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A Greater Whole
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SMU Master Plan, Good, Fulton & Farrell Architects, Dallas
UT Austin Engineering Science Development Study,
Kell Muñoz Wigodsky, Inc., San Antonio
Garages and Office Buildings, UT Austin, Overland Partners, San Antonio

A Tight Fit
UH Downtown Physical Image/Sense of Place Plan,
Academic/Student Service Building, and Student Life Building, Houston
Rey de la Reza Architects, Inc., Houston

Kahn in Context
UT Pan American, Engineering and Science Buildings, Edinburg
Kell Muñoz Wigodsky, Inc., San Antonio

Educating the Community
Robin Abrams

North by Northwest
Northwest Vista College
Beaty Saunders Chesney Morales Fly Joint Venture, San Antonio

In the Woods
Montgomery College and the University Center, The Woodlands
RWS Architects, Houston

Growing Up
Preston Ridge Campus, Frisco, Corgan Associates, Dallas

A Sense of Scale
Texas A&M International, Phase I & II Buildings, Laredo
Kell Muñoz Wigodsky and Ford, Powell & Carson
Joint Venture, San Antonio

One From Two
Texas School for the Deaf, Austin, Barnes Architects, Austin

On the cover: Engineering Building at UT Pan American in Edinburg; Kell Muñoz Wigodsky, San Antonio; photograph by Paul Bardagjy

Above: Texas School for the Deaf, Austin; Barnes Architects, Austin; photograph by Paul Bardagjy

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Changing Times

A couple of years ago we published a January/February issue that focused on prison construction. At the time, I was disturbed, though not really surprised, to learn that Texas was building more prisons than schools. However good that news was for the Texas construction economy, it seemed to me bad news in a more general way. This January/February the news looks better. Although I did not run across any statistics about school versus prison construction, I was heartened by the sheer number of college and university projects underway: new campuses planned and built from the ground up, older campuses rethinking the way they serve their students, new facilities filled with new technologies.

We received so many submissions that the problem was not what to publish but what to leave out. Contributing Architect Julius Gribou and I spent a considerable amount of time simply trying to find ways to fit more into the few pages we had. We didn’t find space for several deserving projects and we look forward to the chance to revisit this topic in the future. With any luck, more and better schools will mean less need for all those prisons.

This issue marks a transition for Texas Architect: As of December, Managing Editor Kelly Roberson left the magazine to return to her native Iowa. Kelly has worked for Texas Architect since 1996 and has been the backbone of the production effort: designing and producing most of the pages you see, writing stories, and editing the “News” section, as well as a myriad of other things hidden from the reader’s view. The magazine will miss her hard work and good humor, and I will miss her as well.

In other news, we are happy to report that, in November, Texas Architect received a Bronze Ozzie Award for best cover design; the award was for the July/August 1998 Architecture of Place cover. The Ozzie Awards for Excellence in Magazine Design are sponsored by Folio: magazine.

Susan Williamson

THE TA PROFILE:

JANUARY/FEBRUARY
CONTRIBUTING
ARCHITECT

Julius Gribou
Department Head
Department of Architecture
Texas A&M University
College Station

Where did you go to school? Bachelor of Design, University of Florida; Masters of Architecture, University of Illinois

If you could be something other than an architect, what would it be? Something that allows artistic creativity and an opportunity to perform: a dancer, a pianist, or an orchestra conductor

Who was your mentor? As a practicing professional, my first boss in St. Louis, Mo., and my last boss in Lafayette, La. As an educator, my faculty colleagues

What building would you most like to redesign? If limited to Texas, the Bass Performance Hall in Fort Worth. Beyond Texas, the Portland Office Building in Portland, Ore.

What is the most interesting building in Texas no one has ever heard of? My house. After watching the Frank Lloyd Wright PBS special, I am convinced humility is not a rewarding trait in the architectural profession.

If you could be any architect, who would it be? Louis Kahn, a great architect and a great educator

Who is Texas’ most important architect (past or present)? As an individual, O’Neil Ford, and as a firm, CRS

UPCOMING ISSUES

We invite submission of projects to Texas Architect:

July/August (deadline 15 February) “Hospitality and Recreation”

If you have ideas for “News” or “Survey,” call us at 512-478-7366, fax at 512-478-0528, or e-mail at williamson@txarch.com.
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News

Johnson Redux

FORT WORTH The Amon Carter Museum in Fort Worth announced November 17 its intention to proceed with expansion plans developed by Philip Johnson/Alan Ritchie Architects of New York City. The Board of Trustees had voted unanimously on November 13 to move forward with plans for the 37-year-old museum that will both enlarge and clarify the outgrown facility.

The museum began working with Johnson, who designed the original building in 1961, on remodeling concepts in 1993 (T/A, Nov/Dec 1996). The principal motivation was a need to increase display space and curatorial/support spaces for a collection that has grown from 400 works in 1961 to nearly 300,000 presently; including original Remingtons and Russells, as well as work by O'Keeffe, Eakin, Demuth, Stuart, and other artists. Its photography collection is considered one of the finest in the country, yet much of this work has not been exhibited due to lack of space. Offsite storage has provided an interim solution for the past few years.

The Johnson/Ritchie scheme will remove fully two-thirds of the existing museum in order to reconfigure and expand gallery spaces from 9,000 square feet to over 17,000 square feet. Traveling exhibits are expected to occupy approximately 5,000 square feet of this total and another 4,000 square feet will be dedicated to the Carter's photography collection.

The original 1961 arced memorial "porch" (Johnson is quick to explain that it was never intended as a museum per se) will remain, and efforts will be made to keep it open during the construction process. Additions built in 1964 (Joseph Pelich, architect) and in 1977 (Johnson) will be removed entirely. After considerable study it was determined that the second phase had not been constructed to a standard that would allow reuse, and this, with other factors, caused the

Four projects honored

NORTHEAST TEXAS The Northeast Texas Chapter of the American Institute of Architects noted four winners in its 1998 Design Awards program. Jurors were Dennis Stacy, FAIA, and Ron Wommack, both of Dallas, and Mark Gunderson of Fort Worth.

South Ward Elementary, Jeff Potter Architects received an honor award and Mr. and Mrs. Jim Buie Residence, Allen-Buie Partnership, a merit award. Citation awards went to Pine Tree Intermediate, Thacker Architects, Inc., and Mr. and Mrs. Louis Cook Residence, Thompson Architectural Group.

1 South Ward Elementary, Potter Architects

2 Cook Residence, Thompson Architectural

3 Buie Residence, Allen-Buie Partnership
Of Note: Three Cheers

STATEWIDE In 1998, three TSA members were honored for achievement and dedication to the profession. During the 1998 TSA convention in October, Hal Box, FAIA, Austin (near right), was named recipient of the Llewelyn W. Pitts Award, recognizing a lifetime of distinguished leadership and dedication in architecture. The award is the highest honor TSA can bestow on a member; in addition to practicing architecture, Box served as dean of the School of Architecture at the University of Texas at Austin.

The year 1999 will see another Texan, James D. Tittle, FAIA, Abilene (center right), begin his term as Chancellor of the American Institute of Architects (AIA) College of Fellows. Tittle was recipient of the 1997 Llewelyn W. Pitts Award, and is a principal of The Tittle Luther Partnership in Abilene.

In December 1998, Ron Skaggs, FAIA, Dallas (lower right), began serving his term as First Vice President/President elect of AIA; he will serve as AIA president in 2000. Skaggs is the CEO of HKS, Inc., and has been an active AIA member at the local, state, and national levels.

W. Mark Gunderson

W. Mark Gunderson is an architect practicing in Fort Worth.

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**CALENDAR**

**"Cantos Paralelos"**

The use of parody in the work of nine Argentine contemporary artists will be explored in the exhibition **Cantos Paralelos: Visual Parody in Contemporary Argentinean Art**. Among the pieces shown will be assemblages, sculptures, installations, and prints by Antonio Berni, Jorge de la Vega, Alberto Heredia, Pablo Suárez, Juan Carlos Distéfano, León Ferrari, Rubén Santantonin, Víctor Grippo, and Luis F. Benedit. In conjunction with this exhibit, the **Festival of Argentine Culture**, lasting from January to June, has been organized collaboratively by eight museums and organizations. Blanton Museum of Art, Austin (512/471-7023), **THROUGH MARCH 7**

**"Rhapsodies in Black"**

An important period in African-American art as well as in twentieth-century culture will be represented in **Rhapsodies in Black: Art of the Harlem Renaissance**. The social and artistic exchanges between the African-American, Anglo-American, and European communities in New York City and the expression of visual arts, music, dance, film, and graphics through the African Diaspora will distinguish this exhibition. The Museum of Fine Arts, Houston (713/639-7300), **THROUGH FEBRUARY 14**

**"Working Class Heroes"**

The first major traveling exhibition of the work of Luis Jimenez will be on view in **Working Class Heroes: Images from the Popular Culture**. This celebrated Mexican-American artist combines popular culture imagery, Chicano style, and political content in his work. Seventy large-scale fiberglass sculptures, working models, paintings, drawings, and prints covering 30 years of the artist's career will be shown. Blaffer Gallery, Houston (713/743-9528), **THROUGH MARCH 28**

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Dallas honors 17

DALLAS The Dallas chapter of the American Institute of Architects selected 17 winners in two categories in its 1998 design awards program. For built projects, jurors William Pedersen, Wes Jones, and Carol Ross Barney gave merit awards to Cole Avenue Apartments, Cunningham Architects; JR Miyasaki Station, RTKL International; and the Kafka Residence, Morrison Seifert Murphy. Citation awards went to Ketchum Mountain Ranch House, Ralph Duesing, AIA; Bethany Lakes Pavilion, Ron Hobbs Architects; Fox Sports Net Headquarters, Three Architecture, Inc.; Curtsinger Elementary School, Corgan Associates, Inc.; A House in North Dallas, Cunningham Architects; Laser Tech Color, Good Fulton and Farrell Architects; and Entertainment Collaborative Offices, F/M Associates.

Jurors David Lake, FAIA, Rick Archer, and Jill Giles, all of San Antonio, selected seven projects for unbuilt awards. Honor awards went to Azure, RTKL; Art Center at Louise Wolf Kahn School, Brown Reynolds Watford Architects, Inc.; and Block 588 Urban Housing Project, RTKL Associates. The Brownfield Highway Corridor Improvement Plan, Hellmuth, Obata & Kassabaum; Avian Lakehouse, Mark W. Lauterbach, AIA; and West End Parking Garage, Urban Architecture, all received merit awards, while Uptown Urban Center, Pierce Goll Architecture, received a citation award.

1 Bethany Lakes Pavilion 6 House in North Dallas
2 Curtsinger Elementary 7 Miyasaki Station
3 Cole Avenue Apts. 8 Laser Tech Color
4 Entertainment Collaborative Offices 9 Kafka House
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Honoring San Antonio

SAN ANTONIO Jurors Joseph Valerio, FAIA, Valerio Dewalt Train, Chicago; Gary Cunningham, FAIA, Cunningham Architects, Dallas; and Manfred Thoms, dean, Savannah College of Art and Design, selected 12 winners in the 1998 design awards competition held by the American Institute of Architects, San Antonio Chapter.

Honor award winners included Laredo State Mental Health Care Facility, Lake/Flato Architects, and Science Building, University of Texas at Pan American, Kell Muñoz Wigodsky (see page 44). Five projects received merit awards: Rancho dos Vidas, Michael G. Imber Architect; International Center, Lake/Flato Architects (TA, July/August 1998); Biotechnology/Engineering Building, University of Texas at San Antonio, Kell Muñoz Wigodsky; Pavilion at Promontory Pointe, Michael G. Imber Architect; and HEB Science Treehouse, Lake/Flato Architects. Citations went to La Cienega, Ford Powell & Carson; the Empire Theatre, 3D/International; South Texas Blood & Tissue Center, Overland Partners (TA, Sept/Oct 1996); and First Unitarian Universalist Church, Kell Muñoz Wigodsky.

KR

1 UTSA Biotechnology/Engineering Building
2 Rancho dos Vidas
3 La Cienega
4 Pavilion at Promontory Pointe
5 Laredo State Health
6 Science Building—UT Pan American
7 Empire Theatre
8 First Universalist Unitarian Church
9 HEB Science Treehouse
Practice Q&A:  
1998 TASA/TASB School Architecture Winners

The 1998 Texas Association of School Administrators (TASA) and Texas Association of School Boards (TASB) school architecture competition winners were announced last fall. The competition, cosponsored by the Texas Society of Architects (TSA), names winners in several categories including the Caullidi Award for overall excellence, education appropriateness, value, innovation, process of planning, and design. Jurors for this year’s competition included Jess Butler, superintendent, Lago Vista Independent School District; John Walch, superintendent, Bastrop ISD; Tommy Molina, San Diego ISD; Paul Kullman, Wilson Kullman McCord Architects, Corpus Christi; and Don Burleson, Burleson + Nelson + Shiver, Irving.

Jurors Kullman and Burleson answered the following questions for Texas Architect on some of the issues addressed by the winner projects. Paul E. Kullman is vice-president and founding principal of Wilson Kullman McCord. He has served on TSA’s Architecture for Education Committee for 10 years and as a member of the Board of Trustees of Gregory-Portland ISD since 1992. Don Burleson is senior principal of Burleson + Nelson + Shiver, a 21-year-old firm specializing in educational facility design.

What is the relationship between value and design in Texas school projects?  
Kullman: Every project, especially in the last ten years, needs to have a well-thought-out approach for design options in order to obtain the maximum value. “The biggest bang for the buck” is not just a cliché. It is of the utmost importance to create well-programmed and designed facilities to educate the students as well as demonstrate financial responsibility to the taxpayers, whether local or statewide, that their education dollars are being spent wisely.

Burleson: Value and design are inextricably intertwined. Demands on a community’s financial resources come from many directions in addition to the school district. Value includes not only the initial design and its response to the program, but also management and operations concerns and the ability to react to future pressures brought to bear on the school.

What are the implications of designing schools with facilities that can be used by the community after school hours?  
Kullman: Since school buildings are a focal point of most communities, it seems appropriate that parents want to be more involved in their children’s activities, including after-hours functions such as PTA, recitals, booster clubs, etc. It is important that the architect design a solution that best demonstrates the ease of access to these meeting areas with a limited amount of disruption to the remaining facility. This is of major concern to the district that must present clean, ample-sized spaces, but also be concerned about maintenance and security. West Intermediate School is a good example of proper planning for after-hour use.

Burleson: Community use of educational facilities is growing every year. Zoning areas within the school for security and after-hours access are the primary concerns. Often, there is more than one group using the facility and, for elementary and middle schools, parking can become an issue.

What impact does the need to separate functions (i.e. noisy areas from quieter areas, one academic department from another, older children from younger) have on school design?  
Kullman: Students require a separation from noisy activities so that the true learning experience can be realized between teacher and pupil. Design should limit distractions wherever possible. Parents’ concerns for proper age separation is also vital in the success of a district that desires an equal education opportunity for each child.

Burleson: Next to program and curriculum, zoning areas within the building is the primary design driver. Separation and adjacency are both major concerns.

How does the need to enable future expansion drive school design? What about the need for future reconfiguration?  
Kullman: The capability to expand each campus for future growth is not only desirable, but is a necessity for effective long-range planning. Building additions should be designed with a minimum of inconvenience to students and staff. The traffic circulation, underground utility routes, and finished grade changes should be a factor for problem-solving by the design professionals long before the first brick is laid. A true district-wide and individual campus master plan is a powerful tool for the owner.

Burleson: Future expansion should be a major design consideration. Rare is the school that will not be expanded for enrollment growth and/or program or curriculum changes. Flexibility within the school to accommodate new teaching trends as they develop is mandatory.

How has designing primary and secondary schools been affected by a planning process that emphasizes involvement by all interested parties: faculty, administration, students, parents, the community?  
Kullman: Social changes have redirected our interest and financial commitments in the last 30 years. The “baby boomers” seem to be much more involved than their parent’s generation. Accountability for their two most precious resources—children and pocketbooks—are constantly scrutinized. District staff, parents, and community leaders should be working together for the common goal of academic excellence. State laws creating site-based decision-making committees, school equity funding, and the rewritten education code are means to help develop a planning process that emphasizes involvement by all concerned parties for the betterment of each local school district and collectively for Texas.

Burleson: Over time, the planning team has grown to include all user groups within the community. Often, particularly in community districts, the school is the social center, not only for the students but for the community at large. These diverse needs result in a school truly unique and give a real sense of ownership to the community.
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Caudill Award

PROJECT
Cypress Springs High School, Houston

CLIENT
Cypress-Fairbanks Independent School District

ARCHITECT
PBK Architects, Inc., Houston

CONTRACTOR
Brae Burn Construction Co.

CONSULTANTS
CHIP & Associates (mechanical, electrical); Jones/Horne/Inc. (structural)

PHOTOGRAPHER
Jind Haggard

AWARD
Caudill Award for Overall Excellence

1 The Cypress Springs High School, designed by PBK Architects, Inc., and located west of Houston, was honored with the 1998 Caudill Award recognizing overall excellence. The school, which accommodates 3,000 students, was designed for maximum flexibility, with core classroom areas organized by departments in two large structures. PBK also won awards for education appropriateness, innovation, and design for Ted Polk Middle School, and awards for innovation and process of planning for Moises E. Molina High School.

2 Numerous spaces in the 472,479-square-foot facility serve public and community functions after school hours, including an 800-seat auditorium, an eight-lane natatorium, and two competition gymnasiums.

3 The interior was organized on a two-level, 800-foot-long circulation mall topped with a translucent roof. Every major department has direct access to the mall; secondary corridors link spaces within departments, but all lead back to the mall, which is filled with natural light.

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Education Appropriateness

PROJECT West Intermediate School, Cedar Hill
CLIENT Cedar Hill Independent School District
ARCHITECT Booher/McGee & Associates, Inc., Dallas
CONTRACTOR Monterey Construction Company
CONSULTANTS Ridgway Associates, Inc. (mechanical); Dale W. Caffey Consulting Engineers, Inc. (electrical); TMRP Consulting Engineers, Inc. (civil, structural); Dnukin, Sims, Stoffels, Inc. (landscape)
PHOTOGRAPHER Michael Lyon
AWARD Education Appropriateness; Process of Planning

1 The 67,300-square-foot West Intermediate School in Cedar Hill, located on ten acres adjacent to a six-acre city park, was designed by Booher/McGee & Associates to accommodate 900 fifth- and sixth-grade students. Within its walls is a state-of-the-art technology system, including media retrieval, computers, telecommunications, energy management, and security.

2 The gymnasium, library, and cafetorium were designed so that they can be isolated from the main building to allow community use after school hours, with restroom access, exterior entrances, and self-contained HVAC systems.

3 The building was sited to preserve 100-year-old pecan trees and designed to complement the residential neighborhood. Adjacent park facilities are utilized by the school, which saved the district a substantial amount of money and allowed the neighborhood to keep a natural wooded area. Two colors of brick in a striped pattern, along with sloping metal roofs, scale down the facility. Square windows create various patterns and provide clerestory natural light in the library and art room.

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Innovation and Design

PROJECT Royse City High School, Royse City
CLIENT Royse City Independent School District
ARCHITECT WRA Architects, Inc., Dallas (Swain Mayo, principal-in-charge; Link Tran, project manager)
CONTRACTOR Gallagher Construction Management
CONSULTANTS Reed, Wells, Barnum & Company (m.e.p.); Randy L. Cooper Consulting Engineers (structural); H.G. Rice & Company, Inc. (kitchen); Amtech Roofing Consultants, Inc. (roofing); Freeman-Millican, Inc. Consulting Engineers (civil)
PHOTOGRAPHER Jeffrey C. Miller
AWARD Innovation, Design

1. The Royse City High School in Royse City houses 600 students in 110,608 square feet. In the commons/dining area, tiered seating and low walls allow for a variety of seating arrangements; the versatile dining area also includes a full-sized stage for performances, assemblies, dinner banquets, and community activities.

2. The main entry corridor separates the academic and athletic portions of the building and also serves as lobby space for crowds using the gym and commons area. Classrooms are organized by department, and noisy and active areas are separated to minimize conflict with quiet academic areas.

3. A large green space in front of the building creates a separation from any highway noise, and is also used for sports practice fields. A tower, with an illuminated skyline, marks the entrance.

RESOURCES

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Circle 83 on the reader inquiry card
Education Appropriateness

PROJECT James W. Martin High School Additions, Arlington
CLIENT Arlington Independent School District
ARCHITECT VLK Architects, Arlington
CONTRACTOR Buford Thompson Co.
CONSULTANTS Metro Structural Consultants; Reed, Wells, Benson, and Co. (mechanical); Schricker Rollins (civil)
PHOTOGRAPHER Charles Smith
AWARD Education Appropriateness

1 The 197,000-square-foot James W. Martin High School Addition, designed by VLK Architects, made the campus, at 467,000 square feet, the largest high school under one roof in the state of Texas. The school now houses 3,700 students. One of the design directives for the architects was to create a new image of the building, specifically a new, easily recognizable entrance with a strong presence. Matching brick veneer ties the additions to the existing building, and off-white brick details recall existing concrete precast panels.

2 Core facilities expansion included the cafeteria, library, locker rooms, and gymnasiums. Academic additions provide for typical teaching stations as well as more specialized teaching areas. Administrative areas are distributed across the building to promote communication and aid in supervision. A new larger band hall was included in the addition; the existing band hall was converted to an orchestra space.

3 The new two-story entrance lobby is enclosed in a curved wall of aluminum and glass; exposed radius tube steel beams carry tension cables supporting a projecting steel and aluminum canopy. The facility was built using a construction management delivery process, and the building team was able to apply value engineering processes during the design phase.

RESOURCES
Value and Planning

PROJECT Bridge Point Elementary School, Austin
CLIENT Eanes Independent School District
ARCHITECT BLG, Inc., Austin (Rebecca Richter, project architect)
CONTRACTOR Cadence McShane Corp.
CONSULTANTS Datum Engineering, Inc. (structural);
Talex, Inc. (m.e.p.); J. Robert Anderson, ASLA (landscape)
PHOTOGRAPHER Larry Pearlstone, Gary Ivers
AWARD Value, Process of Planning

The Bridge Point Elementary School, part of the Eanes Independent School District, serves students in pre-kindergarten through fifth grade in a 96,850 square feet. The building was designed to eventually accommodate 900 students and is sited on 20 acres south of Austin. The exterior canopies and deep overhangs provide shade, and the architects made extensive use of natural light. The exterior materials were chosen for their durability: copperstone and limestone-colored split-face concrete masonry units, sandblasted concrete columns enhanced with white portland cement, and a galvalume metal roof.

The site contains a change in grade of about 150 feet, with each of the two “plates” in the building wrapping around the hillside with the contours. The structure was limited to two stories to contain the footprint area. Two courtyards were created by stepping the building down the hill with a connecting pedestrian walkway.

The school is separated into two building plates—in an effort to enhance community use—linked by a glazed pedestrian walkway. One plate contains the public spaces including administration, media center, cafeteria, gymnasium, and music rooms. The other building plate contains general and specialty classrooms.

Public areas are easily accessed, and security doors allow isolated use of the cafeteria and gymnasium as well as of the media center and administration. Interior materials include concrete masonry units, quarry tile in the vestibules and kitchen, vinyl tile, and woven carpet. With the exception of several specialty classrooms, all classrooms were designed alike for maximum flexibility. Doors were placed between many adjoining classrooms to allow different teaching arrangements. Bright colors in corridors and graphics such as circles, squares, and triangles enliven the space.

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Circle 7 on the reader inquiry card
Value

PROJECT  South Ward Elementary School, Longview
CLIENT   Longview Independent School District
ARCHITECT Jeff Potter Architects, Longview
CONTRACTOR Diamond K Corporation, Inc.
CONSULTANTS Host Integrated Systems (technology); Shelley Potter Landscape Architect (landscape); Purda & Associates (mechanical/electrical); Ten Buck Merritt Barnett Pitt (structural); Hart Engineering (civil)
PHOTOGRAPHER Sam Sneed Photography
AWARD Value

The existing South Ward Elementary School was identified for replacement in a district-wide assessment program in 1995. The existing facility had little historical value, but the value of the school to the neighborhood was important. To provide a more stable, secure, and attractive site, the district acquired 27 residential lots and demolished the buildings, doubling the size of the site. New construction took place without disrupting classes. The existing campus contained numerous mature live oak trees, and care was taken to preserve the wooded features. A portion of the site was also included in the master plan for a municipal park. On the exterior, masonry was placed from the floor line to a height of ten feet to ensure durability and enhance insulation; in addition, the facility’s white membrane roof cools the interior spaces.

The school, which serves as a neighborhood center and anchor, provides facilities for 400 students in kindergarten through fifth grade. Most students reach the facility by walking, and important directives included site traffic flow, future expansion, playground locations, daylighting, and significant view axes. The compact plan enhances security, minimizes the vandalism risk, and keeps the square footage low. The expansion scheme permits six additional classrooms and an extension of the cafetorium/multi-purpose core.

Four interior color schemes and patterned hard floors are strewn throughout the spaces, which include a reading recovery component, multimedia lab, and a full-wired computer unit. Interior corridors are finished with a veneer that is scuffable and unaffected by abrasion.

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Institutions of higher learning in the state of Texas are experiencing unprecedented growth: Statistical predictions indicate that the number of students enrolled in colleges and universities in the state may double in the near future. At the same time, shifting population demographics and daily technological advances are forcing a wide range of changes and additions to the academic infrastructure throughout the state.

This infrastructure supports the generation and dissemination of knowledge, thus making it a critical element in the continuum of the lifelong learning process. As the planners and designers of these academic environments—both entire campuses and individual buildings—architects must be aware of historical precedents, current endeavors, and future paradigms. And, since the built environment has a significant effect on human behavior and well-being, it behooves us to examine recent developments on both existing and new Texas campuses. On the following pages, Lawrence W. Speck, FAIA, and Robin Abrams focus on the larger picture; the details are provided by the individual buildings and campus plans.

*Julius Gribou*

*Julius Gribou is head of the Department of Architecture at Texas A&M University in College Station; he is the January/February Contributing Architect (see page 5).*
A Greater Whole

by Lawrence Speck, FAIA

Some of the most powerful and convincing environments we have produced in the United States over the last two centuries have been college and university campuses. Both in terms of architecture and urban design, the halls of academe and the lush grounds that surround them often are oases in the desert of commercial cacophony that characterizes so much of the American urban landscape. They stand as paragons of civil, well-mannered building and as prototypes for the way in which individual buildings can conjoin to create communities.

Most of the best of these campuses began with visionary initial plans conceived by very capable architects. Thomas Jefferson’s plan for the University of Virginia; Shepley, Rutan and Coolidge’s plan for Stanford University; John Galen Harvard’s plan for the University of California at Berkeley; and Cass Gilbert’s plan for the University of Minnesota are all excellent examples of well-conceived, comprehensive projections that draw inspiration from the particular character of their regions, their sites, and their budding institutions.

Occasionally, however, fine campuses have developed in a more informal fashion. In some ways they have “just grown” with each new building’s architect working very sensitively with the prior context and extending it in a coherent way. Rather than drawing on a sweeping overall vision, quadrangles, courts, and malls develop incrementally in response to very local needs and conditions. Harvard and Yale grew their campuses more in this manner. When a powerful architect like H.H. Richardson built Sever Hall at Harvard in the late 19th century, it was not so much a part of a long-term plan as it was an effort to establish an appropriate mass, scale, material...
character, and enclosure for the particular part of Harvard Yard he was working with at the moment.

For most campuses, over a long period of time, success depends on both of these ways of working—strong, coherent master planning and sensitive, incremental design. Reliance on master planning alone can create campuses of excessive uniformity and inflexibility when faced with changing needs. For large campuses especially, reliance on sensitive incremental design may not be enough to generate a desirable coherence and unity. Building a truly great campus (like building any quality urban environment) requires constant attentiveness at many scales—the individual building, the immediate context, and the larger whole.

In Texas we are fortunate to have been the beneficiaries of a handful of America’s best and most beautiful campus master plans. Rice University’s elegant plan of the early 20th century by Boston architect Ralph Adams Cram is a model of responsiveness and invention (see “Survey,” page 64). Cass Gilbert’s plan for the University of Texas at Austin (UT Austin) of 1910 and Paul Cret’s subsequent re-conceiving of that plan in 1933 are both strong, clearly defined visions for the university’s future. Shepley, Rutan and Coolidge’s work for Southern Methodist University (SMU), William Ward Watkin’s plan for Texas Tech, and O’Neil Ford’s work for Trinity University in San Antonio are all

1 renderings and elevations of the office buildings and parking structures designed by Overland Partners of San Antonio for the new north quadrangle at UT Austin

2 master plan for UT Austin developed in 1996 by Cesar Pelli and Associates

3 A study by Kell Muñoz Wigodsky of San Antonio examines the area of the UT Austin campus that houses engineering and science facilities; the development study recommends the addition of new buildings to create plazas and malls as well as a reorientation toward Waller Creek.

4 Model shows the new north quadrangle with the Psychology Building by Pelli and Associates at lower right and the office buildings and parking garages by Overland Partners at the top. The street between the Psychology Building and the new Student Services Building (at left) will be closed to create a pedestrian mall.
admirable conceptions with strong and distinctive implications for urban and architectural character.

Some of these universities have nurtured and fleshed out their plans admirably through the years, combining consistent and sensitive incremental design with updated master plans to keep their campuses rich and strong. Rice and Trinity probably deserve the highest accolades for their record in this regard. Texas Tech, perhaps, has drawn the least in terms of sustained energy through the years from its auspicious start. SMU and UT Austin have recently instigated new initiatives to recapture the admirable qualities of their earlier campus designs.

UT Austin Master Plan
At UT AUSTIN this planning effort began in 1964 when Cesar Pelli and Associates was hired to produce a new comprehensive master plan for the campus—the first such plan since Paul Cret's landmark 1933 effort.

Cret's plan had served the university well for more than 20 years, but by the early 1960s the commitment to this vision began to falter. Rapid growth in student body, faculty, and staff led to a period of building that emphasized speed and accommodation of immediate departmental needs over long-term campus planning and design. The result was often buildings that were isolated and fragmented. New parts of the campus were developed absent the friendly well-defined outdoor spaces that characterized the original "40 Acres." As the campus had expanded to almost 400 acres it had lost the livability, grace, and style that had been so strong in the heritage defined by architects like Gilbert, Herbert M. Greene, and Cret.

The Pelli plan completed in 1996 outlined a comprehensive vision for the campus that included greater emphasis on pedestrian-friendly environments, the creation of a coherent community of landscaped open spaces, increased student housing and student activity centers, selective in-fill buildings within the core campus, creation of gateways and other orientation devices, and a respect for the architectural character of earlier eras. Its impact was immediate. Even projects already in progress were reviewed to try to bring them into greater compliance with the spirit of the master plan. As important new projects were conceived, the master plan became a guide for site selection, general building density and massing, and character of adjacent outdoor spaces.

The pattern that has emerged over the last few years has been that as a new project is initiated and a general location is identified, a local development study is conducted to bring master-plan issues into a tighter focus. Local development studies have now been done by Cesar Pelli and Associates for several projects, including a study to determine the best location for the initial stage of and a study to give greater specificity to the new north quadrangle district that was pegged to accommodate parking structures, general-purpose office buildings, and a new Psychology Building in the master plan. The latter project is now in various stages of design and construction, with Overland Partners of San Antonio as architects for the parking structures and office buildings and Cesar Pelli and Associates with Page Southerland Page as architects for the Psychology Building. Like prior work on campus by Gilbert, Greene, and Cret that bonds seamlessly into a whole, the work of different architects in the north quadrangle promises to create a strong ensemble as well as distinguished individual buildings.

Another local development study was recently conducted by Kell Muñoz Wigdoksz Architects of San Antonio for the portion of the campus where the College of Engineering is currently housed. No one's favorite architectural environment on campus, this area is dominated by bland, large-scaled buildings that contribute little to the formation of active open spaces. The Kell Muñoz scheme creates a net addition of almost 700,000 square feet of building and 570 parking spaces using three- to five-story infill structures to create a series of well-defined plazas and malls. The project orients strongly to Waller Creek, replacing open parking and loading docks on its banks with an outdoor commons edged by well-scaled building façades.
The combination of master planning, local development studies, and the selection of architects for individual buildings who are committed to creating a high quality overall campus environment promises to generate a new era of buildings at UT Austin that will help return the campus to its former architectural glory. Some new buildings on prominent sites and with one-of-a-kind programs like the new Blanton Art Museum will demand a focal and distinctive architectural character (like the UT Tower or the Memorial Museum were given in Cret's plan). Others, like the new Psychology Building, the pair of office buildings designed by Overland Partners, and most of the buildings in the Kell Muñoz Wigodsky plan, will need to be strong fabric buildings that create continuity and spatial definition for the campus (like the Texas Union and Goldsmith Hall did for the Cret plan). The master plan helps put each building's role into architectural as well as urban design perspective.

SMU Master Plan

The SMU Centennial Master Plan is at an earlier stage in a similar process to that developed by UT Austin. Completed last year by Good, Fulton & Farrell Architects of Dallas with SWA Group, the SMU plan aims to cure some of the ills of the current campus and set its university on a well-defined track through 2015. New parking structures are planned to replace surface parking that has eaten up much of the outdoor space on campus through the years. The recaptured space is used to create well-defined courts and lawns flanked by solid, consistent building volumes. The resulting hierarchy of outdoor rooms extends what is so successful in some parts of the older campus fabric.

The plan is all about clarity, order and tradition—values important to SMU as an institution. It reasserts the importance of student life on campus, focusing on activities outside the classroom as well as within. New outdoor spaces for informal gathering, a new Student Services Building at a critical juncture on campus, a new recreational sports complex, and a new art museum at the front door of the campus will all enrich the life and fabric of SMU.

Regrettably, so much of architectural practice is the act of creating a single building for a client who is understandably interested primarily in his or her own domain. Campus projects offer the opportunity to work with buildings, not only as they accommodate individual users' needs, but also as they build communities, public spaces, and cities. It is encouraging to see these examples at UT Austin and SMU where clients are alert to the value of buildings creating a greater whole and where architects are working creatively and collaboratively together to address those expectations.

Lawrence W. Speck, FAIA, is dean of the School of Architecture at the University of Texas at Austin.
A Tight Fit

by Susan Williamson

The University of Houston (UH) touts itself as "the state's urban campus" and nowhere is that more true than at the system's downtown Houston location. Just outside the street grid at the north edge of downtown, the campus is wedged into a 1.3-acre site surrounded on three sides by Buffalo and White Oak bayous, on the north by the decks of Interstate-10, and to east and west by Main and Travis streets. An active railroad track runs along the south edge. The site is across the bayou from Allen's Landing, the founding place of the city of Houston.

The campus has been in operation since 1974 as a UH facility; at that time, the only buildings on the site were the twin 10-story towers of the historic M&M Building. Although earlier studies had analyzed expansion options, including moving to a location outside downtown or teaching classes in rented space throughout downtown, in the end a decision was made to stick with the existing site. At that point, the Board of Regents undertook not only a building program but a master-planning effort as well. Rey de la Reza Architects of Houston was selected to develop the master plan and later to serve as design architect for the first two buildings constructed—the Academic/Student Services Building (PGAL Architects of Houston was architect of record) and the Student Life Building (RWS Architects of Houston was architect of record).

Since space was so limited, siting of new buildings was straightforward and planning efforts focused on issues of campus identity, accessibility, and enhancement. The unusual structure of the campus was a central factor: The primary circulation level and most building access is at the third level above the actual ground plane—that is, at the level of the elevated portion of Main Street. In the master plan, parking and service are housed on the ground level,
while the elevated plane is the plaza level for campus buildings and circulation. The master plan detailed enhancements to paved decks on north and south, as well as improved connections from those decks to the bayou. Most of the bayou edge is owned either by the city or county and UH entered into partnership agreements to develop those green spaces, including an amphitheater, an extension of the city's bike and bike trail system, and pedestrian bridges.

Other plans would increase the campus's visibility, both by developing a system of identity pylons along campus edges and better gateway definition and by improving accessibility for pedestrians by widening sidewalks along Main Street and for users of mass transit by providing an improved entry plaza and arcade along Main Street.

When the UH Board of Regents made the decision to stay downtown, the area was still languishing. In the decade since, downtown Houston has changed dramatically. As Ron Shoup, director of campus planning for the UH System says, “I think it’s fair to say this was part of the spark that set this downtown thing on fire.”

1. The auditorium lobby at the south edge of the Academic Building curves out onto the south deck and looks over the bayou.
2. The new Academic Building, at left, makes gesture to the historic M&M Building, now known as One Main, through use of complementary brick and terra cotta.
3. Entry of the Student Life Building with stainless steel canoe sculpture.
4. Master plan of plaza level.
5. Section showing circulation.
The brick exterior of the Science Building is attuned to existing campus structures, with arches evocative of the work of Louis Kahn.

The new building houses state-of-the-art science equipment and represents a major facility upgrade for the South Texas University.

1 The brick exterior of the Science Building is attuned to existing campus structures, with arches evocative of the work of Louis Kahn.

2 The new building houses state-of-the-art science equipment and represents a major facility upgrade for the South Texas University.

3 The red "sun" lounge, visible from outside the courtyard, draws attention to the building, which is decidedly different from the other facilities on campus.

4 Site plan shows relationship of new engineering and science buildings.

Kahn in Context

by Jonathan Hagood

The campus of the University of Texas-Pan American (UT-Pan Am) in Edinburg has a cohesiveness due in large part to the work of Kenneth Bentsen, architect of the original campus buildings. The style is reminiscent of Louis Kahn's work in India, with an extensive and expressive use of brick and strongly geometric forms. When given the task of designing new engineering and science buildings on campus, architect John Kell of Kell Muñoz Wigodsky (KMW), a lifelong student of Kahn, strove for an architecture "sympathetic to Kahn in a gutsy way."

The expression of engineering culture drove the design of the new Engineering Building. For one, the architects used bricks as load-bearing members; thick walls and real arches predominate. The new building often juxtaposes brick and exposed concrete—a design move common in Kahn's work, yet previously unused in UT-Pan Am buildings. In addition, the metal handrails have an "engineered quality," and the concrete stairway is a heroic tectonic statement. The architects wanted to show that engineering could be both utilitarian and beautiful, says Kell.

The site for the Science Building contained a condemned planetarium, and the architects discovered that a science professor was still using it to educate science students and others interested in astronomy. They decided to keep the planetarium and make it the focus of an interior courtyard formed by the U-shaped building; the firm helped raise the money necessary to restore and renovate the planetarium for continued use.

On the outside, the Science Building employs many brick details similar to those employed in the Engineering Building, and the principal arch comes...
from an unused Kahn design for his museum at Yale, explains Kell. The interior courtyard, however, is a riot of color that represents the solar system in an abstract way. The round faculty and student lounge section is a deep red sun; Mercury is a stainless steel information kiosk; Venus is an orange-gold cracked mosaic tile patio area; the blue-green, and white tiled planetarium is the Earth; and the two colored stair towers represent Mars and Jupiter. The distances between the "celestial" bodies are proportional and were actually determined before the idea of the solar system took hold, says Kell. Later, however, the astronomical metaphor became the driving force in determining the materials, feel, and identity of the courtyard.

As an older campus, the University of Texas-Pan American has a distinctive architectural style; and any new buildings inevitably reflect the architects' attitude towards the existing buildings. With the new engineering and science buildings, KMW chose to embrace the spirit of the university by designing with the forms, scale, rhythm, and materials of the existing buildings. In the end, the university is enriched by the new buildings because they say as much about the campus as they do about themselves, reaffirming the context while creating spaces that university administrators hope will inspire and attract students to engineering and the sciences.

5. Exterior view of Engineering Building in campus context
6. Thick walls and expressive brick arches are a result of the tectonic and engineering aspects of brick construction, a characteristic found in existing buildings on the campus.
7. Kell Muñoz Wigodsky designed the buildings to make full use of the given site, accentuating circulation paths and points of entry.
Educating the Community

by Robin Abrams

There are striking physical differences between traditional university campuses and those of the new “open universities”—these contrasts are physical manifestations of elemental, philosophical differences between the two.

Entry to the traditional universities requires passage of exams and application for admission. They are referred to as “ivory towers”; their settings are centralized enclaves organized around malls, yards, cloisters, quads, and internally focused courtyards. An important goal of the physical plan is to support the development of a community of scholars. Automobile access is tightly controlled and mostly banished to the periphery, often in parking structures. (A little known fact on these campuses is the huge amount of revenue the parking garages contribute to the university budgets—so much that many a university has been known to fight the construction of private parking facilities in proximity to campus.) Traditional campus plans show a desire to keep the “real world” at bay, providing a sheltered enclave for the seeking of pure knowledge, untainted by worldly concerns. This is reinforced by dormitory living, often required for freshmen, who are the most susceptible to off-campus temptations that might distract them from scholarly pursuit.

In contrast, the open universities take a very different approach to both entry and the building of community. Many have no entry requirements other than a desire to learn and the ability to register and pay for classes. They are the “fast food” outlets of higher education—this is not a reflection of the quality of education provided, but rather an attitude towards access. The motto of Austin Community College perfectly capsulizes this academic philosophy: “We can help almost anyone achieve their goals.” These campuses are not burdened by straitjackets of tradition nor alumni expectations. Non-traditional students are their tradition. Their mission is not concerned with building a community of scholars, but rather to serve the scholars who already live within the local or regional community.

Naturally, this significant difference in outlook is reflected in new campus planning. While the traditional universities may expect students to make a major commitment of time and resources to pursuing a degree, the new universities aim to serve students who struggle to integrate their education into lives already consumed by jobs and families. Not surprisingly, ease of access becomes paramount, more important in these students’ lives than stately cloisters or spacious lawns. As will become evident from the projects presented on the following pages, the new campus planner’s biggest challenge is the aesthetic treatment of vast areas of parking. Other challenges are orientation of campus buildings to both the parking lots and the interior public spaces and redefinition of the function, location, and architectural language of the campus “commons.”

Through the integration of natural features on the sites, there also appears to be a desire to provide a park-like setting for potential moments of pause in the hectic lives of commuters, even if only glimpsed through the windshield of a moving car.

Another significant difference between traditional universities and the new college campuses is the source of building construction revenue. Most of the new campuses are built with local—and in some cases hotly contested—tax dollars. While earlier campus planners may have had the luxury of designing and building at a remove from their sources of finance and within a spirit of longevity and placemaking, the new campus planners operate within an environment of accountability and high visibility. This leads to a consideration of just what a community might consider to be an acceptable language of architecture for higher education.

From the examples presented on the following pages, the answer appears to be more than a very good high school and somewhat like a suburban office park. Behind this imagery is a desire for the campus buildings to blend in with other buildings in the students’ lives and thereby eliminate the sense of intimidation the uninitiated might feel on a more traditional campus. Thus the design of the buildings as well as the campus becomes an important part of the mission to accommodate the needs of non-traditional students. The unassuming spirit of these places becomes one of openness, familiarity, and access—not necessarily transforming the face of architecture, but dedicated instead to educating the community.

Robin Abrams is an architect and landscape architect. She is an associate professor of architecture at Texas A&M and principal with Urban Design Associates in Austin.
North by Northwest

by Robin Abrams

One of suburban San Antonio’s greatest assets is the gentle wrapping around of the Texas Hill Country. In a region that has seen too many golf courses and shopping malls completely ignore this feature, Northwest Vista College takes full advantage of its heavily wooded site. The steeply sloped 137-acre site is bisected by a creek and is covered with mature native oaks. The college, part of the Alamo Community College District, is located in one of the most rapidly growing areas of San Antonio.

The design team, a joint venture of Beatty Saunders Architects, Chesney Morales & Associates, and E.I. Fly & Associates, all of San Antonio, as well as nationally renowned planning consultants Johnson, Johnson & Roy, attempted to integrate the new campus’s built features carefully into the site. An effort was made to terrace the parking lots into the hillsides, thereby reducing their visual impact. The native landscape is brought into close contact with the buildings, and the buildings have been designed in such a way as to bring them down in scale, in a very Wrightian manner. The buildings have been oriented towards the best views on the site (as well as towards the other buildings, which are held together in a loosely axial, centralized master plan). The architects used burnished limestone masonry cladding and horizontal bands of brick, which blend well with the rustic limestone outcrop typical of the region. Gently hipped, low-sloping roofs further help to integrate the buildings with the site.

The three buildings that have been constructed during the first phase of the project are comprised of a classroom building, a learning center, and a college commons. Each building is easily accessed from adjacent parking and is also linked to the other buildings through a system of pedestrian bridges and plazas that crisscross the creek. Future academic buildings are planned to both enclose a courtyard with the existing academic building and to complete the main east/west access. An interesting feature of the long-term master plan is a proposed magnet high school on the site, reflecting a trend towards providing advanced placement opportunities for students who wish to begin accumulating college credits while still in high school.

1. The buildings at Northwest Vista College in San Antonio were sited to fit snuggly into the sloping and heavily forested site.

2. Conceptual master plan; the footprint of the buildings changed slightly as the designs evolved.

3. A pedestrian bridge spans a creek on the site; the bridge connects the commons building and the academic and learning center facilities.
In the Woods

by Susan Williamson

FROM THE START, Montgomery College was conceived as a place that invited the public—its potential customers—in. As college president Dr. Bill Law says, “We wanted an emphasis on community. After all, the taxpayers are paying for it.” The campus, one of four in the North Harris Montgomery Community College District, is in The Woodlands, north of Houston.

Law asked the architects to create a prominent entry drive terminating at the Extended Learning Center, the centerpiece architecturally and philosophically of the campus. The center is open day and night to facilitate the needs and schedules of the non-traditional student, Law says. The campus serves 4,800 credit students and an equal number of non-credit students. All commute, making provisions for parking a central issue. Restrictions imposed by The Woodlands required that lots—a total of 3,600 spaces are planned—be buffered and broken up by areas of trees.

Despite the lack of a resident population, Law asked that the campus include “beautiful outdoor spaces, as well as spaces the community could use.” The entry plaza and a central covered dining area provide places for student interaction; in addition, covered arcades between buildings include seating areas. Athletic fields and courts are used by both the students and the community.

The main campus and the adjacent University Center (a partnership of the community college district and six state universities to offer junior- and senior-level courses) are technologically sophisticated. Both the University Center and the main campus incorporate technology that allows broadcast of classes to remote locations as well as interconnection of the two facilities and others within the district and elsewhere.

The plan, Law says, was to create a campus that appealed to its potential market, the education-minded residents of the far north Houston suburbs. “If we can make the campus a nice place to visit, when it comes time to make a decision about college, they’ll think of us.”

PROJECT Montgomery College and the University Center, The Woodlands

CLIENT North Harris Montgomery Community College District

ARCHITECT RWS Architects, Inc., Houston

.contractor Vaughn Construction Company (college); Teleges Construction Corporation (University Center)

CONSULTANTS CHM & Associates (college m.e.p.); Burns DeLatt & McCoy, Inc. (center m.e.p.); Jones/Burns/Inc. (structural, both); Lamb & Barger, Inc. (civil, both); WJHW, Inc. (college acoustical); Frank Clements Associates, Inc. (college food service); OTM Engineering (technology, both); Center for Distance Learning-TAMU (center technology)

PHOTOGRAPHER RWS Architects, Inc.
Growing Up
by Jonathan Hagood

In the far north Dallas suburb of Frisco, the Collin County Community College District is building its Preston Ridge Campus in order to capitalize upon the proximity of the 2,655-acre Legacy office park (TA, March/April 1998). The campus master plan, developed in 1991 by Corgan Associates, emphasizes both centrality and incremental growth, establishing a focal point for the campus strengthened by planned successive addition of individual buildings. Preston Ridge is primarily geared towards younger students using the college as a stepping stone to larger, four-year universities. Students commute from throughout the district, and the location also allows corporate employees to attend continuing education classes.

The district required a master plan that facilitated incremental growth without sacrificing a cohesive image. To that end, the plan’s circular organization has the dual advantage of providing a spatial focus for the campus and making that rationalizing principle clear from the very beginning. A fountain and garden area mark the highest point of the campus, and individual buildings surround the garden, each with an entrance both to the central space and to a ring of parking beyond. Eventually, a pedestrian arcade will connect the buildings on the garden side.

The driving forces behind the design of individual buildings, says architect Scott Ruch, include “not fighting the residential surroundings, referencing the Texas vernacular, and giving the façades a traditional look largely through a highly detailed masonry exterior.” The low-slope metal roofs with deep eaves and dark green windows accent the blond buildings. Also, because the Student Activities Center will not be completed until May 1999, Corgan Associates designed each building with a student gathering space.

1 The buildings’ low roofs sympathize with surrounding residential development.
2 The master plan includes softball and soccer fields, a gym, and a Great Lawn for student use.
3 Each building contains student gathering areas enriched with generous hallways, two-story space, and clerestories.

PROJECT Preston Ridge Campus Phase One, Frisco
CLIENT Collin County Community College District
ARCHITECT Corgan Associates, Inc. (Phil Mein, principal-in-charge; Jon Hablitzel, project manager; Scott Ruch, project architect)
CONTRACTOR Turner Construction Company
CONSULTANTS Kimley Horn Associates (civil); Brochette, Davis, Drake (structural); Reed, Wells, Benson, and Co. (m.e.p.)
PHOTOGRAPHER Blacklink
A Sense of Scale

by Jonathan Hagood

The buildings of the recently completed first and second phases of the new Texas A&M International University (TAMIU) campus in Laredo seem oddly out of scale, towering over the scrawny mesquite trees and cactus of the border brush country. This apparent disparity is intentional, says architect John Kell of Kell Muñoz Wigodsky. The new buildings were designed by a joint venture of Kell Muñoz and Ford, Powell & Carson, both of San Antonio. "The university wants to be a major institution with a major campus," Kell says, "and we felt it necessary to make that statement from the beginning."

University campuses are by their nature places of accretion, and rarely is a complete campus built all at once. At best, a well-designed and thoughtful master plan orders growth so that the completed campus has a sense of clarity and vision. However, the realities of slow, incremental expansion often tempt schools into building something now that is itself complete and scaled to current demands. The danger, says Kell, is that later additions will make earlier gestures seem puny and unimpressive by comparison.
The task, therefore, is to create the desired sense of scale from the beginning, realizing that several stages later the campus will look complete. "If you look at old pictures of UT's campus in Austin, A&M's in College Station, or Rice's in Houston, the first few buildings seem massive and ridiculously out of scale," notes Kell. "Today, though, those buildings are perfectly in tune with the completed campus."

In designing the first buildings for TAMIU's campus, the architects worked from a master plan developed by HOK, Inc., in 1992. While the university wanted a simple and strong architecture, one of the goals for the individual buildings was to create a design vocabulary that would be diverse enough to facilitate later additions to the campus—additions that might be affected by future changes in budget or architect. The tilework, use of shading elements, and varied masonry like brick, concrete masonry units, and cut stone are sources for later architecture.

With any campus, present-day needs must be balanced with future demands. Also, the first buildings of a new campus set the tone for later concretization of a university's vision of itself. For TAMIU, which wants to be a major educational institution, its new campus had to be of a scale and grandeur equivalent to this vision, and its new buildings echo this goal.

1 view inside the meeting room behind the library apse

2 The Main Library and Administration Building dominates the master plan of the campus and the mesquite and cactus-filled landscape of Laredo.

3 Shaded walkways edge the quadrangle, itself landscaped with benches, trees, and open space for student activities and formal university ceremonies.

4 Gaps between buildings allow the quadrangle space to spill out into the landscape and other outdoor spaces created by future campus expansion.

PROJECT Texas A&M International, Phases I and II, Laredo
CLIENT The Texas A&M University System
ARCHITECT Ford, Powell & Carson, Inc., Kell Munoz Wigodsky, Inc. (joint venture), San Antonio
CONTRACTOR Flintco (Phase I); Bartlett Cocke (Phase II)
CONSULTANTS Turner, Hickey & Associates (associate architect); Goettert & Associates (m.e.p.); NE Simpson Co., Inc. (structural); Mejia Engineering (civil); Rolf Jensen & Associates (fire/life safety); Jamous (telecommunications); Pelton, Marsh, Kinsella, Inc. (acoustical/AV); Babby-Denny International (cost estimating)
PHOTOGRAPHER Greg Hursley
One From Two

by Susan Williamson

The Texas School for the Deaf's campus in Austin is older than the State Capitol just up Congress Avenue. The school was established on the site in the 1850s and has grown over the following 140 years to a point where it now serves 315 middle school and high school students on the original 65-acre site and 175 pre-school and elementary school students on a separate 40-acre campus in East Austin. In the late 1980s a decision was made to consolidate the two campuses. Barnes Architects of Austin was hired initially to develop a master plan and later to design the 458,000 square feet of new construction.

One reason for the $65-million appropriation by the state legislature was a sense that the School for the Deaf had been neglected for years, if not decades, resulting in facilities that were both outdated and inefficient. Another reason was a hope that consolidating the campuses would save money: One campus would need one health center instead of two, one security staff, one maintenance department, one cafeteria. Consolidation would mean a more crowded campus but also one that school administrators hoped would be more homey and less institutional for the many students who live on campus.

1 A new vocational building provides spaces for a range of work-oriented training; school administrators brought in knowledgeable members of the community to serve as advisors when the vocational areas were being planned—automobile mechanics to look at the garage area, for example. Such input was part of an intensive information-gathering effort undertaken as part of the master-planning process, says architect Jay Barnes.

2 Dormitories for high school and middle school students—two separate but identical buildings for boys and girls—were sited to create a central courtyard between them just to the east of the academic building.
A large number of existing buildings, most relatively small in scale, were demolished to make way for their much larger-scaled replacements. The framework of buildings that remained after demolition was used as a matrix for establishing axial connections between the new buildings and the reorganized circulation system. The existing buildings—mostly drab, windowless blocks of 1970s vintage—were used “as a sort of backdrop against which to place the newer buildings,” says architect Jay Barnes.

Middle school and high school functions, both classroom and residential, were located at the south end of campus (those portions have been constructed) while lower-grade and administrative facilities were located toward the north and east (construction is just beginning on those portions). The two halves are joined, both organizationally and philosophically, at a central elliptical plaza that houses the one remaining building of historical interest: the old laundry facility, converted now into a visitors’ center and archive. Radiating out from this historical center are covered arcades and walkways connecting all parts of the campus. Vehicular traffic was moved to a ring road circling the campus (except for accommodations for maintenance and emergency vehicles); the result is a safer, more pedestrian friendly environment.

From South First Street, which runs along the west edge of campus, the new buildings, particularly the 82,000-square-foot middle school/high school complex, appear dramatically massive. Up close, however, that mass is relieved by the scale of the details: limestone building bases; varied brick and limestone patterning; deep-set windows; wide roof overhangs and painted metal roof supports; pergola-like covered entries of clay pipe and wood slats. And, although the academic building is tall, especially given its position at the highest point on the site, only the central section rises to four stories. Elsewhere, the building steps down and across the slope, with two-story sections projecting along the lower, western edge. In addition, the arcaded walkways provide a sense of enclosure for the pedestrian. The buildings themselves wrap around human-scaled courtyards that, with their low walls and terracing, invite sitting and gathering.

The interiors of the academic building are fairly standard, although openings along the long west-
The master plan shows all buildings to be constructed on the 65-acre site. Construction has been completed on buildings to the south of the central plaza; work has just started on the elementary school and administrative buildings to the north and northeast of the plaza.

The old laundry facility—now a visitors' center and archive—anchors the central plaza, while the new clock tower is positioned at the north end of the main south pedestrian mall; to the left of the clock tower is the natatorium and gymnasium building.

ern and eastern façades flood hallways and classrooms with daylight. The interior library on the top level takes advantage of a skylight along the roofline to bring in even more natural light.

Special provisions for the deaf population were relatively few, says project designer Tommy Kosarek: visual bells, wider than normal sidewalks—up to 15 feet—to accommodate the need to walk side-by-side while signing, and, most importantly, maintenance of visual sightlines throughout exterior and interior. Line-of-sight supervision is crucial, says Jim Johnston, the school's facility planner, and for that reason nooks and crannies were eliminated as much as possible.

The school's long history and its importance to the deaf community meant that the architects had to tread carefully. The decision to stay on the central campus was driven by its historical and emotional significance, and the architects worked closely with groups not only of faculty, administrators, and students, but also of alumni, during the planning and design process. Many alumni had strong memories of the old administration building—called "Mule Ears" because of twin towers that could be seen from the Capitol. In honor of that symbol, the architects designed a clock tower that sits just off the central plaza. It cannot be seen from the Capitol—the downtown skyline has risen in the intervening years—but the intent is clear: a new symbol standing tall at the heart of a newly refurbished school.
resources

uh student life building, page 42

unit pavers: pavestone; integral concrete color: l.m. scofield; cementitious decks: vermiculite products, inc.; hollow core planks: gate concrete products company (upchurch kimbrough, distributor); face brick: acme;cmu: eagle concrete products; glass block: pittsburgh corning; stainless steel cable at handrails: hayn lines; laminates: nevamar; waterproofing, dampproofing: w.r. grace, monsey; batt insulation: certainteed; extruded, roof, and deck insulation: uc industries; membrane roofing: bondcote roofing systems; metal roofing: aep-span; roof hatch: bilco; metal doors: ceco door products; wood doors, frames: buell door company; entrances, storefronts: u.s. aluminum corp., tubelite; gypsum board: structural steel framing products; acoustical ceilings: armstrong; wood flooring: cornagia; fluid applied flooring: selby battersby & co.; laminated wall panels: penel specialists, inc. (interior surface systems); acoustical treatments: decoustics; paint: ici dulux paints; exterior plaster finishes: dryvit, grilles, screens, exterior sun control devices: ruskin manufacturing; signage, graphics: st. george sign co.; aluminum canopy: air vent

uh academic/student services building, page 42

unit pavers: pavestone; concrete materials: txi concrete; precast architectural concrete: hakco; masonry units: acme brick; metal decking: epicore; railings and handrails: offenhauser co.; architectural woodwork: global woodworks; laminates: wilsonart; metal roofing: beridge manufacturing; gypsum board: u.s. gypsum; tile: marazzi tile; acoustical ceilings: celotex; high performance coatings: triarch

ut-pan american, science building, page 44

unit pavers: alamo pavers; concrete materials: l.m. scofield co.; masonry units: acme brick; stone: leander cut stone; cast stone: cast stone comm. service; masonry anchoring systems: hohmann & barnard; metal materials: vulcraft; membrane roofing: garland; wood doors, frames: vt industries; roof hatch: bilco; unit skylights: kalwall; glazed curtainwall: kwanne; structural glass curtainwall: kwanne; schlage & von duprin; gypsum board: georgia pacific; gypsum fabrications: buchtal tile; acoustical ceilings: armstrong; acoustical treatments: decoustics; letters, plaques: ccsw; laboratory casework: taylor

ut-pan american, engineering building, page 44

concrete materials: l.m. scofield co.; cast stone: stone legends; masonry anchoring systems: hohmann & barnard; metal decking: vulcraft; wood doors, frames: vt industries; specialty doors: overhead door; unit skylights: kalwall; acoustical treatments: decoustics; paints: ici dulux paints

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montgomery college, page 48


the university center at montgomery college, page 48

unit pavers: eureka; cementitious decks: harborlite perlite; brick: borax; cmu: eagle lake; cast stone: hakco; masonry restoration, cleaning: sure klean; masonry anchoring systems: hohmann & barnard; glass block: pittsburgh corning; structural steel: jarco; joists: vulcraft; architectural woodwork: quality; high Sierra; laminates: nevamar, wilson art; formica; fascia, soffit panels: beridge manufacturing co.; aluminum composite panels: reynolds aluminum co.; wood doors, frames: vt industries; specialty doors: total door; entrances, storefronts: allure; porcelain ceramic tile: graniti fiandre, crossville; acoustical ceilings: armstrong world industries; acoustical wall treatments: awp; sprayed acoustical ceiling: usg interiors; baked plastic laminates: wilsonart; plastic acrylic finish: dryvit; vinyl composition tile: armstrong world industries; base: ropp rubber corporation; expansion joint covers: balco; manufactured casework: csi; letters, plaques, signage, graphics: st. george sign co.

preston ridge campus, page 49

masonry units: acme brick; manufactured stone: dallas cast stone; masonry veneer assemblies: featherlite; metal roofing: beridge; smith steelite; entrances, storefronts: u.s. aluminum; gypsum board: gold bond; paints: sherwin-williams; laboratory casework: collegedale

texas a&m international, phases i and ii, page 50

unit pavers: bexar concrete products, alamo concrete pavers; paver pedestals: terra paving products; concrete materials: l.m. scofield co.; masonry units: acme brick, elgin brick; stone: texas quarries; cast stone: redondo mfg. co.; concrete: texas industries, alamo concrete products; roof tiles: d'hans; metal doors: pearland industries; wood and plastic doors, frames: eggers industries; entrances, storefronts: tubelite, arrowall; terrazzo: american marble & mosaic co; tile: american olean; acoustical ceilings: armstrong; wood paneling: hoffman & co.; acoustical wall treatments: decoustics; paints: ici dulux paints, monarch paint co.; decorative finishes: tchemec co.; plastic accessories: fry riglet

texas school for the deaf, page 52

unit pavers: pavestone; retaining walls: acme brick, featherlite; masonry units: acme brick; limestone: featherlite; building insulation: celotex; membrane roofing: koppers industries; metal roofing: copper roofing; roof accessories: bilco co.; skylights: naturalite; roof insulation: atlas energy; metal doors, frames: p.w. metal products, pioneer (stainless); aluminum sliding glass doors: vista wall; wood windows: marvin windows; unit skylights: naturalite; glass: libby-owens, ford (evergreen, low e); aluminum windows: efco corp.; glass block: pittsburgh corning; gypsum board: pietch (framing panels), usg co.; tile: dal-tile, american olean, mission tile; acoustical ceilings: armstrong; acoustical baffle: mbi; paints: kelly moore paint; resilient tile: azrock; laboratory casework: texwood furniture corp.; architectural metal work: willborn steel; steel windows: hope's architectural products; masonry & stone anchoring systems: hohmann & bernard
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Cladding and Exterior Finishes

Hanover Architectural Products introduces a line of exterior wall panels that bring the performance of stone into high-strength concrete products. During the manufacturing process, Hanover applies one million pounds of pressure to each unit, fusing the stones together. This process ensures a panel that is stronger and more durable than a cast or lightweight product and displays high compressive strength, density, and low water-absorption qualities. Many blends are available in a range of sizes, and custom blends, sizes, and cuts are possible when quantities permit. The wall panels can be prepared with slots or grooves to accommodate a variety of anchoring systems.

www.hanoverpavers.com

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The Allan Block Corporation introduces the Novabrik siding system, a split face concrete masonry product made with an interlocking tongue-and-groove design that screws into place. The only tools needed for installation are a masonry saw, hammer drill, and screw gun. Novabrik is installed in rows with key bricks screwed to the furrings. It looks and acts like brick but has wider applications, since it does not require a foundation wall as does traditional brick. The system works with four basic features—overlap, interlock, hang, and breathe—to provide a durable brick veneer. The Novabrik acts like a water-resistant shingle that allows water to run off the face of the brick, and to channel out to the face when it penetrates the brick joints. Novabrik can be applied to any structure built to uniform building code standards and up to 30 feet in height before a structural review is required.

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James Hardie Building Products has added a new profile to its Hardiplank® Beaded Lap Siding. Originally offered in the Cedarmill wood-grain texture, the new profile will have a smooth surface and the same 5/8-inch bead along the bottom. The new profile is featured in an 8 1/4-inch width with industry-standard seven-inch exposure. It is available primed or unprimed and contains no asbestos, fiberglass, or formaldehyde. It is made of Portland cement, ground sand, cellulose fiber, selected additives, and water formula. Hardiplank® Beaded Lap is ideally suited for moisture-severe environments; resists damage from exposure to humidity, rain, snow, salt air, and termites; and is backed by a 50-year limited, transferable product warranty.

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Masonry Contractor: Elite Masonry

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Design Challenge: The Texas School for the Deaf is a 140 year old residential school with site challenges including:

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- a 60 foot south to north downward slope, and
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Design Solution: A consistent design vocabulary was established by using a warm blend of brick and split-face CMU’s in order to develop a coherent campus in keeping with the surrounding landscape. Detailing, such as brick corbeling, was used to emphasize floor and eave lines. Horizontal banding and bases with special shaped brick and limestone water tables helped to create a sense of harmony between the existing buildings on campus and the new facilities.

N. Thomas Kosarek, AIA
Principal
Barnes Architects, Inc., Austin, Texas

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In Cram's Footsteps

PLANNING A visitor strolling the axes and arcades of Rice University might be surprised to learn that this ordered institute does not officially have a current master plan. Not since the Board of Governors accepted the original campus plan, Ralph Adams Cram's “General Plan” of 1910, has the university officially adopted a revised plan. While Cesar Pelli prepared an updated “Master Plan for Growth” in 1983, indicating sites for new buildings, this design was not officially approved by the board. The reasoning, according to Bill Mack, director of the university's facilities and engineering department, is that acceptance of a master plan would end the planning process. Instead, the university prefers the flexibility of siting and designing new buildings according to immediate needs.

So Cram’s elegant General Plan has been followed in spirit rather than in form. There are several simple factors in Cram’s Beaux Arts design that create the ambience of the Rice campus: primary and secondary axes, space ordered by buildings, hierarchy of building placement, and scale as reflected in building size and ornament. Materials and architectural style reinforce but are not essential to the harmony of the campus. And, of course, there are the trees.

A brief review of these essential characteristics as shown on the 1910 plan will frame a discussion of recent and forthcoming projects on the campus. The primary, or longitudinal, axis begins at the Main Gate at the intersection of Main Street and Sunset Boulevard and extends west-southwest through the center of the administration building, through the academic quadrangle, past the library and an area of garden parterres to an amphitheater on the banks of Harris Gully. The primary axis is crossed by several secondary axes, the first of which begins at a gate on Main Street and extends north through the academic quadrangle to a group of engineering buildings, focused on the smoke stack of the central plant, the Campanile. Another cross axis also begins on Main Street and runs through the residential colleges, across the academic quad, terminating in a group of buildings forming a double court. The General Plan contains numerous other axial groups and relationships, but these three survive as the predominant ordering devices of the campus today.

The General Plan clearly reflects the idea of exterior space as architectural space, defined and contained, sometimes completely and sometimes loosely, by both long façades and short ends of buildings. Spaces are connected by axial relationships and frequently focus on an architectural element, like a tower or a portal.

The long, thin building blocks used by Cram to define axes and spaces are both architectonic heavy lines on the plan and pragmatic thin buildings for natural ventilation. Their loose placement, frequently linked by arcades, responds to the need for free air circulation on the humid coastal plain. Placement also illustrates a hierarchy of use. Most important for the future growth of the master plan is the layout of the central academic quadrangle, with primary classroom structures facing the quad and secondary lecture halls and laboratories forming a back layer fronting on the ring road.

This layering of thin buildings, with a two- or three-story height, is the main determinant to establishing the sense of scale and proportion on the campus: Nothing is bulky and only elements of primary focus stick up. The materials and ornament of Cram’s original buildings
(Lovett Hall, Physics, Mechanical Lab and Campanile, Baker College) also reflect a hierarchy of use. Lovett Hall, straddling the main axis with the emblematic Sallyport, is the most richly detailed building on campus, using brick, stone, marble, and tile. The adjacent Physics Building is nearly as ornate, as required by its presence on the academic quadrangle. The Mechanical Lab, however, at a distant view on the cross axis, is a much simpler and bolder study in brick. Stucco is introduced only in residential areas, beginning with Baker College (originally South Hall).

The General Plan has endured numerous indiscretions over the decades, particularly during post-World War II growth when modernist attitudes had little respect for Cram’s Beaux Arts genius. Although more patronizing to the campus heritage, recent projects by architects of international standing have had mixed success in responding to the plan and the sometimes intimidating style of the early buildings.

Herring Hall by Cesar Pelli & Associates (1984) effectively acknowledges the layering precedent but reverses the hierarchy. Instead of the classrooms fronting on the quadrangle west of the library, short segments containing a lecture hall and a library form a court off the quad, while the classroom/office range faces the ring road. Pelli successfully introduces a post-modern blend of brick and glazed brick into the vocabulary of Rice materials. In contrast, George R. Brown Hall by Cambridge Seven Associates (1992) straddles and thereby diminishes one of the cross axes. The bulk of the two wings overshadow lower neighbors, and the central archway inappropriately mimics the Sallyport. The campus needs only one monumental archway.

With the construction of Alice Pratt Brown Hall (1991) by Ricardo Bofill and the Taller de Arquitectura, a new western quadrangle was established and the central axis terminated. Bofill’s gently curving colonnade well serves both these tasks, although it is too short to satisfyingly close the vista when viewed from a distance. However, the first building on this new space, the James A. Baker III Institute by Hammond Beeby Babka (1997), violates all the cues of the General Plan. As a free-standing mass, its cubic bulk is not intended to link with any future adjacent buildings and its size intrudes into the new quad, which should have a width similar to the two easterly quads. And now a formal paved court is being constructed that further fragments the quad and isolates Alice Pratt Brown Hall in the distance.

John Outram’s Anne and Charles Duncan Hall (1996) is tightly knit into the fabric of its nook in the plan. Its short, western end aligns with a sequence of short building ends that define the cross axis focused on the Campanile, and the cross arm of its cathedral-like plan aligns with the arcade of Lovett Hall across the ring road. The architectural symbolism and personal mythology of the building’s color scheme are another interesting story but nevertheless complement the richness of the Rice vocabulary without condescending to mimic Cram’s style.
Continuing the university's infatuation with star architects is Dell Butcher Hall (1997) by Antoine Predock Architects. Given a cramped site near the north parking lot, Predock responded with a robust spiraling mass whose vertical bulk could only be tolerated at the fringes of campus.

Two projects currently in design promise to be more sympathetic responses to the General Plan. Construction begins in December on the Humanities Building by Allan Greenberg, Architect, which returns to the thin layer-type building along the ring road behind Rayzor Hall and Fondren Library. Its handsome tower with a latticed cupola is, however, a misplaced exclamation mark, rising behind an existing arcade without any axis or vista to terminate. And why should an ordinary academic building raise a tower to compete with the Campanile, Rice's architectural symbol second only to the Salliyport?

Designs for the new residential area, South College by Machado & Silvetti Associates, form the 332-bed dorm into a four-sided court, similar to the cloistered residential courts in the General Plan. A dining hall and commons areas will be shared with adjacent Wiess and Hanszen colleges.

With all its building sites now occupied, the eastern half of the campus most nearly reflects Cram's vision for Rice University. The missteps, like George R. Brown Hall and the James A. Baker III Institute, fortunately do not ruin the overall image of the campus, but future architects must vigilantly guard the spirit of Cram's General Plan with a firm understanding of its spatial and architectural principals. To think of Rice as merely a style with a palette of materials is to miss the bigger picture of the General Plan.

Gerald Moorhead is a TA contributing editor:

1. Duncan Hall  
2. Dell Butcher Hall  
3. South College site plan  
4. Humanities Building

Structure and Beauty

Renzo Piano Building Workshop: Complete Works, Volume Three
by Peter Buchanan  
Phaidon Press Inc. (September 1998)  
204 pages, $75.00

Shaping Structures: Statics
by Wacław Zalewski and Edward Allen  
John Wiley & Sons, Inc. (March 1998)  
384 pages, $65.00

BOOKS In The Seven Lamps of Architecture, John Ruskin describes the lamp of power as one of the seven essential principles of architecture. Ruskin defines one of the qualities of this principle as the sympathy created by the duality in the form of a noble building—one related to originality and the other to the beauty of design made possible through ingenious adaptations of structure. Renzo Piano Building Workshop: Volume Three and Shaping Structures: Statics examine this duality from different perspectives.

While the work presented in the Piano monograph focuses on the rational for the form and beauty of its detailing, Shaping Structure focuses on an understanding of the forces inherent in such forms. Like the ying-yang, both publications add clarity to the understanding of how forces and structural design can be used to bring beauty to architectural projects.

Building Workshop: Volume Three is the next installment of Phaidon Press's continuing publication of the Italian architect's complete works. This volume maintains the high level of quality of the previous two volumes. It covers nine of the most significant projects Piano's workshop has been involved in during the last decade. The introductory essay is a critical assessment of the work and the design growth by Renzo Piano from the inception of the Centre Pompidou in Paris and culminating in his last international project, the Kansai International Airport in Japan. The presentation of each project is a mixture of sketches, models, photographs, computer-generated images, and a detailed written analysis. Each essay attempts to explain the designer's goals, challenges, and philosophy behind each project.

The last project presented in this volume is the new Kansai Airport, with over 90 pages full of handsome illustrations showing Piano's sensitivity to detail and structure; these pages are a fitting conclusion to an examination of Piano's inquiry into the possibilities of giving form to architecture through structure.

Zalewski and Allen's book, on the other hand, distills the complexities in structural design into a clear step-by-step method. Each stage of the process, as well as a range of structural types, is presented to the reader in order to illustrate a clear understanding of statics in structural design. Each chapter is full of examples, simple diagrams, photographs, superimposed commentaries, and other visual devices that will appeal to the numerically challenged architect. Unlike other structures books, this one illustrates the complex analysis with simple and easy-to-follow diagrams that demonstrate the form-giving requirements that designers may want to gracefully achieve. The authors present the book as the first in a series that will address the complexities of the creation of structural forms.

Nestor Infanzón is a TA contributing editor.
Architecture To Go

RESEARCH The traditional perception of a "transportable building" is that it is temporary, impermanent, low quality, and rarely sustainable or energy-efficient. The Architecture Research Center (ARC) at the Texas Tech University College of Architecture has embarked on long-term research into the sustainability of "transportable architecture." The center has just completed one project for transportable housing in the Bahamas and is about to start another project to design sustainable, transportable classrooms.

The first project is housing for the staff of an island resort called Cave Cay in the Bahamas. The structures had to be built in Lubbock, disassembled and shipped to the island, and reassembled locally by unskilled resort staff. In addition, the structures were to reflect the state of the art of sustainable architecture: to rely on renewable energy, be built of long-lasting and durable materials, and utilize recycled building materials where appropriate.

A standard steel shipping container was used as the basic structural and packaging system. All building components, such as interior partitions, doors and windows, metal roof, decking, and shower/toilet stall, were designed to fit inside the container.

Since the island is in a remote location, it was not feasible to use traditional energy sources. A decision was made, therefore, to rely predominately on renewable energy sources. The design team recognized that issues of energy efficiency had to be addressed at the whole building level, and then expanded to wider design concerns.

Cooling is achieved by using the constant 14-mile-per-hour breeze on the island for ventilation. Awning windows around the livable spaces allow for movement of air even when it is raining. A continuously vented soffit is incorporated with ridge and end vents to provide continuous ventilation of the roof cavity. The elevated floor allows air to circulate under the structure, carrying away moisture and built-up heat.

Abundant sunlight during certain seasons posed problems both with increased interior air temperature and reduced durability of building materials. In response, roof overhangs were included to provide shading to livable space, walls, windows, and doors. A radiant-barrier film and four inches of rigid polystyrene in the attic insulates the space below and reduces the flow of heat into the space from the coated metal roof surfaces. The roof overhanging and front deck not only serve as a sunshade, but also provide the building and occupants shelter from rain and allow them to open the windows during rainstorms.

Two renewable resources were determined to be essential to the usability and sustainability of the facility: electricity and water. Due to the relatively benign nature of the environment, there is no demand for energy for heating or cooling. Food preparation and cooking is provided in a communal kitchen with its own power and water sources. Therefore, the only electrical energy used in the quarters is for small electric appliances and pumps. Electricity is generated on-site by a power plant designed to utilize photovoltaic modules to capture solar energy and a wind generator.

There is no conventional water supply system on the island. Therefore, water for utility needs such as washing, bathing, and toilet will be obtained from a rainwater catchment system. When rainwater is not available, desalinated water can be pumped into a cistern. Desalinated seawater for drinking is provided at the kitchen.

The ARC has also established an initiative to redesign the elementary school for the year 2000. The first part of this initiative is to redesign the "transportable" classroom. The "portable" classroom commonly used today is often designed with little concern for energy cost or long-term maintenance. And these classrooms are often not temporary, but become a permanent fixture within a school district's infrastructure.

The current temporary classroom type is typically a 28-foot-by-32-foot minimally insulated box utilizing inexpensive low-efficiency fluorescent fixtures for lighting and roof-mounted heat pumps for heating, ventilation, and cooling. Preliminary studies by the Texas Tech College of Architecture have revealed that lighting alone accounts for 60 percent of the energy cost of a typical classroom in Lubbock. Daylighting could reduce the lighting energy cost by 80 percent. If daylighting were coupled with passive heating and cooling strategies, overall energy costs for the transportable units could be cut by 65 to 80 percent.

The ARC has submitted a joint proposal with the Texas Migrant Council to design a transportable Head Start classroom that utilizes sustainable architectural principles for four different geographical regions in the United States. The ARC will undertake programming, schematic design, design development, construction drawings, specifications, energy analysis, daylighting design, cost estimates, and a bill of materials for each classroom. The Texas Migrant Council is to provide matching funding for the architectural work, provide design review, and build several demonstration classrooms in Texas and Illinois.

This classroom project and the Cave Cay housing program are the first in a continuing program to deal with sustainable design issues surrounding transportable architecture. The ARC would like to encourage interested architects and engineers to contact us at 806.742.3136.

Glenn Hill

Glenn Hill is an associate professor of architecture at Texas Tech University.
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Downtown Education

JOEY H. NAGD Prior to renovation of part of downtown Dallas's historic Titchie-Goetinger (in later years Joskes) department store into the new Universities Center at Dallas (UCD), no branch of a state university existed within Dallas County. A recent partnership between five area state universities, the Dallas County Community College District (DCCCD), and the local business community led to the development of an urban center for academic education and corporate training.

Established under the name Dallas Education Center in 1994, UCD is an urban satellite campus for both the community college district and five nearby state universities—Texas A&M Commerce; Texas Woman's University; University of North Texas; University of Texas (UT) at Arlington; and UT Dallas. Together with business partners such as Southwestern Bell, the schools planned for the purchase of the historic downtown building and its renovation and use. Management of UCD will be shared by the Federation of North Texas Area Universities and DCCCD, which assumed ownership of the building in June 1998 and recently completed $1.3 million in renovations. Camargo Copeland Architects of Dallas designed the exterior restoration and new interior spaces.

The renovated structure, renamed the Southwestern Bell Educational Building in recognition of the company's contributions to the project, provides space for corporate training and workforce development as well as academic course work offered primarily at night and on weekends for students with full-time jobs. Current programs include criminal justice, legal information management, and business administration; UCD is also working towards establishing a law program.

The emphasis on business-related curricula translated into the design of interior spaces. From the beginning the architects designed for a corporate audience. This is most apparent in the high-end finishes and furniture; in addition, the facilities incorporate the latest in communications and business technology. "It posed an interesting challenge," says architect Barry Hand, "and required a higher level of finish and detail than you would normally see in an educational building." In addition, the downtown location and evening classes required attention to security issues. "We wanted students—especially women at night—to feel safe and comfortable," says Hand.

The main lobby of the building is a large two-story space conceived of as a multipurpose room—events as various as assemblies, registrations, meetings, and dinners take place there. A central desk allows for easy monitoring. Nearby, the student lounge is accessible from the main lobby. In the initial phase, UCD developed the two floors above the lobby space, while the four topmost floors remain for classroom and meeting space expansion.

The Universities Center's mission of meeting higher education needs in downtown Dallas resulted in an important addition to the city's cultural and business infrastructures. For the first time, downtown Dallas residents have access to continuing education that is affordable, diverse, and flexibly scheduled; and the downtown business community has a new space for corporate functions and education. This venture between area state universities, the community college district, and the business community took advantage of an available and useful historic downtown structure to create an arena where the three groups could combine their needs and strengths into one downtown center.

Jonathan Hagood

Jonathan Hagood is a frequent contributor to TA.

PROJECT  Universities Center at Dallas (UCD)
CLIENT  Dallas County Community College District
        (Clyde Porter, district facilities manager; Sharon Wilson, district mechanical engineer)
ARCHITECT  CamargoCopeland Architects, Dallas
        (Myrian E. Camargo, partner-in-charge; Barry Hand, project architect; Julia Holcomb, project team member)
CONTRACTOR  Village Interiors, Richardson
PHOTOGRAPHER  Charles Davis Smith
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