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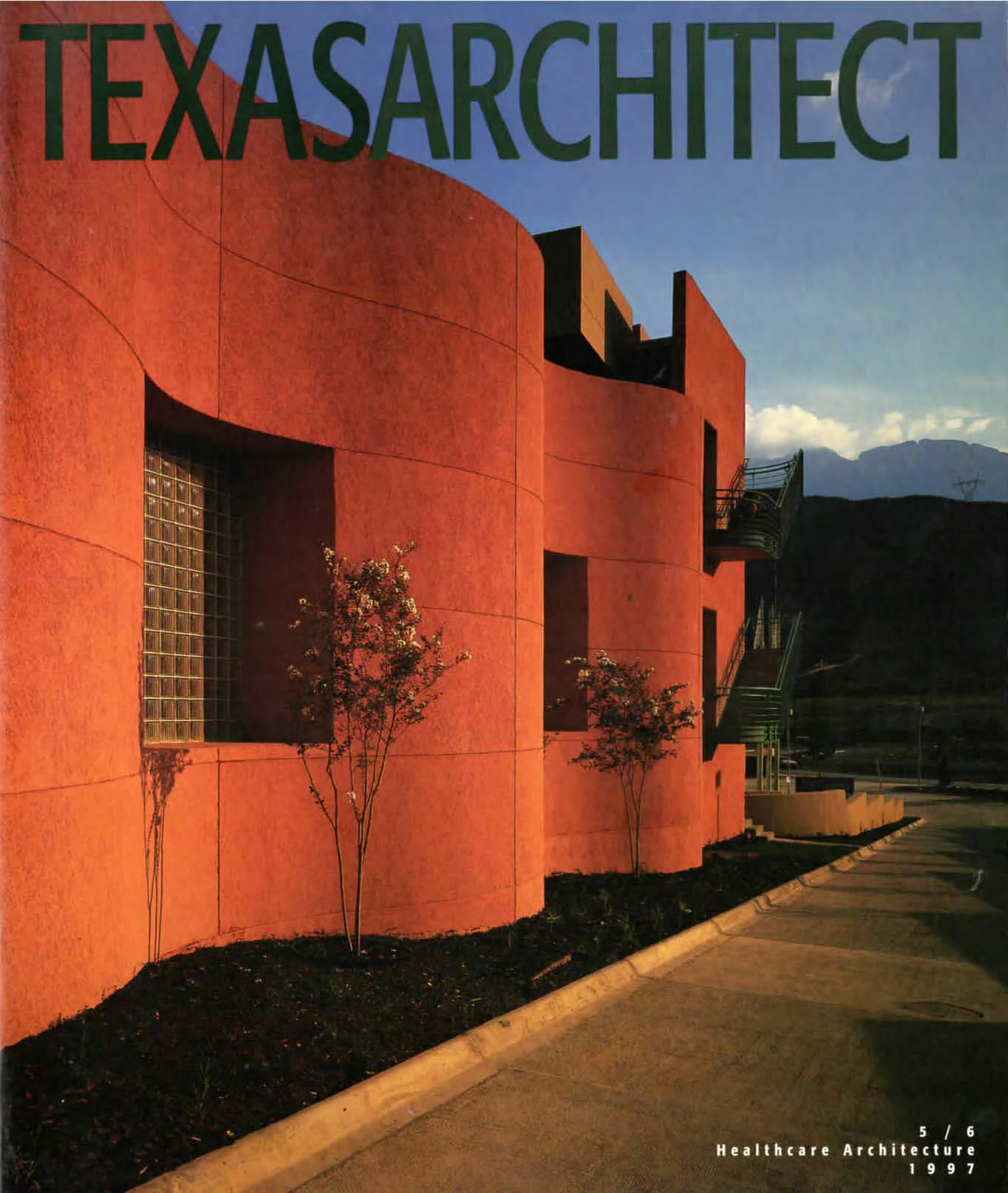

5 / 6
Healthcare Architecture
1997

Higher Building for Higher Learning

F.W. Olin Building, Southwestern University, Georgetown
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OWNER'S REPRESENTATIVE Group Two Architecture, Austin
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PHOTOGRAPHER R.Greg Hursley, Inc.

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— Dan Wigodsky, AIA,
Kell Muñoz Wigodsky Architects

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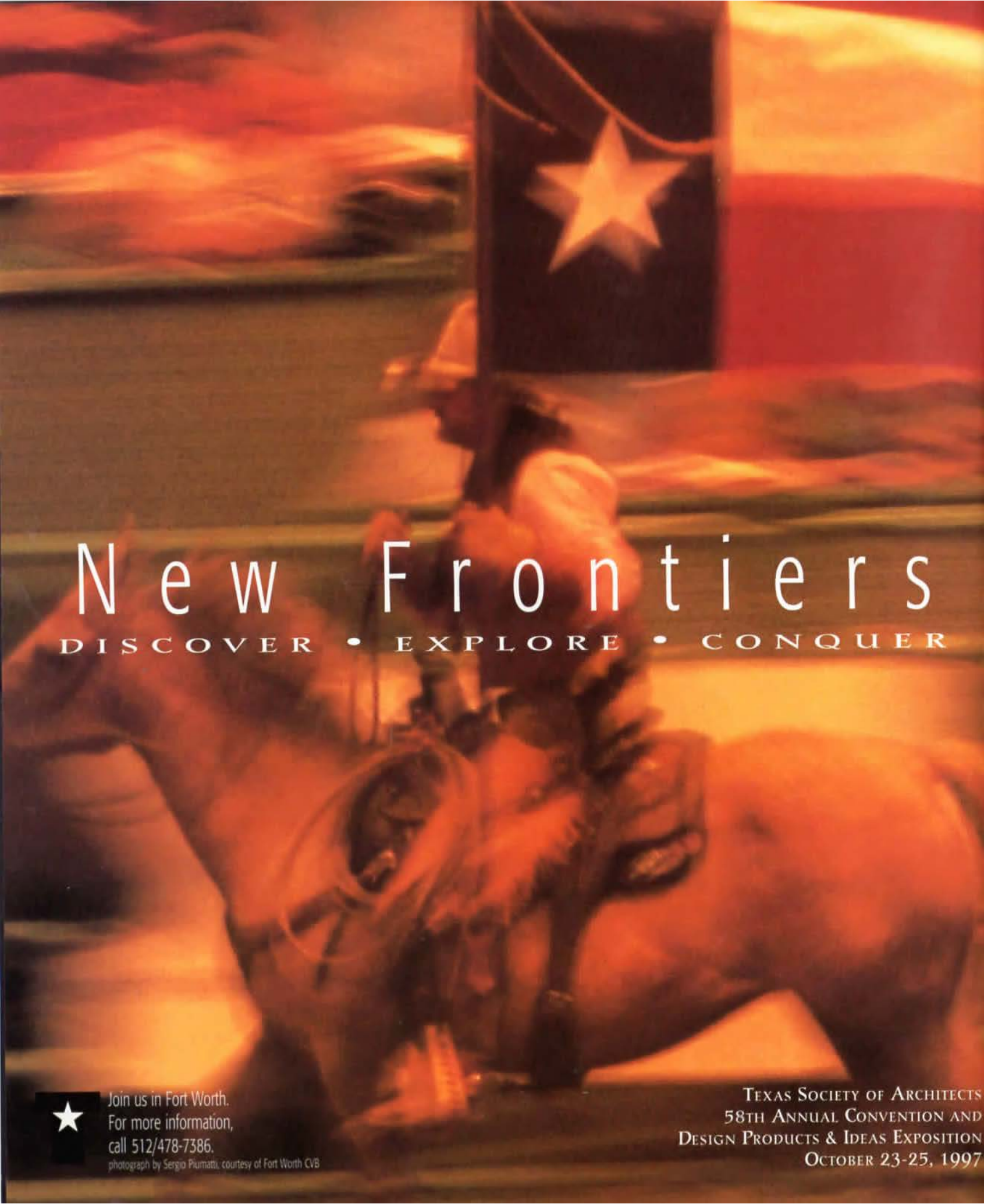
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TEXASARCHITECT

On the cover: Centro Medico Integral, HDR, Inc. Photograph by Mark Trew.

Below: Exterior of Yacktman Pavilion, Watkins Carter Hamilton and Pelli & Associates. Photograph by A.Zemborain/ CP&A.

HEALTHCARE ARCHITECTURE

Healthcare clients change the profession 46

Centro Medico Integral, Hospital Santa Engracia, Monterrey, Mexico
Henningson, Durham and Richardson, Inc., Dallas 48

San Antonio Gastroenterology Surgical Center, San Antonio
Mogas and Associates/Sprinkle Robey Architects, San Antonio 50

Lutheran General Hospital, Victor Yacktman Children's Pavilion, Park Ridge, Ill.
Watkins Carter Hamilton Architects, Bellaire, and Cesar Pelli & Associates, Hartford, Conn. 52

Southwest Cancer Center and Idalou Clinic, Lubbock
McLarty Baker Associates, Lubbock and I. Phillips, Houston 54

Mercy Regional Medical Center, Laredo
HKS Inc., Dallas 56

Texas Specialist Center, Lufkin
Barley+Pfeiffer Architects, Austin 58

Busque la sinopsis que se encuentra al principio de cada historia principal.

DEPARTMENTS

Editor's note 7

Corrections 11

News 12

New Products 21

Market/Trends 23

***TA* Specifier** 33

Special Section
Public Housing 42

Survey 60

Marketplace 65

Travel 68

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May/June 1997 Health Care

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Ethics of Commerce

IT APPEARS THAT WE ARE AT A WATERSHED in healthcare-facility design, as diagnostic clinics and outpatient surgical suites replace the physician's office and the hospital wing. Managed care, seen as an interesting experiment 15 years ago, has become the new medical-business diagram. In addition to the notable hospital mergers that take up most of the newspaper and trade publication headlines, a host of new specialty partnerships and practices are being formed and focused to serve a rapidly consolidating core of these regional and national companies. The path to success for these new partnerships lies not only in their ability to provide patient care, but in their ability to negotiate contracts with the giants to secure market share. As architects, we are responding to this rapidly changing business environment with new clinic and hospital prototypes.

The new structures built for these emerging medical businesses reflect influences that are rooted in retail and process-engineering models in their concept as well as in their form. Process engineering in its most recent form, notably computer-chip manufacturing plants and just-in-time engineering, reflects the need to move patients through the system as efficiently as possible. The retail aspect of new hospital designs suggests the need to house these new processes in a familiar and comfortable form. Explicit in the discussion of these models are the economic benefits to be realized by the managed care companies, suggesting that the patient will ultimately realize the benefits of more efficient care. The term medical mall, employed in the description of many large-scaled clinics that are replacing the traditional stand-alone hospital, is revealing. As a model of commerce, the retail mall is designed as a selling machine, relying on visual merchandising and product presentation to induce the consumer to buy. The definition of the patient now includes the vocabulary of the consumer dictionary. Attractive, marble-clad lobbies resembling those of an important hotel have replaced the all-business look and feel of their neoclassical and moderne ancestors. The gift shop, once neatly tucked along the corridor next to the cafeteria, is being replaced by a strip of shops, beauty parlors and flower stalls that James Rouse, the developer of Boston's Faneuil Hall, would have envied twenty years ago. Within this new diagram, the patient is now moved to the services, rather than services brought to the patient.

UPCOMING ISSUES

We invite submissions to *Texas Architect* for all upcoming issues:

Sept/Oct '97 (deadline 30 May)
"Annual Review of Texas Architecture"

Nov/Dec '97 (deadline 28 July)
"Public Buildings"

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As architects, how do we best evaluate these models and translate them into built form, and how do we gauge their success as architecture? Do we rely on the profitability of the business, or the number of patients treated? How do we measure the actual benefit to patients? What priority do we give to patient needs that are sometimes difficult to quantify? Ultimately, how do we understand and balance the fiduciary responsibilities to our healthcare clients with our ethical obligations to the patients who will be served? The issue of professional ethics, usually associated with the practice of law or medicine, has an important though neglected place in the discourse of architecture. Historically, we have tended to substitute the discussion of ethics and responsibility with a discussion of aesthetics and technical achievability. These questions are particularly important in the realm of health care, where the ultimate users are not readily able to participate directly in the discussion. ***Vincent P. Hauser***

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Corrections

In "Graphics skills honored" (*TA*, March/April 1997, p. 16) photo two should have been credited to John Humphries, who won a student honor award for the project.

News

State Cemetery resurrected 12
AUSTIN After extensive renovation and restoration, the Texas State Cemetery grounds welcome visitors for a refresher course in Texas history.

Of Note 13

Houston celebrates awards 14
HOUSTON Nine built and five unbuilt projects were recognized in the AIA Houston chapter awards program.

Calendar 14

Interns extend across the border 16
MCALLEN Intern architects in the Lower Rio Grande Valley work to establish their identity and pursue community involvement.

New Products 21

State Cemetery resurrected

AUSTIN In March, after nearly three years of restoration and renovation, the Texas State Cemetery welcomed guests with a fresh landscape and a new visitors center, designed by Lake/Flato Architects of San Antonio. After years of wear and tear, the reclaimed and refreshed grounds are a quiet oasis in the middle of a residential neighborhood.

The cemetery was incarnated on 18 acres in what is now East Austin after the death of General Edward Burleson, a distinguished soldier and statesman, in 1851. In his honor, the Texas State Legislature created a state burying ground or "cemetery museum" near the Capitol. Confederate burials began in 1862, and continued through the early part of the 20th century; the remains of over 1,500 Confederate soldiers and their spouses now rest in Confederate Field. Efforts to relocate Stephen F. Austin's remains finally succeeded in 1911, and a large-scale program from 1929 to 1936 moved notable Texans and their spouses from their original burial sites to the cemetery. Periods of improvement to the grounds, including a sculpture program from 1900 to 1919, continued until the early 1950s.

1

2

all photos courtesy of Lake/Flato

3

1 a view from the Crescent Pond towards the Visitors Center

2 the display system

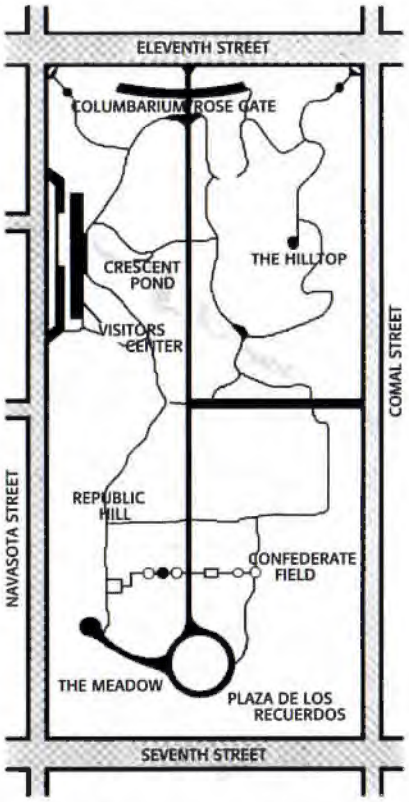
3 the Visitors Center entry breezeway

4 a map of the grounds in East Austin

The 1980s found the cemetery in a state of general disrepair, says Harry Bradley, superintendent of the grounds. There were several extra buildings (a maintenance shed, a greenhouse), concrete drainage ditches, and 30,000 square feet of extra roads. Under the influence of Lieutenant Governor Bob Bullock, who spearheaded the effort to begin renovation, a master plan was developed. It called for the cemetery to be "a place of pride and sanctity" and for people to feel "reverence, respect, dignity, and honor for those buried here and the people of Texas." A team including Lake/Flato Architects, project architect; JEK, Inc., landscape architect; Jose Guerra, engineer; Laura David, Texas Parks & Wildlife Department; Emily Little Architects; Gerron Hite, Texas Historic Commission Monument Renovation; Douglas Gallagher, interpretive design and way finding; Sue Moss, historian; Silverton Construction Inc.; and Elite Masonry was assembled to implement the plan and complete the $4.7 million project, funded through the Intermodal Surface Transportation Efficiency Act.

The focus of the newly restored grounds is the visitors center, a low-slung, 255-foot-long limestone building, set into the west side of the site. To one side of the entry breezeway are administrative offices; to the other, behind large copper doors, is the interpretive gallery. Light filters in through floor-level windows, and the walls contain bands of old marble bases found in Confederate Field. The gallery details the history of notable cemeteries in Texas and the burial traditions of the state's diverse cultures.

Cemetery rubbings were sandblasted into frosted, tempered glass, and a list of the State Cemetery's burials, biographies, and historical photos is accessible. All the materials—Old Yella limestone from Sisterdale, bands of Lueders stone—are native to Texas. "The chance to think about land and sacred ground is a rare opportunity. We were able to take a minimal approach to solving problems. The walls



4

[of the center] became part of the land, and everything is focused on the landscape," says David Lake, FAIA, of Lake/Flato Architects.

To the north is the Rose Gate, the formal entry, with a 265-foot-long columbarium with 400 niches two-deep for ash urns. The custom ironwork, arching trellis gate is a replica of gates found on the Capitol's grounds, and the Marble Falls sunset-red granite matches that of the Capitol. Climbing roses will eventually grow over the wall to privatize the area, says Bradley.

From the Rose Gate through the grounds is Memorial Way, constructed of bands of Panhandle stone crossed with bands of West Texas Dryden stone. It is the only road in the cemetery and a replica of the original cemetery road. The Rose Gate is on axis with the Plaza de los Recuerdos, dedicated to the memory of Texans who have contributed to the state but are not buried in the cemetery grounds. Names are to be inscribed in 31 standing stones encircling a large limestone rock and fountain. The list of names (including that of O'Neil Ford, FAIA) in 28 categories in a variety of endeavors has been nominated; it is currently in the Legislature before a committee waiting for approval. A step down from the Plaza de los Recuerdos is the Governors Plaza, a granite paving inscribed with the names of Native American tribal leaders, Spanish royal governors of Texas, and Texas governors and lieutenant governors.

Much of the reworking was in the landscape; native grasses, plants, wildflowers, and trees were replanted, and a series of ponds, known collectively as Crescent Pond, was installed. The pond begins at the visitors center and cascades throughout the grounds, intersecting with the winding paths. In addition, all 2,300 white marble headstones in Confederate Field and every monument was cleaned and restored. Benches were installed throughout the grounds to further encourage pedestrian traffic.

Unlike some projects, the planning team was able to deviate from the master plan, says Lake. The plan originally called for a lookout tower on The Hilltop. Instead, ten feet worth of excavation material was added, and at the highest point, an oak tree was planted, making it a quiet place from which to view the cemetery and surrounding neighborhood. The visitors center was also moved from the north side of the site to its current location. Says Lake, "We were able to take great liberties with the master plan. We recognized it had some flaws, and we were able to provide a more cogent solution."

Except for renovation work on the caretaker's cottage, all parts of the master plan have been implemented, says Bradley. Since the rededication ceremonies on March 6-8, he says the staff has seen a significant increase in visitors, but the three most-asked-about sites remain the graves of Governor John Connally, Stephen F. Austin, and Albert Sydney Johnston. But the main motivation behind Lieutenant Governor Bullock's interest in the cemetery will be seen in the years to come. "The main thrust for Bullock was for school children to see Texas history. We have educational programs and instructions, guided tours, and school lesson programs. Students are able to walk through history," says Bradley. ***Kelly Roberson***

OF NOTE

Donation endows architecture program

The College of Architecture at the University of Houston has received a $7-million contribution from developer Gerald Hines, ensuring the development, continuity, and stability of the architecture program. In honor of the donation, the college will be named the Gerald D. Hines College of Architecture.

The donation will provide a permanent endowment for the College of Architecture, fund programs that enhance study opportunities, increase resources for scholarly research and design exploration, and establish graduate student fellowships. It will also help fund interdisciplinary urban design studios to explore innovative solutions to city building problems; educational, medical, and cultural facilities; urban housing; community development; and the special problems of transportation and the impact of freeways.

Hines, 71, is the founder and chair of Hines, an international real estate firm based in Houston. Throughout his career, he has been recognized as a pioneer in higher quality standards in real estate development, and has worked with Philip Johnson, I.M. Pei, Kevin Roche, Robert A.M. Stern, and Cesar Pelli on commercial projects.

The College of Architecture is one of 14 schools at the University of Houston. It was founded in 1945 and enrolls approximately 550 students and has 44 full- and part-time faculty members. It is currently housed in a 1968 building designed by Philip Johnson.

Spinning the Web

Museums across Texas have begun their entry into the world of the web. Information on displays, schedules, education, and programming is available on the following sites. For Fort Worth's Kimbell Museum, check out http://www.kimbellart.org/. In Houston, both the Museum of Fine Arts (http://www.mfah.org/) and the Contemporary Arts Museum (http://www.camh.org/) have sites. Information on the Texas Seaport Museum in Galveston can be found at http://www.phoenix.net/~tsm/default.html. Sites for San Antonio museums include the McNay Art Museum (http://mcnayart.org/) and the San Antonio Museum of Art (http://samuseum.org/). At the University of Texas, the Huntington Art Gallery can be located on the internet at http/www.utexas.edu/cofa/hag/; in Dallas, the Dallas Museum of Art site is at http://www.unt.edu/dfw/dma/www/dma.htm.

Houston celebrates awards

HOUSTON Nine built projects and five unbuilt projects were recognized with design awards on April 19 by the Houston chapter of the AIA during its annual Celebrate Architecture festivities. A jury of Barton Phelps, FAIA, Los Angeles; James Baird, AIA, Holobird and Root, Chicago; and Jane Weinzapfel, Boston, chose the winning projects from a field of 75 entries.

Three projects were recognized with design awards for architecture: The Rice School/La Escuela Rice, Taft Architects (see *TA*, January/February 1997, pp. 70-73); Mixon Residence, Wittenberg Partnership; and METRO Gessner Park and Ride, PBK Architects, Inc. The Memorial Room, Holocaust Museum, Murphy Mears Architects (see *TA*, July/August 1996, pp. 64-65), and The Law Offices of Scott, Douglass, Luton & McConnico, LLP, Ken R. Harry Associates, Inc., were both recognized with design awards for their interior architecture. Ziegler Cooper Architects received a design award for its renovation and restoration of Louisiana Place, as did Ray Bailey Architects, Inc., for the Moriarty & Associates Law Firm, and Val Glitsch, FAIA, Architects, for the First Unitarian Universalist Church. In urban design, the jury noted the Freedmen's Town Redevelopment Master Plan by Hill Swift Architects.

In the On the Boards competition, an awards program for commissioned and exploratory unbuilt work by professionals and architecture students, the best of show award went to Val Glitsch, FAIA, for The Corner House. Glitsch will receive the competition's annual scholarship award to the International Design Conference at Aspen. Other winning projects in the On the Boards competition were Proyecto Chambacu, 3D/International (see *TA*, November/December 1996, p. 71); Guidebook of Historic Resources in Houston's East End, Historic Preservation Studio, University of Houston College of Architecture; The Mechanical Shade Tree, Design/Build Studio, University of Houston College of Architecture; and the Korean American Museum of Art and Cultural Center Competition, Peter Briggs Hoffman. ***KR***


Paul Hester
1


Aker/Avonkovic
2


Nick Merrick/Hedrich Blessing
3


Hester + Hardaway
4


Frank S. Kelly, FAIA
5


Richard Payne, FAIA
6


Richard Payne, FAIA
7

1 Mixon Residence

2 Louisiana Place

3 Law Offices of Scott, Douglass, Luton, et. al.

4 Memorial Room, Holocaust Museum

5 METRO Gessner Park and Ride

6 Moriarty & Associates Law Firm

7 First Unitarian Universalist Church

CALENDAR

"Painting the Universe"

In cooperation with the Kunstmuseum Wolfsburg, Berlin, and the National Gallery, Prague, the Dallas Museum of Art will present an exhibition of paintings by Frantisek Kupka. Kupka was a 20th-century innovator known for sumptuous color and large-scale works. It is the first U.S. show of Kupka's work since 1975, and will be complemented by a concurrent exhibit at the museum, *Russian Avant-Garde Works on Paper*, focusing on holdings in Russian avant-garde art from 1903 to 1931. Dallas Museum of Art, Dallas (214/922-1256), JUNE 1 THROUGH AUGUST 24

"Georges Braque: The Late Works"

As part of its tenth anniversary celebration, the Menil Collection will present *Georges Braque: The Late Works*, a show organized in collaboration with the Royal Academy of Arts, London. Braque, together with Pablo Picasso, invented Cubism, creating abstracted images of subjects from multiple angles and perspectives. The exhibition will highlight 45 paintings from the 1940s to the early 1960s, the last 25 years of his career; the Menil Collection is the exclusive U.S. venue. The Menil Collection, Houston (713/525-9400), THROUGH AUGUST 31

"Eye on Third Ward 2"

Forty-eight black-and-white photographs will be exhibited in the second annual *Eye on Third Ward* show, a collaborative effort between the Museum of Fine Arts and juniors and seniors at the Magnet School of Communication at Jack Yates Senior High. The exhibit is organized into four themes of childhood, adults, structures, and objects; the students photographed the Third Ward, helped plan the exhibition, and wrote poetic descriptions to accompany their work. Museum of Fine Arts, Houston (713/639-7300), SEPTEMBER 22 THROUGH OCTOBER 27

"Facets and Reflections"

The Octagon, the museum of the American Architectural Foundation, and artist Peter Waddell will collaborate on an interpretive exhibit detailing the history of the museum. Waddell has created 24 narrative paintings, which will be placed throughout the house, telling the story of the Octagon and the Tayloe family that built it in the wilderness in 1801. The Octagon, Washington, D.C. (202/626-7486), MAY 23 THROUGH JANUARY 4, 1998

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Frances Halsband, FAIA.

Interns extend across the border

MCALLEN On March 15, associate members of the Lower Rio Grande Valley chapter of the American Institute of Architects (LRGV-AIA) and other interns held an excursion trip to examine the history, culture, and architecture of the region surrounding Roma and Guerrero Viejo, Mexico (see *TA*, November/December 1996, pp. 68-69). The group, which consisted of local interns and local architects as well as architects and guests from across Texas, toured Ciudad Mier, Tamaulipas, Mexico, and Guerrero Viejo, abandoned in 1953 after the opening of the Falcon Dam. They also viewed the progress of preservation efforts in Roma.

Valley interns have begun to take an active stance in community involvement and in increasing public appreciation for and awareness of architecture. In 1996, a group of associate AIA members and nonmembers at the intern level in the profession organized into vIvA, Valley Interns for Valley Architecture, to create a forum from which intern issues could be addressed. Interns (classified as associate members in the AIA) are individuals who have received an architecture degree but have not yet passed the registration examination. They may have just graduated or may have been working for several years, accumulating the needed experience to qualify to take the exam. The vIvA group wanted to add value to their educational background through community involvement; their first efforts centered on attempts to reach out to high school students interested in pursuing architecture. The group also got involved in the chapter's scholarship efforts, attended career days in elementary, junior-high, and senior-high schools, and volunteered in their communities.

During its first year, the group held a mini-orientation for high school students headed to colleges or universities and enrolled in architecture programs. They also joined an effort in Harlingen to revive the Hispanic business district and promote the benefits of involving design professionals in that effort. In addition, due partly to their efforts, an intern director position was added to the LRGV-AIA Executive Committee.

Local interns, mostly native Valleyites, wanted to highlight the richness of the region by visiting the abandoned city of Guerrero Viejo. The city's

photo of Ciudad Mier courtesy of Craig Blackmon

relics personify the duality of this unique area in South Texas and Northern Mexico. The area serves as a threshold between two nations, and its bi-culturalism is evident in traditions, food, and vibrant colors. Not even a century ago, Guerrero Viejo was a thriving center of commerce along both sides of the Rio Grande. Many ancestors of

"Interns extend across..." continued on page 18

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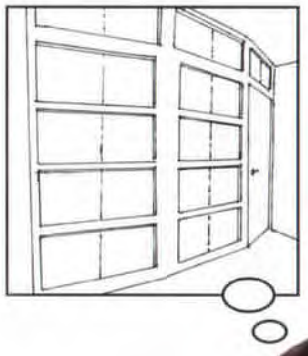

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"Interns extend across..." contined from page 16

current South Texans who settled in Zapata, Roma, and Rio Grande City migrated from Guerrero after the dam submerged the city. Blending their Mexican traditions into the American mainstream, they forged a unique biculturalism. While a four-year drought ravaged the countryside, the receding waters of the Falcon Reservoir revealed Guerrero Viejo, renewing the interest in its history and appreciation of its legacy.

Current intern efforts include continued participation in the community. vIvA has joined the Edinburg 2020 Club's efforts to document its architectural landmarks; the group will be involved in editing a forthcoming guidebook. vIvA will also conduct its second orientation for prospective architecture students, briefing them on everything from supplies to work loads. Valley interns believe that active participation in the community promotes both their professional growth and the architectural profession.

Juan Mujica, Jr., and Andres L. Mata, Jr.

Juan Mujica, Jr., is the LRGV-AIA intern director; Andres L. Mata, Jr., is the 1997 vIvA president.

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41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
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May/June 1997

This card will not be processed after July 31, 1997

Please check the appropriate boxes below:

Job Function:

■ Owner/Principal ■ Project Manager ■ Interior Designer
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Do you write or approve product specifications? ■ Yes ■ No

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NEW PRODUCTS AND INFORMATION

Prismatic Architectural/Area Lights from **Beta Lighting** provide a highly efficient, glare-free reflector/refractor. Available in clear top or partial shroud designs, the pedestrian-scale fixture accommodates 70-250 watt HID. For added convenience, the fixture comes complete with a 4-1/2" round steel pole.
Circle 170 on reader inquiry card

Custom Building Products has launched TileLab, a new tile and stone care product line. TileLab features SurfaceGard, a stain barrier that locks out dirt, oil, stains, mold, and mildew. The product is a water-based, low-odor forumula that requires no manual drying.
Circle 171 on reader inquiry card

Kalwall Corporation takes lighting to a new level with its Kalwall System, which uses diffuse-light translucent technology to reduce eye strain, eliminate glare, and carefully control natural light. The system is comprised of a structural-composite-sandwich face formed by bonding translucent fiberglass panels to a grid core constructed of interlocked, extruded structural-aluminum I-beams.
Circle 172 on reader inquiry card

Designed to compliment any outdoor environment, **Haws** Model 3150 drinking fountain can be color-coordinated with exterior building rims, playground equipment, or other landscape architecture. It is also designed to meet the wheelchair and walking disabled requirements of the ADA.
Circle 173 on reader inquiry card

Harsco Corporation's Patent Construction Systems Division has modified its former scaffolding technology to produce SPRINT, a system that includes decks with internal drop-down ladders, modular guardrail panels, snag-free walk-through frames, hook-on toeboards, and gap-free deck intersections.
Circle 174 on reader inquiry card

The Petoskey Picnic Table from **Landscape Forms** (http://www.landscapeforms.com.) offers a sleek alternative in outdoor furnishing. The table features steel rod seats and table tops, supported by steel tubing.The table is finished with Pangard II polyester powdercoat system, and is available in a wide variety of colors.
Circle 175 on reader inquiry card

Kohler introduces the Cilantro and Cardamom, two new sinks that are sized to fit in a standard 36" base kitchen cabinet for the home. The sinks feature a large basin, a disposal basin, and a work surface. Two styles, a self-rimming and tile-in versions, are available for traditional installation methods; undercounter models are offered for installation with the increasingly popular synthetic and natural-surface countertops. The Cilantro comes with three-, four-, or five-hole faucet drillings in the self-rimming and tile-in models; the undercounter version has five faucet holes.
Circle 176 on reader inquiry card

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Keep up-to-date with the latest materials and technologies and build your resource library with the free publications listed below. Just circle the appropriate number on the reader inquiry card on page 19, mail the card to us—postage free—and we will forward your request immediately.

Western Wood Products Association (http://www.wwpa.org) represents softwood lumber manufacturers in 12 western states; it has recently released the *Western Lumber Marketing News*, designed to help lumber dealers in their marketing efforts. Also included in the newsletter is information on the association's literature and design aids.
Circle 180 on reader inquiry card


Western Lumber Marketing News
Value is measured in more than dollars

A leader in commercial and residential lighting controls, **Lutron Electronic Co., Inc.**, now offers a complete guide to its products in Spanish. The new Spanish edition is a simple reference for builders, remodelers, and specifiers, as well as lighting showroom and distributor-counter personnel. *Circle 181 on reader inquiry card*

Concrete Solutions '97-98, the catalog of the **Portland Cement Association** (www.portcement.org), now offers more than 450 concrete and cement-related titles, including 73 new and revised products. Featured titles include the *Building with Insulating Concrete Forms Video Series* and a computer program for the analysis and design of reinforced concrete structures. The association conducts market development, engineering, research, education, and public affairs programs on behalf of its members. *Circle 182 on reader inquiry card*

"A Primer" continued from page 23

eral days to several months) time period, until the condition is stabilized or a predetermined treatment course is completed.

The spectrum of sub-acute services ranges widely in levels of complexity. At the most complex end are the short-stay transitional units that are often attached to hospitals. These units provide a substitute for continued acute-care treatment with an average stay of 5 to 30 days. They serve patients in cardiac recovery or oncology recovery receiving chemotherapy and radiation and those in need of complex wound management and/or with complicated medical conditions. The second, less complex, level of sub-acute service is the general subacute-care unit, which is often located in a nursing facility. This type of care can include sub-acute rehabilitation and intravenous therapy for patients without significant medical complications. The average length of stay ranges from 10 to 40 days. Chronic sub-acute care is the third type. Patients eligible for this type of care have little hope for recovery or functional independence; they include the comatose, ventilator-dependent, and progressively neurologically impaired. Their average length of stay is 60 to 90 days at which point they are either stabilized and discharged for care at home, moved to a nursing facility, or have died. Long-term transitional hospitals provide a fourth type of sub-acute care, serving high-acuity patients with complex medical conditions who stay for longer than 25 days and require daily heavy nursing and physician attention.

Skilled Nursing Care and Intermediate Care

ONGOING CHANGES are occurring in the area of skilled nursing care and intermediate care as post-acute care is evolving. Some of these programs were previously referred to in many parts of the country as nursing homes. The federal Omnibus Reconciliation Act (OBRA) of 1987 effectively eliminated the previous classification of long-term care facilities as either providers of skilled or intermediate levels of patient care. As a result, a broader definition of skilled or intermediate-care nursing services was established for all nursing facilities. In addition, a waiver program was established for rural facilities that had difficulty meeting some of the new requirements due to physical remoteness. This waiver allows rural intermediate-care facilities to continue to provide health care for less seriously ill patients. Criteria for defining skilled nursing facility care is referenced under Section 1861(j)(1) of the Social Security Act. Facilities and patients must meet Medicare skilled-services criteria in order to provide or qualify for receiving skilled nursing care.

A skilled nursing facility is often referred to as a SNF (pronounced "sniff"). It provides inpatient services to persons who require medical, nursing, or rehabilitation services of a complexity that must be performed by a licensed professional. An institution meets the definition of Section 1861 for a skilled nursing or rehabilitation-type facility only if the following criteria is met:

- Nursing services must be provided under the direction or supervision of one or more registered nurses or licensed practical or vocational nurses without regard to whether they are waived. This condition will be considered met even if the nurse is also the administrator or is employed on a part-time basis.
- There must be nursing personnel such as registered nurses, licensed practical or vocational nurses, practical nurses, student nurses, nursing aides, and orderlies who are employed by the facility on duty 24 hours a day.
- The ratio of full-time equivalent nursing personnel to the number of beds must not be less than an average of 1 to 15 per shift.
- Bed and board are provided to inpatients in connection with the delivery of nursing care, in addition to one or more medically related health services such as physician's services; physical, occupational, or speech therapy; diagnostic and laboratory services; and administration of medication. Social, diversional, or recreational services provided by the facility do not constitute medically related health services.

Assisted Living Care

ASSISTED-LIVING CARE provides a protective, homelike environment for the more independent yet possibly frail or frail elderly resident. It is often referred to as personal care and varies in scope from facility to facility. This is a marketable service that people choose to

1

2

1 The hallways at Washoe Village Care Center are detailed to give a residential feel; a small nurse's station is located to the left.

2 Beyond the main lobby a two-story volume houses a cafe and performing-arts area; a fireplace and stair are the focus.

"A Project" continued from page 23

physical therapy areas, and an indoor aviary, as well as a play area for visiting children.

The sub-acute and skilled nursing units are similar, except for extra security in the Alzheimer's section. Both include nurse stations designed under the Planetree model: The station is opened up to allow patient interaction with caregivers. In the center of each unit is a courtyard and sunroom.

The assisted living wing has its own separate parking area, entry, and lobby, as well as its own dining area, to provide a sense of separation from the rest of the facility. A licensed practical nurse on each floor oversees the residents' medications and personal-care needs. Each room has a kitchenette, dining and living area, private bathroom, and sleeping area, and each opens to a private outdoor seating area or balcony.

Washoe Village Care Center is the first phase of a planned healthcare complex, McMullen says. The proposed second phase would move even further toward services over beds; plans call for consturction of physicians' office space and a bedless hospital that would concentrate on outpatient services and emergency care. ***Susan Williamson***

use, so providing these type of amenities within the facility or its campus is highly desirable. Individual residents maintain some environmental control since they are fairly independent and capable. They have the ability to come and go on their own. The assisted-living care facility may provide housekeeping services, laundry services, one to three meals a day with possible independent in-room food preparation, medicine administration, and a variety of daily or weekly activities and recreations. In order to be profitable, assisted living facilities generally include at least 25 units and are provided for individuals who do not have injuries or disabilities that require chronic or convalescent care such as medical, nursing, or intermediate care. In many states, only one licensed practical nurse is required to be on site at the assisted living facility 24 hours a day.

Home Care

Home care is an area of post-acute care that has seen dramatic growth in the past decade. A home-health agency, whether public or private, provides services to individuals under a physician's written plan of care on a visiting basis in the patient's place of residence. Part-time nursing care is provided in the form of physical therapy, occupational therapy, speech therapy, nursing care, and administration of pharmaceuticals. Obviously, if care is provided in the home, cost is lower. But more importantly, it has been observed that in many cases patients flourish and regain their health more quickly if allowed to receive treatment within their home. This is an important factor in designing healthcare facilities. It is apparent that patients who feel control over their environment may feel control over their healing process.

The need for post-acute care facilities has created a new market niche for architects and interior designers. Understanding the services that constitute post-acute care is only a start. Each facility will have its own unique program that will be determined by the availability of services within its community, the healthcare system it serves, and the individual needs of the residents and staff.

Phyllis Infanzon

Phyllis Infanzon is an architect practicing in Dallas; she is a senior project designer for HKS Inc.

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CALL for ENTRIES
43rd Annual TSA Design Awards

The TSA Design Awards Program seeks to recognize outstanding architectural projects by architects who practice in Texas and to promote public interest in architectural excellence. In addition, one architectural project completed in 1972 or before may be selected again this year for a TSA 25-Year Design Award. All architects who are registered in Texas are invited to submit one or more entries for consideration by this year's jury. Out-of-state architects must enter Texas projects. Judging will take place in June in Austin. Winners and their clients will be honored by a special awards luncheon at the TSA Annual Meeting, October 23-25,1997, in Fort Worth. Winning projects will be publicized statewide and featured in the September/October 1997 issue of *Texas Architect* magazine.

ELIGIBILITY

Any new project in General Design (including adaptive re-use), Interior Architecture, Restoration, or Urban Design/Planning may be entered. Construction must have been completed after January 1, 1990, to be eligible. Urban Design/Planning projects must have construction completed or must have an active client and some portion under construction or completed. Any project completed on or before December 31, 1972, may be entered in the 25-Year Award category. Individuals or firms whose primary office is located in Texas may enter any number of projects anywhere in the world. Texas-registered architects located out of state may enter any number of Texas projects.

Entries must be submitted by the design architect, who must have been registered with the Texas Board of Architectural Examiners at the time the project was executed. Where responsibility for a project is shared, the design architect must be a registered Texas architect and all participants who substantially contributed to the work must be credited.

Projects must be submitted in the name of the firm that executed the commission. If that firm has been dissolved or its name has been changed, an individual or successor firm may enter projects in the name of the firm in effect at the time the project was executed. Multiple entries of the same project by successor individuals or firms will not be accepted. For multi-building projects, the architect submitting the project (or portion thereof) must designate authorship of each portion of the project.

25-Year Award One project may be selected to receive the TSA 25-Year Design Award. Architectural projects completed on or before December 31, 1972, are eligible. Projects may be submitted by the original architect, original architecture firm, or a successor to the original architect or firm; or by a component of the AIA.

JUDGING

The jury for the 43rd annual TSA Design Awards will be announced in February. Project authorship will remain concealed throughout jury deliberations. Awards may be given in these categories: General Design (including adaptive re-use), Interior Architecture, Restoration, and Urban Design/Planning. One award may be given in the 25-Year Award category. The list of project types on the entry form is for statistical purposes only and does not imply that a winner will be chosen from each project type. TSA reserves the right to disqualify entries not submitted in accordance with these rules.

DEADLINE

The fee, entry form, text, and slide submission must arrive at the Texas Society of Architects (Address: 816 Congress Ave., Suite 970, Austin, Texas 78701, 512/478-7386) in the same container, BY 5:00 P.M., FRIDAY, MAY 30, 1997. LATE ENTRIES WILL NOT BE ACCEPTED.

AWARDS

Architects and clients of winning projects will be honored at the TSA Annual Meeting in Fort Worth, October 23-25, 1997.

For publicity purposes, architects of winning projects must submit six 8"x10" black-and-white photographs of one view of the project.

For publication, *Texas Architect* magazine will require original images—not duplicates—of each winning project. The original slides and transparencies will be returned after the magazine has been printed. In addition, the entrant of each winning

43rd Annual TSA Design Awards Entry Form

Project Credits

Please provide the information requested on both sides of this form and read carefully the competition rules before preparing your entry(ies). Please print clearly in ink.

Entrant's Name _____

Title/Position _____

Firm Name(s) _____

Mail Address _____

City/State/Zip _____

Telephone _____

Fax _____

TBAE Registration Number _____

Owner (at project completion) _____

Architect (list firm name, team members) _____

Consultants (landscape, structural, MEP, etc.) _____

Gen. Contractor _____

Photographer _____

Competition entry deadline: May 30, 1997. Use photocopies of this form if necessary.

CALL for ENTRIES
43rd Annual TSA Design Awards

(continued)

project may (depending on the total number of entries) be required to pay a $250 publication fee to defray the cost of four-color separations.

RETURN OF ENTRIES
Entries from firms in large cities will be returned to the local AIA chapter office and held for pick up. Entries from firms located in cities without staffed chapters will be mailed individually to entrants by UPS Ground or U.S. Mail. If you wish to have your carousel returned by other means, please attach instructions and an account number or check for additional cost.

ENTRY PACKAGE
CHECKLIST Each entry package must contain the following items, which must all be mailed or delivered to the TSA office in the same container on or before May 31, 1997:
(1) a boxed slide carousel with slides,
(2) four copies of the one-page data sheet,
(3) a completed and signed entry form, in an envelope taped to the outside of the carousel box,
(4) the appropriate registration fee(s) in the envelope with the entry form or, for multiple entries, in any one of the envelopes.

SLIDES Entrants must submit slides in a working 80-slot Kodak Carousel tray for each project, in which the slides are in proper order and position. Any number of slides may be entered; a total of 20, including the slides below, is a recommended maximum.

The first slide of each entry must be a title slide, with the following information: project type (see entry form); project size, in gross square feet; and project location.

Following the title slide, each entry must include:
(A) One slide of a site plan or aerial photograph with a graphic scale and compass points (interior architecture projects are exempt from this requirement).
(B) At least one slide showing the plan of the project. For a multi-story building, include only those slides necessary to describe the building arrangement and envelope. Sections and other drawings are optional. If included, section location must be marked on the appropriate plans.
(C) One text slide containing a brief description of the project, including the program requirements and solution.
(D) For restorations and adaptive-use projects, at least one slide describing conditions before the current work started.
(E) For the 25-Year Award, at least one slide taken within three years of the project's original completion and at least one slide taken recently, which shows the project's current status.

DATA SHEET Each entry must include four copies of a data sheet with a single image and written text describing the project, with the program requirements and solution on one side of a letter-size sheet of white paper. The image—a representative photograph or drawing—must be no larger than 5" x 7". The four copies of the data sheet must be folded and placed inside the slide-carousel box. For the 25-Year Award, up to four additional sheets of text and/or images may be submitted. DO NOT WRITE YOUR NAME OR THE FIRM'S NAME ON THIS TEXT SHEET.

ENTRY FORM Use the official entry form for your entry. Copies of the form should be used for multiple entries. Place the entry form(s) in an envelope with the fee(s) and tape the envelope to the outside of the carousel box.

FEE TSA Members: Include a registration check for $100 for the first project, $90 for the second, and $80 for the third and further projects submitted by a TSA member; Non-TSA Members: Include a registration check for $180 for the first project, $160 for the second, and $140 for the third and further projects submitted by a non-TSA member. Place the check in an envelope with the entry form and tape it to the outside of the carousel box. Make checks or money orders payable to TSA. NO ENTRY FEES WILL BE REFUNDED.

MORE INFORMATION
For additional information on rules, fees, and other matters, call Canan Yetmen at 512-478-7386.

Project Information

Project Name _____

_____

_____

Project Location _____

_____

_____

Bldg. size in sq. ft. _____

_____

Mo./yr. completed _____

Category ◯ General Design ◯ Interior Architecture ◯ Restoration ◯ Urban Design/Planning ◯ 25-year Award

Project type ◯ Commercial ◯ Residential ◯ Institutional ◯ Other (specify below)

_____

I certify that the information provided on this entry form is correct; that the submitted work was done by the parties credited; that I am authorized to represent those credited; that I am an architect registered with TBAE; and that I have obtained permission to publish the project from both the owner and the photographer. I understand that any entry that fails to meet these requirements is subject to disqualification.

Signature _____

Date _____

Fee _____ **TSA MEMBER: $100 for first project, $90 for second project, $80 for third and further projects**
NON-TSA MEMBER: $180 entry fee for first project, $160 for second project, $140 for third and further projects

Check Number _____

This is entry # ____ of ____ total entries.

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TEXAS SOCIETY OF ARCHITECTS

1997 HONORS PROGRAM

Call for Nominations

Each year since 1971 the Texas Society of Architects has recognized individuals and organizations outside the profession of architecture who share its commitment to the quality of life in Texas. Accomplishments by past honorees have included roadside beautification; wildlife conservation; open-space protection; passage of laws protecting the public's health, safety, and welfare; downtown revitalization; preservation of historic buildings and sites; public-school programs emphasizing environmental concerns; museum programs and exhibits about community architecture; and reporting, publications, and articles promoting the appreciation of the built and natural environment.

In addition, the TSA Honors Program recognizes TSA's exceptional members in several categories and distinguished Texas architectural educators and writers for leadership and achievement.

Award Categories

Honorary Membership

Awarded to an individual for long-term association with architects and architecture in providing a better quality of life in Texas.

Citation of Honor

Awarded to groups or organizations outside the profession whose activities make significant contributions to the goals of the architectural profession for improvement of the natural or built environment in Texas.

Llewelyn W. Pitts Award

Awarded to recognize a TSA member for a lifetime of distinguished leadership and dedication in architecture.

TSA's highest honor, awarded in memory of Llewelyn W. Pitts, FAIA, who served as TSA president in 1961 and was an influential and dedicated AIA leader, recognizes a distinguished member for lifetime leadership and achievement in the profession of architecture and the community. Although no formal nominations are accepted, suggestions may be directed to the Honors Committee Chair.

Edward J. Romieniec Award

Awarded to recognize an individual architectural educator for outstanding educational contributions.

Awarded in honor of Edward J. Romieniec, FAIA, a former professor and dean of architecture at Texas A&M University and the first recipient of this award. Nominee must be a current or former member of the faculty of one of the seven accredited Texas schools or colleges of architecture, living at the time of nomination, and a full-time educator for at least five years. Criteria for selection will include evidence of the following: teaching of great breadth; influencing a wide range of students; and the ability to maintain relevance through the years by directing students toward the future while drawing on the past.

John G. Flowers Award

Awarded to recognize an individual or organization for excellence in the promotion of architecture through the media.

Awarded in memory of TSA's first executive vice president.

William W. Caudill Award

Awarded to recognize a TSA member for professional achievement in leadership development during the early years of AIA membership.

Awarded in memory of William W. Caudill, FAIA, recipient of the 1985 AIA Gold Medal and a pioneer of architectural design, practice, and leadership and service to the organization and community. Must be an architect member in good standing and an active member of the local AIA chapter for a minimum of two years, not to exceed ten years (40 years of age is a recommended maximum for a nominee). The nominee should be a role model to the organization with these qualities: goes beyond the call of duty in service to the profession; influences improvement in the organization at the state level; encourages participation among fellow members and nonmembers; exemplifies qualities of leadership; and exemplifies qualities of professional practice.

Architecture Firm Award

Awarded to a TSA firm that has consistently produced distinguished architecture for a period of at least 10 years. This award is the highest honor the Society can bestow upon a firm.

Any TSA component may nominate one eligible firm. Firms practicing under the leadership of either a single principal or several principals are eligible for the award. In addition, firms that have been reorganized and whose name has been changed or modified are also eligible, as long as the firm has been in operation for a period of at least 10 years.

Nomination Procedures

Except for the Llewelyn W. Pitts Award, each nomination must be submitted through the local chapter and must be in an approved format. TSA will provide nomination forms and portfolio criteria to each local chapter. Additional copies may be obtained upon request.

Nominations for the Llewelyn W. Pitts Award may be made by any TSA member in the form of a letter addressed to the Chair of the TSA Honors Committee. No portfolio is to be submitted.

Selection and Notification

Recipients of all TSA Honors Awards are chosen by the members of the TSA Honors Committee in June of each year. Recipient names (with the exception of the Pitts Award) are ratified by a vote of the TSA Executive Committee at the summer meeting. Following the meeting, Honors Award recipients are notified of their selection and invited to the Awards Luncheon that takes place during TSA's Annual Meeting in the fall.

The names of Honors Award recipients are published in *Texas Architect*. Each local chapter is responsible for notifying local media; however, if a chapter needs assistance, the TSA staff will help prepare press releases.

Portfolios will be returned to the nominating chapters following the TSA summer board meeting.

Presentation

Awards will be presented during TSA's 58th Annual Meeting in Fort Worth, October 23-25, 1997.

Submission Deadline

All nominations must be received in the TSA office no later than 5:00 p.m. on Friday, May 30, 1997. Please direct questions to Gay Patterson at TSA, 512/478-7386. Nominations shall be sent to:

TSA Honors Committee
c/o Texas Society of Architects
816 Congress Avenue, Suite 970
Austin, Texas 78701

Water Management at the Building Envelope

Introduction

WATER IS THE UNIVERSAL solvent, and given enough time and the right conditions, it will dissolve or corrode almost every material used in building construction today. When not controlled or managed properly on a building's outer surfaces, it can cause serious problems for the owner. Michael T. Kubal, a water intrusion specialist and author of a book on waterproofing the building envelope, believes that 90 percent of water intrusion problems with the building envelope occur within one percent of the building's exterior surface area. The inability to properly specify materials and prepare architectural details linking the critical elements of the building's waterproofing systems into a holistic water management system creates these problems.

The basic water management issues at the building envelope require that the architect know how building materials behave and how to provide a back-up system within the cladding system. By focusing on elementary materials' dynamics and the basic details of residential and light commercial wall construction, we can better understand common problems and how to avoid them.

The Basic Dynamics of Building Materials

AMONG THE MOST IMPORTANT things for an architect to remember when selecting and detailing the building's envelope is that certain forces of nature cause building materials to change dimensions and that these changes are dynamic—they occur rapidly and cumulatively. Perhaps the two most significant forces that affect the dimensions of building materials are moisture and temperature. We will refer to these in the following discussion as moisture content in building materials and thermal load on the materials, because it is the management of these that is mainly of interest. Other forces that affect the dimensions of building materials include the structural dead, live, and wind loads; building settlements; and freeze-thaw cycles. Therefore, the architect must also consider these forces and their effects on materials. As a general rule, when the moisture and thermal considerations are taken into account, most other forces that affect materials have also been provided for.

Moisture Content in Building Materials

SIMPLY STATED, when porous building materials absorb water, they expand; when they dry out, they shrink (*see figures 1 & 2, page 33*). Temperature, ambient humidity, and other factors affect these expansions and contractions, but the real issue of concern to the architect is that these movements must be accounted for within the materials themselves, otherwise unwanted symptoms of the stresses that relieve themselves will become visible. Stress-related symptoms include cracking, buckling, peeling, delamination, and other similar phenomena in or on materials.

In addition to externally-induced moisture and thermal changes, building materials initially created using a wet or plastic solution that hardens will continue to shrink over their lifetime. This is because they are forever giving off some of the initial moisture or chemicals that were necessary to create them. Examples include structural and architectural concrete, concrete masonry units, plastics such as polystyrene and urethane, and sealants.

By contrast, materials that are fired at some point near the completion of their manufacture do the opposite—they expand over their lifetime. The firing process drives most of the initial moisture out of the materials. Once installed on a building, the materials absorb moisture from the atmosphere, and the additional moisture content causes their dimensions to increase. Fired clay bricks and tiles exhibit this characteristic. The rates of increases or decreases in the moisture content of wet-formed or fired materials are curvilinear mathematically—they change dramatically at first and then taper off with time. The important thing to consider is that they change dimensions for many years after initial installation.

An excellent example of the changes in dimension going in opposite directions that can cause the architect serious problems is the combination of brick veneer and concrete masonry unit backup walls. One should never tie brick walls solidly to walls constructed with concrete masonry units, as they will tear each other apart from the stresses induced by their opposing changes in dimensions. Flexible wall ties are recommended for these reasons.

Another physical characteristic of building materials is that they change shape in all three directions: X (length), Y (width), and Z (thickness). Some materials, such as hardboard sidings, plywoods, plastics, metals and glass expand and contract in proportion to their dimensions. For example, a 2" x 2" x 2" cube of these materials would expand and contract the same proportionally along the X, Y, and Z axes. Other materials, such as wood framing members and structural timbers, expand and shrink more tangentially (or parallel) to their annual growth rings than they do radially across their growth rings or parallel to their fibers. In other words, when wetted (or dried) they swell (or shrink) in the Y (width) and Z (thickness) dimensions proportionally more than they do in

This is the first installment in a new regular feature in *Texas Architect*. After reading this *TA* Specifier article, complete the questions on page 41 and check your answers on page 64. AIA members may complete the report form and submit it to TEXAS ARCHITECT for two AIA learning units.

Learning Objectives

After reading this article and completing the exercises, you will be able to:

1. Identify two significant forces that change the dimensions of building materials

2. Identify and describe three basic wall designs for residential and light commercial construction that address moisture control at the building envelope.

3. Identify six common wall construction problems.

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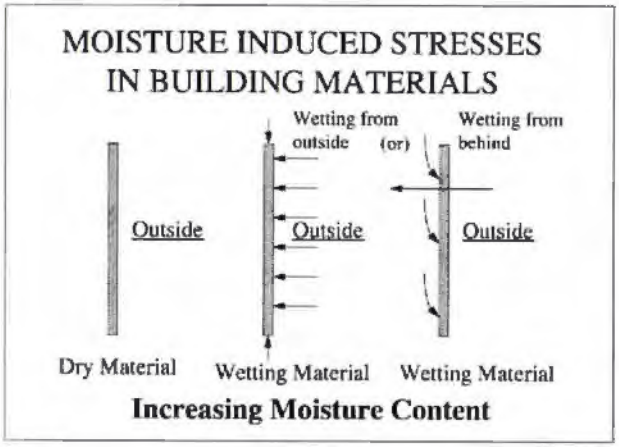


figure 1

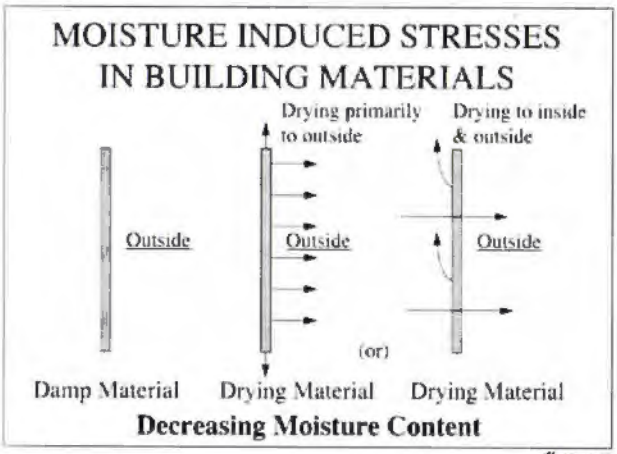


figure 2

the X (length) dimension. Tables in materials handbooks should be consulted for coefficients to be used to compute the anticipated dimensional changes, but the architect must allow for changes in all three directions, whether they are proportionally the same or not (*see figure 3, page 34*). Examples of the internal stresses in wood products that have not been properly relieved show up as cracking, buckling, curling, nail popping, and checking in the materials.

Thermally-Induced Dimensional Changes in Building Materials

BUILDING MATERIALS CHANGE dimensions as a result of temperature or thermal changes. Non-porous materials such as steel and glass are more susceptible to thermally-induced changes in dimension because of their density and relatively higher conductance than porous materials such as wood or brick. They also often lack the grain orientation of wood.

All materials change dimensions when heated and cooled, however. An increase in temperature causes materials to expand, while cooling the materials causes them to shrink. These changes in dimension may occur in opposite directions on the same building. For example, the cladding materials on a building that have cooled down in the nighttime air will expand as they are warmed by the morning sun. Meanwhile, the materials on the cool, shaded side of the building will remain relatively stable at the same dimension. As the sun rises later in the day to strike the opposite side of the building, the materials on the warming side start to expand and the materials on the opposite side, which are now going into the shade and therefore cooling down, begin to contract.

An example occurs on superdomes; their roof structures expand and contract several inches daily. Roof coatings and their substrates on these structures must be able to flex back and forth without leaking for long periods of time. On tall buildings, the structural frame and claddings can change dimension dramatically on opposite sides over the daily cycle. The popping heard on a pre-engineered steel building is a good example of these dimensional changes expressing themselves. The amount of these thermal expansions and contractions may be computed using coefficients that can be found in most good materials handbooks.

Wall Design Considerations

Expansion and Control Joints

ACCOUNTING FOR THE CHANGES in dimensions caused by changes in moisture content and thermal load in building materials is only part of the challenge for the architect. The design of the envelope must also ensure that the water tightness of the building is maintained over its life span. Perhaps the single most important requirement in designing the building envelope from a water infiltration standpoint is to provide back-up systems in the cladding's water management system. For example, there is a high statistical probability that the building's envelope will leak at some time during its life. A water management system should be provided that can return this water back to the building's exterior as directly as possible through the use of cavities, moisture barriers, flashings, and weeps. Every effort should be made to keep the water on the outside of the wall to begin with. Any water that does get through the outer, first layer of defense, however, must not be allowed to remain behind the cladding or in the wall cavity for very long. A properly designed backup system for the outer cladding will do this.

The outermost layer of the cladding system must satisfy the client's needs for appearance, durability, and economy. Physically, it must also be able to withstand the moisture, thermal, and structural forces that affect its dimensions and shapes. Expansion joints become a critical tool in providing protection for the materials during these movements. There is a distinction between expansion joints and control joints. Expansion joints provide enough space and have flexible fillers (e.g. sealants) in them to allow the building materials to properly relieve the stresses of expansion and contraction. Control joints provide locations for stresses to be relieved as crack lines (as in sidewalks and driveways). Control joints in brick are virtually useless for the primary purpose they should serve: to allow for expansion.

Expansion joints of the right size and construction must be located at each wall opening, at changes in the wall plane's height or direction, at corners, where materials change, where materials thicknesses change, at butt joints in the field of the wall or at the edge trim of some materials, or as other structural or physical conditions require. A common problem in the installation of wood and hardboard sidings is carpenters' insistence upon providing tight fitting butt joints instead of expansion joints that can allow the building materials to expand and contract. Carpentry handbooks for wood siding applications of 30 or 40 years ago and hardboard manufacturers' application instructions of recent years required that a gap of 1/8-inch to 3/16-inch at the ends of these materials. The ends of the boards must be treated for decay resistance (e.g. by priming with paint or dipping in chemicals that are toxic to decay); then a flexible caulk must be applied to seal the wall (*see figure 4*).

These joints should be installed at the frequency required given the material's natural

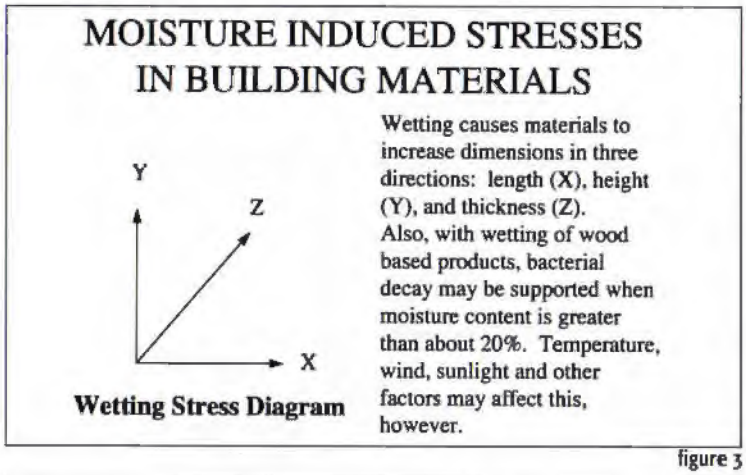


figure 3

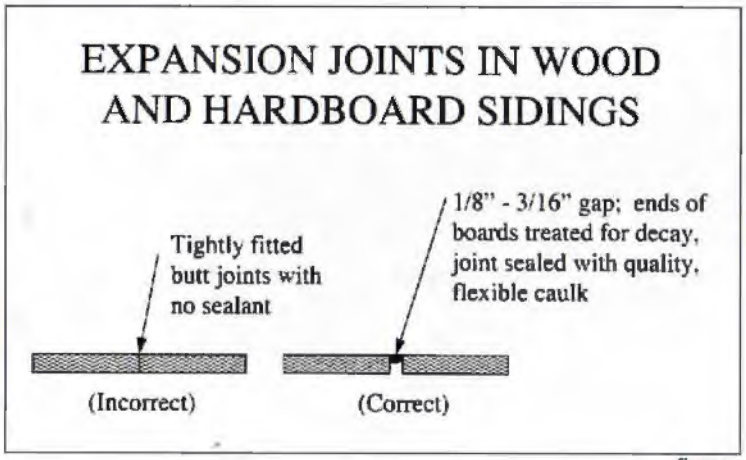


figure 4

characteristics and/or the manufacturer's recommendations to account for expansions and contractions caused by changes in moisture content and temperature. Rather than follow this simple requirement, however, many carpenters today install these materials with tight fitting joints that do not allow for dimensional changes in the materials.

Wall Cavities

Unless otherwise recommended by manufacturers, cavities behind outer cladding materials should generally be 3/4-inch minimum thickness for wood, hardboard, and synthetic stucco sidings, and two inches for masonry veneers. There must be enough space for free air movement and for water particles to drop out behind the cladding if they get through. Some sidings, such as lapped hardboard, have enough space behind them in the laps for free air movement, so the 3/4-inch space may not be required. Again, consult the manufacturer for recommendations. In masonry construction, eperience has shown that at least two inches of space in the cavity is required to keep mortar splatter and other debris from building up too high in the wall. This splatter or debris could could block the weep holes and hinder the ability of the cavity to return water leakage to the outside.

All cavities should be vented top and bottom, especially if the rainscreen principle is used to bleed off air pressure differentials at the wall surface. Behind these cavities should be a vapor retarder with a perm rating not greater than 1.0. There is a difference between a vapor barrier and a vapor retarder. Almost all building materials must be able to breathe; moisture within the building material must be able to evaporate out of the material into the atmosphere. Vapor barriers are designed to block this evaporation, and therefore may hold the moisture in or on the materials for long enough periods of time to support decay or corrosion. Vapor retarders with low permeability ("perm") ratings will allow trapped moisture or condensation in the wall to slowly evaporate through the retarder to the wall cavity, to the outside atmosphere, or inward to the conditioned spaces. Asphalt felts, for example, have a perm of about 1.0, but still have some permeability. When hot mopped with tar, the perm rating goes to 0.0.

Six mil polyethylene film has a perm rating of about 0.06, while the air barrier "building wraps" have perm ratings of 35 to 70. Gypsum board has a perm rating of 50.0 (3/8-inch thickness). Building wraps do a good job of blocking air movements across the wall, but they also allow the passage of fairly high rates of moisture through them. This moisture can support growth of living organisms that cause decay or corrosion of metals and deterioration of other materials, so they should never be used in place of vapor retarders, especially in areas with high humidity and high rainfall rates.

On the other hand, vapor barriers, which need to block the movement of water, have other applications such as underneath concrete slabs-on-grade and on low sloped roofs. Paint coatings must have a vaporization rate that allows them to breathe too, otherwise blistering and peeling phenomena will occur as moisture pressure builds up behind these coatings. Paints for use on wood, for example, should have a slightly higher vaporization potential to allow the moisture to escape from the wood.

Wall Flashings

Flashings in the wall system are another area where care must be taken in the details. Flashings have at least two primary uses: to return water that has gotten behind an outer skin of the building envelope back to the exterior, and/or as a drip device to shed water away from the wall's surface. There are instances when the flashings will perform only one of the above functions, but most of the time they perform both. A properly designed flashing, whether metal, wood, or other construction such as cast stone or concrete, always projects beyond the wall's surface. Flashings and copings should have a drip bead formed or cut in them at or near their drip edge. They should be continuous, and in some applications such as at masonry, they should include end dams. Wall base flashing should always extend at least 1/2 inch beyond the edge of the foundation to account for probable construction error. They should also extend continuously around all corners.

Weep Holes

Weep holes are used to channel water that has entered the wall cavity back to the outside. There are several different ways to design and space weep holes, but the local building code is a good place to check for minimum spacing requirements. In masonry, experience shows that leaving a full head joint out of the mortar produces the best weep provision. Ropes, holes, and other methods do not work as well because of the mortar splatter problem within the wall cavity. Brick set on steel lintels over openings should be dry-laid

on the lintel, with the flashing placed beneath the brick extending out over the steel lintel's edge. End dams are always recommended at masonry lintels and sills.

For wood, hardboard siding, and synthetic stucco cladding systems, weep hole sizes and spacings should be selected on the basis of the material manufacturer's design recommendations and good practices for the climatic region of the facility being built. Hardboard siding manufacturers, for example, do not recommend that weep holes be installed at the heads of doors and windows, though they do recommend use of metal flashings or wood drips. Hardboard manufacturers generally show the siding coming down to within approximately 3/8 inch of the metal drip and the gap filled with a flexible sealant. The general idea with hardboard sidings is to keep all of the water out at the surface of the wall and to use the drip trim as a way of diverting water from sheet feeding across the surface of the boards above away from the door or window below. Until recently, manufacturers of synthetic stucco systems known as EIFS (exterior insulation and finish systems) did not call for the use of weeps and flashings. Experience suggests that this practice causes problems for owners, especially in climates with high humidity and rainfall rates. The architect should consult a number of sources for proper weep hole design and spacing. These should include the building code, manufacturer's recommendations, local climate conditions and building practices, and common sense.

Envelope Designs

WALL SYSTEM DESIGNS can be organized into three basic approaches, each having an appropriate use and function.

A surface barrier design focuses on making the exterior cladding system as watertight as possible. The cladding materials themselves are used in conjunction with sealants, flashings, and drips to repel all of the water at the surface. The building code often requires use of a vapor retarder behind these cladding systems in case of a leak, but again, the intent is to make the wall system watertight at the surface. Wood siding, hardboard siding, and most synthetic stucco cladding systems today rely upon this approach to maintain water tightness in order to work properly.

The drain wall design adds an interior cavity and vapor retarder behind the outer clad-

ding system. Any water that gets through the outer skin will drop out of the air in the cavity, flow down the wall from gravitational effect, and be returned to the exterior through the use of flashing pieces and weep holes. Brick cavity walls and the latest designs for synthetic stucco systems incorporating a drainage plane are examples of this approach to wall design. The drain wall design provides an excellent back-up system for shedding water that may infiltrate the wall.

Perhaps the most sophisticated of the wall design approaches is the drain wall design that also incorporates the rainscreen principle (*see figure 5*). Almost any cavity wall can be designed as a rainscreen. The key objectives are 1) to restrict air flow on the outer surface of the wall to discreet, airtight compartments that have been built into the system; 2) to use an air and moisture retarder over the inner surface of the cavity space; 3) to provide adequate vents for rapid pressure equalization; and 4) to incorporate flashing and weep holes as a backup measure. Walls designed according to the rainscreen principle begin life as drain walls, then are made more sophisticated with the use of the air pressure reduction systems.

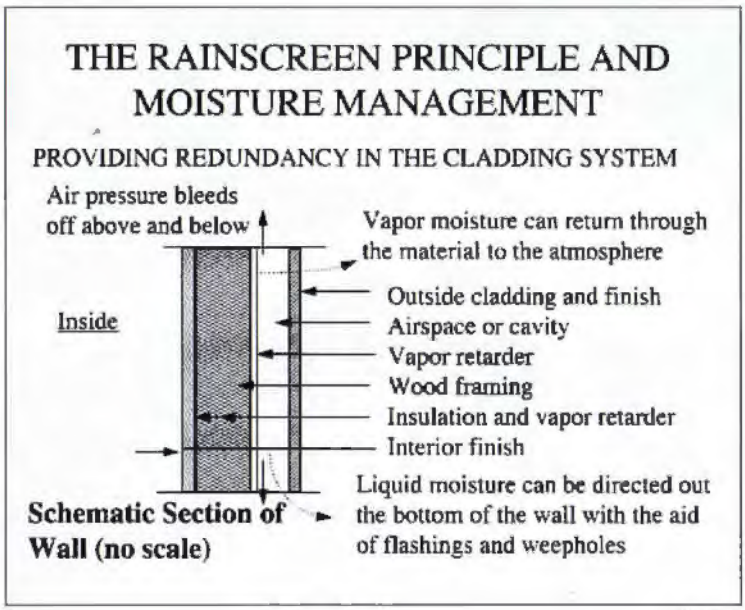


figure 5

The basic problem addressed by the rainscreen design is wind-driven rain that is forced through tiny holes or cracks in the cladding into the interstitial spaces behind. The rainscreen lets the wind pressure differentials between the outside and inside of the cladding neutralize themselves. Most of the water is repelled at the surface, but that which is driven by wind pressure beyond the outer cladding system is caught in pockets within the cavity and drained back to the exterior. Minute particles of water never make it past the vapor retarder at the back of the rainscreen. The rain screen is probably used more often on tall buildings, but it does have application on low-rise construction in areas where wind-driven rain storms are common.

Construction and Inspection Issues

For the sake of quality control, the architect should arrange with the owner to provide inspection services during the construction phase of the work. Admittedly, this raises a host of legal and practical concerns for the architect. The contractor needs another pair of eyes to help with quality control for the critical work of water management at the building envelope. Contractors, suppliers and mechanics should be reputable, and mechanics should be certified in the application of the materials specified by their manufacturer. In reality, labor skills issues today contribute substantially to the need for providing back-up systems in the wall design. Above all, the design and application requirements of the manufacturers must be adhered to very closely. Many manufacturers will not warranty the finished product if their applications instructions are not followed.

Common Problems and Solutions

There is remarkable consistency in the problems encountered in the field. While no single one of these problems usually spells disaster for the owner, but when design problems are coupled with construction problems and improper maintenance, the result is almost always a leaky, decaying, and sick building.

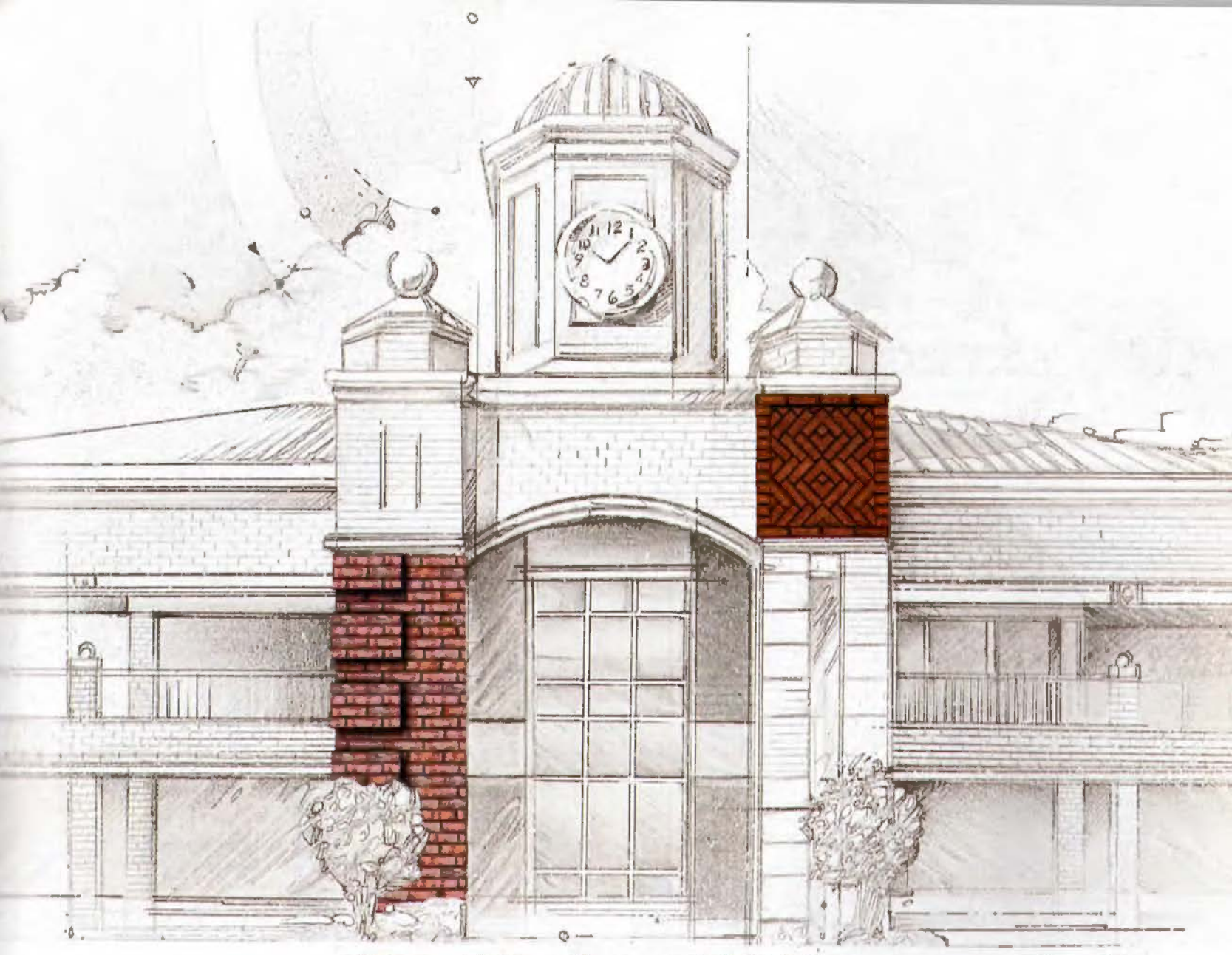
Roof Drainage

One of the most common design problems is the lack of proper provisions for water discharge from the roof. Low-pitched roofs without gutters or overhangs are to be avoided. Either provide full guttering all the way around the drip eaves of roofs, or provide 12 inches minimum of overhang width per floor level. A two-story building, for example, should have at least 24 inches of overhang. Allowing water to drain directly off the roof onto the surface of the cladding system is guaranteed to cause water-related problems later on, especially in areas with high rainfall rates. The design of structures such as second floor spaces, dormer windows, and chimney stacks across roof valleys should never be done, yet they are seen frequently in the field.

HVAC Issues that Affect the Envelope

Another common design problem that is under the architect and mechanical engineer's control is the amount of static pressure placed on the building. Contemporary air conditioning standards for buildings require that the building envelope be airtight in order to be energy efficient. A goal, in terms of water management at the enclosure, is to use the HVAC system to provide some positive pressure on the building envelope to keep water from being sucked through cracks and holes in the outer cladding. In the warm, humid southern states, the amount of outside air provided into the delivered air stream and how much humidity it contains is a very real concern to the building owner. This outside air must be minimized to the amount that will provide some positive pressure on the building and yet meet code requirements, but the outside air that is brought in to do this must be pre-conditioned to remove most of the moisture it contains.

When the air is not preconditioned, the main cooling coils often have a problem removing all of the moisture from the air, delivering high levels of humidity indoors. The resulting high indoor humidity levels may then support condensation on materials, as well as the growth of living organisms such as mold and mildew. Certainly, this discussion should be expanded to include indoor air quality (IAQ) issues as research suggests. How much positive pressure to provide on the building envelope is part of the mechanical engineering design that should comply with the American Society of Heating, Re-



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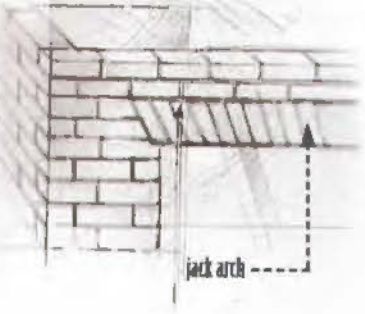

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Application Problems

Among the most prevalent application problems are installation of cladding materials such as wood and hardboard sidings without proper clearances. As mentioned earlier, these sidings must have a 1/8-inch to 3/16-inch space at all butt joints, both in the field of the wall and at the edges next to trim, and these joints in the material must be treated with a decay-resistive chemical or primed and painted according to the manufacturer's instructions and sealed with a high quality, flexible sealant.

Improper use of fasteners is also a problem. Most manufacturers ask carpenters to use a common headed, galvanized treated nail that will sink at least 1-1/2 inches into the structural framing behind it. Staples, finish nails, and the like are not acceptable, yet they are often found in use in the field.

Wood sidings, hardboard sidings, conventional stucco, synthetic stucco, vinyl siding, aluminum siding, and other similar claddings need to have a minimum of two inches of clearance at all roof-to-wall intersections. That is, they should be held a minimum of two inches above the roof shingles. Common practice is to bring the sidings down into contact with the roof shingles. This is a mistake. The two-inch space should be provided at all dormer windows, intersections of gable walls with roofs at offsets, and around chimney stacks.

A minimum of six inches of clearance must be provided and it is now required by the building code at the base of all walls near the soil. The bottom edges of claddings must be protected according to the manufacturer's requirements, and it is a good idea to add flashings or other devices not required by the manufacturers as insurance against back splatter. Many houses and apartments are being built today with the sidings coming into contact with the soil around the perimeters of their foundations. Building code officials seldom catch the nonconformity, and it always provides problems for the owner later.

One of the most prevalent problems with masonry veneers occurs when the architect does not detail, or the contractor does not install expansion joints in the masonry. These are required by the building codes and every good handbook on architectural detailing shows where and how to install them. The Brick Institute of America has an excellent notebook filled with details showing how to install expansion joints properly in brick, but many houses and light commercial buildings are constructed without them.

Finally, one of the most common problems inspectors find with construction of the building envelope and its failure to be watertight is with flashing. Almost every building seems to have one or more serious flashing design or construction problems. These allow or sometimes even direct water into the wall cavities. This water supports a variety of decay and water-related problems for building owners. Following is a list of common flashing problems that could easily be overcome with a little forethought and quality control:

- failure to continue roofing felts out over the top of the flange on drip eave flashings (many contractors either stop the felts short or tuck them under the metal drip flashings at the eaves, allowing or diverting water behind fascia and siding);
- failure to provide a runoff diverter in the flashing where roof offsets intersect walls (many installers allow water to shed off of roofs directly onto side walls, an undesirable condition);
- failure to provide drip flashings at window and door heads, and under window sills;
- failure to flash high enough up on walls at chimney chases, allowing water that runs off the roof against the side of the chimney to splash up behind the claddings;
- failure to provide flashings where decks or other types of construction are attached to walls to protect the locations where structural members penetrate siding materials;
- failure to provide "Z" flashings at the horizontal joints of sidings between first and second floor construction;
- failure to provide a roof cricket behind chimneys that are 30 inches or more in width, or when provided, the flanges of which do not extend beyond the edges of the chimney.

If there is one area where much improvement in the construction of buildings could be made, it would be in ensuring good flashing jobs. Quite often this work is left to the lowest skilled people on the job, and yet it is among the most critical of all water management activities.

Maintenance problems are another area in which the water management program can be compromised. For example, the failure to maintain good paint or finish coatings on sidings and claddings, especially at drip edges of wood-based siding products, is a major mistake. Keeping nail heads sealed and joints in

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the materials sealed is also important. The building owner should also remove living organisms that are growing on the cladding system. These may grow in almost all finish materials, whether masonry, wood based, or cementitious. Roughly in order of severity, the appearance of molds and mildews will come first. Then, if enough water or moisture is present, the green algaes and mosses will appear. Finally, with the presence of even more moisture, one will notice the growth of fungi such as mushrooms and other more pronounced living organisms. These are able to live in or on the materials for only one reason: the presence of water and a host to support them. Cleaning these organisms off regularly is vital, and again, coatings and finishes must be maintained in good condition.

Almost all manufacturers of cladding materials have recommendations on how to keep the growth of these organisms under control. Also, awareness of the climate conditions and their potential to support the growth of living organisms that can decay, deteriorate, or damage building materials can be increased by looking at the decay potential maps in the One- and Two-Family Dwelling Code and any number of good architectural handbooks. This is excellent information that many architects may not be aware of.

In conclusion, much can be done to improve the performance of our water management systems on buildings. Water penetration though the exterior envelope is a prevalent problem that can be fixed. If there is one piece of advice that might ultimately prove to be most beneficial in the design of wall systems, it would be to provide redundancy in the wall system so the water that will inevitably get in behind the outer cladding system can be diverted directly back to the exterior. The symptoms caused by not doing this are expensive because of the damage incurred each year by water leaks in building envelopes.

Charles W. Graham, Ph.D.

Charles Graham is Associate Professor of Construction Science in the College of Architecture at Texas A&M University.

After completing the self-test, check your answers on page 64, then complete the report form and send it to *Texas Architect* to receive two AIA learning units.

Self-Test Questions

1. What are two most significant structural forces that change the dimensions of building materials? _____

2. When porous building materials change moisture content or thermal load, what happens to their physical dimensions? _____

3. What unique characteristics do fired clay brick and concrete masonry units exhibit following their initial installation in walls? _____

4. In which direction does wood shrink the greatest dimensionally? _____

5. What is the drain wall design? _____

6. What is the rainscreen principle? _____

7. What are the correct dimensions for flexible expansion joints in cladding materials? _____

8. What is the perm rating for materials? _____

9. What is the rule-of-thumb for minimum roof overhang width? _____

10. How much clearance should be maintained between wood and hardboard sidings and 1) roof shingles or 2) at horizontal surfaces at the ground? _____

11. Describe six construction and quality control problems commonly encountered in light construction systems. _____

12. What is redundancy in the design of the building envelope from the standpoint of water management? _____

PUBLIC HOUSING
SPECIAL SECTION

New Hope Housing

HOUSING THE HOMELESS is a complicated task faced by all modern American communities. In Houston, a new facility designed by Jackson & Ryan Achitects approaches the problem in a way new to the city. New Hope housing, a nonprofit project created by New Hope, Inc. works with social agencies to provide stability, opportunity, and above all, hope, to its low-income residents. New Hope, Inc. was founded by volunteer members of the Christ Church Cathedral congregation specifically for the creation of this project, and is funded almost entirely by private donations and grants. The housing project was initially an experiment for the organization. They hired Jackson & Ryan Architects to create a single-room-occupany hotel, the first for Houston, that would function as a combination apartment building and hostel. The architects, for whom this type of project was also a first-time experience, worked very closely with the organization, which consists of volunteers and one paid staff member and provided assistance with zoning regulations and other negotiations with the city.

In 1995, Houston was embarking on new efforts to provide housing for the homeless and near-homeless. New Hope is an example of ways in which the private sector is working with the public sector to respond to public needs by working with social service agencies to provide services for its residents. The success of this project has been followed by plans to create similar single-room-occupancy housing by rehabilitating exisiting hotels and other facilities in Houston.

The master plan for New Hope calls for a three-phase project. Phase one, pictured on these pages, was completed in April 1995. The 13,000-square-foot building contains 43 rooms, laundry facilities, a community food preparation area, and an interior courtyard. Phase two is currently under construction, and phase three is in the planning srages. While phase one was funded entirely with private money, phase two received a small grant from the city of Houston and phase three, a HUD grant. However, the primary funding will continue to come from private donations. With completion of all three phases, the facility will have 131 rooms, two lounges, two meeting rooms, and two courtyards.

New Hope is located on a site in downtown Houston, almost under Highway 59. The central location provides excellent access to bus lines and the central business district, important for residents who rely on public transportation to get to work. The simple building's facade evokes the art-deco style of the 1920s-style buildings surrounding it. The exterior is a combinations of brick wainscoting used both for aesthetics and durability, and EIFS cladding for cost-efficiency. The main distinguishing feature is the entry way, which contains an inviting, circular front desk for the resident manager, himself formerly on the verge of homelessnes, who acts as apartment manager and part-time social worker. For the security of the residents, this is the only entry into the building, although there are other emergency exits. There are plans to hire a full-time security guard to man the desk in the future.

1

1
main entrance of New Hope housing
2
The entry features a circular reception desk.
3
Each unit is equipped with a microwave and refrigerator
4
The courtyard behind pase one contains garden plots for residents' use.

Craig Pharis of Jackson & Ryan Architects says the project was very labor-intensive for the architects, but the firm recognized the

opportunity to support efforts to improve their own community, and considered themselves successful to break even. The project also offered many opportunites for learning, both for the volunteers and the architects. The single-room-occupancy designation of the facility proved to be an anomaly in the building code—not hotel and not apartment building— and the architects faced several technical problems in getting code-approval from the city.

Each unit is fully furnished with a bathroom, furniture, a small refrigerator and a microwave. Residents can also cook meals in the community food preparation areas and eat in the dining room. The interior courtyard contains individual garden plots, which some residents use to grow vegetables. While the project's economics did not allow for many architectural details, the architects succcessfully designed a comfortable, safe, and efficient space, that, for many people, helps provide them with a new beginning and, above all, a place to call home.

Canan Yetmen

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4

Resources

Wall surfacing: *Acme Brick;* ***EIFS:*** *U.S. Gypsum;* ***windows:*** *Alenco;* ***doors:*** *Weyerhaeuser;* ***floor surfacing:*** *Azrock Industries;* ***ceiling surface/system:*** *Armstrong;* ***roofing:*** *G.S. Firescreen;* ***waterproofing/sealants:*** *Mameco;* ***roof and drainage:*** *ALSCO;* ***paint &stain:*** *Devoe;* ***hardware:*** *Hager, Schlage, LCN, NT Monarch, Locknetics;* ***millwork:*** *Reynolds Millwork, formica;* ***elevators:*** *Dover;* ***stairs/treads:*** *Roppe;* ***lighting:*** *Lithonia, Capri;* ***plumbing & sanitary:*** *Crane, Kohler, Price Pfister, American Specialties, Aqua Glass;* ***air conditioning system:*** *Amana;* ***lamps/portable lighting:*** *IKEA;* ***furniture:*** *Reynolds Millwork, IKEA;* ***blinds:*** *Levolor;* ***roof hatch:*** *Milcor;* ***louvers:*** *Industrial Louvers;* ***mailboxes:*** *Cutler*

Project Credits

Client: New Hope Housing, Inc.
Architect: Jackson & Ryan Architects, Houston
Contractor: Humphries Construction Corp.
Consultants: Day Brown Rice, Inc., Consulting Engineers(mechanical, electrical & plumbing engineering); Robert L. Wright & Associates (structural engineering); KRE&S (civil engineering)
Photographer: Richard Wall

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San Antonio Gatroenterology Specialist Center; photo by Paul Bardagjy

New Diagrams

Healthcare business is changing the form of new structures, as well as the architect's design team and project delivery methods. As client groups expand, specialize, merge practices, and develop new facility concepts, architects are called to do more with less, across state and international borders. How are the basic diagrams of the hospital and clinic changing, and how will new concepts serve patient needs?

Healthcare Clients Change the Profession:

Tight business plans influence design, production, and project management

As an introduction to this issue focusing on health care, we asked four architects from around the state to discuss some of their recent experiences with healthcare clients and how it has affected their practice. They are Tom Reisenbichler of Collins Reisenbichler Architects, Dallas; Tom Fannin of FKP Architects, Inc., Houston; Dick Bundy of Bundy, Young, Sims & Potter, Inc., Wichita Falls, and Debbrah Larsen of RTKL Associates, Inc., Dallas.
Vincent P. Hauser

Trends in Healthcare Business

IN THE HEALTHCARE BUSINESS, it seems that bigger is better, or at least safer. In urban environments, we rarely see individual practitioners opening offices. Physicians are searching for security, and have found it difficult to establish a practice without a support system such as a hospital or HMO. In a similar fashion, the merger of hospitals and hospital systems reflect the need to seek profit as well as security.

Collins Reisenbichler's recent experience with Columbia/HCA reflects how these changes are affecting our practice. After an unsuccessful effort to secure a bundle of four projects that were awarded on a lowest-fee basis, we were hesitant but interested when a second bundle was offered by Columbia. We knew the solution was not to cut our fees, but to change the way we delivered the project. By restructuring our project-delivery process, including simultaneous production of design development and construction documents, we dramatically reduced the project-delivery schedule. In order to compete successfully, we needed to put as much creativity into how we conducted business as we did into the architectural design.

1

I think that focusing on what is important in the business world is what will make architects successful in the future, and that a reluctance to accept change is the only thing that will inhibit one's practice. You have to listen to what the client wants beyond a building. I expect that other groups both inside and outside the healthcare industry will follow Columbia's lead in order to meet the demands of the marketplace. When our clients have new demands put on them, it would be wrong to think that they would not in turn place new demands on their consultants, including architects.
Tom Reisenbichler

Partnering

TWO YEARS AGO, I COMMENTED on the coming implosion of the healthcare industry that is now taking place (see *TA*, May/June 1995, pp. 44-45). Providers of care are scrambling to sustain their revenue and market share as the demand for services drops. They are acquiring and merging organizations in hopes of controlling portions of the market. Soon, they must begin reshaping their resources (and expenses) to better fit demand. Simultaneous with this consolidation, they are also breaking out of the walls of established medical centers and pursuing true geographic coverage of their markets. This requires facility strategies and professional services akin to retail development. In both cases, clients are under intense pressure to make hard decisions and are more likely driven by tight business plans rather than lofty visions.

2

Part of our response to this dynamic has been to form a partnership with other healthcare executives who have experience in strategic planning, marketing, finance, healthcare operations, and physician practice management. With this group we can assist healthcare organizations with the major problems of achieving change following an acquisition, merger, or restructuring. In another area, we have unbundled services such as operational modeling, facility programming, and equipment planning and acquisition and made them available directly to owners.

Ultimately, our clients are depending on us to bring our critical problem-solving skills to the table and help them improve performance, reduce costs, and avoid expending scarce capital. Our proudest moments have come when we have been able to help a client find an alternative that delivered the needed services without a building project. I expect that the patient will survive changes in the healthcare industry, but will the industry? The quality, cost, and convenience of care will depend upon the decisions made by our clients and the quality with which they implement those decisions. Our job must be in helping our clients make the changes within their organizations necessary to achieve the performance required for them to support strong consumer-oriented values.
Tom Fannin

A New Team Member

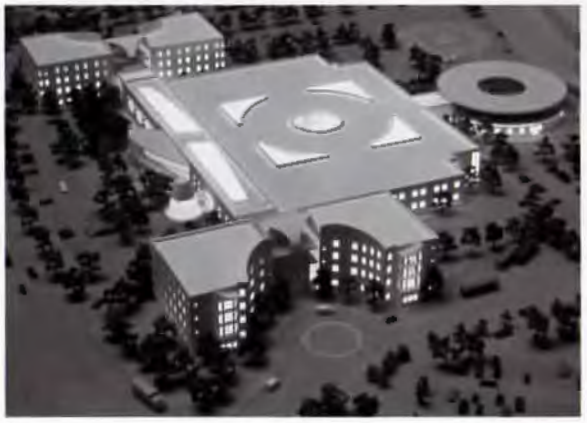
During the last few years of turmoil in the healthcare industry, especially in the field of acute-care hospitals, our role has changed from working on a project-oriented basis to working more as a team member. I think that this is one result of the elimination of many of the management positions during the industry upheavals of the early '90s that is in turn placing more demands on everyone else. The pressure to eliminate unused or inefficient space, reduce bed counts, and expand short-stay services has created a growing need for architects' services.

Healthcare-related services now comprise about 40 percent of our practice. As we become more involved in healthcare management, our role as architects will continue to change, like it or not. Our recent experience with a hospice in Wichita Falls is a good example of our changing role. In this project, the Earle and Emma White Hospice Center in Wichita Falls, we adapted our design effort by becoming part of the learning process. We were asked to join the hospice-planning team in 1993 to help define the project and develop the needs assessment, in contrast to being limited to the traditional architectural design role. We worked closely with the executive director and the board of the foundation over a period of two years prior to beginning the design, to ensure that the hospice's primary goals and design would reflect their vision and mission. We continue to learn from the center, completed in January 1997, as it provides compassionate support for patients with terminal illnesses. ***Dick Bundy***

3

An International Perspective

As large healthcare organizations look beyond the domestic market and consider international avenues of generating business, we in the U.S. architectural community need to consider opportunities beyond our borders as well. As a result of our analysis of geographic location, government and economic stability, as well as building a base of knowledge required to practice effectively abroad, we developed a business plan for an international healthcare practice. After over a decade of working in foreign markets, we feel that the rest of the world is looking to our country for innovation and new ideas in healthcare design. Currently we are doing work in over 45 countries throughout the world, including England, Saudi Arabia and Japan. Each country supports a unique political structure, varying levels of progress in healthcare disciplines, and strong ideas about how to develop a project. An example of this includes the United Kingdom's Private Finance Initiative (PFI), a policy that encourages private finance alternatives for the delivery of capital projects, including healthcare facilities. The PFI process requires the formation of a single consortium to execute the project, including developers, financial institutions, bankers, contractors, architects, operators, and engineers. In the healthcare sector, these consortia competitively bid for work, then a government entity leases the completed project.



4

Because of its success in the United Kingdom, we anticipate that this process will become a model for other projects in Europe. In Saudi Arabia, we work on a consultant basis focused on relationships. Here, the contractor provides the construction documents as a rule, and the architect is truly second in this scenario. In Japan, our practice reflects the more traditional international practice of providing architectural services through design development only. Construction documentation is provided by a local Japanese firm.

The idea of working abroad, while sounding glamorous, can be exhausting for the staff. However, proper project management and flexibility within the team helps us to realize the benefits of working in the world market and learning from other cultures. ***Debbrah Larsen***

1 Titus Regional Medical Center, Mount Pleasant, by Collins Reisenbichler Architects, Dallas

2 marketing brochure, FKP Architects Inc., Houston

3 Earle and Emma White Hospice Center, Wichita Falls, by Bundy, Young, Sims & Potter, Inc., Wichita Falls

4 Worcester Healthcare, United Kingdom, by RTKL Associates, Inc., Dallas

1

Second in a Series

by Jonathan Hagood

En un terreno irregular en Monterrey, Méjico, se construye el Hospital Santa Engracia, diseñado por Bernie Bortnick y su equipo de Henningson, Durham y Richardson, de Dallas.

Su arquitectura es expresiva y colorida, y sus habitaciones rodean una plaza peatonal. Bortnick aprovechó las peculiaridades económicos de la construcción en Méjico, donde a veces marmol es mas económico que vinil.

1 The client for Hospital Santa Engracia was interested in creating strong architectural forms like this wavy wall on one edge of the project.

2 The building's intricately patterned marble floors, seen here in the lobby, were possible because both the material and the installation labor were less expensive in Mexico than they would have been in the U.S.

3 A medical office building, at right with its regularly spaced square windows, flanks the main entrance to the hospital.

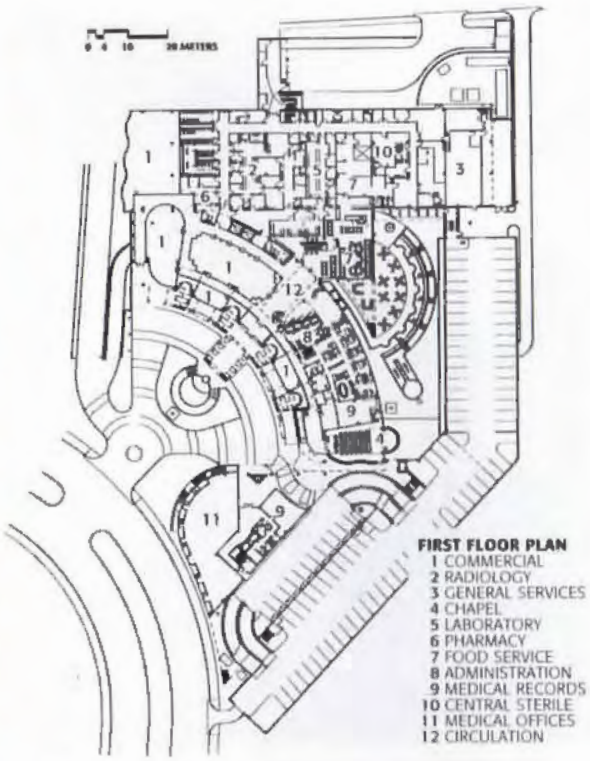
Centro Medico Integral, Hospital Santa Engracia in Monterrey, Mexico, is the second in an award-winning, ten-facility plan by Henningson, Durham, and Richardson, Inc., of Dallas, and the developer ABA/Salud. The first, Centro Medico de la Mujer, Los Angeles, won a 1995 TSA design award (see *TA*, November/December 1995), and Santa Engracia received a 1996 silver award in the Texas Architecture for Health design competition.

Santa Engracia combines a 120,000-square-foot, 50-bed hospital with a 65,000-square-foot medical office building on an irregularly shaped tract of land in Garza Garcia, a rapidly developing area of Monterrey. A fountain plaza is surrounded by the patient rooms and medical offices backed discretely by the parking garage. Change in grade over the site allowed two separate entrances, zoning the hospital according to emergency and inpatient functions.

ABA/Salud's goal is to create facilities both up-to-date in medical technology and visually stimulating in architectural expression, according to Bernie Bortnick, HDR design principal, who describes a client with a desire to push the envelope of facility design. The critical issues were not all bottom-line economics, Bortnick says. A clear emphasis was placed on aesthetic qualities to differentiate between the Mexican facilities and similar ones in the United States.

Apart from the resulting expressive and colorful architecture, Santa Engracia reflects cultural and economic issues that shape hospital design in Mexico. For one, all rooms are equally private but of many different sizes and layouts, designed to provide a range of options for different patient needs and income levels. The rooms accommodate the larger families common in

2



Mexico, and many are suites with a separate room for overnight guests. Also, availability and cost made many materials more economical than they would be in the U.S. For instance, the floor plane, an integral element of the design, according to Bortnick, was created with marble in intricate artistic patterns. Use of such an expensive material as well as labor for the complicated installation would be unthinkable in a U.S. facility, Bortnick says. In fact, in Mexico, marble was more cost-effective than vinyl, and was even used in some of the functional parts of the hospital.

The ten-hospital system is scheduled for completion by the year 2000. The facilities will be linked by an advanced communications system making possible remote consultation by specialists anywhere in the network. Already on the boards are facilities for Acapulco and Leon, but the completion of the plan rests heavily on the success of the hospitals built to date and the experience and knowledge the design team gains at each step. **TA**

PROJECT *Centro Medico Integral, Hospital Santa Engracia, Monterrey, Mexico*
CLIENT *ABA/Salud S.A. de C.V.*
ARCHITECT *Henningson, Durham and Richardson, Inc., Dallas (Bernie Bortnick, design architect; Phil Wendling, Mike Tangney, Carol Myers, design team)*
CONTRACTOR *Plate, Garza Garcia, N.L., Mexico*
CONSULTANTS *SDI (dietary, laundry); Mitchell International (medical); Ten Eyck, Merrit, Barnett and Pitt (structural engineer); 3DM (preliminary parking studies); HDR, Inc. (landscape, mechanical, electrical, plumbing)*
PHOTOGRAPHER *Mark Trew*

3

RESOURCES

Structure: Cementos, Constructora, Maiz Mier, Durock; **wall surfacing**: Durock, Cuprum; **windows**: Vitro Plano; **skylights**: Cuprum, Vitro Plano; **doors**: Cuprum, Vitro Plano, Skan, Nevamar, Armstrong; **floor surfacing**: Constructora Maiz Mier, Marmoles Bueno, Arte En Cantera, Dal-Tile; **ceiling surfacing/system**: YESO Pan Americano, Armstrong; **roofing**: G.S. Flantastic; **waterproofing/sealants**: Tremco; **insulation**: Termolita; **roof and deck drainage**: TYSA; **partitions**: Panelfold; **paint and stain**: Pittsburgh Pintex; **hardware**: Hager, Hewl, Shlage, Trymco, Von Duprin; **kitchen**: Concinas Finex; **laundry**: San Son-Crathco; **communication/intercom/public address**: Omehda, AT&T; **computer room**: Nortel Meridian, AT&T; **lockers**: Procinsa Abastecimiento Y Manufactura En Madera; **elevators**: Dover, Motot; **handrails**: Salvador Uchino, Acrovyn; **lighting**: Lithonia, Hydrell, Lightolier, Nessen; **electrical distribution**: IOESA 2000, ELTEK de Monterrey; **plumbing and sanitary**: Orion, Sloan, Elkay; **air conditioning system**: Trane, BaltimoreAir Coil; **environmental control systems**: Cleaver Brooks; **furniture**: Steel Case, Marmaleria Buentello, Vecta, Herman Miller, Nemchoff, Brown Jordan; **blinds**: Hunter Douglas; **audio-visual**: Electrosonic; **artwork**: Guillermo Ceniceros, Ester Gonzalez

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Maximum Flexibility

By Vincent P. Hauser

The San Antonio Gastroenterology Center is the physical and operational hub of an expanding specialty medical practice, responding to both local and international medical-business opportunities. Designed by Sprinkle Robey Architects in association with Mogas & Associates, Architects, both of San Antonio, the center is comprised of a 6,000-square-foot ambulatory surgical center and a 10,000-square-foot medical clinic that includes exam rooms and physicians' offices. A distinctive feature of the center, located at the edge of the Tobin Hill neighborhood just west of I-35, is that its physical design is intended to accommodate a wide range of surgical procedures as well as payment methods. To this end, the surgical suite includes one operating room built to federal specifications in order to qualify for Medicare-funded patients and to accommodate a range of medical procedures currently not provided by this specialty practice. In this way, the financial as well as medical flexibility of the practice is maximized.

The building supports five satellite diagnostic centers that are located in neighborhoods around the city. This strategy was developed in part to provide geographical coverage across San Antonio, but also to enhance the ability of the practice to negotiate agreements with health maintenance organizations and other insurers, according to Vicki Simpson, the center's chief administrator. "In addition to serving our patients here in San Antonio, we are becoming a destination for patients from Mexico," says Simpson. "Endoscopy procedures are just not done there, so many patients are referred to the U.S. for these procedures, and we are competing with Houston for this business."

4

The center itself has a specific and regular daily pulse, as all procedures are performed in the morning. During the afternoon, the surgical suite quiets as the patients move from recovery and go home, and the doctors leave the center to see patients at the satellite clinics. The clerical staff remains to complete the stacks of paperwork generated to satisfy the requirements of the insurers and HMOs.

The building is organized around two cores: The nurses station anchors the initial patient intake and the recovery area forms the hub of the surgical suite in order to enhance staff efficiency. Tall stucco walls enclose garden areas that buffer the interior from the freeway environment outside, as well as expand the interior spaces visually. **TA**

PROJECT *San Antonio Gastoenterology Surgical Center, San Antonio*
CLIENT *San Antonio Gastroenterology Associates, San Antonio*
ARCHITECT *Mogas and Associates/Sprinkle Robey Architects, San Antonio*
CONTRACTOR *H.B. Zachary Company*
CONSULTANTS *Simpson Group (structural, civil engineer); Goetting and Associates (mechanical, electrical, plumbing engineer); Edens Inc. (code consultant)*
PHOTOGRAPHER *Paul Bardagjy*

5

RESOURCES

Structure: Crown Steel, Inc., Black Armor; **wall surfacing**: TexStar Industries Inc., Delta Metal Products; **windows**: Kawneer; **skylights**: Skylight Manufacturing; **doors**: Kawneer, Raco-Altura, VT Industries; **floor surfacing**: Tarkett Industries; **ceiling surfacing system**: USG Interiors Inc.; **roofing**: Black Armor; **waterproofing/sealants**: MAMECO International Inc.; **insulation**: Owens Corning; **roof and deck drainage**: Samuel Dean; **partition**: Delta Metal Products; **paint**: Benjamin Moore; **hardware**: Yale; **communication/intercom**: Dukane; **security detection fire**: Larsen's; **signage**: Andco Industries Co.; **medical gas piping**: Ohmeda Medical Engineers; **handrails**: Bobrick; **lighting**: Bega, Lithonia Flourescent Comm. Industrial Lighting; **plumbing & sanitary**: Bobrick, Central Sprinkler Co.; **air conditioning system**: Carnes Co.; **furniture**: Nevamar, Ampco Products, AGI Industries Inc., Hayworth Inc., Fixtures Furniture; **carport**: National Carport

1 The lobby of the surgery center is sized to accommodate the morning rush of patients

2 The design-build team for the center included Sprinkle-Robey Architects, Mogas Architects and H.B. Zachry.

3 The simple geometry reflects the architects' previous work with Legoretta Arquitectos on the San Antonio Public Library.

4 Gardens buffer offices from the street.

5 recovery area

El Centro Gastroenterológico de San Antonio es una facilidad especializada con conecciones internacionales. Sus diseñadores son Sprinkle Robey en asociación con Mogas y Asociados, ambos de San Antonio.

El edificio se divide en dos partes: la estación de enfermeros, para ingresados recientes, y el area de recuperación. El Centro disfruta de varios jardines, que expanden el campo visual de los espacios interiores y esconden la autopista adyacente.

1

Setting the Tone

By Kelly Roberson

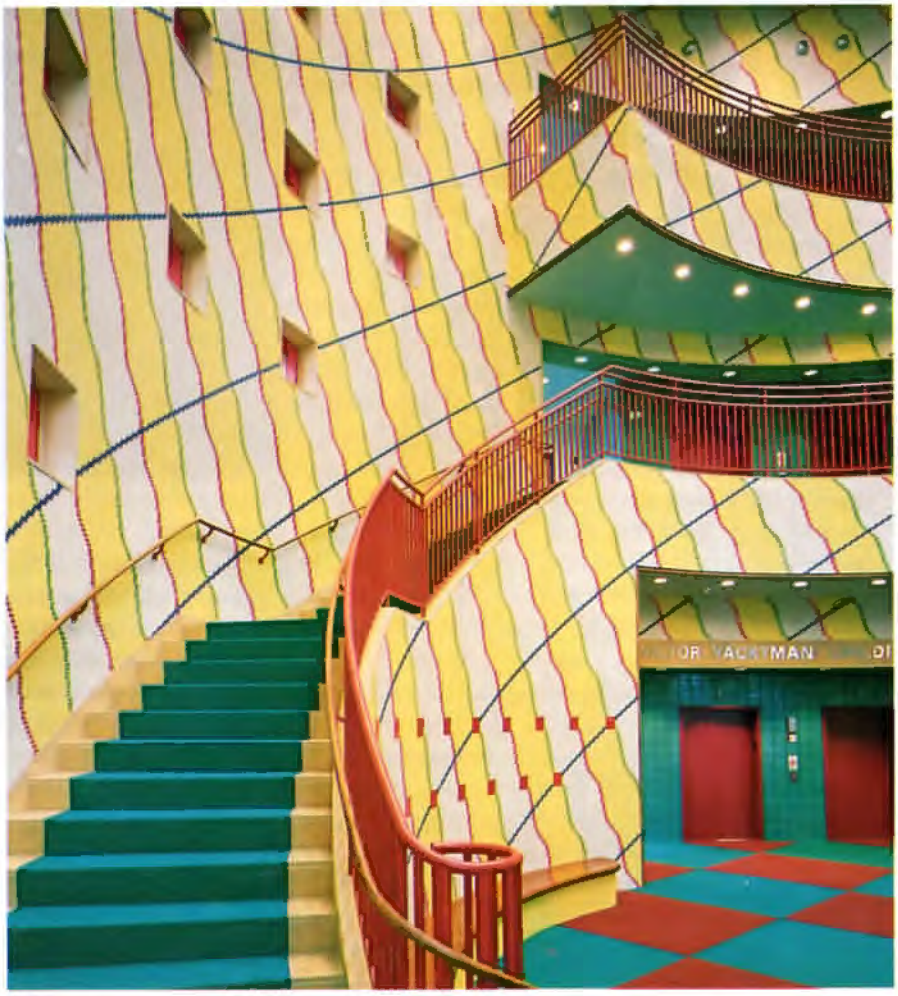
HOSPITALS CAN BE, AND USUALLY ARE, scary places for children. Removing that fear and making pediatric care a welcome, inviting prospect was the goal of Cesar Pelli & Associates and Watkins Carter Hamilton Architects (WKHA) in the design of the Victor Yacktman Children's Pavilion. The facility, the first development in the team's master plan for Lutheran General Hospital, fronts a busy commercial strip on Dempster Street in the north Chicago suburb of Park Ridge. It is the flagship of the pediatric care unit and consolidates all outpatient services. One side leads to the rest of the hospital's campus; the other, complete with a new entry drum and canopy, updates the hospital's image and imprint on the neighborhood.

The firms, says Mark Shoemaker, design team leader from Pelli & Associates, fashioned the exterior for a look that is fresh, open, and inviting. The blond brick from the old hospital extends in the three-story entry drum, anchoring the edge of the hospital's campus and creating an interior public gathering space. Inside, a dramatic kaleidoscope of yellow and red ceramic tiles and

Evitar miedo en los niños y crear un ambiente hospitalario fue la meta de los diseñadores del Pabellón Infantil Victor Yacktman, parte del Hospital General Luterano, cerca de Chicago.

Cesar Pelli y Asociados y Watkins Carter Hamtilon intentan establecer nuevas tendencias en la estética de centros pediátricos. La facilidad incluye elementos llamativos como formas geométricas y un caleidoscopio de colores. Cada piso tiene una identidad g´rafica—el mar, la selva, y elementos celestiales. Esto facilita el proceso de llevar a niños al medico.

PROJECT *Lutheran General Hospital, Victor Yacktman Children's Pavilion, Park Ridge, Illinois*
CLIENT *Lutheran General Hospital, Park Ridge*
ARCHITECT OF RECORD *Watkins Carter Hamilton Architects, Bellaire*
ASSOCIATE ARCHITECT *Cesar Pelli & Associates, Hartford, Conn.*
CONTRACTOR *McCarthy–O'Neal*
CONSULTANTS *Klaucens & Associates, Inc. (mechanical, plumbing); Dickerson Engineering, Inc. (electrical); Haynes Whaley Associates, Inc. (structural); Gewalt-Hamilton Associates, Inc. (civil); Lamnert Group (landscape); Herman Smith (medical equipment)*
PHOTOGRAPHER *Jud Haggard, unless noted*



2

1 Themed images continue on walls, floors, and doors in the wayfinding system.

2 The swirling yellow and red tiles and pattern of small windows in the entry drum enliven the space.

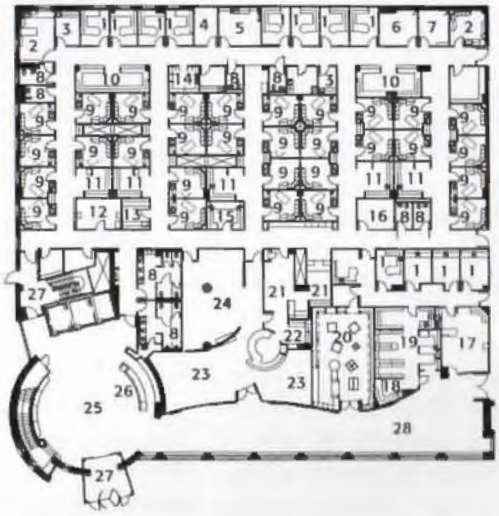
3 Old (blond brick) and new (patterned red brick) blend in the new pavilion to update the hospital's image.

4 a greeting desk on one of the three floors of the new addition

A. Zemborain/CP&A

3

4



FIRST FLOOR PLAN
1 OFFICE
2 PROCEDURE ROOM
3 MED. PREP.
4 SPEECH TESTING
5 STAFF LOCKER/LOUNGE
6 CONFERENCE
7 QUIET ROOM
8 BATHROOM
9 EXAM ROOM
10 RESIDENT'S WORK AREA
11 NURSE STATION
12 MED. SECRETARY
13 CLERK
14 LAB
15 NURSE TRIAGE
16 MANAGER'S OFFICE
17 VENDING
18 PHARMACY
19 BULK BREAKDOWN
20 GIFT SHOP
21 ADMINISTRATIVE
22 RECEPTION
23 PLAY AREA
24 WAITING
25 ATRIUM
26 CONTROL DESK
27 VESTIBULE
28 CONCOURSE

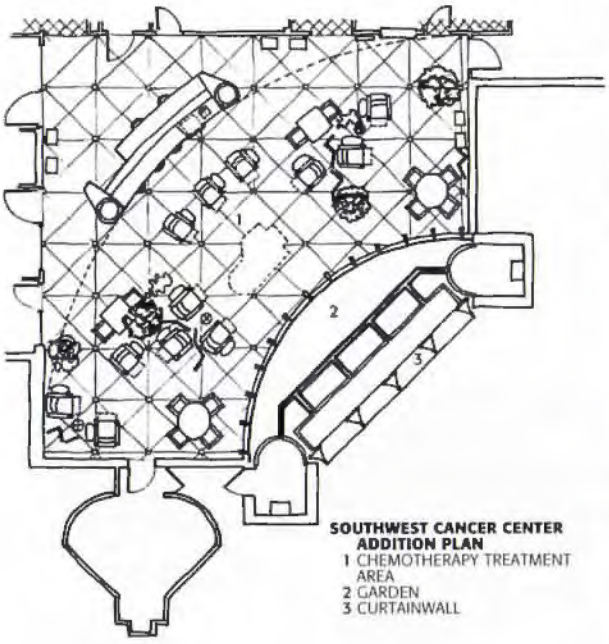
RESOURCES

Windows: NGG, Ltd.; **skylights**: Naturalite/EPI Skylight Systems; **doors**: Crane Fulview Door Co., La Force Hardware; **floor surfacing**: Armstrong; **roofing**: Schuller Roofing Systems; **waterproofing/sealants**: Sonneborn; **insulation**: USG Interiors, Inc.; **hardware**: Hager Hinge Co., Yale Security Pdts.; **elevators**: Otis Elevator Co.; **moving stairways**: Access Industries; **stairs/treads**: Guardian Const. Pdts.; **lighting**: Metalux; **electric distribution**: Westinghouse; **plumbing & sanitary**: American Standard, Elkay Mfg. Co., Kohler, Powers Process Controls, Sloan Valve Co., Accurate Partitions Co., Bobrick., Chicago Faucets; **environmental control systems**: Landis & Gyr Powers; **carpets/rugs**: Interface, Collins & Aikman; **lamps**: Boyd Lighting

a pattern of small windows punctuate the entry with light, color, and activity. A first-level concourse links passageways and continues the interplay of light and color with an abstracted "city scape" of textured, painted sheetrock.

Services from simple doctor visits to complicated specialty care for different age groups are organized around different suites. In an attempt to overcome confusion, each floor has a graphic identity—sea, jungle, celestial design elements—that is further developed into a wayfinding system with themed images along each corridor, by each exam room, and in columns, friezes, and floor patterns, says Kirk Hamilton of WKHA. Exam rooms have playful colors and shapes in a similar theme, as well as custom-built seating areas and work stations, extending the flexibility of the rooms with space for both child and family. While the interiors are colorful and energetic, they shy away from being too literal or "cartoon-like," says Hamilton.

With this new facility, the firms have created a space that pays attention to the needs of children and family, in the hope, says Hamilton, that it will "set the tone for how a child views health care for a long time." That quest—to make the patients at ease in a comfortable setting while removing the fear of health care—is one that Hamilton sees in pediatrics, a trend leading the way for healthcare architecture as a whole. "We do our best work when we do it on behalf of children," says Hamilton. **TA**



SOUTHWEST CANCER CENTER ADDITION PLAN
1 CHEMOTHERAPY TREATMENT AREA
2 GARDEN
3 CURTAINWALL

1

A New Look and Feel

By Susan Williamson

"Buscábamos una nueva imágen. . .," dice Jud Wyatt, director de planificación del Centro Medico Universitario de Lubbock, diseñado en parte por Irving Phillips, FAIA, de Houston, y McLarty Baker Asociados, de Lubbock. Cambios filosóficos sobre el tratamiento de pacientes y competitividad comercial dieron paso a la reorganización y expansión de este hospital. La nueva fachada representa progreso y alta calidad.

1 The addition to the Southwest Cancer Center created space for chemotherapy treatment in an open environment; the treatment room looks into an enclosed garden area.

2 The simple geometries of the Idalou Clinic established a focal point for the small community it serves outside Lubbock; providing a sense of place was a priority, architect Irving Phillips says.

An increasingly competitive business environment, as well as changes in technology and ideas about how patients heal, guided an extensive building program at Lubbock's University Medical Center over the last five years. The medical center includes the Texas Tech University medical school, nursing school, and associated programs in one large building, and the county hospital in another; the hospital serves as the teaching facility for the medical school. Also on the site are a medical office building, a cancer treatment center, an outpatient pavilion, and a radiology center and emergency department still under construction. Although the entire facility is on the Texas Tech campus, only the Health Science Center is a Tech facility; the rest is owned by the county.

In the early 1990s, the 350-bed hospital faced increasing competition from the city's other two large hospitals, says Jud Wyatt, the medical center's division director for facilities planning at the time. Lubbock had evolved as the regional medical center for West Texas and eastern New Mexico, and the University Medical Center wanted to attract as many of those patients as it could, not just the Medicare and indigent populations its charter tasked it with serving, Wyatt says. In addition, changes in philosophies of patient care and emerging medical technology meant that the entire facility needed to be updated. "What we were looking for was a new image. We wanted people who had a choice about where to go to feel good about coming to us," he says. The medical center hired Houston architect Irving Phillips, FAIA, in association with several local firms, to provide a new look, as well as to update and reorganize its interior spaces.

Although the work Phillips and the other architects, including BGR Architects–Engineers and McLarty Baker Associates, both of Lubbock, did was extensive, two pieces are representative of the changes made—the addition to the Southwest Cancer Treatment Center and the Idalou Clinic, a regional facility just outside Lubbock, both done in association with McLarty Baker.

The cancer center addition, which houses chemotherapy treatment areas, is perhaps the clearest expression of the new ideas about patient treatment that

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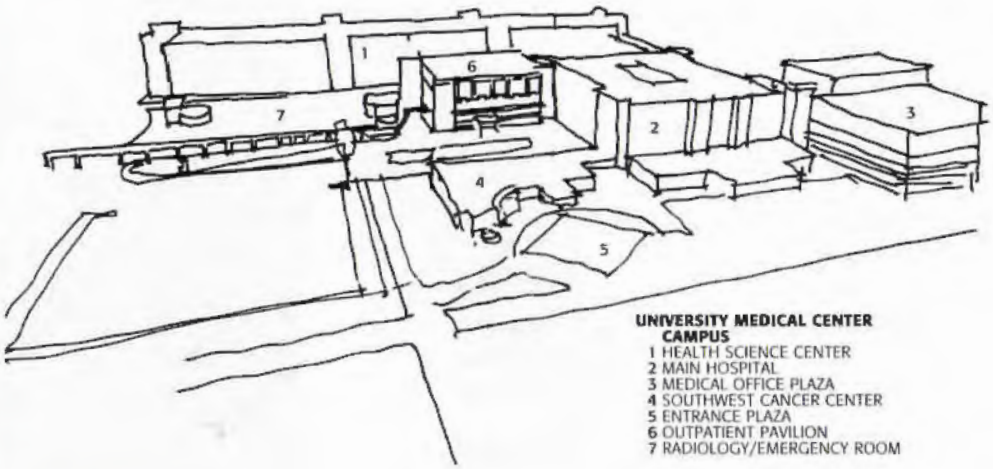

UNIVERSITY MEDICAL CENTER CAMPUS
1 HEALTH SCIENCE CENTER
2 MAIN HOSPITAL
3 MEDICAL OFFICE PLAZA
4 SOUTHWEST CANCER CENTER
5 ENTRANCE PLAZA
6 OUTPATIENT PAVILION
7 RADIOLOGY/EMERGENCY ROOM

informed the campus redesign. "We wanted to create a place that was as comforting and as unclinical as possible," Phillips says. Most of the treatment area is a single room focused on a curved glass wall beyond which lies a grotto-like garden; on the other side of the garden is another glass wall that provides privacy. Instead of being isolated in cubicles, patients receiving treatment—which sometimes takes hours—can sit with their families, watch television, or just enjoy the light-filled space. The idea, Phillips says, was to create a setting, often lacking in hospital architecture, that tells a story, in this case a subliminal story of hope and healing. At the same time, the exterior facade created by the curtainwall enclosing the garden has become the image of the new University Medical Center, Wyatt says, an image of a progressive, high-end level of medical care.

At the same time that the medical center itself was being revamped, another building program was underway, also aimed at addressing the competitive environment, but focused on outlying areas instead of the main campus, Wyatt says. The medical center began developing a system of regional clinics, some located within the city and others in outlying areas. The Idalou Clinic, designed by Phillips and McLarty Baker, is one of six clinics built to date; others are planned. The clinics were a response to similar building programs by the other Lubbock hospitals, Wyatt says, and reflect a trend nationwide toward developing comprehensive healthcare networks that can be marketed to employers and other clients.

The regional clinics, some freestanding as in Idalou and others in strip centers, are designed to house two physicians, a radiology center, and other support spaces. **TA**

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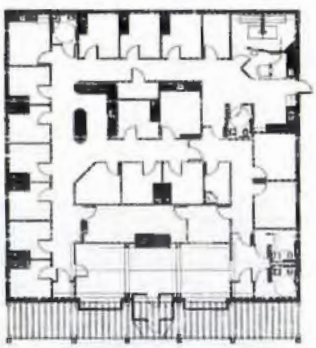

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3 The glass wall enclosing the Southwest Cancer Center garden, at left, established a new visual focus for the medical center campus.

4 Idalou Clinic floor plan

PROJECT *Southwest Cancer Center, Lubbock, and Idalou Clinic, Idalou*
CLIENT *University Medical Center, Lubbock*
ARCHITECT *McLarty Baker Associates (architect of record); I. Phillips (design architect)*
CONTRACTOR *Lee Lewis Construction Company*
CONSULTANTS *LB Associates (structural engineering); Agnew Associates (mechanical, electrical & plumbing engineering); Hugo Reed & Associates (civil engineering); Phillips/Wild Design (interior design, Southwest Cancer Center)*
PHOTOGRAPHER *Jon Thompson-JQT Visual Productions*

RESOURCES

Wall surfacing: Featherlite, Concrete Specialty Co., Chroma Screen, Cesar Color Inc.; **windows**: Kawneer; **floor surfacing**: Pavestone, Toli International, Stoler Industries; **ceiling surfacing/system**: Armstrong, USG; **roofing**: MBCI; **lighting**: Lumec, Gardco; **paint**: Sherwin Williams; **lamps**: Surroundings; **furniture**: Abef Laminate, Bieffeplast, Forms & Surfaces, Kimball, Krug, Nuovo Melodrom, Sommers Design Studio; **upholstery**: Jack Lenore Larsen, Momentum; **game table tops**: Shoto; **audio-visual**: A-V Texas, Inc.; **custom planters**: Target Sheet Metal & Manufacturing

1

En los últimos años, la planificación de campuses médicos se inclina hacia la separación categórica de áreas de cuidado. Este es el caso del Centro Medico Regional Mercy en Laredo. Las ideas centrales del programa de diseño son acceso, comodidad y un ambiente mas hospitalario que lo común. Norman Morgan, de HKS, es encargado del proyecto.

El complejo, cuya estética se basa en elementos residenciales y comericales de su región, distingue áreas de cuidado intenso de áreas mas transitorias. Su atmósfera es mas acogedora que las típicas mega-estructuras médicas modernas.

2

Smaller is Better

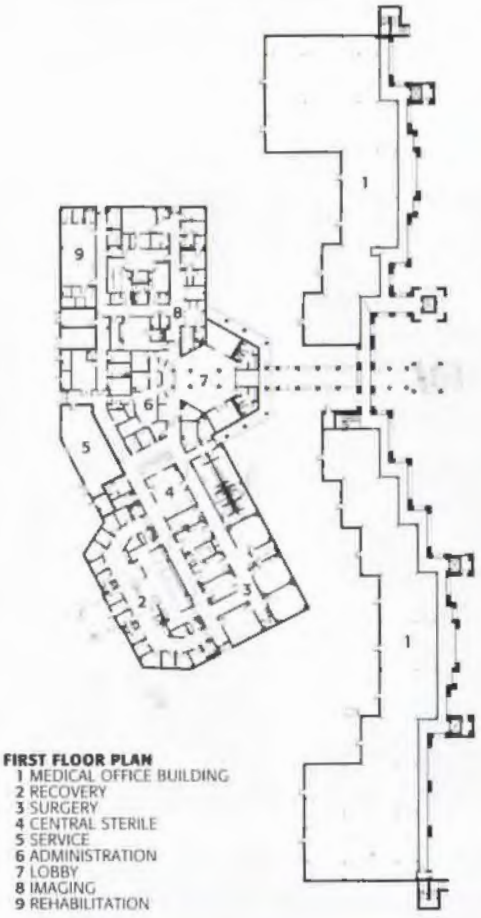
By Kelly Roberson

Unlike the vast institutional structures of the more recent past, current design in healthcare architecture leans towards centralizing less costly outpatient and more expensive inpatient services in separate, smaller facilities, with a look and feel that is more "hospitable" than hospital. Such is the case with the Mercy Regional Medical Center in Laredo. The facility, a one-story, 25,000-square-foot satellite ambulatory care center and a two-story, 50,000-square-foot medical office building, consolidates outpatient services and doctors' offices for a growing suburban community in north Laredo.

Convenience, accessibility, and comfort were prime program motivations, says Norman Morgan, project designer for the facility for HKS Inc. of Dallas. The center, sited on five acres, serves Laredo and Nuevo Laredo, just across the border in Mexico. Outpatient services are organized into surgery, recovery, administration, rehabilitation, and imaging suites in the ambulatory-care center. Patients, mostly "well" and not in need of acute care, are led to a pre-operation recovery room with a lounge chair, television, and locker, a room to which they return after procedures. After surgery, that personal privacy continues: Patients can leave from a separate door in the back of the facility to avoid crowds in front. A shared two-story lobby with non-traditional furnishings and details continues the ambiance, and will one day provide room, with the building's open-ended corridors, for a second-story expansion. Timbered, trellised walkways with translucent skylights connect the ambulatory center to the medical office building. Each doctor, most of whom are affiliated with Mercy, has an individual door visible from busy McPherson Street in front. Surface parking lots and two covered physician parking garages also surround the buildings.

The HKS design for the center was prompted by surrounding commercial and residential architecture, says Morgan. Regional influences were researched for the details found throughout, especially in the copings, cornices, and columns. Natural materials (a tile roof, stucco walls, and Mexican stone), warm colors, varying exterior shapes, and an infusion of natural light adds to the comfortable, ranch-like atmosphere. A front bell tower, says Morgan, is the "spiritual vision" of Mercy, which the client hopes will develop into an identity or icon for all community Mercy facilities. The surrounding courtyards, filled with palm trees and lush landscaping, further reinforces the resort ambiance.

The emerging trends towards ambulatory care and patient convenience are ones that Morgan feels will continue. The facility is one of five he is currently working on for HKS; most are located in the suburbs to be closer to the patients. Their healing spaces are less intimidating and more intimate than the mega-structures of the past, in a continuing effort to pay individual attention to the patient. **TA**



FIRST FLOOR PLAN
1 MEDICAL OFFICE BUILDING
2 RECOVERY
3 SURGERY
4 CENTRAL STERILE
5 SERVICE
6 ADMINISTRATION
7 LOBBY
8 IMAGING
9 REHABILITATION

1 In the recovery suite of the ambulatory center, a desk station backs up to hospital beds.

2 The clients hope the bell tower, next to a covered walkway, will create an identity for the facilities.

3 A shared two-story lobby in the ambulatory center was planned to accomodate a second-floor expansion.

4 Trellised walkways lead from building to building, creating smaller courtyards inside the site.

3

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PROJECT *Mercy Regional Medical Center, Laredo*
CLIENT *Mercy Regional Medical Center, Laredo*
ARCHITECT *HKS Inc., Dallas*
CONTRACTOR *Mercy Health System of Texas*
CONSULTANTS *Goetting & Associates (mechanical, electrical, plumbing engineer); HKS Structural (structural engineer); HKS Environmental Graphics (graphic designer); Foster Engineering (civil enginner); HELP International (medical equiptment consultant)*
PHOTOGRAPHER *Wes Thompson Photography*

RESOURCES

Structure: Western Steel; **wall surfacing**: Material Marketing Corp.; **windows**: EFCO; **doors**: Ceco Door Products, Nevamar; **floor surfacing**: Morazzti tile, Armstrong, Mannington; **roofing**: Life Tile Corporation; **waterproofing/sealants**: Pecora; **paint & stain**: Monarch, Benjamin Moore; **hardware**: Hager Hinges Company, Schlage, LCN closers, Von Duprin, Glynn Johnson; **communication/intercom**: Dukane, 3M; **lockers**: Hoffman; **signage**: ASI Sign Systems; **elevators**: Otis Elevator; **lighting**: Hubbel, Inc., Architectural Landscape Lighting, National, Lumax, PMC; **plumbing & sanitary**: Kohler Company, Slan, 4W Specialties, Elkay, Fire Check of Texas, Sellers Engineering, Aurora; **air-conditioning system**: Gillete Air Conditioning, McQuay International, Energy Labs, Inc., Spectrum, Metal Laire, Inc.; **environmental control systems**: Carrier Corporation; **carpets/rugs**: Collins & Aikman

1

Barley + Pfeiffer, arquitectos de Austin, incorporaron sensitividad ambiental al diseño del Centro Especialista de Tejas, en Lufkin. Al considerar la relación entre calidad ambiental y efectividad médica, los arquitectos crearon una clínica que cuenta con almacenaje de aqua de lluvia, ventilación natural, panels fotovoltaicos y control total de luz diurna. Un ambiente limpio es esencial para la salud.

PROJECT *Texas Specialist Center, Lufkin*
CLIENT *Dr. Jackson Wagnon and Betsy Wagnon*
ARCHITECT *Barley + Pfeiffer Architects, Austin*
CONTRACTOR *L. Richardson and Sons, Inc., Lufkin*
CONSULTANTS *Conrad Engineering (structural engineering); Tom Green and Company Engineers, Inc. (mechanical, electrical & plumbing); Marasco & Associates Inc. (medical design); RMA Interiors (interior design); Mary Oetzel (clean air & toxicity); John F. Domatti, Inc. (radiation protection)*
PHOTOGRAPHER *Christopher Studio, Inc.*

Healthy for Everyone

By Susan Williamson

A DOCTOR'S OFFICE WOULD SEEM to be all about providing an environment to make people healthy, but more often than not questions about the potential health impact of the building design itself go unasked, let alone answered. However, a new medical clinic in Lufkin, designed by Barley + Pfeiffer Architects of Austin, not only addresses those questions, it provides answers that created a building that should not only be healthy for all patients to visit, but will also pay its owners back in lower energy and maintenance costs.

The Texas Specialist Center, a 6,300-square-foot, single-story clinic, is the result of a collaboration between a well-informed client and architects interested in sustainable, energy-efficient design. According to architect Alan Barley, the client, Dr. Jack Wagnon, came to the firm with a desire to produce an environmentally sensitive building. A personal experience on the client's part with environmental illness—a hypersensitivity, usually developed over time, to various toxins in the environment—also led to a desire to create a facility that was as free as possible from potentially irritating substances.

Virtually every aspect of the building's design was affected by the doctor's environmental goals: from siting to minimize solar exposure to installation of a rainwater collection system. The many windows are operable, reducing energy costs by decreasing the amount of electric light required and by providing ventilation. Photo-voltaic panels were installed on the roof; electricity generated is stored in batteries for an emergency backup for the building's computer and security systems. The suspended structural-slab foundation system, while more expensive than a standard system, should help the structure last longer, the architects say.

Improving indoor air quality was a high priority. An important factor in the development of environmental illness is long-term exposure, according to Wagnon. Many substances that, over a short time, would not be irritat-

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FLOOR PLAN
1 PATIENT DROP-OFF
2 WAITING
3 BUSINESS/RECEPTION
4 EXAMINATION ROOM
5 OFFICE
6 STAFF ROOM
7 SCREENED PORCH
8 WORKROOM
9 RADIOLOGY
10 MECHANICAL
11 CARPORT

4

ing may become so over time. Therefore, every effort was made to select materials that did not include or produce potentially harmful substances. Carpet, adhesives, and paint were all low volatile-organic-compound (VOC) materials. Formaldehyde-free MDF panels were used instead of plywood, and were then sealed to prevent offgassing. Inert volcanic-perlite ceiling panels and type-"X" gypsum board also reduced the number of possible toxins introduced. Mechanical systems were carefully cleaned and then sealed to further improve air quality.

The desire to design a "green" building was a way of expressing a certain philosophy that he had been developing for a long time, Wagnon says. It was also good business: The building will be cheaper to run and maintain over time. And, perhaps most important, the clinic will be a healthy place for the doctor and his patients to use. **TA**

SPEC NOTE: CEILING PANELS

Ceiling systems containing mineral fibers have become problematic in much of the construction built during the last 50 years, according to architect Alan Barley. In order to avoid these potential problems, as well as those associated with moisture issues at the Texas Specialist Center, the architects wanted an inert system that had the same look as conventional lay-in ceiling. They selected Eurostone, a volcanic-perlite ceiling panel manufactured by Chicago Metallic that met most of the client's environmental needs. As an inorganic material, the conventional outgassing problems could be avoided; the panels contained no mineral fibers that could, over time, become airborne irritants; and the panels are impervious to microorganisms, according to the manufacturer.

RESOURCES

Frame: Glu-Lam; **walls**: Temple Inland; **roof**: Southern Components; **treated wood**: Coppers; **brick**: Boral Brick; **storefront and entry**: U.S. Aluminum; **drywall**: USG; **glass block**: Pittsburgh Corning Corporation; **wall tile**: America Olean; **ceiling tile**: Chicago Metallic; **architectural mouldings**: Fry Reglet; **windows**: Marvin Windows; **doors**: U.S. Aluminum, Marvin Windows, Pella; **floor surfacing**: Armstrong, Roppe, Mannington, Envirotec, Mannington, VPI, Impo; **ceiling surfacing**: Eurostone; **roofing**: Butler Manufacturing Co.; **thermal and moisture protection**: Tyvek, Certainteed; **paint and stain**: Marco, Benjamin Moore; **hardware**: Dor-o-matic, Von Duprin, Schlage; **cabinetry**: Medite Corp., Nevamar, Formica; **ceiling fans**: Hunter; **lighting**: Halo, Lithonia, SPI, Peerless, Visa Lighting, CSL Lighting, Amsco, Hubbell, Alkco; **plumbing**: Eljer, Just, Fiat, Kholer, Bobrick, Oasis, L& F Manufacturing; **mechanical**: Trane, Allied Energy, Wells Mclain

1 A pair of 7,200-gallon above-ground water tanks are connected to the rainwater collection system; the water is used to irrigate the xeriscape landscaping.

2 A curved window wall opens the lobby to the surrounding forest.

3 Texas Speciality Clinic, seen from entry drive

4 Clerestory windows placed near the clinic's high ceilings allow daylight to fill the space; the windows are operable and, together with ceiling fans, provide air circulation and ventilation.

Survey

Quick Reaction 60
PRACTICE The changing needs of its clients has led to changes in the practice of a Dallas firm, as well as to changes in its own workplace.

Dramatic Landscapes 61
BOOKS A book by David E. Nye explores the connections between technology and landscape.

San Jacinto Battlefields 62
PRESERVATION The restoration of the San Jacinto Monument is nearly complete but debate about a master plan for the surrounding historical park continues.

Coming next issue . . . 63

Index to Advertisers 63

Marketplace 65

Crimean Journal II 68
TRAVEL The second part of Carl Holiday's account of an archeaological trip to the Crimea recounts an exploration of a medieval fort.

Quick Reaction

PRACTICE At Working Spaces: The Lauck Group, a Dallas-based interior architecture and design firm, evolving relationships with clients has meant a change in the firm's practice and a corresponding change in the firm's own work space.

According to Alan Lauck, the firm's president and founder, a number of factors are driving changes in the workplace. First, he says, most companies are now competing on a global level. At the same time that businesses are stretching their reach, they have found a need to be closer to their customers. These changes, Lauck says, are leading his clients to look for new solutions to their officing problems: How can management be dispersed to various sites around the world and maintain strong lines of communication? How can corporate headquarters be downsized and still provide space for managers and others who are often out of the office?

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As clients have struggled with these and other questions during the past several years, Lauck says his firm has responded by offering new services less oriented toward designing a space and more toward analyzing work processes. The difference for the practice, he says, is a heavier front-end analysis, helping clients understand how their business goals connect with their facility plans and then helping them develop a "physical manifestation of their work structure."

As the same time that Working Spaces was getting more involved in developing alternative-officing strategies for its clients, it was redesigning its own workplace. The firm's 7,500-square-foot office and studio is intended to be a reflection of the firm's experimental approach, Lauck says. The offices, in a medium-sized building just north of downtown, are on several levels. Visitors enter down a long, windowless corridor, lined on one side with boards showing examples of the firm's work and on the other with long, orderly rows of material samples: paint chips, carpet and other flooring, upholstery fabrics. At the end of the hall are stairs that lead up to the light-filled reception area. The rest of the main working space is punctuated with strongly colored wall planes and geometric forms. Most of the work areas, while private, are also open to common spaces.

The first phase of the office design was completed in 1994; an addition completed late last year is a direct reflection of the changing direction of the firm's practice, Lauck says. The addition, at a lower level than the main work spaces, includes two cockpit offices (see *TA*, January/February 1996, pp. 48-49), a space smaller than a traditional office but large enough to provide work area for one person; a team work area and conference room; and an open area where the firm builds mock-ups of various officing configurations. In the mock-up area, the firm installs furniture and computer and communication systems in various combinations. The trial work spaces are used by the firm's employees, usually a team dedicated to a specific project. This hands-on experience with various officing solutions and systems allows the

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firm to speak with authority when its makes recommendations to its clients, Lauck says.

The business world is in a state of flux, Lauck says, and architects and other professionals must be able to react as rapidly as their clients; those who do everything they can to increase their ability to respond quickly will succeed; others may not. ***Susan Williamson***

PROJECT *Working Spaces: The Lauck Group Offices*
CLIENT *Working Spaces: The Lauck Group, Dallas*
ARCHITECT *Working Spaces: The Lauck Group (Alan Lauck, principal-in-charge; Steve Breuer, project architect; Paul Manno, Brigitte Preston, Anne Kniffen, project team)*
CONTRACTOR *Constructors and Associates, Dallas*
CONSULTANTS *Steve Dunn (mechanical, electrical, plumbing); Mary Peyton (lighting)*
PHOTOGRAPHER *Robert Miller, New York*

FLOOR PLAN
1 CONFERENCE ROOM
2 WORK SPACE
3 RECEPTION
4 TEAM WORK AREA
5 COCKPIT OFFICE
6 WORK SPACE MOCK-UPS

1 An addition to the Working Spaces offices includes this area where officing mock-are built and used by the firm to gain experience with different setups and furniture systems.

2 The reception area features strongly colored wall planes; a stair leads up from the entrance hall on a lower level.

3 A wall of glass fills work areas with natural light.

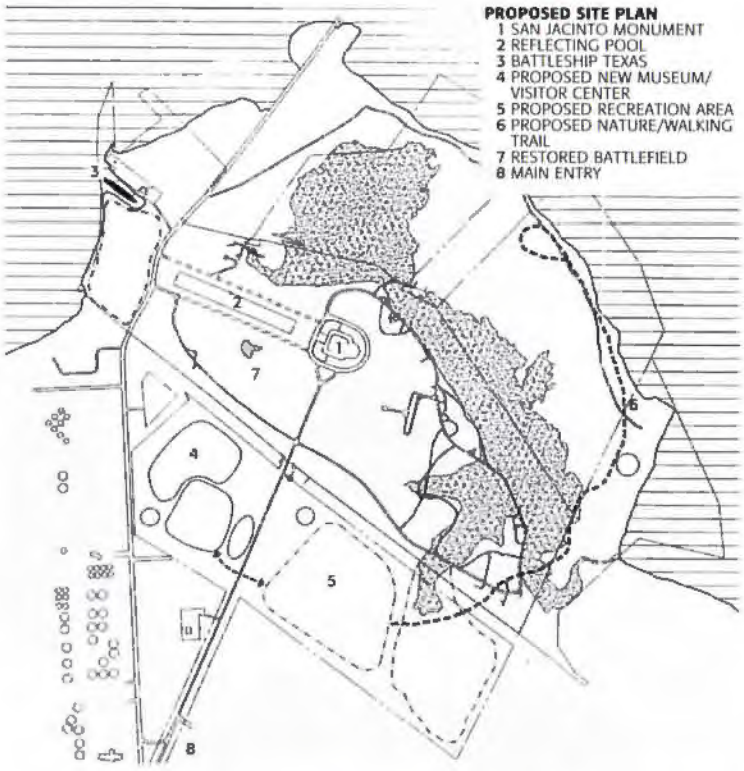
Dramatic Landscapes

American Technological Sublime
by David E. Nye
The MIT Press (Cambridge, Mass., 1996)
384 pages, $16.00 paperback

BOOKS How many of us have walked along the edge of the Grand Canyon or driven across the Golden Gate Bridge with a mixture of awe and terror, and what is the common thread that those experiences might share? In *American Technological Sublime*, David E. Nye explores the history of the American response to the landscape, its philosophical constructs and visceral qualities. Defining these experiences as sublime, he notes: "The sublime taps into fundamental hopes and fears. . . .[I]t is essentially a religious feeling, aroused by the confrontation with impressive objects, such as Niagara Falls, the New York skyline or the earth-shaking launch of a space shuttle." The book is not a history of technology, but rather concerns itself with how technology, landscapes, and dramatic structures are integrated into the social fabric.

It is the response to these experiences and how they energize the culture that interests Nye. In Thomas Jefferson's response to Virginia's Natural Bridge, he finds a rich example of scientific rigor that gives way to experiential delight: "'You involuntarily fall on your hands and feet, creep to the parapet of fixed rocks, and peep over it. . . . It is impossible for the emotions arising from the sublime to be felt beyond what they are here, so beautiful an arch, so elevated, so light, and springing as it were up to heaven! The rapture of the spectator is really indescribable!'" This sense of rapture, invoked by the natural landscape, was transferred to the technological marvels that followed, as skyscrapers dominated the landscape with their bulk and dizzying heights. Moving forward to the new wonders of Disney and Las Vegas, Nye suggests that these structures are built for their own sake as consumer experiences, without lessons or value, moving the consumer from one fantasy to another. ***Vincent P. Hauser***

San Jacinto Battlefields



PRESERVATION Two projects currently underway at the San Jacinto Battleground State Historical Park near Houston offer a snapshot of current historic preservation issues and illustrate differing visions for the park's future development. The restoration of the 567-foot-tall obelisk is being completed, and now the focus shifts to a new master plan for the park.

The monument itself, designed by Alfred C. Finn and dedicated in 1936, is being restored at an estimated cost of $10 million by the Texas Parks and Wildlife Department. Sorely neglected over the years, and subjected to a lengthy history of deterioration caused by subsidence in the vicinity of the nearby Houston Ship Channel and by chemical pollution, the monument's facade of Texas cordova shellstone is being removed and resecured with custom-fabricated stainless-steel pins. Spalled pieces of the facade had been falling for some time, but new notice was taken in 1989 when a limestone fragment dislodged by tropical storm Allison fell through one of the skylights in the museum in the base of the monument. In 1995, the Texas Legislature appropriated $8 million to restore the monument, and work began in the fall of 1996.

The facade problems originated with the anchorage system and the porosity of the limestone facade itself. Over time, the limestone blocks absorbed moisture that corroded the original anchors, which in turn swelled, cracking the blocks at their point of anchorage to the structure. In the restoration design, considerable attention was given to the pins to be used to re-anchor the limestone facade. Some members of the consultant team argued, on historic-preservation grounds, for the bronze pins used in the original design, while others proposed stainless-steel pins for their technical advantages. In the end, custom-alloy stainless-steel pins were selected. Adding to the complexity of the restoration effort is the method used to construct the original structural frame. The limestone blocks were laid up as exterior formwork for the poured-in-place, reinforced-concrete structure. Interior slip forms were lifted as the work progressed, following the diminishing taper of the obelisk. The firm of Wiss, Janney, Elstner and Associates of Chicago and Dallas are the architects for the monument restoration.

The second project—a significant master-planning effort—is now underway to give direction to the future interpretation of the park. Beginning in late 1996, a new master plan was begun by a team that includes Robert Matthai and Associates of Avon, Conn. (known for previous battlefield-restoration projects such as Manassas, Va.); park director and master-planning committee chair J.C. Martin; landscape architect Lauren Griffith of Houston, and others. The initial drafts of the master plan outline a distinct departure from the park's present emphasis and configuration, one that has the opportunity to change the image of the park, and set important precedents for interpreting sites with more than a single period of historic significance.

The master plan currently proposes that the park be returned to its condition at the time of the 1836 battle, incorporating rolling fields of native prairie grasses and marshes. The site would be restored and reconstructed in such a way that park visitors could visualize and understand how the terrain influenced the tactics and outcome of the battle. This aspect of the park's interpretation is a significant one. For visitors to battlefields that have been developed in this manner, such as those at Manassas and Gettysburg, walking the killing fields is a humbling and moving experience, amplified by the

1 The San Jacinto Monument was designed by Alfred C. Finn and dedicated in 1936 as part of the Texas Centennial.

2 A $10-million restoration effort currently underway includes reattaching spalled pieces of the facade.

3 Near the completion of the original construction, workmen pose for an unknown and daring photographer.

photo courtesy of the San Jacinto Museum of History, Houston

1

photo courtesy of Western Waterproofing of America, Inc.

2

relative isolation of these sites within a rural context. In order to accomplish this vision at San Jacinto, the reflecting pool would be filled, and native prairie grasses and other landscape features would be reconstructed to approximate the site's topography of 1836. Other elements of

Alfred C. Finn Collection, Houston Public Library

3

the master plan call for relocating the sundial, moving the Battleship Texas, moving parking areas to remote locations, and building a new visitor center. It is important to note that the site area available for reconstruction has been significantly diminished during the last 50 years by subsidence and erosion from ship-channel traffic.

The site is listed officially as a National Historic Landmark primarily for its significance as the site of the battle, but it is the formal composition of the obelisk and the reflecting pool, along with the battleship, that form the significant shared image of the park. Formally unrecognized by the National Register of Historic Places, Finn's design anchors the park at the scale of the urban landscape. In concert with the reflecting pool, it explicitly alludes to the Washington Monument in Washington, D.C., and reflects the rich architecture built for the Texas Centennial. The battleship USS Texas, brought into service during both world wars, arrived at its berth near the monument grounds in 1948, nine years after the dedication of the monument.

Within the preservation community, the proposed design raises important questions. Is it appropriate to remove the reflecting pool, an important element of the overall composition of the site, to reconstruct the battlefield? Does the significance of the battleground as a door to the western expansion of the U.S., as suggested by Matthai, outweigh the architectural significance of the commemoration of the Texas Centennial? A more basic question follows: Should the significant work of one period of history be removed in order to interpret the historic significance of an earlier period?

The park master plan in its current form suggests that the answer to these questions is yes. Complicating the discussion is our checkered history as a culture of neglecting and overlooking the architecture of one period, only to find that we later discover or assert its significance. Bill Dolman, project manager for TPWD, notes that the master plan is a work in progress, and that significant work remains to resolve these substantive issues. *VPH*

Coming next issue . . .

During the next decade, the museum landscape in Texas will be dramatically redrawn as major projects are completed: the addition to the Museum of Fine Arts, Houston, by Rafael Moneo, a new building for the Modern Art Museum in Fort Worth, among others.

While we wait to see these projects, many other smaller art spaces are already completed and are making their presence felt in the state's art world. Several of these projects will be featured in the July/August issue of *Texas Architect*, including the Byzantine Fresco Chapel Museum in Houston by Francois de Menil.

The issue will also feature an entertainment and recreation special section.

Index to Advertisers

Answers to Self-Test

1. Forces that change the dimensions of building materials include moisture and heat.
2. Increases in moisture content and/or thermal load cause materials to expand. Decreases in moisture content and/or thermal load causes materials to shrink.
3. Fired clay brick tends to expand, concrete masonry units tend to shrink with time.
4. Shrinkage in wood is greatest tangent to the annual growth rings, about one-half to two-thirds as much across the rings, and least parallel to the grain.
5. The drain wall design includes a moisture retarder, cavities, flashings, and weeps to direct water from leaks back to the exterior of the building.
6. The rain screen principle incorporates air chambers at building joints in conjunction with the drain wall design to reduce air pressure differentials between the outside and inside of the wall that might transport water through the joints.
7. Width of expansion joints should be twice as wide as the expected movement, and approximately one-half as thick as they are wide.
8. Perm: A unit of vapor permeability of building materials.
9. The rule-of-thumb for roof overhang width is 12 inches minimum overhang per floor of building height.
10. Minimum clearances for wood and hardboard sidings on walls intersecting roofing materials on slopes is two inches. Where horizontal surfaces are not protected by a roof, the clearance between the wood and hardboard sidings and the horizontal projection should be a minimum of six inches
11. Six construction quality control problems on residential and light construction:
    a. Failure to continue roofing felts over the top of metal drip eave flanges, or under the flange along the slope of the roof;
    b. failure to provide roof runoff diverters where facias intersect sidewalls;
    c. failure to provide drip flashings at door and window heads, and window sills or other similar openings in exterior walls;
    d. failure to keep water from splashing behind the claddings on chimneys;
    e. Failure to provide flashings where deck framing or other structural framing members penetrate exterior wall claddings;
    f. failure to provide a cricket behind chimneys 30 inches or more in width; and
    g. failure to provide manufacturer recommended clearances between wood or hardboard sidings, and other materials.
12. Redundancy in wall design requires a back-up water management system incorporating drain walls with moisture retarders, flashings, and weeps to redirect water entering cracks in cladding back to the exterior of the building as directly as possible.

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Suggested References for Further Reading

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Crimean Journal II

TRAVEL *The following is the second of two excerpts (see* TA, *March/April 1997, p. 60) from Carl Holiday's journal, written during his travels in the Crimea in the summer of 1996.*

June 23, 1996

TODAY WE WENT to Bahcisaraj (*bah-key-suh-RYE*), the capitol of the last Tatar khanate. Sited in the mountains northeast of Sevastopol, Bahcisaraj is wedged between limestone formations similar to those at Eski-kermen. The main street, enclosed by limestone cliff faces 200 to 400 feet high, is narrow and winding, but never claustrophobic. The palace is in the center of town and its main gate is set back slightly from the street, creating a small plaza. The outer wall of the palace is substantial but not imposing, with a doorway more reminiscent of a large, opulent hacienda than a forbidden city. Once

1

all photos by Carl Holiday

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1 The main tower of the fortress of Sudak overlooks the Black Sea beyond.

2 the plaza of Bahcisaraj

3 the cave city of Cufut-Kale, above Bahcisaraj

inside, I began to sense that I was in a palace, but I was not assaulted with an architecture of grandeur as much as greeted by an architecture of directness, serenity, and poise—I really liked this place.

Above Bahcisaraj was the gate to Cufut-Kale. After a steep climb I arrived at two huge wooden doors that were stuck in the limestone face that rises another 50 feet above the double door. The entrance ramp to the gate had been carved from the rock and the side walls, framing the view of the facade beyond: a concave rock formation about three stories high. An exterior formal staircase led to the summit above Cufut-Kale—a tight, switch-back concoction with a tree growing in the crux of its first hairpin turn that shaded the stair, making the climb seem rather gracious despite the steepness. After another two turns I was on the summit, walking along a stone road that paralleled the ridge. The view from the tomb allows you to look out for 20 to 30 miles onto the series of gargantuan limestone slabs and wildflower-swept valleys that make up this landscape.

July 12, 1996

THE DESTINATION of our trip today was Sudak, the site of a significant archeological effort similar to that in Sevastopol, and the site of a medieval Genoese fort. Beyond Sudak, toward Kerch, lies the Crimean steppe, reminiscent of the landscape of the Gulf coast of northern Mexico. It was our intention to use Sudak as a base from which to explore Kerch, formerly known as Panticapaeum during its Hellenistic period. We drove into Sudak at dusk, allowing us to see the fort by its dramatic lighting that illuminated the turrets profiled against the violet sky. It sat atop a craggy high point of the town and dominated every view. That night we could not see what we would discover by daylight: What appears to be half of a great circular rampart is actually all that there is. What would be the other half drops 500 feet down to the rocky shoreline below. The outer wall is about eight meters tall, punctuated every 100 to 200 meters by observation towers 15 to 20 meters tall.

The mountainous landscape here is known as the spirit of the Crimea. The other regions that lie to either side are the coastal region—the mind—and the steppes and inland plains—the body. My first impression was that these analogies were a little overdone, but now I agree with those sentiments—I doubt that my pictures will do these places justice. ***Carl Holiday***

Carl Holiday works with Black & Vernooy in Austin.

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