County, California
Designer: U.S. Army Engineer District, Los Angeles

With a National Register of Historic Places archaeological site and Native American cemetery within the area targeted for flood control channel maintenance dredging, the permit application rapidly became a cultural resource manager s nightmare. Yet the need for the maintenance dredging to prevent future flood damage was undeniable. The Federal Emergency Management Agency, a local landowner, and the flood control district provided funds and lands to accomplish the required work as the Corps was not authorized to spend funds for test excavations or mitigation under its regulatory authority.

To resolve the problems, the Corps archaeological staff met with representatives of the State Historic Preservation Office, the Advisory Council on Historic Preservation. the Ventureno Chumash Indians and the Candelaria American Indian Council of Ventura County. The Corps hydraulics staff examined the possibility of preserving the site within the channel with no luck, and a recovery and reburial program was required.

Investigations also revealed that many of the burials contained modern debris deposited by the floods. Project managers had reached the burials just in time. The next flood would have washed them away.

The Corps ability to understand and resolve the complex human and technical issues resulted in a program that produced an atmosphere of mutual respect and cooperation between the county and its large Native American constituency without sacrificing the much needed flood control channel dredging. The exciting finds uncovered during the archaeological excavations have captured the public s attention and renewed interest in the culture of the Chumash Indians. The cultural resource manager s nightmare became a Native American and historic preservation dream come true.

Jurors comments: *An excellent example of interagency cooperation at all levels of the community to provide flood control benefits while displaying exemplary sensitivity to Native Americans and their heritage. Agreement was reached with all involved parties on whether and how to relocate Native American burial sites and artifacts to a site safe from flood erosion.*

HONORABLE MENTION

Mount Hebo Air Force Station Hazardous Waste Cleanup, Hebo, Oregon

Designer: Radian Corporation. Austin, Texas
Design Agents: U.S. Army Engineer District. Omaha
U.S. Army Engineer District, Portland

The Tactical Air Command used the Mount Hebo Air Force Station from 1956 to 1980. Salvage contracts to remove improvements and return it to the U.S. Forest Service left the area with polychlorinated biphenyls (PCB) liquids dumped on the ground, electrical transformers gutted and crushed, and construction debris including asbestos strewn over the mountaintop.

The site is located on top of a 3,000-foot mountain at the end of an R-mile winding road, a considerable distance from any landfill. To further complicate cleanup, weather conditions at Mount Hebo are severe. Wind velocities commonly greater than 100 miles per hour prohibited construction from November through April.

Although project engineers had to send asbestos and PCB-contaminated soil and liquids to off-site disposal facilities, they recycled metal and decontaminated transformer carcasses and demolished and buried structural foundations and debris in vaults and trenches, saving countless transportation costs.

The cleanup effort returned the area to the public for recreational use and created habitat for what is now the largest population at Mount Hebo of the Oregon silver-spotted butterfly, a threatened species. The Forest Service said this about the project: In future years the casual visitor to Mount Hebo will be hard-pressed to realize this was a former national defense site.

Jurors comments: *Although itself a relatively small project, it is an early example of what promises to be a major area of activity for the Corps in the years ahead. The Department of Defense estimates that the cleanup of sites such as this may cost from $11 to $15 billion.*

HONORABLE MENTION

North Pacific Division Curation Facility, Bonneville Lock and Dam, Bonneville, Oregon
Designer: U.S. Army Engineer District, Portland

The Portland District faced a massive artifact curation problem. As a result of cultural resources work required, the district had recovered over a million artifacts that required proper long-term storage and availability for scholarly research. In addition, a new federal curation regulation established strict curatorial standards and guidelines for the long-term preservation of the material remains recovered through federal projects and programs.

The auditorium building on the Bonneville Lock and Dam Project became available as a possible solution. Constructed as part of the Bonneville project in 1934 and placed on the National Register of Historic Places in 1987, the one-story brick auditorium building contained a full basement suitable for conversion to a curation facility.

Through upgrade of mechanical and electrical systems and renovation of almost 3,200 square feet of the basement into three secure rooms with state-of-the-art components for curation and collections management, designers turned the auditorium into a facility that provides long-term preservation and storage of archaeological and historical artifacts. Re-use of the auditorium provided not only an efficient use of the structure but also assured continued life for a significant historic, architectural, and visual resource.

Jurors comments: *...an effective solution by recognizing that an available facility could be converted, with professional advice and the availability of sufficient funds, to provide an excellent facility in an innovative and cost-effective manner. This is a notable blending of need and opportunities to achieve responsible care of cultural resources.*

HONORABLE MENTION

Project Huck Finn, Vicksburg, Mississippi
Designer: U.S. Army Engineer District, Vicksburg

Despite the scope of the Mississippi River and Tributaries (MR&T) project and obvious benefits to the nation, an alarmingly few recreation and business leaders tap the benefits the project offers in terms of broad recreation and industrial uses. The concern is compounded by the fact that our leaders of the 1990s and beyond will have been born after the disastrous floods, the civil works policy battles which focused on need, and the pre-MR&T river conditions highlighting the need to heighten awareness of the river, its history, its opportunities, and its impact on everyday life.

To create a multi-level educational program for all public levels, beginning with young children and extending into college, planners developed a state-accredited high school river course co-sponsored by Vicksburg District and the local school district; set up a grammar school teacher s workshop and unit for kindergarten through sixth grade use; and created special emphasis programs to heighten awareness of river-related job opportunities for the student, college-bound or in high school.

The programs involve partnerships with local schools, chambers of commerce, navigation interests, major industry and artisans. Through this project, engineers become community patrons and the Corps assumes a major role as education proponent and support agency and is a catalyst to community development.

Jurors comments: *An excellent educational program with a creative, multi-level approach beginning with young children and extending into the college curriculum. The jury wishes to recognize this effort and encourage similar programs. This entry would have been more highly rated if the natural environment of the river had been emphasized in proportion to the transportation and commercial aspects of the river.*

HONORABLE MENTION

Dual Fuel Steam Plant, Red River Army Depot, Bowie County, Texas

Designer: Pope Engineers. New York. New York
Design Agent: U.S. Army Engineer District, Fort Worth

Existing oil and gas-fired boilers for steam production at the Red River Army Depot were inefficient, unreliable, and difficult to maintain. The depot often leased extra boilers to meet their needs, and with three new major production facilities scheduled for completion by 1990, the situation was critical. A moratorium on new natural gas purchased by the local supplier mandated an expedited schedule for a replacement facility using non-natural gas fuels.

Environmental restrictions precluded the open burning of refuse, large wood pallets, crates, boxes, paper and cardboard, so the depot was hauling them to their landfill for burial. Could this be a potential fuel source, if the variably shaped refuse could be reduced to a manageable size and another fuel identified to supplement the sporadic supply of wood? A nationwide search confirmed that the system would work using coal as the supplemental energy source.

A shredder or "hogger" reduces depot refuse to usable chips. Underground tunnels load and unload coal to control stockpile conditions and reduce dust emissions during movement. A curbed, concrete apron and lagoon contain the coal stockpile and keep it clean, prevent rainfall runoff contamination and reclaim eroded coal particles in alternating settling ponds. Application of the latest technology controls emissions, fuel systems, the combustion process and ash removal.

Red River Army Depot s new plant reduces energy consumption by approximately 101 billion BTU per year. Wood or coal replaced about 398 million cubic feet of natural gas, saving about $1,025,000 the first year. The new system drastically reduced landfill requirements, and it saves 12 million gallons of water each year because condensate is returned to the new boiler and reused for steam. The design solves all of the problems and meets the project objectives of a modern, environmentally-controlled, dual-fuel steam plant and distribution system.

Jurors comments: *...an innovative approach to reducing the use of fuel oil and natural gas, yet producing the extensive amounts of steam required at this facility. Steam con be produced at high efficiency at the same time the environment is enhanced through protection of the fuel storage and handling areas.*

HONOR AWARD

Secure Operator Training Facility, Fort Devens, Massachusetts
Designer: Architectural Resources Cambridge, Inc.. Cambridge. Massachusetts
Design Agent: U.S. Army Engineer Division. New England

The design challenge was to provide lecture classrooms, instructional shops for intensive hands-on equipment training, administrative work and break areas: and inclement weather tactical training, most of which would involve sensitive compartmented information in the field of electronic warfare and cryptology for the U.S. Army Intelligence School at Fort Devens.

The basic criteria called for a building that should be simple but provide an environment that supports teaching and learning. All systems and materials had to be as durable and energy efficient as possible to reduce operating and maintenance costs. And the design had to satisfy string ent security constraints.

Designers created a two-story building with one level above ground and one below. The upper level houses the main entrance, all program areas not involved with sensitive compartmented information, the high-bay vehicle areas, and mechanical sup port systems. The lower level, located below grade to minimize outside exposure, is the center for the Sensitive Compartmented Information Facility.

Although the majority of the building was designed with function in mind, the entry lobby which provides access to both floors imparts a sense of importance to the occupants by creating an impressive entry to their workplace. The lobby s ornamental elements, made of inexpensive wood trim and decorative lighting, provide a change of character from the remainder of the building effectively but inexpensively. The exterior design recalls the traditional New England building vocabulary already present at the post.

UPPER LEVEL FLOOR PLAN

Jurors comments: *This designer understood proportion. ...good site plan...strong concept...nicely detailed, symmetrical but not forced. It works.*

AWARD OF MERIT

Composite Medical Facility, Minot Air Force Base, Minot, North Dakota

Designer: Flad & Associates of Wisconsin. Inc., Madison. Wisconsin
Design Agent: U.S. Army Engineer District. Omaha

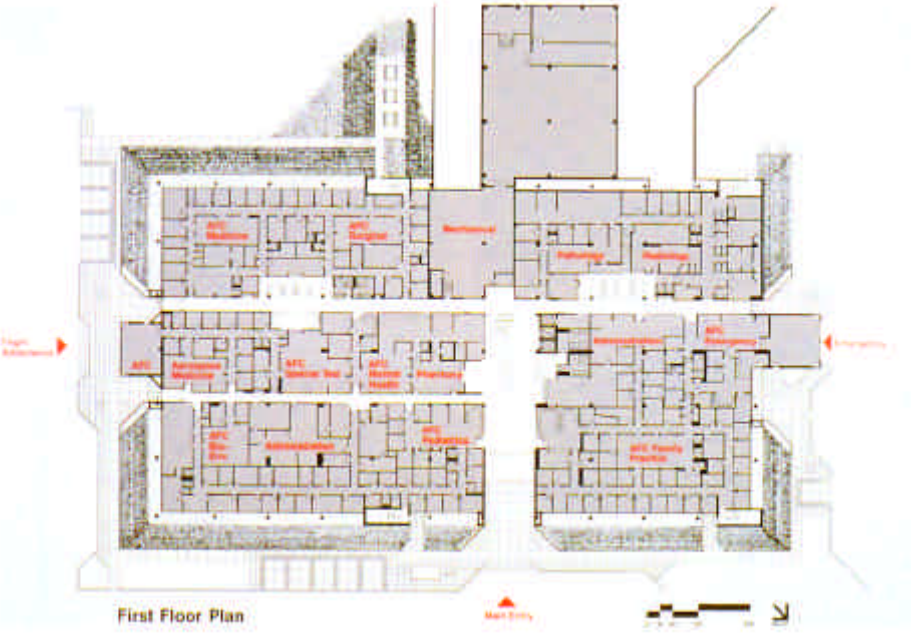
The bold, three-story scheme locates all of the clinic s pathology, radiology, and flightline and general emergency services on the first floor at grade level, both for proximity to each other and easy access to separate entrances for emergency, staff, patients, and visitors. The second floor includes the dental clinic and physical therapy, as well as materiel management and food service, purposely centralizing these functions within the structure. The third floor houses the primary inpatient functions of surgery, intensive and coronary care, obstetrics and inpatient beds. Finally, a mechanical penthouse tops the roof.

By far the most important element to the interior concept is the organization and primary access to the building via a three-story central atrium which provides the nucleus to the project and focuses aesthetic and functional movement and orientation inward. Two spine corridors on the first floor provide circulation from the atrium to various functions and connect the staff and emergency entrances to the atrium. These circulation spines serve as streets, with waiting and reception points along the path aesthetically and physically accentuated to provide plazas. Patient rooms and related spaces on the third floor line the periphery and incorporate full height windows to allow generous amounts of natural light and maximum views for the patient.

Situated at the junction of the main entrance and public access highway, the hospital occupies a major position of prominence and suggests a bold, dramatic conceptual solution. The new structure, a 178,000-square-foot, three-story complex provides complete health care services for the base

community. The image of the facility promotes a positive attitude towards health care for base personnel and their families and enhances the hospital s ability to attract quality medical staff from throughout the Air Force.

Jurors comments: *Well organized and clear plan in a very complex building type. Zoning of plan is extremely clear with circulation well defined. It s obvions the design firm knows medical facilities.*



First Floor Plan

HONORABLE MENTION

United States Army Intelligence and Security Command Headquarters. Fort Belvoir, Virginia

Designer: The Kling-Lindquist Partnership, Inc., Philadelphia, Pennsylvania
Design Agent: U.S. Army Engineer District, Baltimore

The new Intelligence and Security Command Headquarters building is located on a 46-acre site at Fort Belvoir, Virginia, previously used as an earth moving equipment parking area. The site includes a relatively large cleared level space, a sloping wooded area, and two ponds.

To adapt the building design to its surroundings, the open flat area was developed for parking, and separated from the surrounding environment with a generous planting of trees to soften the visual impact. Earth mounding planted with trees is used to visually separate the facility from a nearby state road.

The building itself is nestled along the sloping wooded site. Its geometry, with its continuously glazed exterior perimeter wall, provides maximum views of the woods. A large skylight lets ample sunlight into the main lobby and elevator lobby, which extends through all four floors, two above ground and two below. This allows sunlight to penetrate to all levels, including the two underground floors. Indirect and clustered down lighting along the main corridor combine with a strong geometric floor pattern to provide a pleasant travel path to work areas.

Jurors comments: *Good site plan. Strong exterior concept for a security-oriented facility with the special problem of a big building complicated by security issues and electronic shielding necessary for a sensitive compartmented information facility.*

HONORABLE MENTION

Youth Activities Center, Fort George G. Meade, Maryland
Designer: Cooper-Lecky Architects P.C. Washington, D.C.
Design Agent: U.S. Army Engineer District. Baltimore

Imagine that you re one of the thousands of youth who move with their parents to a strange new military base each year. You ve left your friends thousands of miles behind. The youth activities center, featuring a gym, game and activity rooms, space for dance or martial arts, a snack bar and teen lounge, offers your one piece of territory outside your home.

This design addressed the problem of the young person s transition into the wider community beyond both home and school. Each major activity was housed in an independent structure, giving it a special identity. These components were arranged around a skylit space which acts as a Main Street. Each activity space along the Main Street becomes an individual shop, awaiting entry, having a discrete identity, but clearly a part of the community. Designers carefully placed adult supervision to be effective but not intrusive.

The design is interesting in its use of a variety of commonplace materials to establish the character of the environment. Take, for instance, the floors. The enclosed Main Street uses lightly colored concrete, a sidewalk material. As the youthful occupants move indoors, the flooring shifts to tile, carpet, and urethane gym flooring.

The environment is a child s own clubhouse where youth ages 6 through 19 can come together for mutual benefit without compromising the identity of their territory.

Jurors comments: *....qood site plan...fun...Socially responsible as a building type.*

HONORABLE MENTION

Resource Manager's Office, Walter F. George/George W. Andrew Lakes, Alabama/Georgia

Designer: Carr & Associates Engineers, Inc., Pelham, Alabama
Design Agent: U.S. Army Engineer District, Mobile

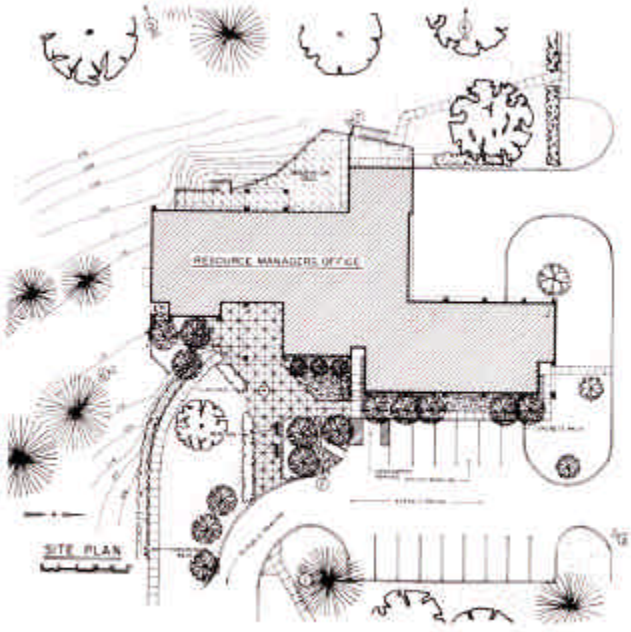
The facility accommodates project management, contract inspection, and lakeshore and natural resource management employees whose collective duties are to manage both the Walter F. George and George W. Andrews Lakes and to act as liaison with the public, other agencies and other Corps elements.

Indigenous materials of wood and stone were creatively and effectively used as building materials to complement, and blend into, the surrounding environment. Materials such as double glazed windows and appropriate building orientation contribute to an energy efficient design. A large observation deck offers visitors an excellent view of the lake and surrounding countryside. Visitors arriving by bus exit at the main entrance plaza which forms an axis to the observation deck through the building lobby and a facility that is barrier free.

Landscaping also played a significant role in the design. *Tree,* shrub, and ground cover plantings complement natural growth, terrain and building design. Shrubbery screens out any objectionable site features and softens the impact of the building viewed from pedestrian areas.

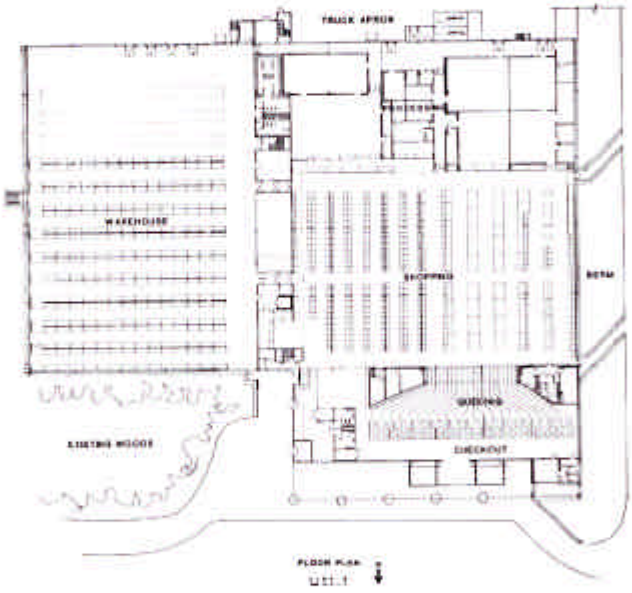
The architectural design solution to the Resource Manager s Office was an acknowledgement of the natural beauty of the lake and abundant natural vegetation.

Jurors comments: *A simple, understated approach. Materials are in concert with the environment. Reflects a friendly, nice scale, understated.*



HONORABLE MENTION

Commissary, Fort Jackson, South Carolina
Designer: Cromwell, Truemper, Levy, Thompson & Woodsmall, Inc., Little Rock, Arkansas, in Joint Venture with Anderson/Fulmer, Architects-Planners, Columbia, South Carolina
Design Agent: U.S. Army Engineer District, Savannah



Most traditional commissaries mimic giant food warehouses. Not this 104,650-square-foot facility at Fort Jackson. North facing clerestories create a bright and cheerful interior. Areas of oak paneling and colorful banners depicting the history of the post add the warmth and color of a festival marketplace.

This massive building is tucked into the hillside site with eight-foot-high earth berms along the west and north sides of the structure. The natural grade, with existing trees, was retained along the east side of the building at eight feet above the inside floor level.

Heat for the building is reclaimed from the refrigerated storage system. The use of natural daylight from the clerestories saves not only the electrical energy required to operate artificial lighting, but also the cooling energy required to overcome the heat produced by that artificial lighting.

The new facility provides a first-class commercial food storage and sales facility for hundreds of military families and a large retirement community.

Jurors comments: *The strong and commendable concept drew our attention. This difficult project type, on the scale of a warehouse facility, was scaled down with berms.*

HONOR AWARD

Johnston Atoll Chemical Agent Disposal System, Johnston Island, Central Pacific

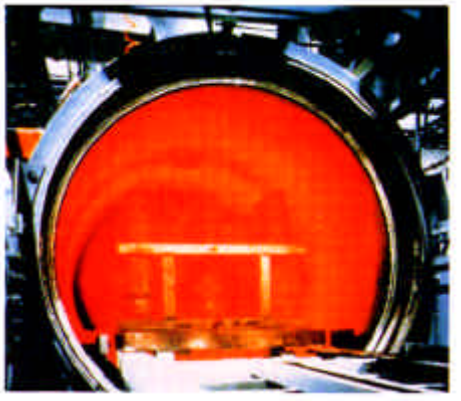
Designers: The Ralph M. Parsons Company, Pasadena, California
Stearns-Roger Division of United Engineers and Constructors
Glendale. Colorado
Design Agent: U.S. Army Engineer Division, Huntsville

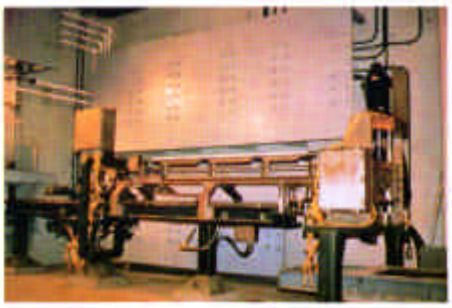
In 1971 environmental and safety concerns prompted Congress to pass Public Law 91-672 which prohibited the Army from returning a large stockpile of chemical munitions stored in Okinawa, to the continental United States. These munitions were subsequently stockpiled on Johnston Island. The 27,000-ton stockpile ranged from rockets and landmines to mortars and projectiles, all of which contained lethal chemical nerve or blister agent.

The Johnston Atoll Chemical Agent Disposal System (JACADS) facility is the free world s first full scale production facility for disposal of obsolete and deteriorating lethal chemical munitions. The process uses sophisticated robotic demilitarization equipment and material handling systems to remotely disassemble a variety of lethal chemical munitions. After disassembly, all contaminated components including chemical agent, explosives, containers and casings are incinerated in unique, specially designed and proven furnace systems. The design encompasses numerous engineering disciplines-civil, chemical, mechanical, electrical, geotechnical and environmental-and applies architectural skill to provide an attractive, functional facility blending with the airport facilities on Johnston Island. This unique structure required 10 years of research and development and is a prototype for eight additional facilities to be constructed in the United States.

The nucleus of the JACADS process, the 73,000-square-foot munitions demilitarization building, houses the sophisticated computer control system and the four specialized incinerator systems capable of processing 33,600 pounds of lethal chemical agent and generating nearly 250,000 pounds of decontaminated scrap metal per day. Over 700 failure modes and effects analyses were performed as well as systems hazards, safe response, risk mitigation, and power availability analyses. A reliability, availability and maintainability analysis performed on the uninterruptible power and emergency generator systems established an unprecedented power availability of 0.99998. Operators dismantle explosive munitions in the explosive containment rooms, an area where there is the greatest negative pressure within the facility. The rooms are designed to totally contain blast, fragment, and contaminated air in the unlikely event of detonation.

The process control system, one of the fastest in the world, features a response time of 2 1/2 seconds and uses 20 touch screen operator consoles to control 8,000 separate and remote functions within the facility. The control room, with its own filtered positive pressure ventilation system, provides a safe haven for operators in the event of an emergency.





Although the Johnston Island facility did not require an air permit, the Army dictated, because of environmental and public safety, that each furnace system be equipped with a state-of-the-art, highly efficient pollution abatement system. This system processes all gaseous emissions from the four incinerators to meet the most stringent of environmental and public safety requirements.

Every feature of the JACADS facility is unique, rivaled only in complexity by present day nuclear facilities. The process has been recognized as the safest and most environmentally acceptable method for disposing of chemical weapons. This program has aroused interest from our NATO allies, as well as the Soviet Union, and established the U.S. Army Corps of Engineers as the leaders in advanced demilitarization technology.

Jurors comments: *The many complex systems required innovative solutions that are now recognized around the world and will be used for hazardous and toxic waste disposal not only in the United States but other nations. The project deserves broad recognition as an engineering achievement having worldwide significance and value.*

AWARD OF MERIT

Downstream Guidewall, Main Lock, Melvin Price Locks and Dam. Mississippi River, Alton, Illinois

Designers: U.S. Army Engineer District, St. Louis
U.S. Army Engineer District, Nashville

The downstream guidewall of the main lock is an innovative part of the second stage of the Melvin Price Locks and Dam project, the largest single-site Corps project presently under construction.

During the preparation of the feature design memorandum, it became apparent that dry construction of the downstream guidewall to provide a concrete rubbing surface below the minimum expected tailwater would require a cofferdam. But innovative design found another way.

The guidewall essentially consists of precast concrete beams spanning concrete-filled sheet pile cells. Contractors drove intermediate sheet pile cells, then H-piles within those cells under water. Tremie concrete reinforced the cells, which were then dewatered so the precast beam seats could be placed in a dry environment.

The elimination of the cofferdam through applied Value Engineering saved approximately $8,000,000. The economic benefits of the Melvin Price Locks and Dam project, of which the downstream guidewall is a key element, will outweigh the cost by 4-to-1 over the next 50 years. The economic benefits will affect agriculture, industry, business and consumers who produce or use the wheat, coal, fuels, fertilizers and countless products that travel on the Mississippi River to domestic and international markets.

Not only were significant savings effected by using proven Value Engineering methods, but a better and safer way to construct a lock guidewall evolved.

Jurors comments: *Theprecast concrete beans spanning concrete-filled sheet pile cells resulted in an economical project which significantly reduces transportation costs. The construction process reduced dewatering requirements considerably and still provided a structurally and hydraulically stable guidewall. These design and construction procedures are examples of quality engineering.*

AWARD OF MERIT

Fisherman's Wharf Breakwater, San Francisco, California

Designer: U.S. Army Engineer District. Los Angeles
Design Agent: U.S. Army Engineer District, San Francisco

Despite its being the city s number one tourist destination, with 12 million visitors each year, fewer and fewer commercial fishing boats were being unloaded or berthed at Fisherman s Wharf. This decline is despite the fact that the bay area has grown greatly in population, and Americans have more than doubled their consumption of fish. As the fishing fleet and on-shore fishery industries declined, non-maritime retail shops were increasing, and many people believed that the uniqueness of Fisherman s Wharf, and ultimately its major tourist industry, were threatened.

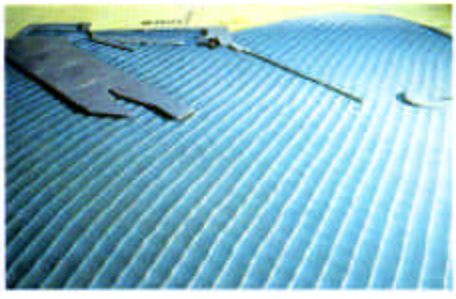
The heart of the problem was that Pacific Ocean and San Francisco Bay waves and swells caused substantial damage to both commercial boats and historic vessels of the National Maritime Museum at the nearby Hyde Street Pier.

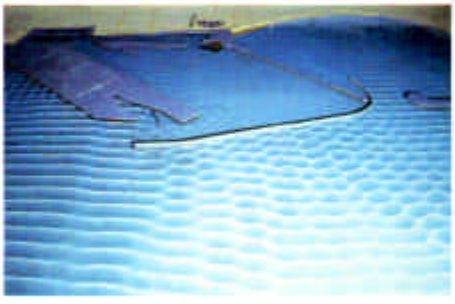
The Corps of Engineers was asked to build a breakwater to protect the Fisherman s Wharf area, and provide the basis for reestablishing the commercial fishing fleet. Because of the high visibility and multiple use of the area, the breakwater design required unusally close coordination with many interested parties. Committee members represented the Corps, the Port of San Francisco, Golden Gate National Recreations Area, the National Park Service! the Fisherman s Wharf Association, and the Committee to Save Aquatic Park, an organization representing water recreation which was opposed to any changes.

The Scripps Institution of Oceanography installed wave, surge and current gauges to determine existing conditions. The Corps Waterways Experiment Station built a physical model of the area, and the Hydraulic Engineering Center constructed two mathematical models to determine post-construction water circulation and quality. After considering 90 alternatives, the modeling yielded a highly efficient system of three separate breakwaters which minimize physical size and cost, yet provide protection from storms from several different directions.

Openings in two of the breakwaters help keep water quality high, particularly for swimmers. Handrails and a 40-foot ramp for handicapped access allows sightseeing and fishing from the east breakwater. Because the breakwater has done such a superb job of reducing waves and swells in the protected area, the Port of San Francisco has initiated construction of 88 new berths for commercial fishing vessels. The structures have significantly cut down damage to the historic vessels at the National Maritime Museum. The head of a major commercial fish company reported that the breakwaters are ...working great. We have had a couple of bad storms and no damage at all. Protection against storms is fantastic!

Jurors comments: *Extensive physical and mathematical modeling produced a highly efficient design. Theproject was completed a month ahead of schedule at a cost savings of $5.3 million which was far more than the cost of the extensive modeling and engineering efforts to develop this unique solution. The highly visible nature of the-project and the multiple publics served make this successful project worthy of special notice.*





AWARD OF MERIT

Stonewall Jackson Lake Dam on the West Fork River, Weston, Lewis County, West Virginia
Designer: U.S. Army Engineer District. Pittsburgh

While the Stonewall Jackson Lake Dam by itself may not be unique, its selective withdrawl system to meet water quality requirements is. The design of this multipurpose dam project provides several noteworthy features, the jurors commented. A provision has been made for a retrofit hydropower addition when appropriate. Energy conservation procedures were used to make the facility energy self-sufficient in the future. A selective withdrawal system allows discharge water to meet the various water quality parameters. The penstock intake, located within the tower, allows electricity production without degradation of water quality.

The dam itself is a gravity structure of conventional concrete. But a fixed port intake system wouldn t work because of rigid downstream water temperatures necessary for the Fish & Wildlife Service s fishery management program. The agency requires that releases raise the downstream water temperature to a peak of 70 degrees Fahrenheit by the beginning of May and maintain that temperature until mid-October.

The adopted design features two towers, one on each side of the spillway. Movable gate leaves allow withdrawal of water from any level between the spillway and minimum pool elevations. The position of the gates allows either weir flow over a gate leaf, or flow through a submerged opening between gate leaves. It is also possible to withdraw water simultaneously from more than one level into the same tower. This flexibility ensures that water release temperatures remain constant regardless of fluctuations in the lake itself.

To accommodate the potential development of commercial hydropower at the project, a monolith of the dam contains a sealed penstock to not only accommodate but encourage addition of hydropower in the future.

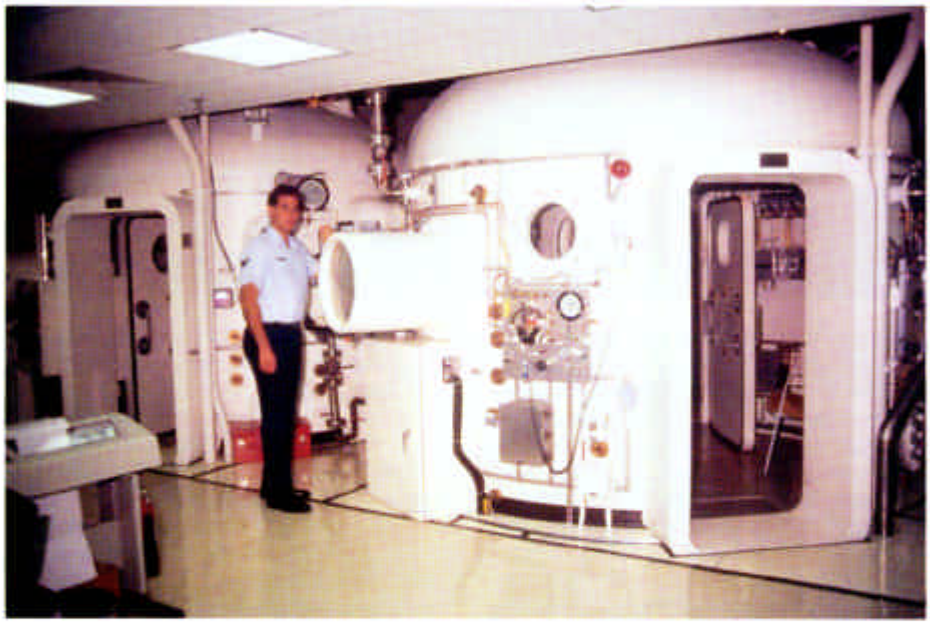
This type of selective withdrawal system is a first for the Corps of Engineers. With the nearly infinite combinations of intake gate openings and elevations available, designers created a cost effective structure which satisfies flood control, water quality, water supply and recreational requirements while remaining compatible with it s surrounding.

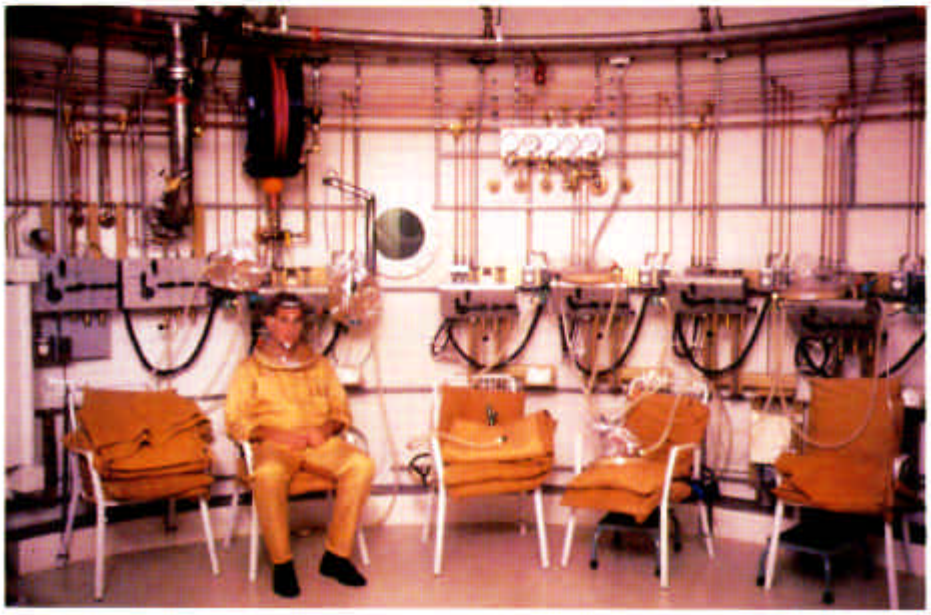
Jurors comments: *The structural design is aesthetically pleasing as well as functional. Flood control, future power generation capability, energy conservation, preservation of water quality and pleasing project appearance were all achieved within budget.*

HONORABLE MENTION

Clinical Hyperbaric Facility, Wright-Patterson Air Force Base, Dayton, Ohio

Designer: Sherlock, Smith & Adams, Montgomery. Alabama
Design Agent: U.S. Army Engineer District, Louisville





The design called for construction of the largest, most highly automated facility ever conceived for the large scale administration of hyperbaric oxygen to clinical patients. The use of this type of oxygen requires that patients breathe by mask or head tent at elevated environmental pressures, usually in the range of two to six atmospheres absolute.

Design requirements were that the facility must handle up to 18 patients at one time in the main treatment chamber, and up to five patients at one time in each of two smaller ancillary chambers, all with a minimum possible crew size.

A three-tiered control system allows fully manual control of the pressure in each chamber from chamber-side control stations semi-automatic control from the main control console, and fully automatic control from the facility control computer. Under normal circumstances, a crew of five can safely treat up to 18 patients at one time.

Based on this project s success, two more facilities of the same basic design are currently under construction.

Jurors comments: *The design involved many complex and interrelated subsystems. Life safety, environmental controls, human occupancy by bothpatients and crew, medical treatment facilities, plus many others all contained within a complex of three interconnected pressure vessels required an integrated systems approach to design. These extensive and complex engineering contributions to the medical field provide the largest hyperbaric oxygen treatment facility in the world and offer casualty care for carbon monoxide poisoning, decompression sickness, gas embolism, selected burns, cyanide poisoning and others.*

HONORABLE MENTION

West Williamson Local Protection Project, Williamson, Mingo County, West Virginia

Designers: U.S. Army Engineer District, Huntington
U.S. Army Engineer District, Nashville

The West Williamson project provides flood protection for a major population center located in the flood-prone Tug Fork Valley. In addition, the project had to provide as much flood-free developable land behind the protection system as possible and eliminate or minimize impacts to ecological, social and aesthetic values. These considerations posed major challenges and opportunities to the project designers.

What emerged from this challenge is a structure sensitive to all concerns. Floodwalls instead of levees meet unusually high protection levels. The floodwall openings provide quick-closing swing gates, requiring minimal manpower from the city. Relocation and straightening of part of the river reduced adverse flood-related effects and provided better alignment for the wall and more developable land behind it. Texturing and appropriate graphics such as trees, clouds and recreational activities soften the otherwise obstructive and monotonous character of a conventional floodwall. Various other features--a fishing pier, a ramp for handicapped access, a combined bicycle path and walkway, pedestrian gate openings, plantings, in-stream rock revetments and boulders-enhance its aesthetic, environmental, and social acceptability.

While it was anticipated that this mammoth undertaking would result in complete flood protection for the West Williamson residential area, no one realized what this remarkable work would mean in terms of beautifying the riverfront area, said the president of the Tug Valley Chamber of Commerce. What once was a tangle of weeds, small trees and debris is now an asphalted area for bicyclists, joggers and walkers that is so heavily used, it already has outgrown the existing parking areas. This is a project in which...the U.S. Army Corps of Engineers can justifiably take pride.

Jurors comments: *The textured floodwall with attendant graphics is pleasing, as is the landscaping of the project area. Due to aggressive value engineering plus other favorable conditions, the project was completed within budget and 16 months ahead of schedule. The concern for community protection during construction along with thepublic acceptance of the completed project are notable examples of good engineering.*

HONORABLE MENTION

Upgrade of Industrial Waste Treatment Facility, Kelly Air Force Base, San Antonio, Bexar County, Texas

Designer: Albert H. Halff Associates, Dallas, Texas
Design Agent: U.S. Army Engineer District, Fort Worth

Kelly Air Force Base is the largest aircraft maintenance facility in the world. With 25,000 employees, it handles over 50 percent of the Air Force s engine inventory. Kelly AFB is also the home of the world s largest electroplating shop and aircraft hangars. In addition, their massive paint shop operation can simultaneously strip the paint from several aircraft in a matter of hours, including the Air Force s jumbo C5 cargo transporter.

The tremendous amount of industrial waste generated by Kelly s electroplating shops, parts cleaning shops, painting operations and hundreds of support activities present a unique wastewater situation that could only be solved by applying innovative design solutions.

The new design isolates the heavy metal wastes generated at the electroplating shops and the highly phenolic wastes from paint stripping activities. This is the first case where biological treatment of phenolic wastes has been used on this scale and magnitude. Final design features two pretreatment plants and a central treatment plant all located on a common campus served by a central chemical storage and handling facility, laboratory, and computer controlled network. Five separate remote pretreatment facilities, nearer the waste sources, address specific waste treatment problems.

The general approach to the project has provided Kelly Air Force Base with much flexibility in not only their treatment of industrial wastewater but also their ability to efficiently handle waste streams previously excluded from the old plant. The new plant complies fully with Texas Water Commission and EPA standards. And operating costs have been cut significantly by reducing the sludge produced by 75 percent.

Jurors comments: *This plant serves a large aircraft maintenance facility with many different and difficult-to-treat industrial wastes. The magnitude and chemical characteristics of the wastes are unique. The innovative treatment processes have significantly improved the effluent as well as reduced the amount of hazardous waste sludge. With construction costs lower than authorized funding, lower operating costs, and well designed site layout, the plant now has a record of being consistently in compliance.*

HONORABLE MENTION

Blade Repair Facility, Tinker Air Force Base, Oklahoma City, Oklahoma
Designer: SYSTECON, Duluth. Georgia
Design Agent: U.S. Army Engineer District, Tulsa

This building provides a centralized, highly automated facility for the repair and reconditioning of jet engine turbine blades. Processes from a variety of locations are now consolidated into one facility which integrates sophisticated new technology with conventional repair work.

The design called for a facility to house a large quantity and variety of repair and process equipment as well as 375 personnel. All processes had to be automated to the maximum extent possible and connected with a state-of-the-art material handling system. Because repair processes for turbine blades constantly undergo upgrade due to advances in technology, the new design had to allow maximum flexibility for the relocation and addition of process equipment and material handling components. Structural columns which would otherwise interfere with usable floor space run along the central aisle and perimeter of the building. Attention to occupant safety required attention to efficiency, pathways, hazard zones and acoustical isolation.

This final design, the result of several years of intense planning and development, provides automated distribution, storage and retrieval of blades and vanes, and a material handling system capable of computerized tracking and routing of blade batches. What has emerged from this design is a unique structure that addresses the contradiction between the purely functional aspect of a largely industrial concern and the modern, high-tech office building aspect of a computerized material handling facility.

Jurors comments: *Included in the design were numerous energy conservation concepts such as solar shading by insulated and reflective glared windows, special ventilation systems to control toxic fumes and explosive gases and energy monitoring systems. This multiple discipline facility is a significant contribution to the engineering profession.*

HONORABLE MENTION

Lenox Bridge, Lakewood Development, Dyer County, Tennessee
Designer: Ellers, Oakley, Chester and Rike, Inc., Memphis, Tennessee
Design Agent: U.S. Army Engineer District. Memphis

The Lenox Bridge was built in 1917 over the Obion River in the vicinity of Lenox, Tennessee and had been in service for 60 years. A swing-span, pony-Pratt-through-truss design, the turntable swing had three continuous 50-foot spans over the central pier. When swung, the outer spans acted as simple cantilevers. The structure had a timber decking supported by steel stringers which rested on steel floor beams.

The challenge facing the designers was to relocate and rehabilitate the bridge-which was included in a needed channel improvement provide an aesthetically pleasing and publicly accessible orientation, and specify supporting structures and rehabilitation materials to meet modern standards without damaging the integritv of the original structural design.

The face-lifted bridge now spans two manmade reservoirs near-the entrance to a residential development, providing a focal point for the only recreational area within the county dedicated to public use.

Jurors comments: *Fifty percent of the original structure was rehabilitated and reused. The project was carefully relocated and sited to provide forpublic viewing and resulting appreciation of the nation s great civil engineering heritage. The care taken to maintain the structural and historic characteristics of the original design and setting make this project worthy of special recognition.*

HONOR AWARD

Blue Heron Recreation Area, Big South Fork National River & Recreation Area, Stearns, McCreary County, Kentucky

Designers: Scruggs and Hammond, Chrisman Miller and Woodford, GRW Engineers, Lexington, Kentucky; Demartin-Marona-Cranston-Downes, New York, New York
Design Agent: U.S. Army Engineer District, Nashville

Blue Heron was a mining camp owned by the Stearns Coal and Lumber Company from 1939 to 1963. The story of Blue Heron, or Mine #18, is the story of its people and the importance of the coal industry to the nation and this region. To capture daily living, working, education, and religion in a mining camp so that millions of future visitors can relive it was the design challenge.

The site s National Historic Register eligibility required careful attention to protect remaining structures and artifacts. Years of abandonment allowed vandalism, scavenging and deterioration of much of the built environment, leaving only the gaping entrances of mines, a 700-foot-long tram bridge over the Big South River, and the ghostly hulk of the largest coal tipple of its time standing as a mute reminder of this once productive mining camp. The community had been scattered along the river in a narrow flood plain and up the steep slopes of the gorge which demanded careful attention to site carrying capacity for circulation, parking, historic site integrity and barrier-free design. Old pictures and the memories of miners and their families were the primary sources of information to document the history for interpretation.

Visitors now arrive at the Blue Heron site via a new scenic road or by an exciting ride on the Big South Fork Scenic Railway. The privately-owned railway offers a way to bring in hundreds of visitors without excessive space for parking. Both approach routes run along a narrow corridor next to the river and present a dramatic first view of the tipple. The sense of the community is achieved by 14 ghost structures outlined in steel, roofed in metal, and sitting on the exact location of the old mining camp residences, school, church, company store, and bath house. A depot allows train riders to disembark into the main exhibits hall where they are greeted by a huge picture of miners who worked there. Walking paths lead from the depot in several directions, dispersing people to the ghost struc-

tures where they can hear the voice of a housewife discuss laundry in a coal camp, a storekeeper talk about script, or the mine superintendent say how important a fair-minded foreman was to working with his men. The reality of mining is found in the re-created mine entrance where fifty feet into the darkness miners are shown digging and shooting the coal seam. Here, on the oral tape, miners

tell of their love or hate of the mining life.

What emerges is a recreation area that provides for the restoration of the Blue Heron Mining Community in a manner which will preserve and enhance the historic integrity of the community and will contribute to the public s understanding and enjoy ment of its historic value.

Jurors comments: *...an outstanding example of reclamation of an historic site for today s educational and recreational use. We feel that this high quality, simple, well integrated design is the result of the combined efforts of architects, landscape architects, and historians who made up the design tram.*

AWARD OF MERIT

Knights Ferry Recreation Area, Stanislaus County, California

Designers: Judith Wolf Crutcher, Architect
U.S. Army Engineer District, Sacramento
Design Agent: U.S. Army Engineer District, Sacramento

Knights Ferry Recreation Area, purchased-by the government in 1978, is a unique site that includes several historic structures and cultural resources. Among its features are the longest covered bridge west of the Mississippi, built in 1862, a gold mill and office built in 1862, and the site of a gold rush town. The area also contains several environmentally sensitive features, including salmon spawning grounds and Native American burial grounds.

Since the turn of the century, thousands of people have visited Knights Ferry for recreational activities and to explore the historic and cultural sites and structures. The most significant design problem required the accommodation of large crowds without compromising the historic or environmental integrity of the area.

The design limits development near the Stanislaus River to a minimum to maintain the environmental and aesthetic quality. To minimize grading and tree removal, parking, recreation and other high-use areas were located on level land formerly used for agriculture. Pedestrian circulation has been located along historic routes, and vehicular traffic in these areas was restricted or closely limited to preserve the historic atmosphere.

The administration building and recreation facilities have been field-located to provide maximum supervision with minimum environmental impact. Separate contracts for their

construction allowed the landscape architect to evaluate the site for form, scale, texture and other considerations once the building was completed.

Jurors comments: *The design of the recreation area nicely balances visitor use andpreservation of the natural and cultural landscape. Use of native plant material and the rehabilitation and stabilization of historic structures reinforces the regional character of the site. Con temporary development accommodates recreation and educational use without adversely impacting the historic and natural character of its environment*

AWARD OF MERIT

Ceiba Tree Park, Ponce, Puerto Rico
Designer: Jorge del Rio. FAIA, RIO Piedras. Puerto Rico
Design Agent: U.S. Army Engineer District, Jacksonville

The grand Ceiba Tree, estimated to be several hundred years old, has long been an important natural and cultural resource to the populace of Puerto Rico. Every effort was made to preserve and enhance its beauty and provide a facility where this resource can be admired and enjoyed.

A single entrance to the park focuses attention on the Ceiba Tree. Indirect lighting accents the tree at night. Two long semi-circular benches, with radii approximating that of the tree crown canopy, provide seating adjacent to the tree. One bench is located within the shade of the tree and one bench is outside the tree s canopy in direct sunlight.

A concrete and paver stone walkway extends from the park entrance, surrounds the tree for viewing, then meanders to the northeast part of the park, where a gazebo, a traditional townscape element of the rural cities in Puerto Rico, provides space for sitting, passive games or picnicking. The remaining park area produces a green, open effect and includes grass, native trees and flowering shrubs.

Most important of all, form follows function in this plan designed to protect the tree and at the same time allow the public to walk around, admire and feel a part of this magnificent specimen.

Jurors comments: *Great care was taken in creating site conditions necessary for healthy treegrowth. Proper drainage and protection of the tree s root system was achieved by careful grading and location of site elements. The overall form, color, scale and detailing of the design reinforces the significance of the tree while reflecting a sensitivity to the character of the existing neighborhood.*

HONORABLE MENTION

New River Dam, Maricopa County, Arizona
Designer: U.S. Army Engineer District Los Angeles

This landscape architecture challenge was a tough one: create an aesthetically pleasing erosion control measure for a flood control project already built. This situation prohibited the se of overbuilt landscape fill sections on the main embankment and limited them to 12-inch depths on the dikes. Vegetation had to be plantings of shallow-rooting species on the main embankment and ground cover and widely spaced narrow-rooted shrub-type species on the dikes.

The aesthetic treatment combined two concepts, the naturalistic or camouflage technique and the artistic or muralistic approach. The combination capitalizes on the positive aspects of both approaches. Minimal use of plant material in tandem with hardscape techniques helps to both blend the structure into the landscape and highlight native plants. This is especially true for the main embankment where a layer of natural coarse-textured rock taken from project construction was used contrastingly with lighter-colored and finer-textured desert gravel as a mural-like abstract representation of both the surrounding desert mountains and valley floors. To enhance this contrasting effect, especially from a distance, desert varnish, a synthetic product applied to rocks, simulates the naturally occurring darkening of adjacent hillside rock. Esthetic treatment for the spillway consisted only of desert varnish to more closely blend the rock cut with surrounding rock surfaces.

Landscape design provides the benefit of minimum maintenance using native drought tolerant or resistant plant material in tandem with hardscape techniques. The result is mitigation of an otherwise environmentally obtrusive series of engineered structures by architecturally integrating art into harmony with nature.

Jurors comments: *The project demonstrates the development of an innovative approach to the integration of a major engineering structure into the natural environment.*

HONORABLE MENTION

Sergeants Major Academy, Fort Bliss, Texas

Designers: Fouts Gomez Architects, Inc., and AIA; Lewis and Associates. El Paso, Texas
Design Agent: U.S. Army Engineer District, Fort Worth

The Sergeants Major Academy complex furnishes selected noncommissioned officers a distinctive training facility that is equal in prestige and quality to those of other senior service schools. The academy is the only institution for this training in the United States. About 650 students are normally in residence, with a staff of about 200.

The academy is in striking contrast to the otherwise spartan surroundings of a region bordering the Chihauhuan Desert of Mexico, where less than eight inches of rainfall is the yearly average. Designers chose a xeriscape approach, using low-water-requiring plants and native stone mulches, and zoning plants according to similar water and microclimate conditions. The nucleus of the complex is a courtyard for assembly and display purposes, featuring plants with similar needs and concentrating colors and texture to provide year-round interest. Away from the courtyard, large masses of shrubs at the base of the structure reduce the quantity of reflected sunlight and cool the building. Further from the building, large deciduous shade trees create a more comfortable human environment through evapotranspiration and shading walks, parking areas and buildings during the eight hot months.

The striking, often sculptural character of many of the native plants Yuccas, Ocotillos and Sotols provide the focal points for the entry and high visibility areas. The effect is that of a lush oasis minus the water.

Jurors comments: *The design attempts to use water conserving plantings and other compatible materials in an arid landscape. The jury was encouraged that the* design con*sidered the use of plant materials that are native and environmentally adapable.*

HONORABLE MENTION

Simulated City (MOUT Facility), Hohenfels Training Area, West Germany
Designer: Finanzbauamt Regensburg, West Germany
Design Agent: U.S. Army Engineer Division. Europe

Jurors comments: *...a successful re-creation of a traditional German town with planning concepts adapted for military trainingpurposes, a design that minimizes the overall impact on the site.*

This town exists without guts. Its buildings are lifeless skeletons built with no window panes, no heat, no electricity. No tables shall ever be set for dinner, no family rooms with children watching TV.

On a typical day in this Bavarian village, everything is peacefully empty. The church with its tall, empty bell tower, the town hall and the large five-story hotel create a tranquil existence reminiscent of the ghost towns in western United States. However, one should not be fooled by these empty facades and these lifeless streets. The town lives through the images of soldiers with battle gear who scurry around in units trying to outwit the town s dark corners, foxholes and hideaway places. The activity takes place between the sounds of machine guns, the smoke grenades and other diversions created to cause havoc.

This town is connected through the underground via sewer tunnels, manholes, ramps and dark passages where the enemy may lurk at any moment. Some buildings stand with gaping holes or with partially fallen walls with rubbled masonry scattered around. Exposed roof members torn from their structure rest diagonally between the rooms they crashed onto as if to portray the aftermath of some imaginary air raid.

Contrary to perception, this is not Sleepy Hollow. The town is the enemy, ingeniously providing a battlefield architecture made to play war games and train soldiers in the art of urban warfare. You must be quick, you must be alert. This architecture is out to get you!

JURORS

Environment

Dr. L. Eugene Cronin

Dr. L. Eugene Cronin is self-employed as a coastal consultant who has served as director of the Chesapeake Biological Laboratory, the University of Delaware Marine Laboratory, the Chesapeake Research Consortium, and as Associate Director and Research Professor of the Center for Environmental and Estuarine Studies, University of Maryland. Dr. Cronin also brings his expertise to the Corps as chairman of the Chief of Engineers Environmental Advisory Board. A past member of the Marine Board of the National Research Council and other regional and national boards, panels and commissions, he has served as a consultant for fourteen agencies and institutions.

Mr. Lee C. Herwig Jr.

As chief of the Federal Facility Compliance Staff for the Environmental Protection Agency for the past five years, Mr. Lee C. Herwig Jr., brings to this judging more than 30 years of experience as an environmental engineer. He has held such positions as Director of Engineering Services for the U.S. Army Environmental Hygiene Agency and liaison officer between the Department of Defense and the EPA for the Deputy Secretary of Defense for the Environment. Retired from the Army in 1984, he holds the position of diplomat of the American Academy of Environmental Engineering.

Dr. Ralph O. Morgenweck

Dr. Ralph O. Morgenweck began his career in natural resources management in 1975 as a member of the Minnesota Department of Natural Resources. In May 1988 the U.S. Fish and Wildlife Service appointed him assistant director for Fish and Wildlife Enhancement, capping a career that has seen such assignments as regional activity leader for coal and minerals in the Twin Cities Regional Office of Fish and Wildlife, the Office of Biological Services in Washington, D.C., and team leader of the Western Energy and Land Use Team in Fort Collins, Colorado.

Architecture

Mr. Ted. P. Pappas

Mr. Ted P. Pappas, FAIA, is president and founder, in 1967, of the Jacksonville firm of Pappas Associates Architects, which designs commercial, institutional, educational and housing facilities. In 1988, Mr. Pappas served as national president of the American Institute of Architects. He was also elected president of the Florida Association and Jacksonville chapters of the institute. In 1964, he received the Florida AIA s highest honor, the Gold Medal, for distinguished service to the profession. He also received the Puttara and John Dyal Memorial Awards.

Mr. H. Kennard Bussard

Architect H. Kennard Bussard, FAIA, is president of RDG Bussard Dikis, an architectural firm with offices in Des Moines, Iowa, and Omaha, Nebraska. Although diversified, a major part of the firm s practice involves educational facilities for 13 school districts, and approximately 50 separate projects for ten major colleges and universities. The first chairman of the Professional Advisory Board to the Department of Architecture at Iowa State University, Mr. Bussard continues to serve the integrity of the field through his membership in, or chairing of, numerous committees for a variety of professional organizations.

Mr. Velpeau E. Hawes Jr.

As president of Pierce Goodwin Alexander & Linville, of Dallas, Texas, Mr. Velpeau E. Hawes Jr., FAIA, has served as principal-in-charge for such major projects as the Neiman-Marcus Mail Order Distribution and Office Building, Zale Corporation World Headquarters, and the Dallas Convention Center, all in Texas. His professional affiliations include national committee or board memberships for the American Institute of Architects, the Texas Society of Architects and he is a past president of the Dallas Chapter of the AIA.

Engineering

Dr. E. Walter LeFevre

A professor of civil engineering at the University of Arkansas for 23 years, Dr. E. Walter LeFevre presently holds the office of president of the National Society of Professional Engineers. He is also senior vice-president of Engineering Services Incorporated, a Springdale, Arkansas general civil engineering consulting firm. He recently was made a Fellow in the Institute of Engineers of Ireland, and also attended the World Federation of Engineering Organizations meeting in Prague, Czechoslovakia. He was named Arkansas Engineer of the Year in 1980.

Mr. James W. Poirot

Mr. James W. Poirot, president of the American Consulting Engineers Council, is chairman of the board for CH2M Hill of Denver, Colorado, an international, 4,300-member consulting firm with a focus on environmental and water resources engineering. Mr. Poirot s many engineering awards include the recently announced American Society of Civil Engineers Parcel/Sverdrup Award and the ASCE 1988 President s Medal. Appointed Engineering News-Record s Construction Man of the Year for 1987, he was also included in their Those Who Made Marks list in both 1985 and 1987.

Mr. Albert A. Grant

Principal engineer since June of this year for the firm Bellomo-McGee, Inc., in Vienna, Virginia, Mr. Albert A. Grant brings to this panel of judges more than 40 years of civil engineering practice. He is the past president of the American Society of Civil Engineers, capping a history of service to that organization as either an office holder, committee member or chairman for a span of 20 years. He has written or co-authored numerous articles in the field of transportation policy planning and programming.

Landscape Architecture

Mr. Gerald D. Patten

Mr. Gerald D. Patten, a 24-year career National Park Service Landscape Architect, is regional director of the services eight-state North Atlantic Region, overseeing 40 parks in New England and New York and administering the region s $50 million annual operating budget. In addition to his leadership with the Park Service, his life-long achievements in landscape architecture recently earned him the distinction of national president of the American Society of Landscape Architects. Mr. Patten is the recipient of a U.S. Presidential Design Award.

Ms. Claire Richardson Bennett

Ms. Claire Richardson Bennett comes to this panel of distinguished judges as national president-elect of the American Society of Landscape Architects. President of the firm Claire Bennett Associates since 1974, she brings to this competition more than 30 years of experience in her field. Listed among America s Best Landscape Architects by Town and Country magazine in 1980, Ms. Bennett is also a noted lecturer for Purdue and Indiana-Purdue universities. She was chosen a Fellow by the American Society of Landscape Architects.

Mr. Brian S. Kubota

Installed as president of the American Society of Landscape Architects in November 1988, Mr. Brian S. Kubota has been an associate and member of that organization for more than 20 years. In 1969, Mr. Kubota joined the multi-disciplinary firm PKG Design Group which practices architecture, landscape architecture and planning. He became a co-owner and vice-president in 1972. In 1978, he established and serves as president of LandPlan Engineering, providing engineering, landscape architecture and planning services.

United States Army Corps of Engineers

US Army Corps of Engineers

SPECIAL EDITION

Engineer Update

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1989 Design and Environmental Awards

Program celebrates project excellence

WASHINGTON, D.C. Twenty-nine Corps of Engineers projects from around the world were recently chosen from among 116 entries for honors in the Chief of Engineers 20th Design and Environmental Awards Program, held in early December.

The program recognizes excellence in design of recently completed Corps projects. All civil works and military construction projects completed within the last four years were eligible for competition in one of four categories architecture, engineering, landscape architecture and environment. This year s competition included everything from a child care center and hospital to waste treatment facilities.

Project entries were judged by impartial panels of design professionals from other federal agencies, private industry and academia. Each entry was judged on the basis of the basic fulfillment of its own criteria and the solution to its own particular problems.

Three levels of awards may be given in each category, Honor Award, Award of Merit and Honorable Mention. The top award winner from each category is then considered for the Chief of Engineers Award of Excellence.

The Chief of Engineers Award of Excellence is given to only one project, which must have earned an Honor Award or Award of Merit in one category and exhibit design excellence in more than one category. The winning project is determined by a panel composed of one member from each of the category juries.

The Honor Award may be given to one project in each category, at the judges discretion, to recognize exceptional achievement.

The Award of Merit is given to projects that exhibit outstanding design or environmental achievemeat. Up to three of these can be given in each category.

The Honorable Mention Award is given to projects that deserve recognition because of superior features or concepts, but do not qualify for a the Merit or Honor Award.

The objective of the program is to encourage design and environmental professionals to develop projects that exhibit excellence in function, economy, resource conservation, aesthetics and creativity while being in harmony with the environment.

The Chief of Engineers Design and Environmental Awards Program supports the Federal Design Improvement Program.

Tundra swans dot the surface of Weaver Bottoms.

Weaver Bottoms earns highest award

The Weaver Bottoms Rehabilitation Project in Wabasha County, Minn., a joint effort between the Corps of Engineers and the U.S. Fish and Wildlife Service, earned a unanimous vote from the judges for the 1989 Chief of Engineers Award of Excellence.

It also earned the Honor Award for the Environmental Category.

Covering about 4,000 acres of the Upper Mississippi River National Wildlife and Fish Refuge, the area is an important part of the river s ecosystem. However loss of vegetation from flooding and ice, increased turbidity from erosion and sedimentation greatly reduced the viability of Weaver Bottoms.

The Corps St. Paul District, as design agent, and the U.S. Fish and Wildlife Service in St. Paul, as design firm, developed and evaluated five alternatives to rehabilitate the area. The plan they selected included construction of six barrier islands and the modification of 14 side channels entering Weaver Bottoms.

The material used to construct the project came from two nearby dredged material containment sites, clearing them for use again over the next 40 years.

The reduction of sedimentation preserves Weaver Bottoms as a valuable backwater area. The reduced flow from the side channel modifications and reduced wave-generated erosion and turbidity from the barrier islands benefits the aquatic plant community, and will eventually return Weaver Bottoms to a more productive marsh, water and island ecosystem.

From the Chief...

At no other time in world history has there been such recognition of the benefit of competition and free trade. The Berlin Wall has fallen. Warm winds of change are altering the current of the Cold War. And all because nations now know that nothing can replace the benefit they accrue when individuals are not only free but spurred on to do their best.

We believe we are the best public engineering agency in the world and are determined to make ourselves better to serve the nation s needs. One of the ways to make us better is to encourage more innovative projects through the spirit of competition.

I believe the Design and Environmental Awards Program provides a unique opportunity to showcase the Corps of Engineers commitment to design and environmental excellence and to recognize the professionals who make it happen. In this issue, you will find projects as unique as they are outstanding. The winners reflect environmental, engineering and architectural applications that exhibit excellence in function, economy, resource conservation, aesthetics creativity and harmony with the environment.

This year, 12 nationally-known design and environmental professionals spent two days pouring over more than 100 entries. As one of the judges stated in reviewing the awards, It s exciting to see the size, variety and quality of what the Corps is doing.

As you turn these pages, please join me in celebrating the leaders in excellence the winners of the 1989 Chief of Engineers Design and Environmental Awards.

Lt. Gen. H. J. Hatch

Environmental

Eight environmental projects were chosen from among 22 entries for recognition in the 20th Chief of Engineers Design and Environmental Awards Program.

Awards in this category included an Honor Award, two Awards of Merit and five Honorable Mentions. Additionally, Weaver Bottoms Enhancement Project, the Honor Award winner, also earned the Chief of Engineers Award of Excellence.

An environmental project is defined as a site area, project development or project program, which preserves ecological, aesthetic or cultural values; conserves or wisely uses natural resources; restores, maintains or enhances the natural or man-made environment; or creates opportunities for people to use and enjoy their environment.

An entry may also be research that has contributed to environmental quality or knowledge.

Factors considered by the judges to evaluate each entry included significance of the contribution, the unique or innovative aspects of the effort and the change resulting from the previous condition.

The members of the environmental jury were Dr. L. Eugene Cronin, a coastal consultant; Lee C. Harwig, Jr., chief of Federal Facilities Compliance for the Environmental Protection Agency; and Dr. Ralph O. Morganweck, assistant director of Fish and Wildlife Enhancement for the U.S. Fish and Wildlife Service.

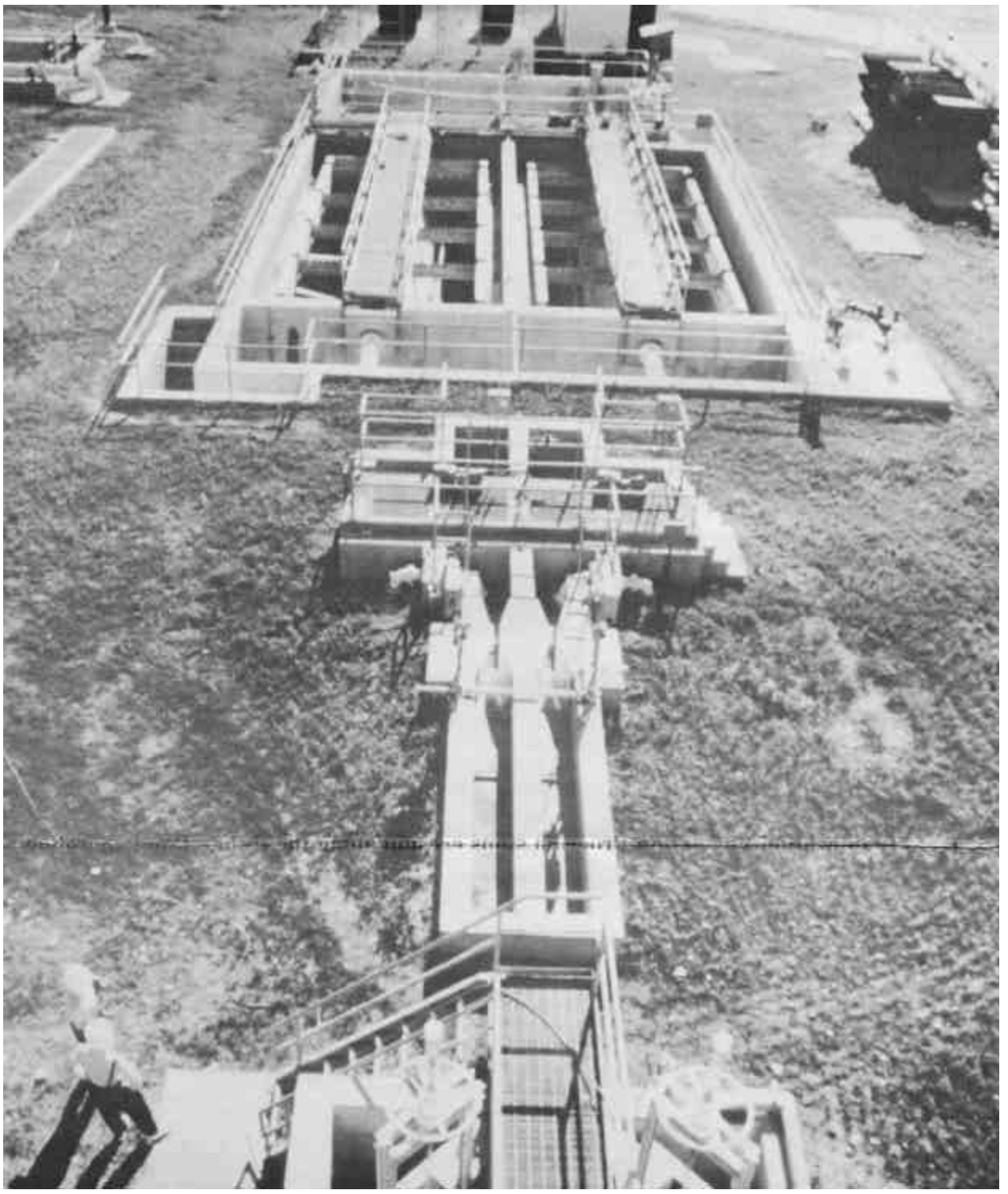
Award of Merit: Upgrade of Industrial waste Treatment Facility at Kelly Air Force Base, Texas. The design agent for the project was the Fort Worth District, and the design firm was Albert H. Halff Associates of Dallas, Texas.

The base generates a tremendous amount of wastes, and flows very drastically during an operating day, making consistent permit compliance difficult. Also, sludge produced by the plant is Class I hazardous material, which must be disposed of in suitable landfills at a cost of $250 per ton.

The design solution provides a central industrial wastewater treatment plant for the bulk of the flow and separate pretreatment facilities for more concentrated runoff, while minimizing the amount of sludge produced at the new facilities to approximately one-fourth of the previous tonnage. The final design features a laboratory, three parallel treatment systems, five remote pretreatment facilities and more than 270 pumps.

The new facility is consistently in compliance with EPA drinking water regulations, and the effluent produced by the plant is considered a valuable water resource which Kelly Air Force Base plans to use for nondomestic purposes, reducing their withdrawals from the Edwards Aquifer by 50 percent.

Jurors' comments: *This is a state-of-the-art plant combining innovative biological and chemical treatment methods. The design provides maximum flexibility through the use of a unique computer network and an extensive monitoring system. While a great deal of attention is being paid by the public and the media these days to the cleanup of hazardous wastes generated in the past, it is essential that federal agencies ensure that their current practices are not creating problems for the future.*



The Kelly Air Force Base Industrial Waste Treatment Facility uses state-of-the-art methods to clean up hazardous materials.

Award of Merit: Sand Stabilization-Vegetation Program, Buhne Point Shoreline Erosion Demonstration Project, Calif. The design agents for the project were the San Francisco and Los Angeles Districts.

Jetties constructed and maintained by the Corps of Engineers since the 1890s at the entrance to Humbolt Bay, the largest harbor between San Francisco and the Columbia River, have focussed wave energy on Buhne Point. The point and its community of King Solomon, which includes commercial and sports fishing facilities and hundreds of homes, was threatened.

Using extensive physical modeling and phased construction, designers came up with a project whose central feature was the dredging of 600,000 cubic yards of material from the harbor to restore 23 acres of Buhne Point using native plants. To shelter and stabilize the sand on the north, the project called for a 1,050-foot shore-connected rubble mound breakwater, and a 1,250-foot groin built of H-piles and timbers

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The Sand Stabilization-Vegetation Program stops erosion along the Buhne Point shoreline.

was constructed to prevent sand transportation to the south.

The groins and breakwaters have halted water-borne sand migration from Buhne Point, and plantings of native plants have virtually eliminated wind erosion. The project also provided valuable information about using native plants for dune revegetation.

Jurors' comments: *This is an innovative approach with results that appear to be long lasting and beneficial to many. The environmental aspects were undertaken with excellent concepts and practice. The project provides a stimulating national model.*

Honorable Mention: Archaeological Site, Calleguas Creek Flood Control Channel, Ventura County, Calif. Los Angeles District was the design agent.

The Corps was faced with a difficult problem, a National Register of Historic Places site and Native American cemetery lay in line of maintenance dredging project essential for flood control.

To resolve conflicting interests, the Corps archaeological staff met with representatives of the State Historic Preservation Office, Advisory Council on Historic Preservation, Ventureno Chumash Indians and the Candelaria American Indian Council of Ventura County. After carefully considering the alternatives, including working around the site, it was determined the site had to be relocated.

The Corps ability to understand and resolve complex human and technical issues resulted in a program that produced an atmosphere of trust and cooperation among all involved without sacrificing much needed flood protection. The findings uncovered during the excavations captured the public s attention and renewed interest in the Chumash Indian culture.

Jurors comments: *An excellent example of interagency cooperation at all levels of the community to provide flood control benefits while displaying exemplary sensitivity to Native Americans and their heritage. Agreement was reached with all involved parties on whether and how to relocate Native American burial sites and artifacts to a site safe from floods.*

Honorable Mention: Curation Facility, Bonneville Lock and Dam Projects, Bonneville, Ore. Portland District was the design agent.

Portland District was faced with the problem of finding suitable long-term curation facilities, up to strict federal standards, for more than a million artifacts. To meet its needs, the district upgraded the basement of the Bonneville Lock and Dam auditorium building, built in 1934 and placed on the National register of Historic Places in 1987.

Renovation of almost 3,200 square feet of the basement and mechanical and electrical upgrades provided three secure rooms with state-of-the-art components for curation and collections management. This project also provides a new use for the auditorium, providing efficient use of an existing structure and ensuring its continued existence as a significant historic, cultural and architectural resource.

Jurors' comments: *The district came up with an effective solution by recognizing that an available facility could be converted, with professional advice and the availability of sufficient funds, to provide an excellent facility in an innovative and cost-effective manner. This is a notable blending of need and opportunity to achieve responsible care of cultural resources.*

Honorable mention: Project Huck Finn, Vicksburg, Miss. Vicksburg District was the design agent.

To ensure that future leaders would develop a heightened awareness of the Mississippi River and its value, the Vicksburg District and the local school district co-sponsored development of a multi-level educational program for all public schools, beginning with young children and extending into college. Project Huck Finn includes a grammar school teachers workshop and unit for kindergarten through sixth grade and special emphasis programs to heighten awareness of river-related job opportunities for high school and college-bound students.

The program involves a partnership among the Corps, local schools, chambers of commerce, major industry and artisans. Through this effort, the Corps assumes a major education proponency role.

Jurors' comments: *An excellent education program. The jury wishes to recognize this program and encourages similar programs. This entry would have been more highly rated if the natural environment of the river had been emphasized in proportion to the transportation and commercial aspects.*

Honorable Mention: Mount Hebo Air Force Station Hazardous Waste Cleanup, Hebo, Ore. Omaha and Portland Districts were the projects design agents, and Radian Corporation of Austin, Texas, was the design firm.

Tactical Air Command used the station from 1956 to 1980, and salvage contracts to remove improvements following base closure left the area with polychlorinated biphenyls (PCB) liquids dumped on the ground, gutted and crushed transformers, and a mountain top strewn with construction debris, including asbestos. The clean up was complicated by the mountain top location and adverse weather conditions.

Project engineers had to send asbestos and PCB-contaminated soil and liquids to off-site facilities. However, they recycled metal, decontaminated transformers and buried structural foundations and construction debris in vaults greatly reducing transportation costs.

The clean-up effort returned the area to the public for recreational use and created habitat for what is now the largest Mount Hebo population of Oregon silver-spotted butterfly, an endangered species.

Jurors' comments: *Although itself a relatively small project, it is an early example of what promises to be a major area of activity for the Corps in years ahead.*

Honorable Mention: Dual Fuel Steam Plant, Red River Army Depot, Bowie County, Texas. The design agency was Fort Worth District. The design firms were Pope Engineers of New York, N.Y., and Weyher/Livsey Constructors of Atlanta.

Existing oil and gas boilers at the depot could not meet current needs, much less planned expansions, and a moratorium had been placed on new natural gas purchases by a local supplier. At the same time, due to environmental concerns, wooden pallets, paper and other combustibles had to hauled to a landfill rather than being burned on site.

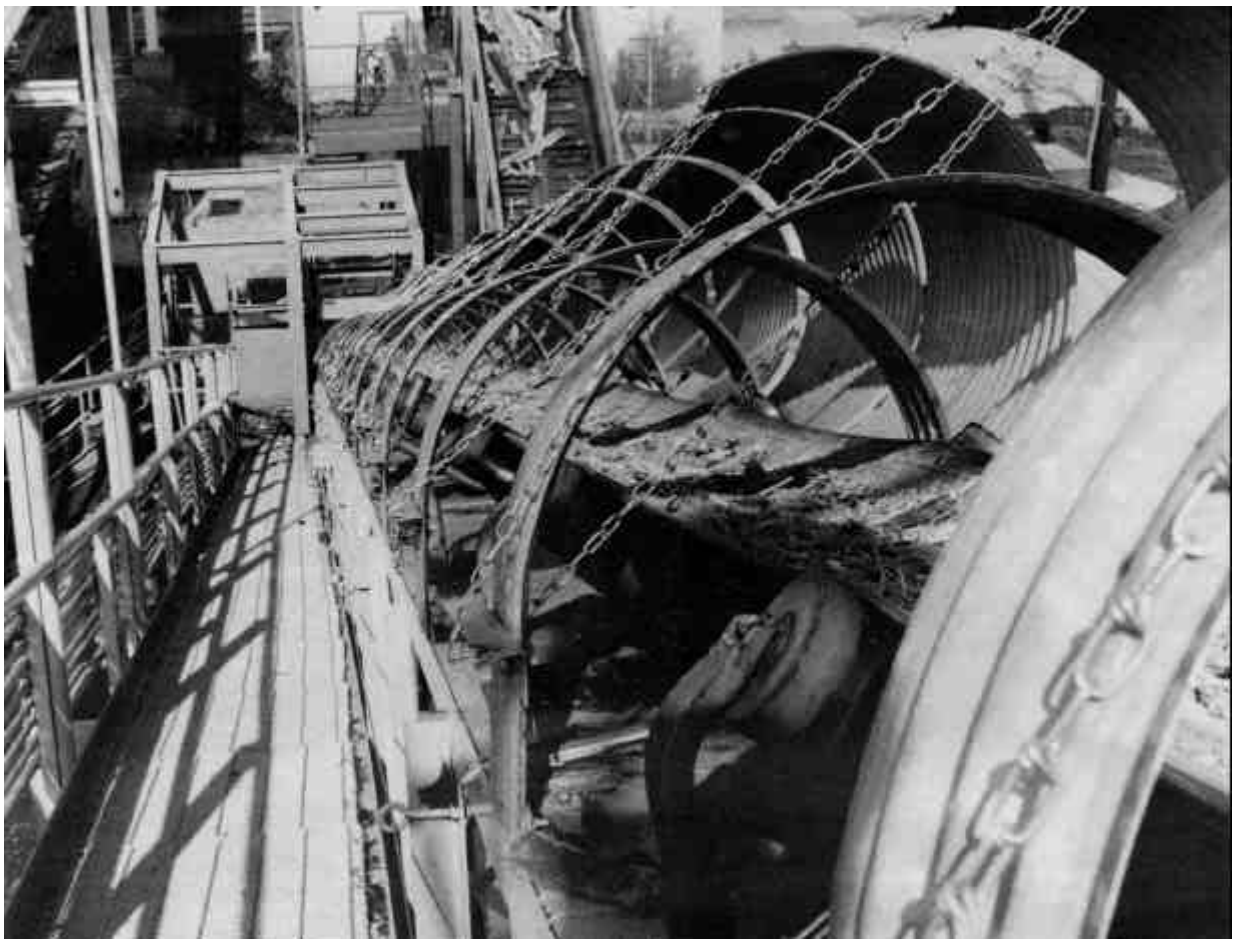
The solution was a new plant that could burn coal or combustible refuse. The plant includes a shredder to reduce wood to usable chips, an underground tunnel for loading and unloading coal to reduce dust emissions, and a curbed concrete-apronned lagoon to store the coal stockpile to keep it clean and prevent its rainfall runoff from contaminating surrounding streams. The latest technology is applied to control emissions, fuel systems, combustion and ash removal.

The new system drastically reduces landfill needs and saves more than $1 million annually in fuel costs.

Jurors' comments: *This is an innovative approach to reducing the use of fuel oil and natural gas yet producing the extensive amounts of steam required at this facility. Steam can be produced at high efficiency at the same time the environment is enhanced through protection of the fuel storage and handling areas.*

Environmental Honorable Mentions

Project engineers plow the Mount Hebo Air Force Station to take away soil contaminants, making it safe for the public and create a habitat for the Oregon silver-spotted butterfly.



The Dual Fuel Steam Plant shreds wood for usable chips.

Corps personnel work with local community members at Calleguas Creek to relocate Native American burial sites and artifacts to an area safe from floods.

The modern Curation facility can safely store more than a million historical artifacts.

Through Project Huck Finn, a Vicksburg District employee explains Corps programs to local high school students.

Engineering

The Johnston Atoll Chemical Agent Disposal System facility is the free world s first full-scale production facility for disposing obsolete and deteriorating lethal chemical munitions.

Nine engineering projects earned recognition for the 1989 Design Awards Programs. The category had one Honor Award, three Awards of Merits and five Honorable Mentions.

An engineering project is defined as a structure or complex that is primarily engineering in character. Entries are judged on the basis of ingenuity and quality of engineering concepts, satisfactory solution to functional problems, economy of design and construction, customer satisfaction, attractive appearance, and harmony with the surrounding environment.

Members of the engineering jury were Dr. E. Walter LeFevre, president, National Society of Professional Engineers; James W. Poirot, president, American Consulting Engineers Council; and Albert A. Grant, principal engineer, Bellomo-McGee, Inc.

Honor Award: The Johnston Atoll Chemical Agent Disposal System, Johnston Atoll, southwest of Hawaii. The design firms were Ralph M. Parson Company and Stearns-Roger Division of United Engineers and Constructors. The design agent was Huntsville Division.

The Johnston Atoll Chemical Agent Disposal System (JACADS) facility is the free world s first full-scale production facility for disposal of obsolete and deteriorating lethal chemical munitions.

The process uses sophisticated robotic demilitarization equipment and material handling systems to remotely disassemble a variety of lethal chemical munitions.

After disassembly, all contaminated components are incinerated in unique, specially designed and proven furnace systems. The design encompasses numerous engineering disciplines civil, chemical, mechanical, electrical, geotechnical and environmental and applies architectural skill to provide an attractive, functional facility blending with the airport facilities on Johnston Atoll.

This unique structure required 10 years of research and development and is a prototype for eight additional facilities to be constructed in the U.S.

The nucleus of the JACADS process, the 73,000-square-foot munitions demilitarization building, houses the sophisticated computer control system and the four specialized incinerator systems capable of processing 33,600 pounds of lethal chemical agent and generating nearly 250,000 pounds of decontaminated scrap metal per day.

Although the facility did not require an air permit, the Army dictated, because of environmental and public safety, that each furnace system be equipped with a state-of-the-art, highly efficient pollution abatement system.

Every feature of the JACADS facility is unique, rivaled only in complexity of present day nuclear facilities. The process has been recognized as the safest and most environmentally acceptable method for disposing of chemical weapons. This program has aroused interest from our NATO allies and the Soviet Union.

Jurors' comments: *The many complex systems required innovative solutions that are now recognized around the world and will be used for hazardous and toxic waste disposal not only in the U.S. but other nations. The project deserves broad recognition as an engineering achievement having worldwide significance and value.*

Award of Merit: Downstream Guidewall, Main Lock, Melvin Price Locks and Dam Project, Mississippi River, Alton, Ill. The design firm was Nashville District, and the design agent was St. Louis District.

During the preparation of the feature design memorandum, it became apparent that dry construction of the downstream guidewall to provide a concrete rubbing surface below the minimum expected tailwater would require a cofferdam. But an innovative design found another way.

The guidewall consisted of precast concrete beams spanning concrete-filled sheet pile cells. Contractors drove intermediate sheet pile cells, the H-piles within those cells under water. Tremie concrete reinforced the cells, which were then dewatered so the precast beam seats could be placed in a dry environment.

The elimination of the cofferdam through applied value engineering saved approximately $8 million. The economic benefits of the Melvin Price Locks and Dam project, of which the downstream guidewall is a key element, will outweigh the cost by 4-to-1 over the next 50 years.

Jurors' comments: *The construction process reduced dewatering requirements considerably but still provided a structurally and hydraulically stable guidewall. These design and construction procedures are examples of quality engineering.*

Award of Merit: Fisherman s Wharf Breakwater, San Francisco, Calif. The design firm was Los Angeles District, and the design agent was San Francisco District.

Although it s the city s number one tourist attraction, with I2 million visitors each year, the fact that the bay area population has greatly increased, and Americans have more than doubled their consumption of fish, fewer commercial fishing boats were being unloaded or berthed at the Fisherman s Wharf.

The Corps was asked to build a breakwater to protect the Fisherman s Wharf area from the San Francisco Bay wave action, and provide the basis for reestablishing the commercial fishing fleet.

Because of the high visibility and multiple use of the area, the breakwater design required unusually close coordination with many federal, state and local agencies the Port of San Francisco, Golden Gate National Recreations Area, the National Park Service, the Fisherman s Wharf Association, and the Committee to Save Aquatic Park.

After considering 90 alternatives, the diverse and extensive modeling yielded a highly efficient system of three separate breakwaters, which minimized physical size and cost, yet provided protection from storms from several different directions.

Openings in two of the breakwaters help keep water quality high, particularly for swimmers. Handrails and a 40-foot ramp for handicapped access allows sightseeing and fishing from the east breakwater. Because the breakwater has done such a superb job of reducing waves and swells in the protected area, the Port of San Francisco has initiated construction of 88 new berths for commercial fishing vessels.

Jurors' comments: *Extensive physical and*

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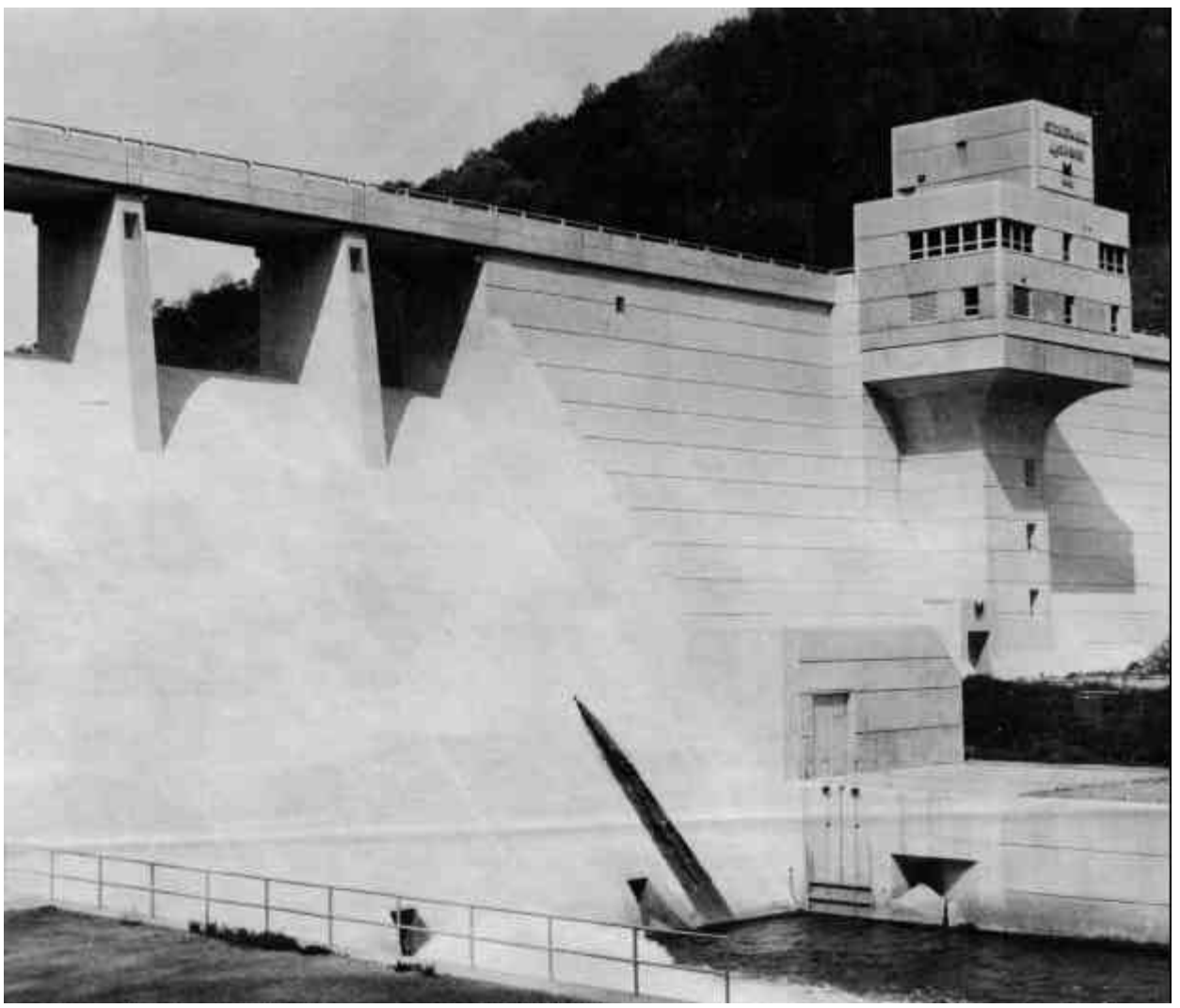
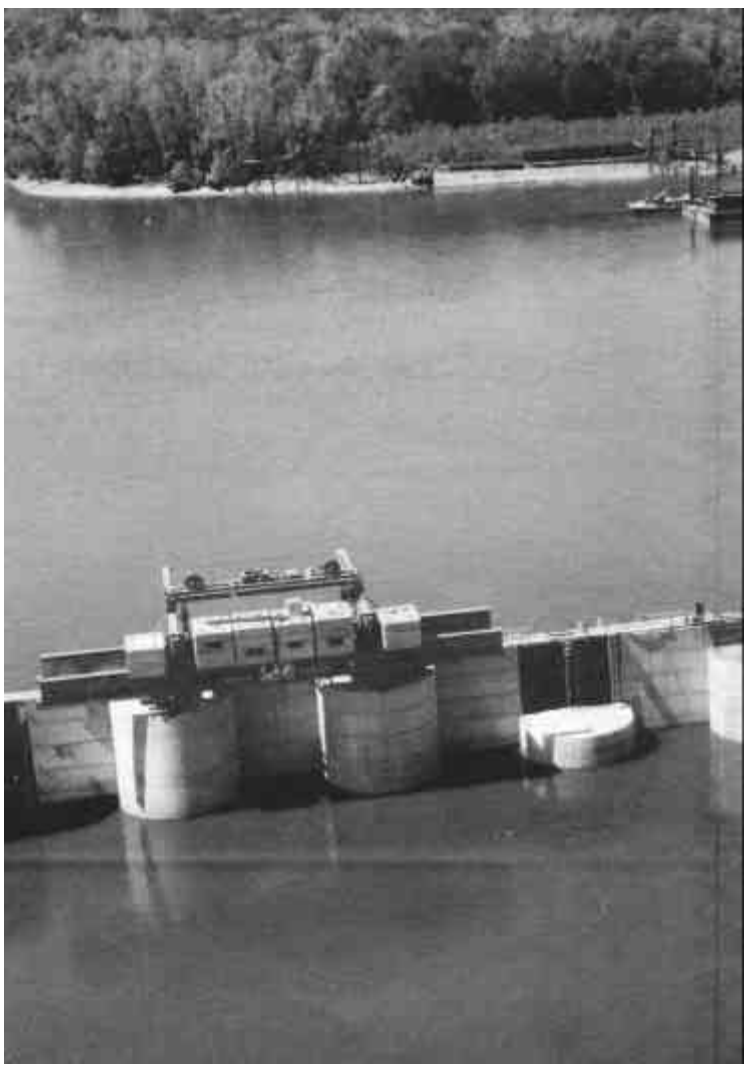


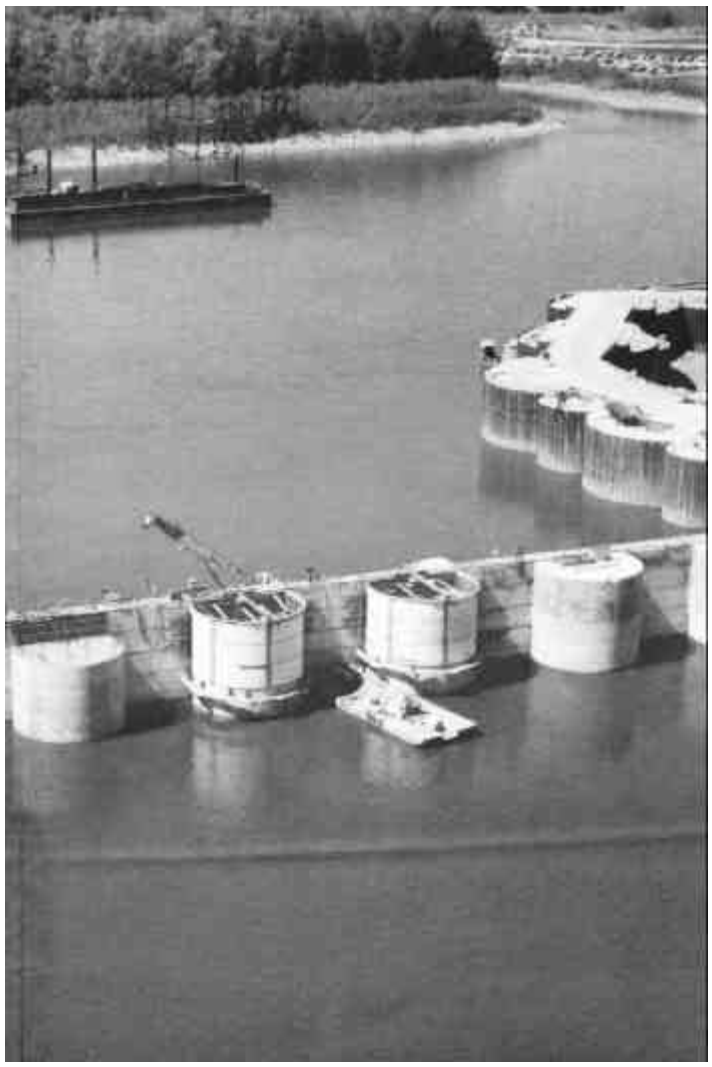
The design features of the selective withdrawal system to meet water quality requirements makes the Stonewall Jackson Dam unique.



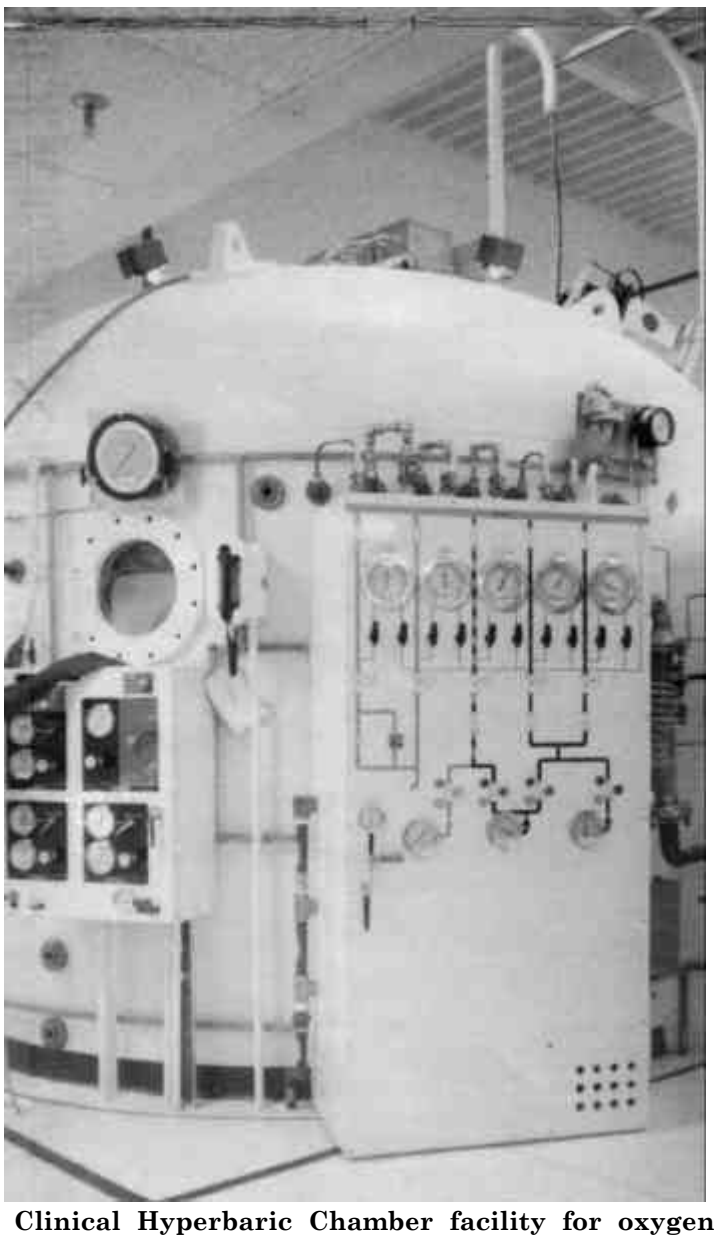
The downstream guidewall, Main Lock, Melvin Price beams spanning concrete-filled sheet pile cells, an cofferdam.

The newly built breakwater to protect San Francisco s Fisherman s Wharf helps to increase the commercial fishing fleet.

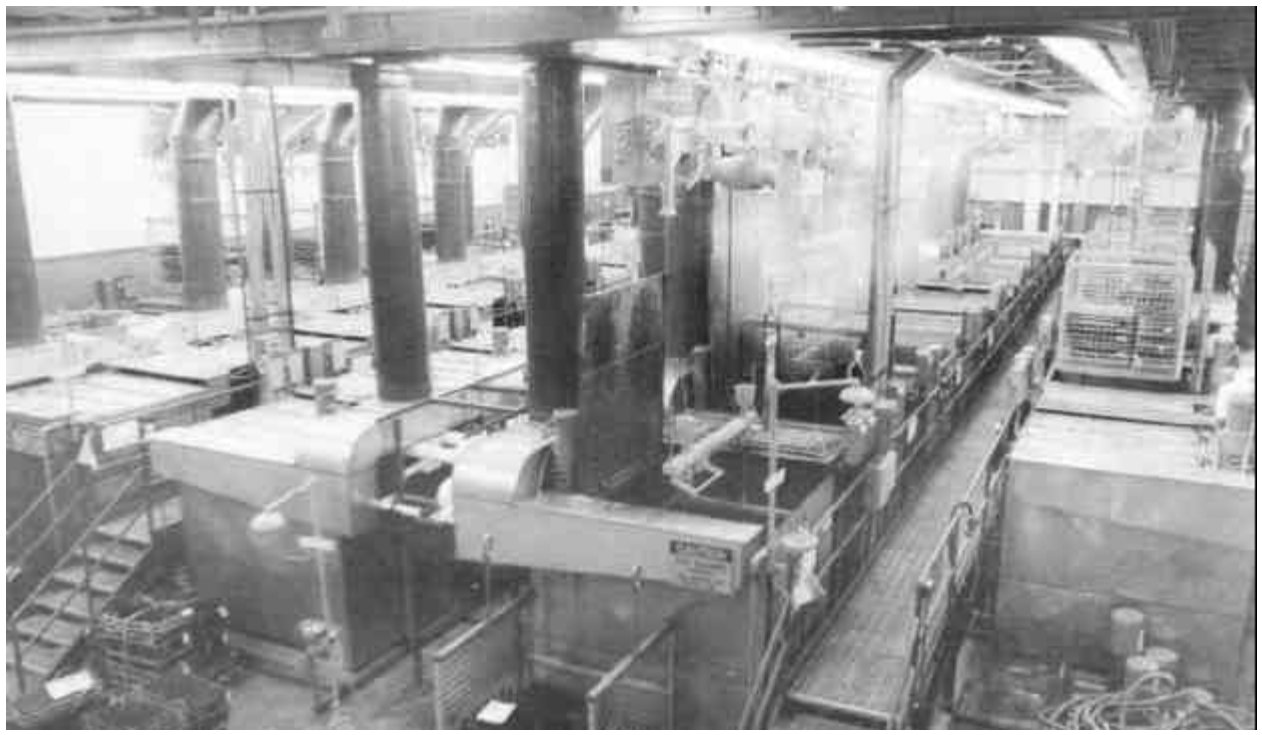
A technician prepares the treatments to patients.



Locks and Dam project uses precast concrete innovative design that eliminates the need for a



Clinical Hyperbaric Chamber facility for oxygen



Energy conservation, including special ventilation systems, plays a key role in the highly-automated Blade Repair Facility at Tinker Air Force Base.

(from page 5)
mathematical modeling produced a highly efficient design. The project was completed a month ahead of schedule at a cost savings of $3.3 million, which was far more than the cost of the extensive modeling and engineering efforts to develop this unique solution. The highly visible nature of the project and the multiple publics served make this successful project worthy of special notice.

Award of Merit: Stonewall Jackson Lake Dam, on the West Fork River near Weston, Lewis County, West Virginia. The design firm and the design agent was the Pittsburgh District.

While the Stonewall Jackson Lake Dam by itself may not be unique, its selective withdrawal system to meet water quality requirements is.

The adopted design features two towers, one on each side of the spillway. Movable gate leaves allow withdrawal of water from any level between the spillway and minimum pool elevations. The position of the gates allows either weir flow over a gate leaf, or flow through a submerged opening between gates leaves. It is also possible to withdraw water simultaneously from more than one level into the same tower. This flexibility ensures that water release temperatures remain constant regardless of fluctuations in the lake.

To accommodate the potential development of commercial hydropower at the project, a monolith of the dam contains a sealed penstock to not only accommodate but encourage additional hydropower in the future. This type of selective withdrawal system is a first for the Corps.

Jurors' comments: *The structural design is aesthetically pleasing as well as functional. Flood control, future power generation capability, energy conservation, preservation of water quality and pleasing project appearance were all achieved within budget.*

Honorable Mention: Blade Repair Facility, Tinker Air Force Base, Okla. The design agent was Tulsa District, and SYSTECON of Duluth, Ga., was the design firm.

This building provides a centralized, highly automated facility for the repair and reconditioning of jet engine turbine blades.

Because repair processes for turbine blades constantly undergo upgrade due to advances in technology, the new design had to allow maximum flexibility for the relocation and addition of process equipment and material handling components. Structural columns, which would otherwise interfere with usable floor space, run along the central aisle and perimeter of the building. Attention to occupant safety required attention to efficiency, pathways, hazard zones and acoustical isolation.

Floodwalls protect the land, ecology and community of Tug Fork Valley.

The final design provides automated distribution, storage, and retrieval of blades and vanes, and a material handling system capable of computerized tracking and routing of blade batches. What has emerged from this design is a unique structure that addresses the contradiction between the purely functional aspect of a largely industrial concern and the modern, high-tech office building aspect of a computerized material handling facility.

Jurors' comments: *Included in the design were numerous energy conservation concepts such as solar shading by insulated and reflective glazed windows, special ventilation systems to control toxic fumes and explosive gases and energy monitoring system. This multiple discipline facility is a significant contribution to the engineering profession.*

Honorable Mention: West Williamson Local Protection Project, Williamson, Mingo County, W.Va. The design firms were Huntington District and Nashville District. The design agent was Huntington District.

The project provides flood protection for a major population center located in the flood-prone Tug Fork Valley, while providing as much flood-free developing land behind the protection system as possible and eliminating or minimizing impact to ecological, social and aesthetic values.

(continued on page 8)

(from page 7)

To meet these challenges was an issue sensitive to all concerns. Floodwalls instead of levees meet unusually high protection levels. The floodwall openings provide quick-closing swing gates, requiring minimal manpower from the city. Relocation and straightening of part of the river reduce adverse flood-related effects and provide better alignment for the wall and more developing land behind it. Texturing and appropriate graphics such as trees, clouds and recreational activities soften the otherwise obstructive and monotonous character of the conventional floodwall.

Various other features a fishing pier, a ramp for handicapped access, a combined bicycle path and walkway, pedestrian gate openings, plantings, in-stream rock revetments and boulders enhance its aesthetic, environmental and social acceptability.

Jurors' comments: *Due to aggressive value engineering plus other favorable conditions, the project was completed within budget and 16 months ahead of schedule. The concern for community protection during construction along with the public acceptance of the completed project are notable examples of good engineering.*

Honorable Mention: Clinical Hyperbaric Facility, Wright-Patterson Air Force Base, Dayton, Ohio. The design firm was Sherlock, Smith & Adams of Montgomery, Ala. The design agent was Louisville District.

The design called for construction of the largest, most highly automated facility ever conceived for the large scale administration of hyperbaric oxygen to clinical patients. The use of this type of oxygen requires that patients breathe by mask or head tent at elevated environmental pressures, usually in the range of two to six atmospheres absolute.

The facility must handle up to 18 patients at one time in the main treatment chamber and up to five patients at one time in each of the two smaller ancillary chambers, all with a minimum possible crew size.

A three-tiered control system allows fully manual control of the pressure in each chamber from chamber-side control stations, semi-automatic control from main control console, and fully automatic control from the computer. Under normal circumstances, a crew of five can safely treat up to 18 patients at one time.

Based on this project s success, two more facilities of the same basic design are currently under construction.

Jurors' comments: *The design involved many complex and interrelated subsystems. Life safety, environmental controls, human occupancy by both patients and crew, medical treatment facilities, plus many others all contained within a complex of three interconnected pressure vessels required an integrated systems approach to design.*

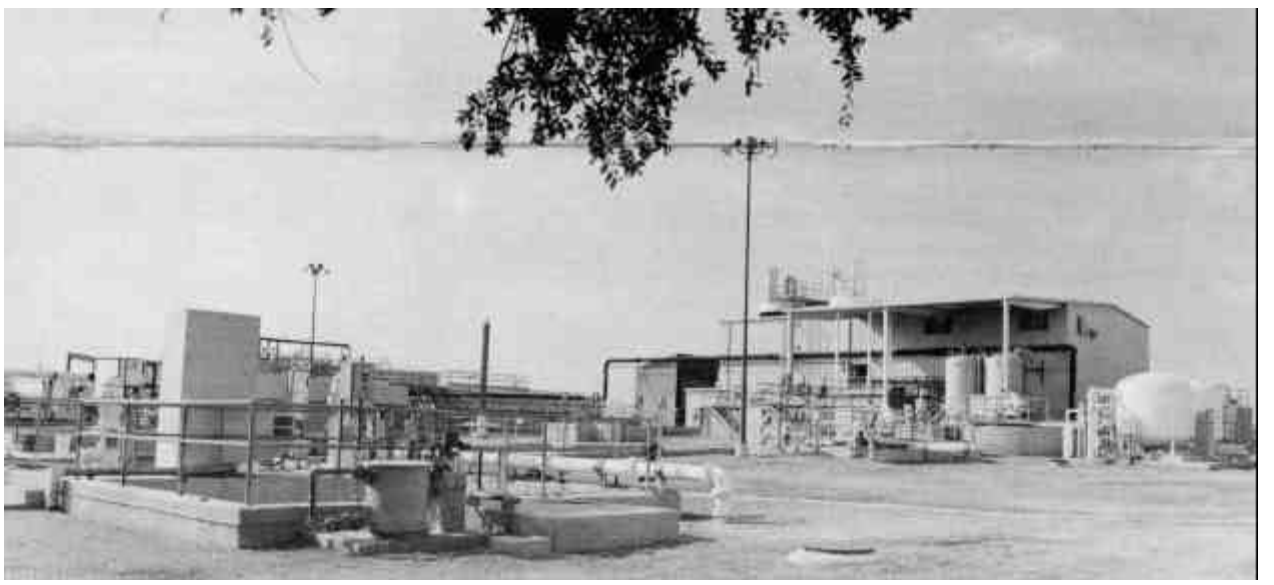
Honorable Mention: Lenox Bridge, Lakewood Development, Dyer County, Tenn. The design firm was Ellers, Oakley, Chester and Rike, Inc., Memphis, Tenn., and the design agent was Memphis District.

The Lenox Bridge was built in 1917 over the Obion River in the vicinity of Lenox, Tenn., and had been in service for 60 years.

A swing-span, pony-Pratt-through-truss design, the turntable swing had three continuous 50-foot spans over the central pier. When swung, the outer spans acted as simple cantilevers. The structure had a timber decking support by steel stringers, which rested on steel floor beams.

The challenge facing designers was to relocate and rehabilitate the bridge, which was halting a needed channel improvement, provide an aesthetically pleasing and publicly accessible orientation, and specify supporting structures and rehabilitation materials to meet modern standards without damaging the integrity of the original structural design.

Built in 1917, the newly renovated Lenox bridge continues to meet the public s needs without sacrificing its historic design.



An innovative design solution helps the Industrial Waste Treatment facility reduce hazardous waste sludge.

Jurors' comments: *"Fifty percent of the original structure was rehabilitated and reused, then carefully relocated to provide for public viewing and appreciation of the nation s great civil engineering heritage. The care taken to maintain the structural and historic characteristics of the original design and setting make this project worthy of special recognition.*

Honorable Mention: Industrial Waste Treatment Facility Upgrade, Kelly Air Force Base, Texas. The design was Albert H. Halff Associates of Dallas, Texas. The design agent was Fort Worth District. (This project also earned an Award of Merit in the Environment category.)

Kelly Air Force Base is the largest aircraft maintenance facility in the world, handling more than 50 percent of the Air Forces engine inventory. It is the home of the world s largest electroplating shop and aircraft hangars.

The tremendous amount of industrial waste generated by Kelly s electroplating shops, parts cleaning shops, painting operators and hundreds of support activities presents a unique waste-water situation that could only be solved by applying innovative design solutions.

The new design isolates the heavy metal wastes generated at the electroplating shops and the highly phenolic wastes from paint stripping activities. This is the first case where biological treatment of phenolic wastes has been used on this scale and magnitude.

The general approach to the project has provided Kelly Air Force Base with tremendous flexibility in not only their treatment of industrial waste-water but also their ability to efficiently handle waste streams previously excluded from the old plant.

Jurors' comments: *The innovative treatment processes have significantly improved the effluent as well as reduced the amount of hazardous waste sludge. With construction costs lower than authorized funding, lower operating costs, and well designed site layout, the plant now has record of being consistently in compliance.*

Architecture

Six projects were chosen from almost 60 entries as the best architecture design projects in the Corps 1989 Design and Environmental Awards Program. Entries ranged from a bowling alley in Germany to a child development center at Fort Carson, Colo.

Architectural projects are buildings or groups of buildings designed to provide a functional solution for the activities they house. Entries are judged on the basis of architectural concept, satisfactory solution to functional problems, appearance, and harmony with the surrounding environment.

Members of the Architectural jury were Ted P. Pappas, president of Pappas Associates Architects, Inc.; H. Kennard Bussard, president, RDG Bussard Dikis, Inc.; and Velpeau E. Hawes, Jr., president, Pierce Goodwin Alexander & Linville.

Honor Award: The Secure Operator Training Facility at Fort Devens, Mass. Design firm was Architectural Resources Cambridge, Inc., and the design agent was New England Division.

The basic criteria called for a building that should be simple but provide an environment that supports teaching and learning. systems and materials had to be as durable and energy efficient as possible to reduce operating and maintenance costs. The design also had to satisfy the agency s stringent security constraints.

The designers created a two-story building with one level above ground and one below. The upper level has the building s main entrance, the high-bay vehicle areas, mechanical support systems, and programs not involving sensitive information. The lower level minimizes outside exposure and is the center for the Sensitive Compartmented Information Facility.

Although the majority of the building was designed with function in mind, the entry lobby, which gives access to both floors, imparts a sense of importance to occupants by creating an impressive entry to their workplace. The exterior design recalls traditional New England building vocabulary already present at the post.

Jurors' comments: *This person understood proportion. . .good site plan.. strong concept. . .nicely detailed, symmetrical but not forced. It works.*

Award of Merit: The Composite Medical Facility, Minot Air Force Base, N.D. The design firm was Flad and Associates of Wisconsin, Inc. The design agent was Omaha District.

This 178,000-square-foot, three-story complex provides complete health care services for the base community. The first floor contains all clinics such as pathology, radiology, and general emergency services for both proximity to each other and easy access to separate entrances for emergency cases, staff, patients and visitors. The facility s dental clinic, physical therapy, material management and food service are located on the second floor. The third floor holds primary inpatient functions of surgery, intensive and coronary care, obstetrics and inpatient beds.

Sited at the junction of the base s main entrance and public access highway, the hospital s image projects a major position of prominence, promotes a positive attitude towards health care for base personnel and their families and enhances its ability to attract quality Air Force medical staff.

Jurors' comments: *Well organized and clear plan in a very complex building type. Zoning of the plan is extremely clear with circulation well defined. It s obvious the design firm knows medical facilities.*

Honorable Mention: Commissary at Fort Jackson, S.C. The design firm was Cromwell, Truemper, Levy, Thompson & Woodsmall, Inc. in joint venture with Anderson/Fulmer. The design agent was Savannah District.

The new 104,650-square-foot building provides a first-class commercial food storage and sales facility for hundreds of military families and a large retirement community.

It s not like most traditional commissaries, which mimic giant food warehouses. Its north facing clerestories create a bright and cheerful interior. Areas of oak paneling and colorful banners depict the post s history and adds the warmth and color of a festival marketplace. The massive building is tucked into the hillside site with eight-foot berms along its west and north sides.

Jurors' comments: *The strong and commendable concept drew our attention. This difficult project type, on the scale of a warehouse facility, was scaled down with berms.*

Honorable Mention: The U.S. Army Intelligence and Security Command Headquarters at Fort Belvoir, Va. The design firm was the Kling-Lindquist Partnership, Inc., and the design agent was Baltimore District.

The new headquarters building is located on a 46-acre site previously used as an earth moving equipment parking area. The site included a relatively large cleared level area, a sloping wooded area and two ponds.

The building itself is nestled along the sloping wood area. Its geometry, with its continuously glazed exterior perimeter wall, provides maximum views of the wooded area.

A large skylight lets ample sunlight into the main lobby and elevatory lobby, which extends through all four floors, two above ground and two below. This allows sunlight to penetrate to all levels, including the two underground floors.

To adapt the building design to its surroundings, the open flat area was developed for parking, and separated from the surrounding area with trees to soften the visual impact. Earth mounding planted with trees is used to visually separate the facility from a nearby state road.

Jurors' comments: *"Good site plan. Strong exterior concept for a security-oriented facility with the special problem of a big building complicated by security issues and electronic shielding necessary for a sensitive compartmented information facility.*

Honorable Mention: Resource Manager s Office, Walter F. George-George W. Andrews Lakes, Alabama & Georgia. The design firm was Carr & Associates Engineers, and the design agent was Mobile District.

The facility accommodates project management, contract inspection, and lakeshore and natural resource management employees whose collective duties are to manage both the Walter F. George and George W. Andrews lakes and act as a liaison with public agencies and other Corps elements.

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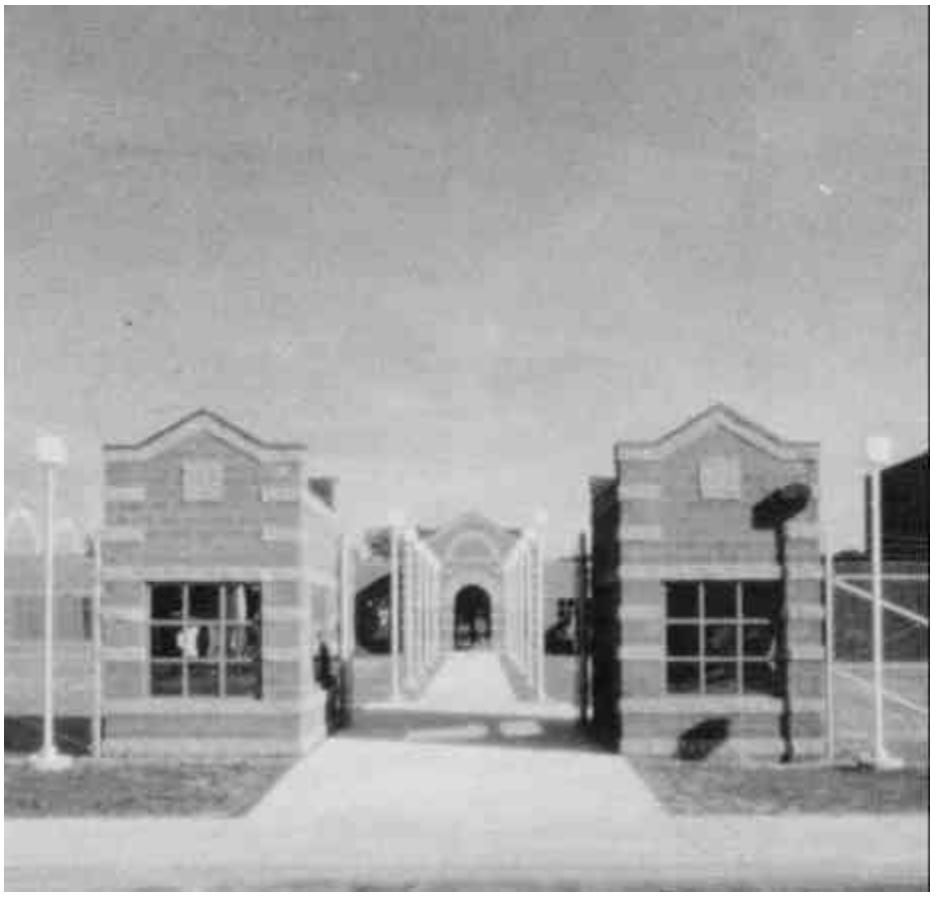

The Secure Operator Training Facility at Fort Devens, Mass., gives occupants an atmosphere for teaching and learning.

The new three-story Composite Medical Facility provides health care for Minot Air Force Base personnel and their families.

The Resource Manager s Office accommodates Corps personnel who manage the Walter F. George and George W. Andrews lakes.

The Youth Activities Center gives teenagers a place to call their own.

What was once a parking area for earth moving equipment is now the home of the new U.S. Army Intelligence and Security Command headquarters building.

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The architectural design solution to the office was an acknowledgement of the natural beauty of the lake and abundant natural vegetation.

Jurors' comments: *A simple, understated approach. Materials are in concert with the environment. Reflects a friendly, nice scale, understated.*

Honorable Mention: The Youth Activities Center, Fort George G. Meade, Md. The design firm was Cooper Lecky Architects P.C., and the design agent was Baltimore District.

The activities center, for youths ages 6-19, offers a gym, game and activity room, space for martial arts or a dance, a snack bar, and a teen lounge. It gives teenagers a place they can call their own.

The design addressed the problem of a young person s transition into the wider community beyond both home and school. Each major activity was housed in an independent structure, giving it a special identity.

These components were arranged around a skylit space which acts as a Main Street. Each activity space along the street becomes an individual shop, awaiting entry, having a discrete identity, but is clearly part of the community.

The designers placed adult supervision areas where they are effective, but not intrusive.

There is a variety of commonplace materials used to establish the character of the environment. For example, the floor used in Main Street is lightly colored concrete a sidewalk material. As the teens move indoors, the flooring shifts to tile, carpet and urethane gym flooring.

Jurors' comments: *". . .good site plan. . .fun. . .Socially responsible as a building type.*

Active duty personnel, their families and retirees will buy their groceries at the new Fort Jackson commissary.

Landscape Architecture

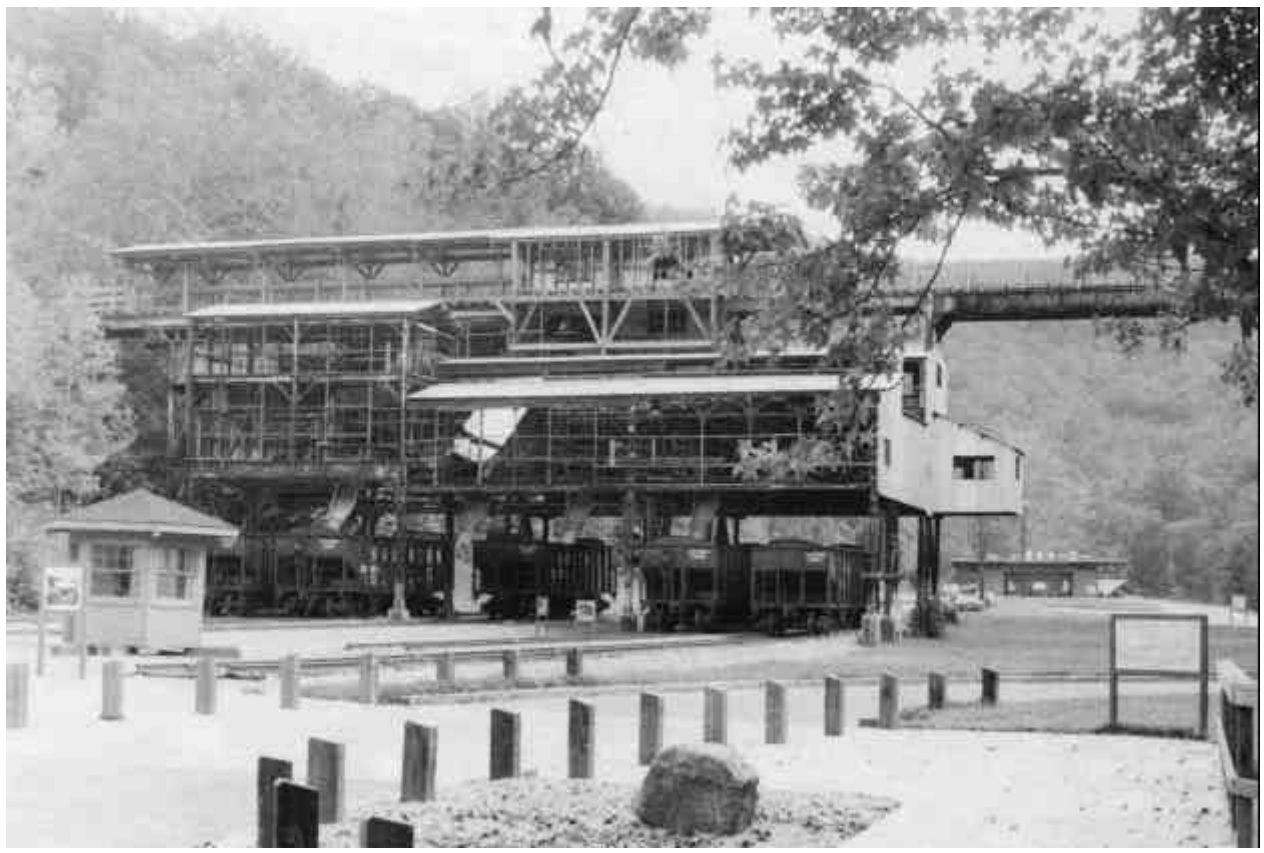
Recognizing that functional, attractive exteriors are important to the function of many projects, the Corps honored six projects for excellence in landscape architecture. The winners ranged from a restored mining camp in Kentucky to a park surrounding a historic tree in Puerto Rico.

A landscape architecture project is defined as either a site development project or a landscape planting project.

Entries are judged on the basis of ingenuity and quality of landscape design and site planning concepts, efficient functional and spatial relationships of the solution, aesthetics, economy of design and compatible relationship with the surrounding environment. In addition, a landscape planting project is judged on the basis of the selection of plants in terms of landscape design principles, seasonal interests, low maintenance, application of the plant to the design and use of materials other than plants in the landscape.

Entries in this category earned an Honor Award, two Awards of Merit and three Honorable Mention Awards.

Members of the landscape architecture jury were Gerald E. Patten, FASLA, president of the American Society of Landscape Architects and regional director for the National Park Service; Claire R. Bennett, FASLA, of Claire Bennett Associates and president elect of the American Society of Landscape Architects; and Brian S. Kubota of Peters, Kubota & Glen and past president of the American Society of Landscape Architects.



The Blue Heron Recreation Area captures the daily living and working conditions in a mining camp while maintaining historical artifacts and structures.

Honor Award: Blue Heron Recreation Area, Big South Fork National River and Recreation Area, Stearns and McCreary Counties, Ky. The design agent for the project was Nashville District. The design firms were Scruggs and Hammond, Inc.; Demartin-Marona-Cranston-Downes, Crisman Miller and Woodford, Inc., and GRW Engineers Inc.

The purpose of the project is to capture the daily living and working conditions in a mining camp and the surrounding region. Special consideration of the site s remaining structures and artifacts was required because of its inclusion on the National Register of Historic Places.

Visitors now arrive at the site by a new scenic road or an exciting ride on the Big South Fork Railway, a private enterprise that helps reduce the need for parking. The sense of community is achieved by 14 ghost structures outlined in steel, roofed in metal and sitting on the sites of original structures.

Walking paths lead visitors in several directions from the train depot so visitors can explore the community, where they can hear the voices of housewives, shopkeepers and others discuss the concerns of the day. The reality of mining is found in a recreated mine entrance where 50 feet into the darkness, miners are shown digging and shooting an ore seam.

Jurors' comments: *This is an outstanding example of reclamation of a historic site for today s educational and recreational use. We feel that this high quality, simple, well integrated design is the result of the combined efforts of the architects, landscape architects and historians who made up the design team.*

Award of Merit: Ceiba Tree Park, Ponce, Puerto Rico. Jacksonville District was the design agent and Jorge de1 Rio, FAIA, was the design firm for the project.

A single entrance park focuses attention on the Ceiba Tree, more than a hundred-years-old, which has long been an important cultural and natural resource. Indirect lighting accents the tree at night, and two semi-circular benches surround it.

A concrete and paver stone path extends from the entrance, surrounds the tree and meanders through the northeast part of the park to a gazebo, a traditional Puerto Rican townscape element. The remaining areas produce a green, open effect, which includes grass, native trees and flowing shrubs.

Jurors' comments: *Great care was taken in creating site conditions necessary for healthy tree*

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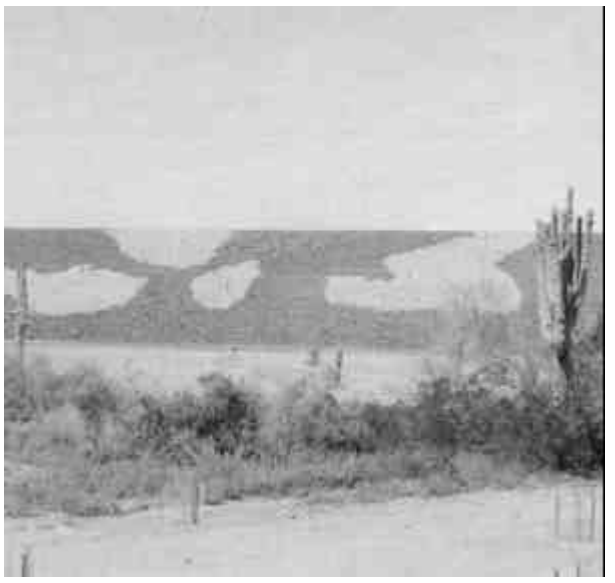
Visitors take an historic route at the Knights Ferry Recreation area.

More than a hundred years old, the Ceiba Tree accents Ceiba Tree Park.



The New River Dam blends into the landscape while controlling soil erosion.

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growth. The overall form, color, scale and detailing of the design reinforces the significance of the tree while reflecting a sensitivity to the character of the existing neighborhood.

Award of Merit: Knights Ferry Recreation Area, Stanislaus County, Calif. Sacramento District was the design agent, and the district and Judith Wolf Crutcher, AIA, served as design firms.

The site boasts the longest covered bridge west of the Mississippi River, a goldmill office and gold rush town from the 1860s and a Native American burial ground. The most significant problem facing designers was to make the project functional without compromising the historic or environmental integrity.

The design limits development near the Stanislaus River to maintain the environmental and aesthetic quality, and level land formerly used for agriculture was adapted for parking lots, recreation sites and other high-use areas to minimize tree removal and grading. Pedestrian traffic is funneled along historic routes and vehicular traffic is restricted or closely limited in those areas to preserve historic integrity.

The administration building and recreation facilities are field located to provide maximum supervision with minimal environmental impact.

Jurors' comments: *The design of the recreation area nicely balances visitor use and preservation of the natural and cultural landscape. Contemporary development accommodates recreation and educational use without adversely impacting the historic and natural character of the environment.*

Honorable Mention: New River Dam, Maricopa County, Ariz. Los Angeles District was both design firm and agent.

The project was designed to create an aesthetically pleasing surrounding for an erosion control structure already in place. The final plan combined two concepts, the naturalistic or camouflage approach and the artistic or mural approach. Minimal use of plant material in tandem with hardscape techniques helped blend the structure into the landscape and highlight native plants.

Landscape design provides the benefit of minimum maintenance using native drought tolerant or resistant plants.

Jurors' comments: *The project demonstrates the development of an innovative approach to the integration of a major engineering structure into the natural environment.*

Honorable Mention: Sergeants Major Academy, Fort Bliss, Texas. Fort Worth District was the design agent, and Fouts Gomez Architects, Inc., and Lewis and Associates were the design firms.

Soldiers get battlefield training in a Bavarian-style village called simulated City (MOUT facility).

Plants, requiring little water, and native stone mulches surround the Sergeants Major Academy.

The academy is in striking contrast to the otherwise spartan desert region. Designers chose a xeriscape approach, using low water requiring plants and native stone mulches and zoning plants according to similar water and microclimate conditions.

The nucleus of the complex is a courtyard for assembly and daily display, featuring plants with similar needs and concentrating colors and textures to provide year-round interest. Large masses of shrubs at the base of the building help cool the building by reducing reflected sunlight, and large deciduous shade trees create a more comfortable human environment further away from the building.

Jurors' comments: *The design uses water conserving plantings and other compatible materials in an arid landscape.*

Honorable Mention: Simulated City (MOUT Facility), Hohefnels Training Area, West Germany. Europe Division was the design agency and Finanzbauamt, Regensburg of West Germany was the design firm.

This seemingly typical Bavarian village is the enemy, ingeniously designed to provide battlefield architecture to play wargames and train soldiers in the art of urban fighting. It comes to life through the battle gear of soldiers trying to outwit the town s dark corners, foxholes and hideaway places.

The town is interconnected by sewer tunnels, manholes, ramps and dark passages where the enemy can lurk. Some buildings stand with gaping holes or partially fallen walls and scattered masonry rubble. Exposed roof timbers lie diagonally across the rooms they crashed into as if in the aftermath of an air raid.

Jurors' comments: *This is a successful recreation of a traditional German town with planning concepts adapted for military training purposes, a design that minimizes the overall impact of the site.*