

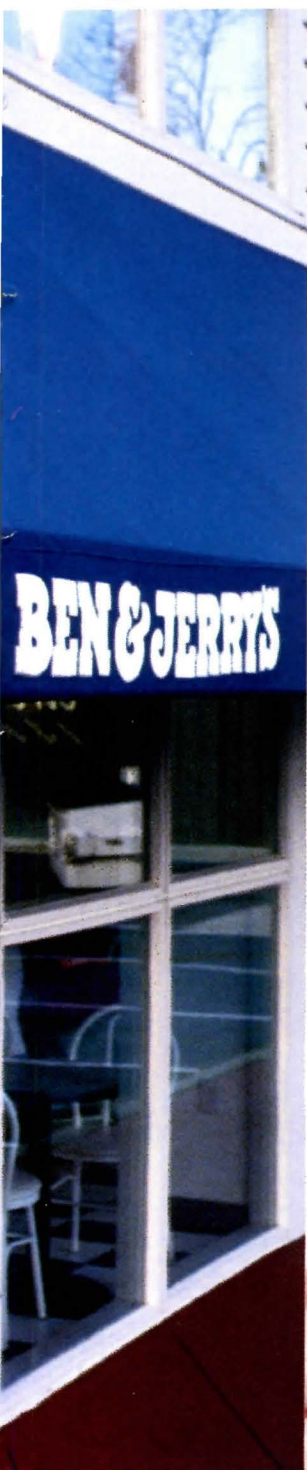


Hiccups



Birthdays

akes A Great Cherry Garcia[®] ky Monkey[®]



The uses of Sunbrella[®] solution-dyed acrylic fabric are as varied as Ben & Jerry's menu. Although it's widely known as awning material, architects and designers **EVERYWHERE** are specifying it for window treatments, room dividers, screens, traffic directors and, **more** and more frequently, for **signage**.

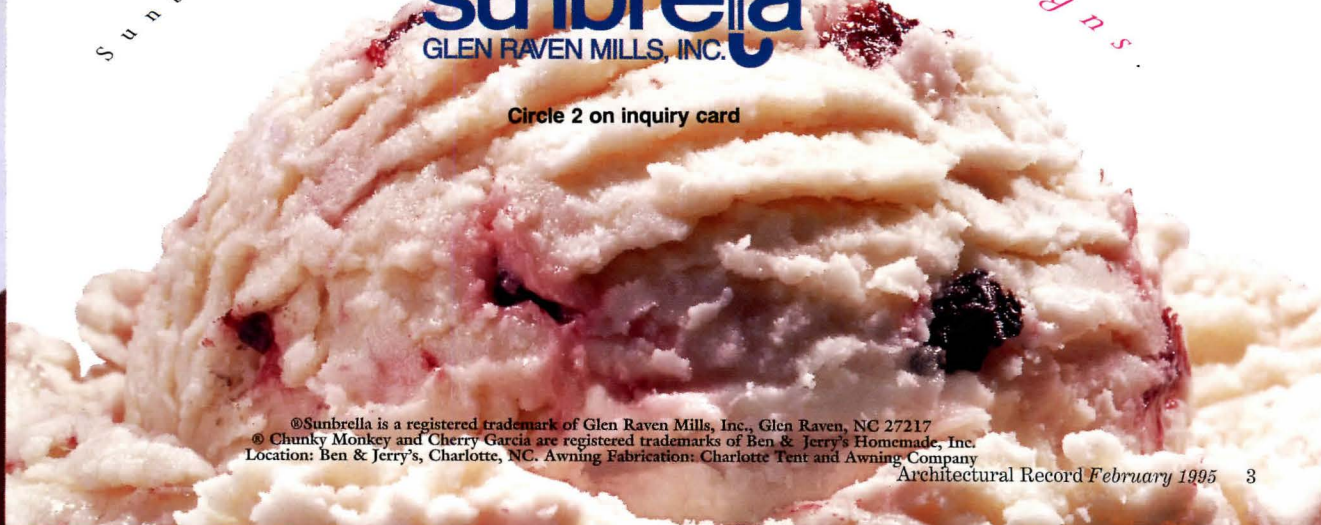
Particularly backlit signage. Sunbrella's both **BEAUTIFUL** and **durable**. It's available in over **100 COLORS** and styles, and **guaranteed** for **five** years against the **effects of weather**.

Look in the **Yellow Pages** under "Awnings and Canopies" for the name of the **nearest** Sunbrella dealer. And do yourself a **flavor**. Start incorporating

Sunbrella **INTO** your building **designs**.



Circle 2 on inquiry card



©Sunbrella is a registered trademark of Glen Raven Mills, Inc., Glen Raven, NC 27217
© Chunky Monkey and Cherry Garcia are registered trademarks of Ben & Jerry's Homemade, Inc.
Location: Ben & Jerry's, Charlotte, NC. Awning Fabrication: Charlotte Tent and Awning Company

Stop, Thief!

Who stole our profession? When did they do it, and why didn't we stop them? How can we get it back?

In 1992 I graduated from Ball State's College of Architecture. While in school I was handed a glorious image—a vision of a profession with extreme pride and wide-reaching possibilities. However, during my schooling I worked for architects to pay my tuition and my eyes were opened. Our profession is all but gone.

When our traditional architectural practice was lost, the level of recognition and the self esteem that goes with it was lost as well. Burglary is typically a sneaky, silent act occurring under the dark cloak of night. The theft of something valuable is an embarrassing and infuriating thing to experience, especially when it occurs right under our noses. Often when we realize what has taken place, it is much too late to do anything about it—we feel helpless. If the truth be stated, we architects *gave* our profession away and deserve the bitter fruits of our actions.

Responsibility is the key to our loss. Due to the recent legal climate, we as architects have jumped at every opportunity to relinquish our responsibilities. We have gladly given our duties (and income) to interior designers, civil engineers, structural engineers, as well as construction managers, in order to avoid accountability. This has opened the door for these groups to reach into our "china cabinet" and take our valuable clients. Architects are the ones responsible for the deterioration of architecture.

Now is the time to take back our

profession. It will not be easy, but the solutions are simple: we architects must take on more of our traditional responsibilities; most design tasks should be performed in-house; do not be afraid to learn; and we must not evade our duties of construction administration. Many of the legal fears which have caused us to cower in the corner can be kept at bay with good, well-studied contracts and procedures...our security system.

Public recognition of architects has also deteriorated severely as a result of our actions. Additional steps can be taken to regain our recognition and boost our profile. Many of our image problems will be addressed when we perform our duties as mentioned above, but other actions will aid the effort. Architects rarely keep up with other professionals in terms of advertising. Company cars are the perfect opportunity for this, yet most of ours are left indistinguishable. Advertisements should be professional and positive, not sarcastic or negative.

The fear of our predecessors has proven deadly to our professional status. Architecture has suffered its greatest loss at our own hands, but with assertive action we can revitalize it and gain back our practice.

*Brent A. Doctor
GTK Architects
Fort Wayne, Ind.*

Stretch Beyond Style

Regarding your reference to style in your October issue [RECORD, page 9], I would like to dissent. What many, including me, object to in so many references to style in the architectural and more general media is that it seems to be implicit in those voices that "style" is the "driver." *continued on page 23*

Through February 13

A retrospective of Emilio Ambasz's last 20 years of work is on exhibit at Milan's Palazzo della Triennale.

Through February 15

Exhibit of Zaha Hadid's recent projects, presented by the Architectural League. Grand Central Terminal, New York City.

February 19-22

National Roofing Contractors Assn. annual convention and exhibit, Ernest N. Morial Convention Center, New Orleans.

February 26-28

Restoration 95 exhibition and conference, Hynes Convention Center, Boston. Call 617/933-9699 for more details.

March 15-17

WestWeek 95, Pacific Design Center, Los Angeles.

March 17-18

"Built Landscapes, Social Ideology, and the Politics of Place" conference will be held at Harvard GSD. Call 617/495-2573.

March 31-April 1

"Inherited Ideologies: A Re-Examination" will be the subject of a dialogue among participants at the University of Pennsylvania, Philadelphia, part of a year-long series on "Women in the Public Sphere." Call 215/898-3657 for details.

March 31-April 2

Monterey Design Conference, Asilomar, Calif. This biennial retreat will explore "the magical and mystical aspects of creativity and technologies." Call Donalee Hallenbeck at 800/886-7714 for further details.

April 1

Conference registration deadline for "The Art of Building Cities" exhibition and conference is April 1. The event, sponsored by the Classical Architecture League Inc., a not-for-profit group committed to the study of traditional urbanism and architecture, plans *continued on page 23*



ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858X) February 1995, Vol. 183, No. 2. Title © reg. in U. S. Patent Office, copyright ©1995 by McGraw-Hill, Inc. All rights reserved. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, The Architectural Index, the Architectural Periodicals Index, the Avery Index to Architectural Periodicals, and the Construction Index.

Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, self-addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

Executive, Editorial, Circulation and Advertising Offices: 1221 Avenue of the Americas, New York, NY 10020. 212/512-2000.

Officers of McGraw-Hill, Inc.: Chairman: Joseph L. Dionne. President and Chief Operating Officer: Harold W. McGraw III. Executive Vice President, General Counsel and Secretary: Robert N. Landes. Senior Vice President, Treasury Operations: Frank D. Pengtase.

Associated Services: Sweet's Catalog Files (General Building, Engineering, Industrial Construction and Renovation, Light Residential Construction, Interiors), Dodge Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Construction Statistics, Dodge regional construction newspapers (Chicago, Denver, Los Angeles, San Francisco).

Subscription rates are as follows: U. S. Possessions \$54.00, Canada \$65.00 (payment in U. S. currency, GST included); all other Foreign (including Air): \$160.00, add \$60.00 annually for air freight delivery. Single copy price \$7.00; For Foreign: \$10.00. For Subscriber Services: 609/426-7070.

Change of Address: Forward changes of address or service letters to Fulfillment Manager, ARCHITECTURAL RECORD, P. O. 566, Hightstown, NJ 08520. Provide both old and new address; include zip code; if possible attach issue address label.

Guarantee: Publisher agrees to refund that part of subscription price applying to unfiled part of subscription if service is unsatisfactory. Publisher reserves right to accept or reject any subscription.

Copyright and Reprinting: Title © reg. in U. S. Patent Office. Copyright ©1994 by McGraw-Hill, Inc. All rights reserved. Where necessary, permission is granted by the copyright owner for libraries and others registered with the Copyright Clearance Center (CCC) to photocopy any article herein for personal or internal reference use only for the base fee of \$1.50 per copy of the article plus ten cents per page. Written permission must be secured for copying. Write Reprint Manager, 1221 Avenue of the Americas, NY NY 10020; Fax: 212/512-4256. For reprints in bulk-orders, call 609/426-5494 for price quotations and orders.

Subscription List Usage: Advertisers may use our list to mail information to readers. To be excluded from such mailings, send a request to ARCHITECTURAL RECORD, Mailing List Mgr., P. O. Box 555, Hightstown, NJ 08520.

ARCHITECTURAL RECORD (ISSN0003-858X) is published monthly by McGraw-Hill, Inc. Second class postage paid at New York NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada. Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as McGraw-Hill, Inc. GST Number R123075673

Postmaster: Please send address changes to: ARCHITECTURAL RECORD, Attn: Fulfillment Manager, P. O. Box 566, Hightstown, NJ 08520. This issue is published in national and separate editions numbered or allowed for as follows: Regional sections: 16Wa-Wb.

Is Government Downsizing Good for the Architect?

Editor
Stephen A. Kliment, FAIA

Managing Editor
Carolyn De Witt Koenig

Senior Editors
Charles K. Hoyt, FAIA
Karen D. Stein, (Managing)
James S. Russell, AIA (Managing)
Charles D. Linn, AIA (Managing)

Associate Editors
Joan F. Blatterman
Clifford A. Pearson

Design Director
Anna Egger-Schlesinger

Design Associate
Matthew Dvorozniak

Editorial Production Manager
Annette K. Netburn

Assistant Production Editor
Janna L. Robinson

Architectural Illustrators
Peter M. De Witt
Muriel Cuttrell (Consultant)

Design Consultant
Massimo Vignelli

Editorial Advisory Panel
William J. Stanley, III, AIA
Ivenue Love-Stanley, AIA

Contributing Editors and Consultants
David Ballast, AIA
Robert Campbell, FAIA
Kristine Fallon, AIA
Phillip Kidd, Finance
Robert Murray, Economics
Peter Piven, FAIA
Steven S. Ross, Computers
Norma Sklarek, FAIA

Correspondents
Aaron Betsky, Los Angeles
David Cohn, Madrid
Claire Downey, Paris
Beth Dunlop, Miami
Pam Kinzie, AIA, San Francisco
Victoria S. Lautman, Chicago
Nancy Levinson, New England
Tracy Metz, Amsterdam
Gerald Moorhead, FAIA, Houston
Naomi R. Pollock, AIA, Tokyo

Group Director, Circulation
Dawn Downes-Cosgrove

Director, Classified
 and Manufacturers' Spotlight Advertising
Eve DeCarlo

Director, Special Projects
Charles T. Pinyan

Director of Business and Production
Joseph R. Wunk

Director, Financial Operations
Helen Lisica

Business Manager
José Quiñones

Publisher
Howard M. Mager

Inquiries and submissions of work for publication may be sent to the editors listed below who are responsible for the subject areas named:

Carolyn De Witt Koenig, design news
Karen D. Stein, houses, interior design
Clifford A. Pearson, observations, books
Charles K. Hoyt, at large
James S. Russell, technology, practice
Joan F. Blatterman, new products
Charles D. Linn, RECORD LIGHTING

PRINTED IN U.S.A.

Private industry has been downsizing drastically for years, figuring that efficiency will more than make up for staff reductions. Now it's the turn of government, and after years of unrealized pledges by Reagan and Clinton to do it, it now looks as though its time has finally come.

This could spell rough times for architects, as Elena Marcheso Moreno's blunt article on pages 28 and 29 warns. The General Services Administration plans cuts of \$1.3 billion in this year's budget (mostly for buildings). Federal public housing support and Section 8 rental assistance may drop by \$800 million over five years. The power of the highway construction interests could stifle the emerging role of the architect in public transportation design. No one knows if reduced public spending will dampen construction or unleash funds through investment incentives and tax cuts, especially of capital gains taxes. Delegation of decision-making to the states and cities could bring renewed flexibility to programs—or it could simply trigger more cuts. Meanwhile an array of governors and mayors elected in recent years has also pledged to cut taxes and programs, seeking to squeeze the most value out of the public dollar, including construction. The architectural selection process was given a severe jolt with the November defeat of Jack Brooks (D.-Texas), an aggressive champion of qualifications-based A/E selection. And all signs point to a pullback in the enforcement of regulations over the environment, landmarks preservation, and disabled access, thereby reducing revenues to professionals in the compliance consulting business, but encouraging possible development by swinging the balance in favor of stronger property rights.

One thing is clear. Architects will need to speed up the changes many are already making in the way they do business. Chiefly, they must become more proficient, aggressive, and proactive in going after what government work there is. The new breed of local elected officials is moving fast towards increasing partnerships with local businesses and to privatize many public services, including the design and construction of such active building types as schools and prisons. Already in place at the federal level is a performance database where all A/E firms that have done work for the Corps of Engineers are rated according to a rating sheet used at two key phases of the project.

The new toughmindedness in the conduct of our affairs is designed to bring about a new prosperity, and like a tide will raise all ships that are seaworthy. For architects, that means developing hard-headed, targeted marketing plans and tactics at the local level while championing the values of design quality and sensible land development in city, suburb, and countryside. It means fighting to meet the housing and related needs of the sick and the poor and still earn a reasonable fee. It means controlling project costs and schedules and contributing measurably to the work of multi-disciplinary building teams. It means providing a service with leaner staffs and greater reliance on the new electronic practice tools. Above all it means more architects finding a way to expand services above and beyond building design into real estate, facilities planning, and other types of consulting. In the new political climate none of this will be easy. *Stephen A. Kliment*

We bid good bye to Roscoe C. Smith, III, publisher of ARCHITECTURAL RECORD and thank him for his many contributions in his seven years on the magazine. As Roscoe takes on his new duties with Knowledge Industry Publications, Inc., all of us at RECORD wish him great success. *S.A.K.*

Architectural Record February 1995 9



7

level gates was a... that opened on to the Grand Concourse above. But a short 14 years after the building opened in 1913, the ramp was slabbed over to accommodate new ticket windows (1). Now the ramp will be returned to its original glory.

There will be one correction: the route that passes over the space from the Grand Concourse was originally bordered by 9-ft walls. The walls will be removed so that interested passengers can gaze down the corridor (2). An entrance at the corner of Vanderbilt Avenue and 42nd Street will also be opened up. There, an open, double-height space at

marks the entrance, which is on axis with 43rd Street. Passengers will feed in from the corners into the concourse, as they do now.

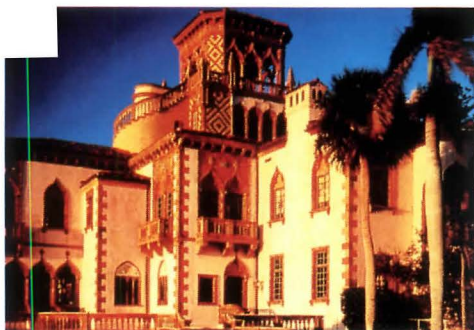
Finally, in a slightly more controversial part of the program, the Grand Concourse's elegant stairway will be repeated at the other end of the great room (7), and will lead up to restaurants in the balconies that line the space. Retail space on both levels will increase to 160,000 sq ft, although the main waiting room, for example, will not be touched. The overall glamour of the building should remain unscarred. *Nicolai Ouroussoff*



Florida

Palace of Clowns Gets Facelift

Ann Beha Associates is renovating the ornate home of John Ringling North in Sarasota, Fla., as an addition to the Ringling Museum. The waterfront house has long been battered by the elements, and its terra cotta and stucco facades are crumbling. The architects will repair a roofline balustrade, and replace the terra-cotta blocks that make up the facade, each modeled with fruits, baskets, and garlands. Inside, the surfaces are as elaborate: rooms are painted with scenic designs of Venetian celebrations. The structure is dominated by a two-story courtyard enclosed in glass, its walls covered with tapestries. The \$8-million renovation begins this month. ■



Connecticut

Centerbrook Gives Campus a Focus

An infirmary designed by Ernest Flagg in 1907 has been moved to make way for an arts center at the Pomfret School in Connecticut. Centerbrook Architects will relocate and renovate the infirmary, now the Pyne dormitory, at the edge of the campus, while a new "Centennial Building" will take its place. The red brick building will help form a central courtyard—a great lawn—for the school. ■



New York City

Saved: Historic Williamsburg Bridge



The Williamsburg Bridge—once so dilapidated that it was regularly closed down for safety reasons—is undergoing a major rehabilitation. Steinman, Boynton, Gronquist & Birdsall Engineers has been charged with keeping the structure up, while Beyer Blinder Belle has woven together the remaining historic fabric to create distinct entry points to Brooklyn and Manhattan. On the Manhattan side, stone walls, iron railings and an old trolley ticket booth were pieced

together to add character to the bridge's entrance. Along the bridge itself, a bike path and pedestrian route is destined to be encased in a stainless-steel mesh tube for safety reasons (photo). Subway trains will continue to cross on elevated tracks. The fine, welded casing will be painted red. The architects also specified handrails and lighting details to give the space a human scale. Last month, the project received an award from The New York City Arts Commission. ■

Los Angeles

Craft and Folk Art Gallery Adds Yardage to L.A.'s 'Museum Mile'



A refurbished, stately brick building on Wilshire Boulevard is home to Los Angeles's Craft and Folk Art Museum. The museum—across from the La Brea Tar Pits and alongside the L.A. County Museum—is meant to reinforce this city's version of Museum Mile. Hodgetts and Fung Architects have kept the building's distinct mansard roof and bay windows. Original bowstring-wood trusses highlight the third-floor galleries. The

architects added a triangle-shaped grand staircase and a museum store on the ground level. Eventually, the structure, built in 1938, will be combined with a 1950s-era glass and concrete building next door to form one complex. An empty lot separating the two will become a courtyard, and the concrete and glass addition will house more galleries, a library, and offices. A new facade with the museum's logo will connect the buildings. ■

Briefs



• Boston's City Hall Plaza (above) was the focus of an ideas competition. Designed by Kallman McKinnell & Knowles in 1968, the vast, Modernist plaza is still considered a brutal space by many. Five projects shared the top prize for the plaza's redesign and were chosen from a field of 193 entries, including a class of eighth-grade students. Among the winners, Framework for Civilization by City Planner Barbara Barros of City View/Town View proposed the installation of a demountable kit of parts for public art that would change seasonally. Tomb of the Bambino by architects Chip Sloan and Randall Imai would build a ballpark on the plaza with a memorial of Babe Ruth located behind home plate. *Nancy Levinson*

• William J. Stanley III was awarded the American Institute of Architects 1995 Whitney M. Young, Jr. Citation for "professional responsibility towards social issues." Stanley, past president of the National Organization of Minority Architects, is a member of RECORD's Editorial Advisory Board.

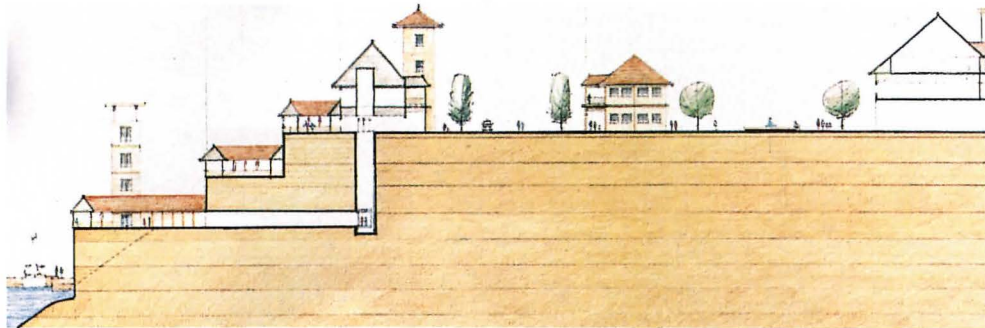
• Ten architects have won the Western Red Cedar Lumber Association/AIA Design Awards. The winners are: Thomas L. Bosworth, John R. Caulk Architects, James Cutler Architects, Criss Kieran Gore Architects, Jeremiah Eck Architects, Hugh Newell Jacobson, The Hulbert Group, Hooper Olmsted & Hrovat, David Salmela Architects, and Dennis Wedlick Architects.

• Hillier/Eggers has formed a new division for the design of sports facilities, including stadiums, gyms, and recreation centers.

Remembered

Robert Marquis, 67, known for creating housing with a social focus, died Jan. 3 following pancreatic surgery. His Rosa Parks Apartments in San Francisco changed a troubled housing project into a safe haven for elderly tenants. ■

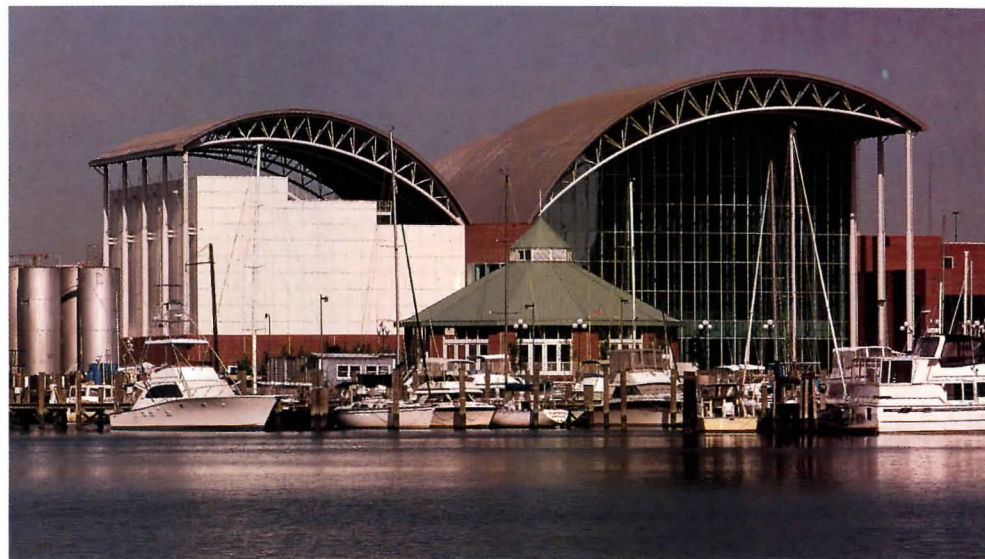
Hillier Group to Create a 'Village of the Dam'



The Hillier Group has completed a master plan to turn a 1,220-acre reservoir in Japan into a pristine recreational development. A government-subsidized dam—scheduled for completion in 1998—will be part of a new pond at the foot of mountainous, wooded terrain. Along the embankments, Hillier will extend a small, existing roadside village down

to the water's edge. The project will include an Imax theater, a museum, and housing for student groups. By extending the linear pattern of the village, much of the natural vegetation will be saved. The steep incline opens up views towards the water. Walkways will be cut into the mountain and connected to elevators to the buildings above. ■

Air and Water Mix at Award-Winning Museum by Mitchell/Giurgola



An air and space museum in Hampton, Virginia garnered first prize in the Pan American Biennial of Architecture. Designed by Mitchell/Giurgola Architects, the building is actually two museums in one. The 118,000 square foot space includes a museum of local history as well as an air and space museum.

In order to combine the two disparate parts of the program, the structure is designed as two arched wings connected by a central spine. The spine, which houses circulation and mechanical structures, is transparent, allowing visitors to look back and forth between the two exhibits. ■

Petersen Aluminum Corporation

1005 Tonne Road • Elk Grove Village, IL 60007
1-800-PAC-CLAD • FAX: 1-800-722-7150

Other Plant Locations:
Annapolis Junction, MD: 1-800-344-1400
Tyler, TX: 1-800-441-8661

SNAP-CLAD™ Metal Roofing Panels

Petersen Aluminum Corporation's SNAP-CLAD Panels feature architectural panel aesthetics as well as structural panel performance. SNAP-CLAD Panels are tension leveled to provide superior flatness and feature an optional factory-applied sealant bead for improved weather resistance. In addition, SNAP-CLAD Panels carry a UL 90 rating for wind uplift.

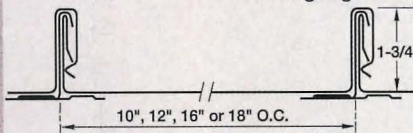
SNAP-CLAD Panels feature a 1-3/4" leg height and a continuous interlock for improved structural performance and wind resistance. A concealed fastener clip system has been designed to allow for thermal expansion/contraction while providing excellent hold-down strength.

SNAP-CLAD Panels feature our full-strength PAC-CLAD® finish and are available in a variety of on-center dimensions, fabricated from either .032 aluminum, 24 ga. steel or 22 ga. steel. For more information on SNAP-CLAD Panels, please contact Petersen Aluminum Corporation, **1-800-PAC-CLAD**.



SNAP-CLAD™

10", 12" 16", or 18" O.C. .032 aluminum
1-3/4" high 22 gauge steel
24 gauge steel



Features

- Herr-Voss tension leveled
- UL 90 rated
- Factory-applied sealant
- Continuous interlock
- Labor-saving one-piece design
- 20-year non-prorated finish warranty
- 25 standard colors (steel)
- 15 standard colors (aluminum)



Orono City Hall
Architect: Boarman Kroos Phister Rudin & Assoc.
Roofing Contractor: Vohnoutka Roofing & Sheet
Metal Co., Inc.
Color: Sandstone

Circle 8 on inquiry card

From The Publisher

Roscoe C. Smith, publisher of ARCHITECTURAL RECORD for the past seven years, has left McGraw-Hill to become senior vice president/group publisher for Knowledge Industry Publications. We wish him every success in his new position and thank him for his many contributions.

Subsequently, I have expanded my role as group publisher of McGraw-Hill's Construction Publications Group to include direct publishing responsibility for ARCHITECTURAL RECORD, with which I have been increasingly involved for the past few years. In this wider capacity I look forward to greater hands-on involvement and closer contact with RECORD's readers and advertisers. At the same time, we are aggressively looking for an associate publisher who will join the team to make RECORD even more responsive to your information needs.

Meanwhile, we want everyone to know that the many outstanding editorial and market-related programs now in place will continue and be enhanced in the months ahead. I refer to RECORD's ongoing series of market analysis reports that a) enable RECORD's editors to pinpoint the number and type of projects in the pipeline, b) identify active and emerging markets, and c) highlight the most important building types—as well as key designers and owners.

All of which enables ARCHITECTURAL RECORD to provide its readers (and marketers) with the most useful and timely information available from any architectural publication. These unique services—which would not be possible without close cooperation between RECORD and F. W. Dodge—are:

- “Building Projects in Planning” reports, based on data provided by F. W. Dodge, and designed to identify areas of opportunity while projects are in the early planning stages.
- The “Active Market Analysis” portfolio that reports on areas of significant change and emerging opportunity.
- TAG (ARCHITECTURAL RECORD's Total Activity Guarantee)—in which F. W. Dodge data is analyzed and used to deliver vital editorial coverage to architects and owners in the most active building areas.

Other important programs to look for in the months ahead include:

- ARCHITECTURAL RECORD LIGHTING, published quarterly and delivering valuable, in-depth coverage of both interior and exterior lighting, including the most exciting and beautifully photographed editorial ever published on the subject.
- ARCHITECTURAL RECORD's Pacific Rim Supplement reports on building design, technology, and business activity of interest to RECORD readers and marketers, both in the U.S. and abroad. It presents the most important work underway or in planning from Tokyo to Hong Kong, and south to Australia.

At this time of growing opportunity in the changing building design market, we look forward to exceeding your expectations.



Howard M. Mager

WE WANTED TO FIND A WINDOW COMPANY THAT WOULD HELP US COVER THE NEWS.



The Richmond News has been published continuously since the paper was founded in 1850. We wanted to keep it that way once they moved into their new facility. Which was designed with oversized windows located directly over the printing presses. Our challenge was to find a company that could deliver the window size and high performance we needed to cover the news.

*We awarded the job
to EFCO.*

Richmond News Papers' Production and Distribution Facility, Richmond, VA Architects: Baskerville & Son
Erector: American Door & Glass, Inc. Products: Series 810 Projected and Series 820 Casement Windows,
Series 5600 Curtain Wall, System 401 and System 403 Storefronts, Series D300 Entrances.



EFCO CORPORATION
1-800-221-4169

A Warts-and-All Portrait of An Architectural Chameleon

Philip Johnson: Life and Work, by Franz Schulze. New York: Knopf, 1994, 496 pages, \$30.

Reviewed by Roger Kimball

Readers who remember Franz Schulze's superb 1985 biography of Ludwig Mies van der Rohe will come to his new biography of Philip Johnson expecting several things: meticulous research, intellectual sophistication, a critical eye, and a compellingly written account of its subject's life and times.

It is pleasant to report that, for the most part, such readers will not be disappointed. If *Philip Johnson: Life and Work* lacks the authority of Schulze's book on Mies, it does so largely for reasons separable from his considerable talents as a biographer and critic.

In the first place, when writing about Mies, Schulze was dealing with a great architectural talent; with the creator of the Glass House and the AT&T Building, he is dealing with a great parodist and architectural impresario. Just as genuine artistic achievement tends to lend authority to the criticism it inspires, so ersatz work has the opposite effect.

Then, too, by the time Schulze published his book on Mies, the architect had been dead for nearly two decades: the contours of his life and the significance of his work had become clearer with the distance of historical perspective. Although he is now in his 89th year, Philip Johnson is still very much a force in the architectural world and many people who have played an important role in his life and work might have reason to be reticent.

So in writing the biography of a living figure, Schulze was operating with a serious handicap. This is not to say that he has given us a rosy picture. On the contrary, this is very much a warts-and-all production (Johnson did not see the book before it was published)—and it happens that neither the life nor the work of Philip Johnson is lacking in warts. But where Schulze's biography of Mies can be described as definitive, his treatment of Johnson must be called provisional.

Roger Kimball is managing editor of *The New Criterion*.

© Courtesy of Knopf



Philip Johnson and Mies van der Rohe working together on the Seagram Building.

Nonetheless, this is still an impressive work. Schulze proceeds chronologically, taking us from Johnson's childhood in and about Cleveland, right through his prolific association with John Burgee in the 1960s, '70s, and '80s, and his current projects for Donald Trump. Schulze covers all the usual bases, discussing Johnson's intellectual apprenticeship as a disciple of Mies, his break with Modernism and his emergence as a celebrity champion of Postmodernism and Deconstructivism. He also deals, tactfully but frankly, with Johnson's rather tabasco sex life as a rich, promiscuous homosexual gallivanting around New York, Berlin, and other metropolises.

Schulze is especially good on his subject's early years and intellectual development. At prep school and later at Harvard, Johnson became an intellectual chameleon: ambitious, dilatory, and above all ferociously articulate. He was also a man of independent means, having gotten rich on stock his father had given him as a gift. Johnson's interest in architecture was sparked partly by a visit to the Parthenon in 1928, partly by his discovery the same year of an article by Henry-Russell Hitchcock, Jr., on the Dutch architect J.J.P. Oud. According to Schulze, however, the single greatest inspiration came in 1929 when Johnson met Alfred H. Barr, the founding director of the Museum of Modern Art, which would open that fall.

Johnson fell under Barr's spell and joined the staff of the fledgling museum as the first head of the department of architecture. In 1932 he collaborated with Hitchcock on the

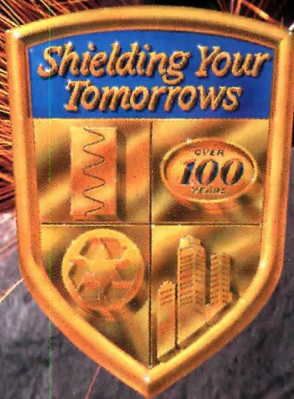
famous "International Style" exhibition. This ground-breaking event introduced Americans to such important European Modernists as Mies van der Rohe, Le Corbusier, and Oud, baptized one of the most influential architectural movements of the century, and instantly established the reputation of its dashing 26-year-old co-curator.

It was not until the 1940s that Johnson began practicing architecture. Many of the intervening years were spent on what Schulze rightly calls an "inglorious detour" into right-wing politics. Part of this story is already well known: Johnson's enthusiasm for Huey Long, his admiration in the 1930s for Hitler; his naive efforts to transform politics in this country by starting his own political party.

Schulze provides a much more detailed—and, it must be said, a much more disturbing—account of Johnson's political activities than we have hitherto had. For example, we learn that when Germany invaded Poland in September 1939, Johnson was in Europe and was invited by the German propaganda ministry to accompany the Wehrmacht to the front. He sent back several dispatches for the Rev. Charles E. Coughlin's anti-Semitic magazine *Social Justice*. In one report, he complained that Britain and "aliens" were turning France into an English colony: "Lack of leadership and direction in the [French] state has let the one group get control who always gain power in a nation's time of weakness—the Jews." He also wrote enthusiastically in a letter that "we saw Warsaw burn and Modlin being bombed. It was a stirring spectacle."

The amazing thing is that Johnson was able to emerge from these enthusiasms essentially unscathed. Schulze is scrupulous about presenting the damaging facts of Johnson's political activities, but is reluctant to judge him harshly. It is largely the same with his treatment of Johnson's architecture. He can be quite severe—describing, for example, much of Johnson's work from the 1980s as revealing "a descent to the level of kitsch" that is "unmitigatedly cheap in its effect." But when it comes to offering an overall judgment of Johnson's accomplishment he is surprisingly expansive. This makes *Philip Johnson: Life and Work* a generous book. I am less certain it is just. ■

We're Forging Shields Of Solid Gold.



Insul-SHIELD™ Thermal-SHIELD™ Grid-SHIELD™ Sound-SHIELD™

Look behind the new names and you'll find the same Manville commercial insulation products you've been specifying for years. The only difference is that they're now logically grouped under four strong, new product names: **Insul-SHIELD™ Thermal-SHIELD™ Grid-SHIELD™ And Sound-SHIELD™**

These new names will soon be recognized industry-wide as the gold standard for quality commercial construction, so let us help you update your specifications right away. Contact your local Schuller Representative, or call our automated information fax request line at 1-800-654-9420 to immediately receive the information you need.

SCHULLER

Leaders in Insulation, Reinforcements, Filtration and Building Products

Circle 12 on inquiry card

An Engineer Imagines, by Peter Rice. London: Artemis, 1994, 208 pages, \$50.

Reviewed by Joseph Passonneau

An engineer with whom the best architects always wanted to collaborate, Peter Rice worked on some of the most demanding building projects of the last four decades. Much influenced by Frei Otto, the great German designer of tensile structures, Rice focused the latter portion of his career on light-weight structures of fabric, plastic, and glass, on transparency, and on light. Diagnosed with cancer, he spent the last year of his life writing this book. He died in 1992 and the book was finished by friends, of whom he had many.

Rice was born in 1935 in an Irish village close to the border with Northern Ireland. Educated by priests, he had little interest in literature, or even in reading; but he was fascinated by numbers. He studied engineering in Belfast and joined the firm of Ove Arup & Partners in 1956. He begins his book with an extended description of his work as the Arup representative on the Sydney Opera House and the Pompidou Center in Paris.

Rice was preoccupied with materials, with the requirements of fabrication and construction, and with joints—between materials and between structural members. His mentors were the Gothic builders in stone and glass and the great 19th-century bridge builders in cast iron and steel. In this book, Rice speaks repeatedly of the “tactile” quality of materials and great structures, of the “trace de la main,” of the design that reveals the human hand and mind that created it.

An Engineer Imagines is illustrated by a few lovely color photographs and hundreds of diagrams. Rice can hardly speak of a design without including precise, axonometric drawings of the joints—always the joints.

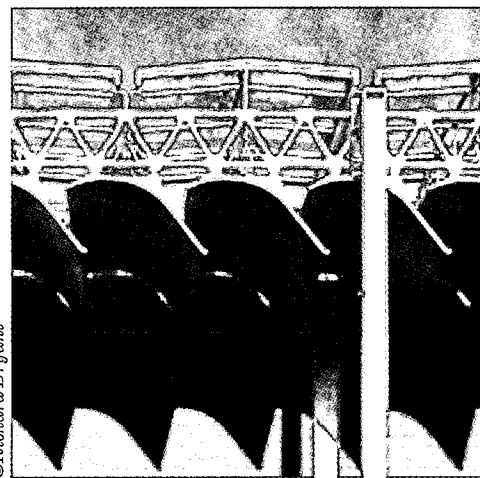
Rice worried about the difference between architecture and engineering, finally deciding “the architect’s response is primarily

Joseph Passonneau practices architecture and engineering, and was the dean of architecture at Washington University.

creative, whereas the engineer’s is essentially inventive”—an unsatisfactory distinction. He shared Auden’s view of Iago, explaining that “Iago, as the agent of rational argument, undermines the fragile characteristics of love and loyalty by the constant application of rational argument. . . In the dialogue of architecture and engineering, the engineer is the voice of rationality and reason. It is a role that is all too easy to play. This is the engineer’s principal destructive weakness, to play Iago to the architect’s, or indeed to another engineer’s, Othello.” Peter Rice was no Iago.

To Rice, the act of invention was an exercise in morality, almost a religious enterprise. Yet he insisted “there is nothing mysterious in the process of invention. What is needed is just courage, care and attention to detail, and above all, belief and getting started.” In the 19th century, engineers were heroes. No history of western civilization would be complete without the names Rice honors: Brunel, Telford, Eiffel. That doesn’t seem to be true of engineers in this century—except for Ove Arup, whom Rice calls his “father in engineering.” Arup told Rice, “It is my conviction that whilst we have become very clever at doing almost anything we like, we are very backward in choosing the right things to do.”

In *An Engineer Imagines*, the author accomplishes what surely was his principal reason for devoting his last year to this book: making vivid the process, excitement, and satisfactions of creative engineering. ■



©Richard Bryant

Menil Collection, by Renzo Piano and Rice

A Workshop for Peace: Designing the United Nations Headquarters, by George A. Dudley. New York: The Architectural History Foundation, MIT Press, 1994, 428 pages, \$65.


Based on the notes Dudley took as the assistant to the U.N.’s director of planning in 1947, this book provides a blow-by-blow account of all 45 meetings of the committee of internationally famous architects that designed the organization’s New York City headquarters. Although it includes more detail than most readers will probably care for, the book is a fascinating record of the egos, politics, and diverse ideas at play in the creation of a Modern landmark. Drawings of various schemes and especially notebook sketches by Le Corbusier provide an interesting graphic history of the project.

The Oral History of Modern Architecture: Interviews with the Greatest Architects of the Twentieth Century, by John Peter. New York: Abrams, 1994, 320 pages, \$68.

Like a time capsule unearthed after several decades, this book promises the thrill of direct contact with the great lights of the Modern movement, but ends up being a dated artifact from another era. Spliced together from interviews that journalist John Peter conducted in the 1950s and 1960s with the founders of Modernism (including Wright, Gropius, Mies, and Le Corbusier) and second-generation figures (such as Kahn, Niemeyer, Rudolph, and Pei), the book has a disjointed quality due to an organization in which some chapters focus on specific topics (technology, society, art) while others look at individual architects. An audio compact disk included with the book lets us hear the architects in their own voices.

John Lautner, Architect, by Frank Escher. London: Artemis, 1994, 296 pages, \$95.

Not surprisingly, this monograph is much like the architecture it covers: unruly, passionate, and still a little raw. Lautner, who died last year, was a disciple of Frank Lloyd Wright and, like his mentor, was fond of bold geometric forms and grandiose pronouncements. The grand verbiage is plastered on the opening and closing pages of this book in giant print, and the bold forms of his buildings come across in the other pages. C.A.P.



WHEN I DESIGN, I WANT EVERYTHING TO BE JUST RIGHT. THAT MEANS CHOOSING THE RIGHT

LOCKS TO CARRY MY LOOK AND STANDARD THROUGHOUT. SCHLAGE'S S-SERIES DOES THE JOB

BEAUTIFULLY. THE LOCKS ARE RELIABLE, COST-EFFECTIVE AND DESIGNED TO MATCH THE

LOCKS FROM OTHER SERIES. THEY MAKE BUILDINGS LOOK GREAT, NOT TO MENTION ME.



SCHLAGE

Part of worldwide Ingersoll-Rand

CONTACT YOUR SCHLAGE DEALER OR WRITE US TODAY AT SCHLAGE LOCK COMPANY, COMMERCIAL MARKETING, 2401 BAYSHORE BLVD. SAN FRANCISCO, CA 94134

Circle 13 on inquiry card

Letters *continued from page 4*

Rather, what we should be doing is helping our clients and our profession see that there are more fundamental issues to face and deal with than any question of style, and that any architecture of substance and quality will be the result of that priority order.

As a practitioner in a part of the country where traditions of all kinds are powerful forces, it is difficult and time-consuming to get clients to look beyond them. Yet when we have succeeded in doing that, the results have been more satisfying to the clients, the public, and to us.

Frank Orr

*Orr/Houk & Associates Architects Inc.
Nashville, Tenn.*

Clarification

Your August 1994 issue, page 88, titled "Roman Carnival," incorrectly listed our company, Dougall Design Associates, Inc., as the architect to the Forum Shops project in Las Vegas, Nevada. The architect of the Forum Shops is Marnell Corrao Associates of Las Vegas, Nevada.

Terry Dougall

President

Dougall Design Associates, Inc.

Calendar *continued from page 23*

to illustrate how the principles of traditional urbanism can facilitate viable solutions to environmental and social problems. The Art Institute of Chicago July 9-11. Call 219/631-6168 or fax 219/631-8486 for details.

Through April 16

"Thomas Jefferson's Academical Village" exhibition at the Octagon, Washington, D.C., includes over 50 of Jefferson's drawings for the University of Virginia. Call 202/638-3221.

May 23-25

Lightfair International, Navy Pier, Chicago. Call 404/220-2217 for conference information.

Competitions

- The American Society of Architectural Perceptivists is calling for entries to its 10th annual exhibition of informal sketches and formal presentation drawings. Entries must be received by February 15. Call 617/951-1433 ext 225 or 206/622-3849 for details
- Boston Society of Architects and New England Healthcare Assembly are sponsoring a Healthcare Facilities Design Awards Program. Entries are due February 28. Call 617/951-1433 ext. 232 for details.
- Submission of papers for "Making Cities Livable Conference" are due before March 1. Phone 408/626-9080 or fax 408/624-5126.
- National Institute for Architectural Educa-

tion is accepting entries for the following student design competitions: Dinkeloo/AAR Traveling Fellowship—\$7,000 for four months of travel, of which \$3,500 is applied to two months at the American Academy in Rome. Entry deadline: March 1, 1995. Paris Prize: "Engaging the Edge"—Supplemental proposals for Manhattan's Hudson River Waterfront. Entry deadline: May 12, 1995. Universal Design Competition: "Challenged Ground"—Urban Housing and Community Outdoor Space on the Lower East Side of Manhattan. Entry deadline: June 8, 1995. Write NIAE, 30 West 22nd Street, New York, NY 10010 for entry forms and details, or call 212/924-7000; fax 212/366-5836.

- Entries for the Boston Society of Architects design awards program are due March 22. The projects submitted must incorporate sustainable design and sustainable technologies. Call 617/951-1433 ext 221 or fax 617/951-0845.
- Entries for the College Housing Design Competition sponsored by EFCO Corp. and Drury College are due April 1. Licensed architects are asked to develop residential-housing designs for up to 300 students on an eight-acre site adjoining the Springfield, Mo., college. Cash prizes are \$10,000 (first prize); \$5,000, \$3,000, and \$2,000. Call David Hutchens at 800/221-4169 for contest details.

**40 years ago we invented
translucent building panels.
Our technology is still...**

light-years ahead!

State of the art composite engineering has created a true structural sandwich panel that stands up to the harshest environments and fiercest climates. Kalwall is the most highly insulating, diffuse light transmitting material in existence.

Architects agree... the design flexibility, energy performance, daylight quality, overall value and company integrity of Kalwall and its products is unsurpassed.

**Wall Panel Systems • Curtainwall Systems
Window Replacements • Standard Skylights
Pre-engineered Skylights • Custom Skyroofs
Small Structures • Large Structures**

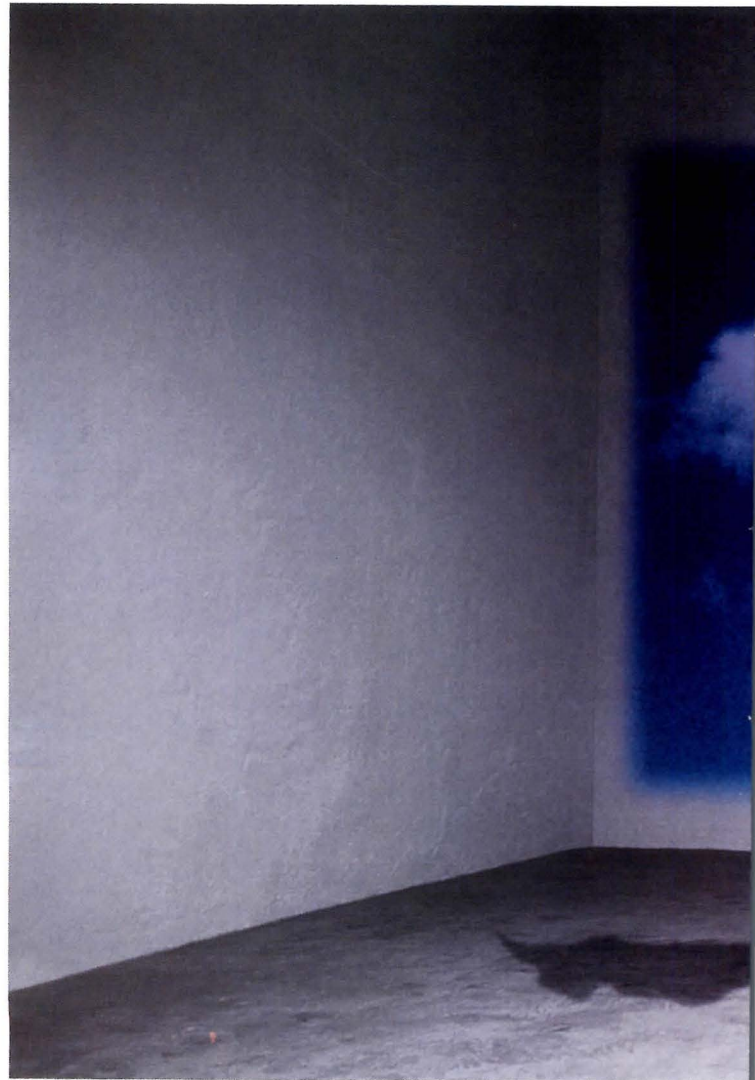
Since 1955
Kalwall

PO Box 237, Manchester, NH 03105 800-258-9777



*The Center for Space Education,
Kennedy Space Center, Titusville, FL
HOK Architects*

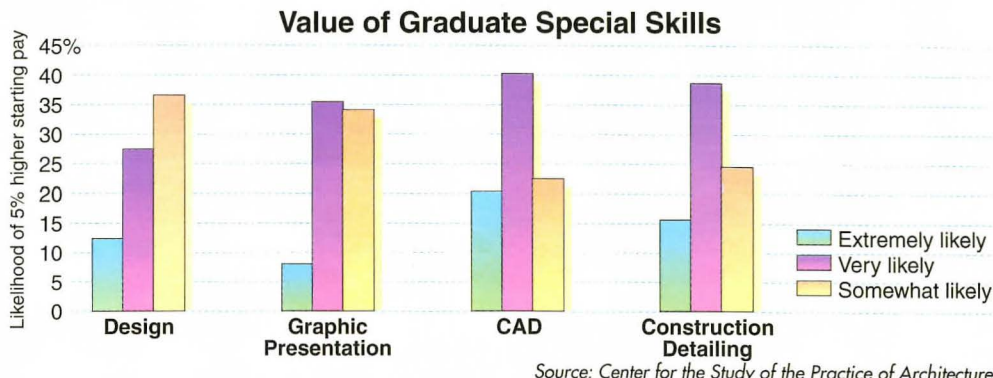
T H E O B J E C T O F A R T I



Indicators

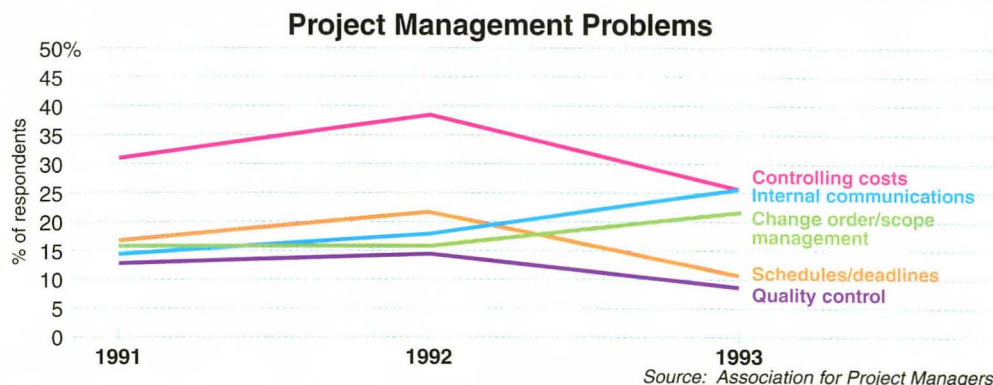
Some student skills sell

Almost half of design firms surveyed by the University of Cincinnati expected "somewhat stronger" business performance and nearly half expected to hire architectural graduates. The chart shows that firms are willing to pay more for certain skills. Respondents rated "personal characteristics" an applicant's most important credential, followed by professional experience, portfolio, and personal recommendations. The attainment of a masters degree and the particular school were rated somewhat less important. ■



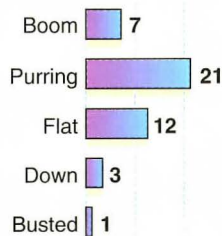
PMs face skill and salary gap

Though project managers are more experienced than ever (a median of 12 years), firms are having a hard time retaining them, according to a survey conducted by Birnberg Associates for the Association for Project Managers (\$25, call 312/472-1777). Respondents felt PMs often lacked certain skills (chart), but salaries are low (typically \$40,000 to \$53,000). 43 percent of surveyed firms have lost project managers in the last year, even though salary increases ranged from 10 to 13 percent over the last two years. ■



Dare we say "boom"?

In the BSA's latest survey of market prospects nationwide, seven AIA chapters agreed that "we're booming and our firms are desperate for skilled architects . . ." Last year five chapters barely made this category [RECORD, April 1994 page 27]. The same number were "purring along o.k." this year, focused in the Midwest and West. "Flat" economies were mostly Northeastern and Western. The "down" and "busted" were all in southern California. There were 12 fewer regions in the worst two categories. ■

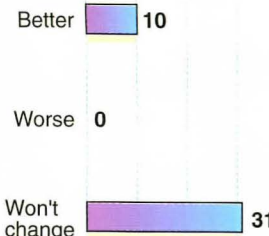


AIA Chapter Survey

October 1994

Hottest Markets:

- Salt Lake City
- Tampa
- Mississippi
- Las Vegas
- Oklahoma
- Southern Arizona



Source: Boston Society of Architects

Short Takes

• Home sales and commercial lending:

Reflecting higher interest rates and lower affordability, sales of existing single-family homes dropped 2.6 percent in November, says the National Association of Realtors. *The Wall Street Journal* reports that banks are easing loan terms for businesses with the exception of commercial real estate.

• **New practice surveys:** Beside the Project Management Survey mentioned above, management consultant Mark Zweig & Associates offers its 1994 Principal's Survey for \$195 (800/466-6275).

• Job training lags:

A Department of Labor Survey, reported in *Engineering News-Record*, shows that less than 60 percent of employers in construction provided any sort of job training, the lowest rate of all industries studied; the project managers study offered similar grim findings.

• **Disaster mitigation training:** The Federal Emergency Management Agency offers courses for architects on disaster mitigation, relief, and recovery [RECORD, June 1994, pages 28-41]. For a catalog, call 800/238-3358. ■

As Budget Axe Falls, What's To Take Up the Slack?

By Elena Marcheso Moreno

For the first time in 40 years, both houses of Congress are ruled by a Republican majority which proffers its Contract with America to the public, promising to blow the roof off the government's "business as usual" approach. The most ambitious members of the new Congress (and the like-minded governors and mayors elected around the country) aim to overhaul Congress and shrink government. Should this agenda succeed, will it empower architects or weaken them? Will cuts in government work be taken up by growth in the private sector?

The Contract promises dramatic deficit reduction, slashes in welfare, more anti-crime measures, tax relief for the middle class, small-business incentives, and increased defense spending. None of these initiatives boosts construction spending per se (as, say, direct subsidies for school building would). Advocates say private spending will increase as government strictures are loosened, but it is very hard to determine the amount of new money that would be available for investment and how much of that would get applied to construction. On the other hand, the impact of lower federal budgets is clear: government building programs will be cut back. The only question is how much.

Budgets balanced on builders' backs?

Led by Speaker Newt Gingrich (Ga.), new House members announced plans to reduce spending across the board and sever large programs, including, perhaps, whole departments. Gingrich expects to pass a constitutional amendment mandating a balanced budget. To achieve this without raising taxes, Congress must find deep and ongoing reductions in spending (especially if the Pentagon and Social Security stay off limits). The Republicans have yet to announce their proposed cuts, but the Clinton Administration, *jumping on the deficit-reduction bandwagon*, has weighed in with proposed decreases of its own. Although they may prove dead on arrival, they give an indication of the pain smaller budgets will inflict. (Republicans will likely want even lower spending.)

Elena Marcheso Moreno, based in McLean, Va., has long written on architecture and building technology.

As tax-cut frenzy takes hold, architects can count on less government work. What they can't count on is the promised economic stimulus.

•*General Services Administration:* GSA, which was in the midst of restructuring before the new Congress was elected, says it will trim \$1.3 billion from its budget this year, with most cuts coming from its buildings programs. Courthouses currently under construction, which account for two-thirds of GSA's new building projects, are being trimmed back \$300 million. The agency has been stung by criticism that the courthouse programs are lavish (opposite). As budget cutters look harder for targets, what is considered superfluous may be ever more tightly defined. Jack Brooks, Congress's most ardent defender of quality-based consultant selection (QBS)—which architects have fought hard to keep—was defeated. QBS may again be in jeopardy.

•*Housing and Urban Development:* Clinton targeted HUD to help pay for some of his proposed \$60-billion middle-class tax cut. The spending reductions would trim \$800 million over five years and consolidate 60 programs into three. The proposed Housing Certificates for Families and Individuals fund gathers all current public housing and Section 8 rental assistance into one fund that provides certificates to tenants. This changes project-based subsidies into tenant-based rental assistance. In theory, these vouchers give tenants the power to choose whether to live in public housing, which is supposed to make housing authorities more accountable for the quality of their units.

Public works are on the hit list

Of public works categories, cutbacks might hit environmental construction particularly hard, notes Robert Murray, who forecasts construction volume at McGraw-Hill's Construction Information Group. Highway spending dwarfs all other public-works categories, but has many friends in the new Congress. ISTEA, the Intermodal Surface Transportation Efficiency Act passed in 1991, which created opportunities for architects rarely permitted under traditional highway programs, has not been attacked. Jeff Nelligan, director of communications for the House Transportation and Infrastructure Committee, says that the \$2 billion earmarked for ISTEA awaits designation of a national highway system, which failed to make it to Conference Committee last term.

Laurie Garrett, manager of federal affairs for the Surface Transportation Policy Project, expects transit programs to be targeted by Congress because of the pressure to cut spending on most domestic programs. Marie Bravo of the American Public Transit Association thinks it is a little too early to tell what Congress will do, but says, "If Congress is serious about getting people off of the welfare rolls, it can't cut transit spending." Welfare reform depends on transit, she contends. Talk on the Hill of rescinding "unfunded mandates"—that is rules where costs are passed on to local government—could actually work to the advantage of mass transit, Bravo says. If requirements of the Clean Air Act and Americans With Disabilities Act could be more flexibly interpreted, some funding cuts could be mitigated.

Al Eisenberg, senior director of federal legislative affairs for the AIA, says he is worried about how the new Congress will treat transportation and transit issues, even more than housing. If program decisions are made by the budget committees before the issues get addressed by oversight committees, transit could suffer, he says. New House Transportation & Infrastructure Committee Chairman Bud Shuster (Pa.) has already let it be known that he won't stand by and watch rail programs chip away at highway funding.

The anti-crime mindset on the Hill makes it unlikely that prison construction will be scaled back. In 1994, the U.S. inmate population exceeded one million for the first time, reports the Federal Bureau of Prisons. Bureau spokesman Bill Bechtol says that by 1998, 24 new institutions will be built, with between 500 and 1,500 beds each. "Right now, there are no cutbacks planned for our construction."

Will tax cuts spur building?

Randall Pence, director of government relations for the National Concrete Masonry Association, sees surprising commonality between Congress and the President on issues that could be good for business, such as scaling back government and cutting taxes for the middle class. A reduced tax burden for most Americans plus a capital-gains tax cut is intended to stimulate the economy, making more money available for investment. "It is virtually certain that the capital-gains

tax will be cut this year," predicts Stephen Moore, director of fiscal policy studies with the CATO Institute, a conservative think tank in Washington, D.C. "What remains uncertain is to what extent." Top rates could be slashed as much as half, to 14 percent. Moore says, "A change of one or two percent won't have much affect on investments into buildings or other assets, but something more substantial should be positive."

Phillip Kidd, a Stamford, Conn., analyst who writes RECORD's Economic Outlook columns, sees some limited advantages in a capital-gains tax cut. By taxing such gains at a lower rate than ordinary income, Kidd explains, some building owners will immediately be motivated to sell to new more aggressive owners, capable and willing to spend for rehab and modernization. Kidd points to multifamily and commercial buildings with good rent levels as prime possibilities for turnover. No matter what the Republican Congress does, though, Kidd does not expect it to alter the dynamics of the commercial-building sector. "We are still backing out of the fiasco of the 1980s commercial-sector overbuilding."

The National Realty Committee (NRC) has been lobbying for both a reduction in capital-gains tax and for changes in the depreciation rules for leasehold improvements. Presently, owner-provided tenant improvements must be depreciated over 39 years, the same as the whole building. NRC's Cary Brazeman is expecting the Hill to act this year to allow owners to depreciate work they do for tenants over the much-shorter life of a lease.

Interest-rate worries

Some analysts are concerned that spending cuts may not match tax cuts, causing the federal deficit to rise, which would put upward pressure on interest rates as the government borrows more. On the other hand, tax cuts and incentives to business could work too well, heating up the economy and thereby unlocking inflation. The Federal Reserve already sees growth as too robust and has pushed interest rates steadily upward since February 1994.

Kidd worries about how the new Congress's initiatives will affect interest rates.

Continued on page 119

When Budget Cutters Take Aim at Architecture

More than \$500 million has been wasted on GSA's \$3.5-billion courthouse building program, claims a report by the U. S. Senate Committee on Environment and Public Works. "Fancy Italian marble, formal English gardens, and French walnut paneling is [sic] a sorry way to spend our tax dollars," fumes former committee chair Max Baucus (D-Mont.) in a press release. Though no courthouse actually has such paneling or a formal English garden, widespread press coverage suggests that architects have colluded with judges in creating luxurious judicial palaces. The committee recommended a moratorium on court construction, which may be unrealistic given the nation's focus on prosecution and prison.

As officials are forced to find ever larger program cuts, any architectural grace notes appear to be fair game. "The report doesn't criticize architects," says Marc Smolonsky, the committee's chief investigator. Indeed, it focuses on judges, who, it says, twisted arms at GSA to get 1,000 sq ft offices, private kitchens and bathrooms, and operable windows. But some complaints go to the heart of what architects do.

The report criticizes lump-sum design fees and says "GSA favors experienced firms that usually charge the highest fees," claiming, "this practice adds greatly to the cost of projects." Does the committee propose that fees be bid or an end to quality-based selection? "We're not saying that all design contracts need to be competitive, but GSA needs to offer some constraints," responds Smolonsky.

The committee appears to recommend (though not explicitly) design-build. However, the Foley Square Courthouse, in New York City—a target of particular committee scorn—was a design-build project that the committee says overran its budget by more than \$103 million. Though neither GSA nor the developer would accept this figure (nor offer one themselves), the overrun appears substantial, with the design-build process creating little savings incentive in the face of rapidly changing courtroom standards (the cost culprit, it seems, much more than terrazzo flooring or wood paneling). Courthouse design standards should certainly be critically analyzed, but politicians do their part to inflate costs. Foley Square's single biggest overrun was the \$200 million in interest costs owed because the government borrowed funds for the project rather than appropriating them. *J. S. R.*



Kohn Pedersen Fox is architect for the design-builder finishing the Foley Square Courthouse.

© Roy Wright photos

New Life for Commercial-Building Orphans

By Peter Slatin

As the nation's oversupply of office-building space ebbs, the market isn't treating all buildings alike. Those in desirable locations with up-to-date services are leasing up. Others not only fail to attract new tenants, they continue to lose existing ones. Worse, some buildings (many built as recently as the '70s) may remain empty; it could be cheaper to build new. Downtowns and older suburbs are seeing what was once class A (desirable and up-to-date) buildings sink to class B or class C status—potentially changing the complexion of the office core. We might call these buildings asbestos orphans, since the huge cost of abating asbestos often tips the balance against viability. "It's an increasing trend," says Peter Miscovich, senior vice president and managing director of the Los Angeles office of ISI, a large interior architecture firm. "The majority of tenants today have sophisticated needs, and they can't go into many of these buildings even when the lease is attractive and the location is good."

What typically consigns a building to orphan status—and what must be addressed before it can pay its way again—is common no matter where it is: outmoded mechanical and inadequate electrical systems, crumbling asbestos, porous facades, and general dinginess (what some call "uglying out" as opposed to wearing out). Buildings built before World War II usually face another barrier: they can't provide the same efficiency (in terms of number of offices per sq ft) as the modular, long-span, big-floor-plate buildings of the post-war era. "Organizational flexibility is key," says Miscovich. "The envelope must be plastic enough to accommodate change. Irregular column spaces, floor areas, or modules, are not preferred by corporations looking for universality."

Bitting the bullet on cost

Owners are attempting to snatch buildings back from orphan status. The results, like the buildings themselves, have been mixed. Success appears most likely when owners invest in current mechanical, electrical, and telecommunications systems. The length of this office-building lull has meant that the

Peter Slatin writes on real estate for The New York Times.

square footage available in buildings that actually have the latest in technological and communications capacity is becoming scarce, and it is still generally less costly to upgrade an older building than to start from scratch.

The quality of original structures varies widely, from landmark buildings like the Rookery in Chicago and Raymond Hood's American Radiator Building in Manhattan to One New York Plaza, a 1972 hulk that pins down a full block on the New York City waterfront. A tour of some successful and not-so-successful architectural "workouts" helps to put the dilemmas in focus.

Preservationists adopt Dr Pepper

Frank Welch, a Dallas architect and preservationist, describes the Dr Pepper headquarters, a 300,000-square-foot bottling plant and office building, as Modernistic and Deco-ish. It was built in the 1940s to designs by Thomas Jameson & Merrill. "It's a wonderful old building, but it's not the Louvre—it's the Dr Pepper building," notes a local architect.

After the soft-drink company moved out, the building, located in a bustling retail area, was taken over from a failed bank by the Federal Deposit Insurance Corporation and sold at auction to a strip-mall developer, DalMac, which planned to demolish it. (Preservationists elsewhere have tangled with the FDIC, which inherited a huge portfolio in the savings and loan collapse. It has resisted adaptive reuse of the commercial parts of Marina City, the famous cylindrical residential towers in Chicago designed by Bertram Goldberg. It removed original architect-designed furniture from PSFS, the Philadelphia highrise landmark designed by Howe and Lescaze.)

Preservation Dallas, a local advocacy group, managed to rally community interests to push the developers to seek a new user for the building and an adaptive re-use plan. As a result, Barnes & Noble and another retailer have signed letters of intent to lease space. What persuaded the developer to reconsider, say preservation advocates, were plans drawn up for DalMac by architect Larry Good, of the Dallas firm of Good, Fulton & Farrell, that proposed new signage (to call

Though lower vacancy rates are making commercial-building makeovers more attractive, significant hurdles all too often remain.

attention to the building in a sensitive way) and imaginative partitioning of the space to take advantage of its retailing potential. However, says Catherine Horsey, executive director of Preservation Dallas, a federally imposed moratorium on demolition expires on April 10, and unless a lease has been signed by then, the owners are free to tear down the building, which at press time had not been designated a landmark.

Good explains that local retailers' initial assumption is always to build new. "But it proved a real political hot potato, and we were able to convince DalMac [that this was the way] to put their best foot forward. The solution makes the building attractive to retailers, and pleases the historic preservation folks because they want a clear delineation of the old and new."

Redoing the recently built

Renaissance Center, a 1.7-million-square-foot Dallas behemoth, was less-loved, but is significant as a pioneering effort in restoring a problem-plagued high-rise to viability. Designed by Hellmuth, Obata & Kassabaum, and completed in 1972, it was sheathed in bronze mirror glass. "The seals failed, moisture penetrated, and it looked horrible," says Richard Keating, then with SOM, whose firm completed a \$40-million rehab of the building in 1989. "They [the glass panes] were all yellowy and pewter colored."

Simultaneously addressing technical and esthetic deficiencies, SOM reclad the building (with tenants in place), using five different colors of glass to trace the double-X pattern of the building's wind bracing, which had been visible at night within the original curtain wall. A haphazard spray of rooftop antennas was rearranged to look sculptural. The base of the building (which Keating described as "erupting" from the street) received considerable attention: it was wrapped in granite, pedestrian circulation was improved and made more obvious, and dingy retail and lobby areas were dressed up. "It's a roaring commercial success," says Keating. A similar updating is underway for a tower in Houston. But there's no formula that always works. Keating has yet to have the same success with a similar large tower in Los Angeles (following pages).

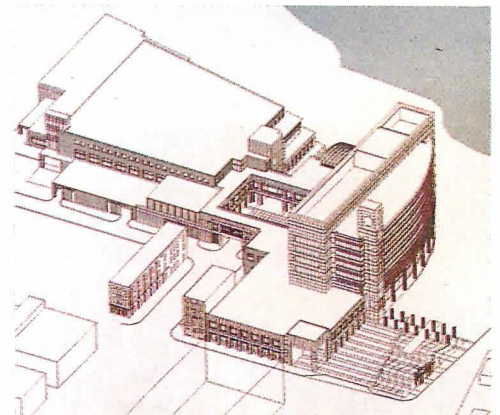
Wall Street's woes

Since the stock market crash of 1987, lower Manhattan's huge financial business has restructured and downsized drastically. Some financial businesses moved out of the city or up to Midtown, where trading floors could be carved out of large-floor-plate buildings and sophisticated services added. Wall Street building owners have fought back. At One New York Plaza, designed by William Lescaze with Kahn & Jacobs, and completed in 1972, a timely and expensive renovation averted an utter disaster: at one point, the 2.1-million-sq-ft building was 80 percent vacant; now, that rate is two percent. "It was laden with asbestos and had outdated systems," says Mitchell Ruden, a property manager at Edward S. Gordon, a leading commercial-real-estate advisor and broker in New York. "In terms of its excess electrical capacity and large floor plates, it was a classic diamond in the rough." The \$100-million renovation budget was "was definitely at the high end of commitment," he continues.

"The building suffered from the problems of that design period," explains Richard Hayden, who led the rehab for architect Swanke Hayden Connell. "It had all the basic infrastructure requirements, but it was not an inviting design." (The *AIA Guide to New York City* calls it "this all too prominent, dark, brooding office tower.") SHC cleaned and repainted the black metal curtain wall to nearly match the natural aluminum of the recessed window surrounds. "It was not a skin replacement, but the effect was to change the presentation of the building," explains Hayden. To provide less formidable access to the building, the architects eliminated a series of moats surrounding its plaza. Inside, there was a massive asbestos abatement program and an overhaul of building systems, including the addition of redundant electrical power meant to reassure potential investment-banking tenants. "It's not just a question of demolishing what's in a building and throwing it away, but of bringing out the best of what's there," says Hayden. A Park Avenue building—where rents are higher—justified a more ambitious makeover (page 34).

Also in lower Manhattan is 55 Water Street, a 1970 Emery Roth behemoth that, at 3 million sq ft, is second only to the World Trade

© Balthazar Korab



Can Birkerts's Bravura Landmark Be Saved?

Project: Federal Reserve Bank, Minneapolis

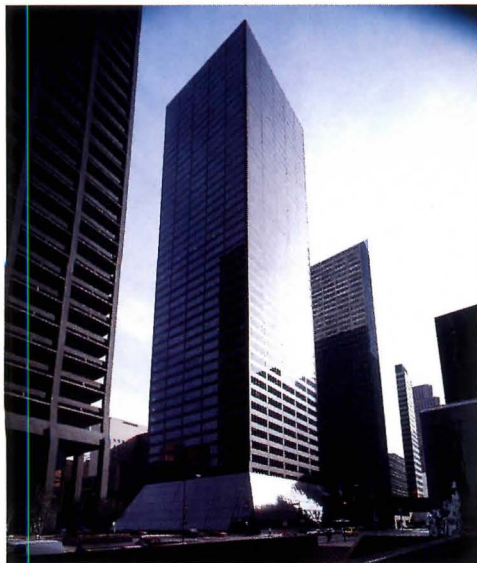
Architect: Gunnar Birkerts (original); HOK with Walsh Bishop Associates (replacement project).

Status: Original building: to be determined; replacement: slated for occupancy 1997.

The curtain wall of Birkerts daring 232,000-sq-ft office tower, suspended by a unique catenary construction, leaks and corrosion threatens the cladding long term (top).

Asbestos insulation makes it very difficult to update the problematic radiant-ceiling

heating and cooling system or update the electrical and fire-safety systems. The Fed also finds the building no longer suited to its original purpose. It first sought to abandon the building, threatening to leave the area if the city tried to force it to stay. Once the agency rids of asbestos, however, it may again be viable for tenants. The bank will move to a nearby site (above), ironically, one that requires the demolition of some historic warehouses. The new facility is 12 percent larger, and is contextual rather than spectacular, shaped to meet the scale of surrounding buildings. The curve of the office block opens views to the Mississippi River. ■



Cheaper to Stay Downtown

Project: 1111 Louisiana, Houston
Architect: JV3 (original architect); DMJM/Keating, rehabilitation
Status: In design

The client, Houston Industries, parent of the local electrical utility, had first hired Richard Keating's former firm to build a new headquarters outside Houston. (Keating has since joined DMJM.) Keating suggested that reworking one of downtown Houston's vacant highrises might prove cheaper and politically more acceptable. In the end the utility accepted Keating's reasoning. The rehab will give the 1.4-million-sq-ft tower's exterior a new architectural identity. A "skirt" of sloping glass (top far left) will be removed in favor of a granite clad base with a relandscaped plaza (bottom far left). The roof will be extended upward and lit at night to give the building presence on the skyline and disguise microwave equipment (near left). Besides asbestos abatement, ADA compliance, and life-safety improvements, a new CFC-free chilling plant and mechanical system will be installed. ■



© Hutchins Photography, Inc.



© Eric Roth

Competing with Class A Space

Project: 73 Tremont Street, Boston
Architect: Winslow Wetherell (original); CBT/Child Bertman Tseckares & Casendino, Inc. (renovation)
Status: Completed 1990.

To bring the granite-clad U-shaped 1895 building up to contemporary standards ("before" photo, far left), the architect filled in the light court with a service core that could handle new high-speed elevators and mechanical shafts. Two floors were added above the old cornice (near left), and the basement was reconfigured for parking. "There had been multiple renovations over the century," says William Cinnamond, of J. P. Morgan Investment Management. "The redo was extremely costly. We were dealing with old elevators and electrical systems, leaky basement walls—you name it, we ran across it." One plus, of course, was that asbestos was scarce. The building, Cinnamond says, was among the first in Boston to be retrofit for fiber-optic capability. "Everything you would get in a new building is inside that tower, you're just in an 1895 shell." ■

Still Waiting in Los Angeles

Project: First Interstate Tower, Los Angeles

Architect: Charles Luckman (original); DMJM/Keating (proposed rehab)

Status: Clients chose not to go ahead.

To make rehabs of buildings like the First Interstate Tower, a 1973 building of over one million sq ft work, says Richard Keating, "you've got to get into the genetic code of the original and reweave it." He has yet to find the formula for this building, the site of a famous high-rise fire. Keating proposed alterations to the sheathing that would have given the building a greater sculptural presence, while maintaining its shaft form. The top would also be carved away. He proposed a new metal canopy to offer a more welcoming entry (bottom right), replacing its undistinguished predecessor (top right). Along with asbestos and ADA compliance problems, says Keating, it has "awkward dimensions, with a huge core and four firestairs. You can redress the looks—the lobby, skin, the top, but at the end of the day it's still an inefficient situation." The owners, he notes, aren't biting at the \$40-million cost of renovation. ■



Duplicating the Rookery's Success

Projects: The Rookery and Reliance Buildings, Chicago.

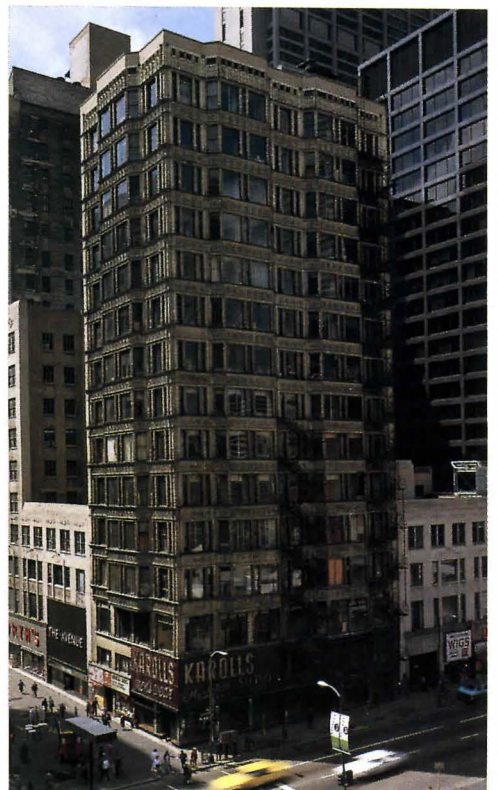
Architects: Burnham & Root (original architect of both); McClier Corp. (restoration of Rookery) McClier with URM (restoration of Reliance).

Status: The Rookery restoration was completed in 1992; a phased restoration of the Reliance has begun.

The 300,000-square-foot Rookery was built as a speculative office building. It departs from modern central-core layouts by wrapping itself around a light court. "The building lent itself fairly well to contemporary use," explains Gunnie Harboe, of McClier. "There was a tradeoff about removing a historic stair and relocating the elevator core to allow for open floor plans," he adds, but the designs were accepted by federal, state, and civic preservation agencies. The work included restoration of the glass-roofed light court renovated by Frank Lloyd Wright in 1907 (near right). Because the Rookery is generally viewed as a well-handled historic



preservation project, the same team is now working on the Reliance Building (right). Built on spec for the medical professions and the clothing trades, its under-5,000-sq-ft floor plates are more commercially challenging. Numerous reuse plans have already foundered. An early plan to convert the building as housing, says Harboe, was "an abuse of the space, and wasn't consistent with its design." Now empty, the building will be returned to office use. Phased restoration has begun, starting with the interior. ■



© Hedrich-Blessing photos

Seeking Salvation in Fashion

Project: American Radiator Building, New York City.

Architect: Hood & Foulhoux (original).

Status: Empty; seeking a new owner.

Raymond Hood's small-scale 1924 masterpiece faces newly restored Bryant Park. After American Standard left the building in the late 1980s, the 22-story building was purchased by a Japanese investor at the height of the real-estate boom. The \$43-million price proved prohibitive for remaking the building into a hotel, as planned. One real-estate expert says there is too little interest by "boutique" firms that might appreciate its high percentage of windowed offices. It's now for sale, and real-estate executives are hoping that the fashion industry that spreads south and west from the midtown site will be able to put the building's 9,000-sq-ft and smaller floorplates to good use, along with a grand showroom space on the ground floor. But any change to the building awaits plans by new owners, and then will likely require consent from the city's Landmarks Preservation Commission. ■

© Andrew Gordon



Center in Wall-Street-area bulk. The current owners, a pension fund, chose a thorough systems upgrade and asbestos abatement of the partly occupied building rather than a full-scale redesign. (Kohn Pedersen Fox drafted plans for both proposals.) The current work also includes a revamped plaza and lobby, and an elevator modernization.

Barry Nealon, a vice president with the international real-estate firm Jones Lang Wootton, which was brought in to evaluate the building's prospects after a default by the Olympia & York real-estate empire, described the decision to postpone a full makeover in pragmatic terms. "The aim is to be a low-cost space provider. Glamorous headquarters are not the driving force in the marketplace. Space users are not looking for glitz and image as in the 1980s, but they are extremely demanding of technical services."

The financial business is almost unique in the density of computer and telecommunications support needed. A single trader, for example, may face a battery of computer screens and a handful of telephone lines. Wiring needs often call for raised floors, and the heat generated by computers raises cooling loads hugely. The low floor-to-floor height of many 1950s and 1960s buildings severely limits the technology that can be accommodated. Prewar buildings often have higher ceilings, but it can be difficult to find vertical chase space or to retrofit cable-handling ducts or raised floors.

Park Avenue Makeover

Project: 320 Park Avenue, New York City

Architect: Emery Roth & Sons (original); Swanke Hayden Connell (rehabilitation)

Status: Completed June 1995.

Peculiarities of the zoning code made it possible to actually add square footage to a building that, had it been torn down, could not have been replaced by a similar-sized structure. Like many of the copycat Lever Houses that line Park Avenue, this building suffered from inadequate systems, a deteriorating curtainwall, and asbestos contamination. Since the location remains a top business address, the owner could afford to abate the asbestos, rework certain floors (adding a ziggurat top to distinguish it from neighbors), and strip cladding to steel, replacing the curtainwall with one that meets modern energy-conservation standards. By fully sprinklering the building, redundant fire stairs could be removed. The architects provided new air-handling rooms on each floor, offering additional hvac flexibility for tenants, and reduced duct sizes—a necessity given the limited ceiling heights. ■



Indeed, it is the sheer quantity of what is perceived to be unusable floor space in Wall Street that threatens the viability of lower Manhattan as the nation's financial center, according to owners and managers. They're now discussing zoning changes that would permit demolition of many of the area's landmark 1920s towers, or their conversion to housing. The City of New York hopes to keep businesses downtown with tax breaks, improved services, and updated transportation links. Nor is Wall Street alone. Miscovich indicated there is considerable space in Orange County, Calif., and Denver that goes begging because tenants find it less costly to build-to-suit at urban edges or (when linked by sophisticated telecommunications) to move to small, low-cost cities. (Boise and

It's often up to architects to demonstrate for owners (and the increasingly short-term-oriented local government) that too much new construction too soon can bring problems of its own.

Sacramento have benefitted from businesses locating back-office and light manufacturing under one roof.)

Chicago Hope

Though not on Wall Street, the American Radiator building's struggle for solvency (opposite) isn't much different than what faces older towers in Lower Manhattan. In Chicago, however, the restoration of the Rookery, a pioneering office building completed in 1888 by Burnham and Root, shows that prewar buildings aren't necessarily dinosaurs. The team that made the Rookery work is now trying to work its magic on the Reliance Building, a much-loved landmark, where numerous restoration efforts have failed (previous pages).

The differences between the Rookery and the Reliance are instructive. A developer, the Baldwin Co., acquired the Rookery on the default of its owner, Continental Bank, and thus was able to control the amount of money spent as well as the time of construction. The Reliance Building has waited much longer for salvation. It is owned by the city of Chicago, but is being redeveloped by the Baldwin team, including a design-build joint venture, a partnership of McClier Architects and UBM, an engineering and contracting firm. The city's procurement processes limit the developers' options and slow the pacing of contracting work. Also, no tenants have yet been found for the building.

Taking the long view

Though pinched by falling office rents in Boston, the renovations and additions to the 1895-vintage 73 Tremont Street brought the well-located building up to 90 percent occupancy (previous pages). The bank-owner took a long-term view when it began renovating the 11-story building in the late-1980s. At that time, leases seemed to be going in only one direction, and profit-making rents of \$38 per sq ft seemed close at hand. Today Boston rents hover in the mid-\$20s.

According to William Cinnamond, Jr., a vice president at owner J.P. Morgan, the bank stuck with its strategy even when the bottom fell out of the office market and the top blew off the project budget. With part of its investment written down, the building is

performing at current rents. "We can't expect it to compete with a brand-new tower in the heart of the central business district," says Cinnamond, referring to conventional expectations for big floors, views, and newness. "But some appreciate the charm and character and attention to detail in a building like this."

Reserving judgment

One building that continues to defy the best efforts of preservationists and adaptive reuse proponents while summing up the frustrations of its users is the Federal Reserve Bank of Minneapolis, designed by Gunnar Birkerts and finished in 1973 (page 31). "Everyone guessed wrong for the program 25 years ago," says Tom Martinson, an architect and planner hired by the bank to

Tenants say they prefer newer buildings, "but some appreciate the charm and character and attention to detail in a building like this." — William Cinnamond on 73 Tremont Street

evaluate the building. "The sense was, from the brightest guy on down, that this was going to become a checkless society. While the bank was careful to program for expansion capability, they guessed for expansion in the wrong areas. Now there are more checks than ever, and there's no end in sight." At one time it appeared the Fed would simply abandon the building, but local activists and the AIA persuaded the agency to evaluate options for re-use.

Since even demolition would require the abatement of the asbestos (at Federal Reserve cost), a 1993 report prepared pro-bono by the chapter, suggested that retention by the Fed was a viable option, with the expanded check-handling operations relocated. The agency didn't accept the recommendation, but it has agreed to cooperate in seeking other civic uses that would prevent demolition (otherwise a real likelihood if the prominent site is simply sold to a developer). The most appealing alternative is to tie the building (tenanted to office users) to a pro-

posed public library and light-rail transit hub. "This building does not neatly fit into any protection categories," notes Denny Probst, an architect who headed the task force. "The Federal Reserve is looking at moving in 1996-97, and we offered some options to keep it in the skyline." Although the building is too young to qualify for listing on the National Register of Historic Places, a report has been prepared requesting that the 50-year age requirement be waived. "If one could look at putting a whole series of these projects together," says Probst, "it is an opportunity to do something fairly grand."

Whole districts up for grabs?

As Class A vacancy rates in many markets drop to where new construction is a genuine possibility rather than a distant hope, it's

often up to architects to demonstrate for owners (and the increasingly short-term-oriented local government) that too much new construction too soon can bring problems of its own. In Dallas and Houston, the brash mega-growth culture of the 1970s and '80s made it imperative for companies to build their own skyscrapers and politically incorrect to recycle older buildings. As space absorption flattened, then died, developers turned to a parasitic strategy, siphoning tenants out of older buildings to fill new ones.

In the mid-Wilshire section of Los Angeles, says ISI's Miscovich, adaptive reuse of unrented Class C office space to residential or educational use is now seriously considered. Still, the costs are daunting, suggesting that more attractive tax treatment, or other government intervention may ultimately be required. New York City's fight to retain Wall Street's viability is a reminder that simply letting aging building stock decline can ultimately threaten the future of an entire office-building district. ■

Does Saving Artifacts Mean Losing the Building?

By Mubarak S. Dahir

Students of American history know that it wasn't only redcoats that menaced the country's nascent independence, it was also the weather: barricaded in secrecy behind the closed windows and locked doors of Independence Hall, the Founding Fathers had to cope with the sultry Philadelphia summer. The situation sharpened already high tensions among them and nearly scuttled the writing of the document that would win the muggy hall its place in history.

When architects and engineers for the National Park Service last year submitted their proposed plans to update Independence Hall's mechanical systems, they found that the question of the building's interior climate was once again creating controversy. The \$12-million scheme called for updating air-conditioning, ventilation, heating, humidity control, fire safety, electrical, plumbing, and security systems, last redone in 1971. (The architects are the Vitetta Group, of Philadelphia.)

Proposal "too intrusive"

The city owns the historic buildings—it purchased them back in 1818—and the National Park Service (NPS) leases and manages them. According to an agreement between the two, any changes to the buildings and grounds must be approved by both parties. But when the Park Service last year offered up its proposal, the architecture committee of the city's historical commission rejected it.

"We were concerned it was over-designed and intrusive," says Arlene Matzkin, an architect and chairwoman of the city's architectural committee. "We didn't want to lose any original fabric of the building, and we felt the original plan would have put the building at too much risk." Richard Tyler, the Philadelphia Historical Commission's preservation officer agrees. "The Park Service was trying to get more of a museum environment, which entails putting in more mechanical equipment and ductwork. But we question whether that kind of environment could be created in such a building, and indeed whether it should be."

Mubarak S. Dahir is a freelance writer based in Mickleton, New Jersey.

Some preservationists fear that sophisticated hvac systems proposed for Independence Hall could compromise the building's historic fabric.

Independence Hall is presently cooled via two air-handling units located in the building's basement. Typical hvac systems supply air through the ceilings and exhaust air through low returns. The existing system is considerably less sophisticated (opposite).

In rejecting the Park Service proposal, the city cited concerns over the number of surfaces penetrated by ductwork and the potential for leakage or fire from the new air handlers. But the biggest fear was that museum-like environmental conditions would cause condensation in the building's walls and timbers that could lead to serious decay and rot. It is not uncommon in Philadelphia for the outdoor relative humidity to drop to 15 percent during the winter. The low humidity tends to draw the relatively higher interior moisture toward the exterior, where it may condense on or within the cool, uninsulated historic walls.

Consistent conditions key for artifacts

Thomas Taylor, the architectural collections manager and chief architectural conservator for Colonial Williamsburg, has seen the conflict before: "Materials have ambient levels of humidity and temperature they do best in, and often there's a real conflict between providing an environment that keeps a collection secure but doesn't risk damage to the building structure." The most vulnerable materials in Independence Hall include the paper of old maps, the wood and textiles of antique furniture, and the silver of the inkstand used to sign the Declaration of Independence. Karie Diethorn, curator and chief of the museum branch of Independence National Historic Park, places the ideal temperature and humidity for the collections at between 68 and 70 deg F and between 45 and 60 percent relative humidity.

In seeking a compromise, the city sought a performance standard: there may be no water condensation on the inside of windows or window sashes at any time. The plan finally agreed upon was to replace the existing air-handling units in the basement with modern, more-efficient, larger-capacity units. No ductwork will be added, but the surface area of existing vents and grilles may be enlarged. William Brookover, chief historical architect for Independence National Historic

© Eastern National



Park, is concerned that the larger outlets won't do the job because more air traveling through the same duct system may prove too noisy. Brookover says the NPS hopes the revised design will maintain a humidity range of from 20 percent in the winter to a maximum of 45 percent in the summer, and from a low of 60 deg in the winter to a high of 78 deg in the summer.

Diethorn, the Hall's curator, says she is willing to accept the compromise because it reduces the *fluctuations* in humidity—the most important environmental consideration—to no more than four percent for any given month. Construction will begin in May.

Randall J. Biallis, the chief historical architect for the NPS in Washington, D.C., believes there is still going to be as much as a 15-percent differential in relative humidity in various parts of the building at any given time. He adds that it has even been suggested that some of the museum's more sensitive objects may have to be replaced by replicas in order to preserve them properly. Diethorn calls that "an extreme act that hasn't been proven necessary to me yet. We've always maintained that people come here to see the real thing. A stage set is not an experience [for the visitor] with integrity."

Diethorn will monitor the collections for damage for three years following the installment of the new hvac system. Engineers will also collect data on the interior conditions of the building and on the structure itself. "We might come back to the city and try to convince them to go forward with the originally proposed hvac plan," says Brookover. "We won't have the final answer for years." ■

Simplifying Single-Ply Roofs

Though the technology of single-ply roof membranes is now proven, materials and installation still merit close design attention.

By Dana Holbrook

Single-ply roofing was introduced in the United States about 20 years ago to provide a more consistent, reliable alternative to multiply built-up roofing (BUR). Because single-ply membranes are factory-made, they offer better quality control than BUR, which is essentially fabricated in the field. Single plies also go on quickly, offer a choice of attachment methods, provide better resistance to ultraviolet light, and are workable in cold weather. Unlike BURs, single plies are flexible, letting the substrate move somewhat without splitting or cracking the roof. As popular as they are, single plies are not trouble free. The redundancy innate to BUR's multiply installation, for example, remains an advantage.

There are two broad classifications of single plies: thermoset and thermoplastic. Within these are a range of membrane formulations and ingredients distinct to each manufacturer. Some known sensitivities are listed on the chart opposite, but manufacturers should be consulted before specifying to make sure materials are compatible with the deck, the insulation and—if re-roofing—with the existing membrane. The recommended fastening system must also be suited to the deck and in conformance with local codes (though research is finding some codes don't calculate wind uplift conservatively enough).

All single plies must meet minimum standards set by the ASTM on low-temperature flexibility, meaning membranes can't break or crack when exposed to temperatures as cold as -49 F. Thermosets perform particularly well in extreme cold. The membranes come in thicknesses ranging from about 30 mils to 60 mils. In general, the thicker ply is more durable, but there are many other variables, such as installation technique and flashings, that affect performance. For instance, an exposed application may require a thicker membrane than an application that's ballasted. However, it's wrong to assume that one type of 60-mil is more effective than a 30-mil version of another. Because formulations vary among the different manufacturers, one company's 45-mil product may be as effective

as another's 60 mil. You can buy fiber-reinforced versions of several membranes for use with mechanical fasteners; the additional strength helps prevent tear-outs. While some membranes, such as CSPE, are inherently fire-retardant, others can be specified in FR versions. Ballasted systems are considered more fire resistant than exposed membranes.

The materials cost of single plies is usually higher than BUR, but the type of installation influences which has the lowest installed cost. Many are also more susceptible to punctures and damage from foot traffic than are BURs.

Modified-bitumen roll roofing, which is frequently classified as a single-ply membrane, occupies a gray area in the world of roofing materials. Like BUR, modified bitumen has an asphalt or coal-tar base sheet. But the sheet is modified with polymers that give it strength and flexibility more akin to a single ply. Since the attachment methods and physical properties of modified bitumen are so different, this article focuses only on thermoset and thermoplastic membranes.

Thermoset single plies

The term thermoset refers to a class of materials made from synthetic-rubber polymers that cure or vulcanize during the manufacturing process to form chemical bonds that give them elasticity and strength. These bonds are irreversible; that is, the materials won't break down under the extreme temperatures found in the field.

There are three kinds of thermosets: EPDM (ethylene propylene diene monomer), neoprene, and CSPE (chlorosulfonated polyethylene, often referred to as Hypalon, a brand of CSPE made by DuPont.) CSPE differs from the other two thermosets in that it cures naturally upon exposure to weathering. Once cured, CSPE has the same strength and elasticity as EPDM.

EPDM is the most commonly used single ply, accounting for about 35 percent of the single-ply market, according to the National Roofing Contractors Association. By comparison, CSPE, a more expensive membrane, claims about 2.5 percent of the commercial market. Neoprene, popular in the early days of single-ply, is now seldom used.

Thermosets also differ from thermoplastics in their seaming properties (see chart). EPDM requires some type of adhesive to unify the sheets, either contact cement or pressure-sensitive splicing tape. When contact cement is used, the roofer rolls or paints adhesive onto the laps and carefully joins the two sides. Since the cement forms an instant bond, trying to adjust the seams afterward is almost impossible without damaging the membrane. Seaming tape was introduced about five years ago in response to clean-air regulations restricting the use of adhesives containing volatile organic compounds (VOCs). Neater and easier to apply than contact cement, tape is rolled onto one side of the seam, the release paper is removed, and the laps are rolled into place. In both cases, the membrane must first be cleaned to allow full adhesion.

EPDM typically is black, tan, white, or gray. CSPE is almost always white, although, like most membranes, it can be made in custom colors if an order is very large. Lighter colors are reflective, making them more energy-efficient when cooling loads are high. But they also get dirty quickly.

Both EPDM and CSPE are compatible with just about any existing roofing product, which makes both suitable for re-roofing. EPDM must not be exposed to fuels or aromatic solvents. The membrane absorbs these, causing it to swell and soften. CSPE is also sensitive to certain substances, particularly to some hydrocarbons. In all cases, the extent of the membrane's vulnerability depends on the concentration of the chemical and the ambient temperature. For this reason, regardless of the membrane's advertised properties, most manufacturers recommend that they be consulted about any prevalent contaminants.

Thermoplastic single plies

The list of thermoplastic single plies is an alphabet soup of chemical abbreviations, though the most common thermoplastics are PVC (polyvinyl chloride) and PVC blends. Among the blends, the most popular formulations are CPA (copolymer alloys) and EIP (ethylene interpolymer), along with TPOs (thermoplastic polyolefins) a fairly new thermoplastic. All are available in a range of

Dana Holbrook, based in Westport, Conn., writes frequently on building technology.

Materials Issues			
Membrane Type	Seaming	Chemical Compatibilities	Chemical Sensitivities
<i>Thermoset single plies</i>			
EPDM	<ul style="list-style-type: none"> • Pressure-sensitive splicing tape or contact cement • Heat or solvent welding 	Acids, alkalis, animal and vegetable oils, oxygenated solvents	Gasoline and other fuels, aromatic solvents
CSPE	Heat or solvent welding	Most existing roof products	Some hydrocarbons
<i>Thermoplastic single plies</i>			
PVC	Heat or solvent welding	<ul style="list-style-type: none"> • Compatible with a wide range of industrial chemicals • Resistant to bacterial growth 	<ul style="list-style-type: none"> • Bitumen • Extruded and expanded polystyrene
PVC blends	Heat or solvent welding	Vary widely; often include oils, greases, animal fats, bitumen	Aromatic hydrocarbons
TPO	Heat or solvent welding	Not available	Not available
Attachment Issues			
	Ballasted	Fully/partially Adhered	Mechanically Attached
Deck	<ul style="list-style-type: none"> • Size deck for ballast live load • Near-to-level roofs only 	<ul style="list-style-type: none"> • Insulation must be attached to deck • Low-slope acceptable 	<ul style="list-style-type: none"> • Fastener patterns must be coordinated to deck structure (especially metal) • Method not suited to precast decks
Wind Uplift	<ul style="list-style-type: none"> • Subject to ballast scouring • Flying ballast can damage adjacent buildings • Membrane can act like airfoil and "balloon" 	<ul style="list-style-type: none"> • Insulation attachment must be sized for anticipated wind loads • Insulation tension strength may become critical 	Fastener loads may require thicker deck than combination of dead and live loads alone
Roof Top Traffic	Pavers may act as ballast and walkway pads	Needs additional layer of material for walkways	Needs additional layer of material for walkways
Appearance	Neat appearance	Seams may be unattractive	Pattern of fasteners may be unsightly

Single-ply membranes: Today there are fewer readily available membrane types. Materials to which the membrane is "sensitive" may cause degradation.

thicknesses, colors, and sheet sizes. Thermoplastics contain plasticizers or other compounds that give them flexibility. How well they retain these elements determines their ability to maintain that flexibility over their service life.

While seams can be heat- or solvent-welded, heat-welding is environmentally safer, neater and more reliable; the seaming process is less likely to be compromised by water or contaminants in the solvent. The ability to fuse the membranes is an advantage in detailing the roof.

Flashings can be purchased pre-coated with a vinyl film so they can be heat welded to the membrane, providing a better bond at these critical junctures than gluing membrane to metal. The heat welding machine, which generates temperatures of up to 800F can be moved up and down the seams quickly. A hand-held machine can direct heat at specific areas, making detailing and spot welding

easier. Thermoplastics are susceptible to a range of contaminants, so check with the manufacturer first. PVCs, for example, react to bitumen, asphalt, and coal tar. They also cannot be laid over extruded or expanded polystyrene because, at high temperatures, the plasticizers break down the polystyrene. If the two must be paired, keep them apart with a separator sheet.

Installation Techniques

There are five basic installations for single plies: ballasted, mechanically attached, fully adhered, partially adhered, and protected or inverted membrane. Most membranes can be installed with any of the techniques. Which installation system is best depends on decking and insulation materials, the amount of weight the structure can support, local codes, costs, manufacturer recommendations, and the roof location. All single plies are resistant to wind uplift, but many have failed where designers didn't anticipate the actual strength of winds.

• *Ballasted systems* are the most common because they're inexpensive and easy to lay. Membranes are loose laid and glued at the perimeter. Ballast, consisting of rocks or heavy or lightweight pavers, is spread evenly over the top. Ballasted systems are aesthetically appealing because they offer uniformity of appearance—seams and patches are hidden beneath the ballast. Different-colored gravels or pavers can be used to create designs. But ballasted systems are unsuitable for a roof with a slope greater than 2:12 and the roof must be able to support 10 lbs. or more per square foot. In high-wind areas, ballast can be scoured off, resulting in exposure of the membrane (which may then "balloon" off the roof) and damage to adjacent structures (from flying gravel).

• *Mechanical fasteners*—galvanized-steel or aluminum battens or plates in various shapes and sizes—permit the membrane to float freely between them, allowing greater movement between the membrane and the substrate.

• A *protected membrane* is one in which the waterproofing sheet is installed beneath the insulation. Relatively expensive to install, the system is useful on a roof where foot traffic is heavy or where the membrane must be protected from other types of abrasion.

• *Fully adhered* systems use either water- or solvent-based adhesives spread in an even film to fasten the membrane to the deck. Self-adhesive sheets are available, but they're expensive and require a very clean substrate for good adhesion. Fully adhered systems are best for steeper roofs.

• *Partially adhered* systems are similar to fully adhered but instead of coating the entire membrane, the adhesive is laid in ribbons, allowing greater sheet movement and saving on the cost of adhesive. Because the adhesive used is temperature-sensitive, cold-weather installations can be a problem.

Almost every membrane comes with a range of pre-molded flashings for corners and penetrations as well as unmolded material for use in unusual conditions. If designers fail to deal with such non-standard areas as roof divisions meeting parapets (as too often happens), roofs may fail. ■

Making a Drawing into a Presentation

By Steven S. Ross

Need a rendering of your project? Or perhaps a computerized substitute for a mood-setting hand-painted image? If you've drawn in 2D, you're out of luck as far as CAD is concerned. Many 3D and quasi-3D CAD packages will accommodate you, of course—but only if you've drawn the project near-perfectly. In the real world, architects report having to take files to custom “service bureau” shops to get proper renderings. Or you may have to spend hours tweaking your CAD drawing, and hours waiting for the computer to render it.

It is not surprising, then, that many offices have turned to non-CAD graphics software to doll up CAD drawings—especially 2D drawings—for presentations or brochures. Such software can render them, and even add a bit of the pizzazz that used to be done by first-rate illustrators. One common package for this task is the inexpensive Aldus PhotoStyler, which is not being updated. (Aldus and Adobe have merged; Adobe Photoshop is the surviving product, out in new versions.)

Color printouts on large-format printers from vendors such as Hewlett-Packard, Summagraphics, and EnCAD are stunning. Even printouts from \$300 A-size units (HP's color DeskJet series, and others from Canon, Star, and so forth) can turn a client's head.

You do have to take care. Non-CAD software tends to rely more on pixel-based graphics to form an image than on vector-based graphics (where each element of a drawing is a mathematically defined entity, not simply a collection of dots). Thus, when you import a CAD file into non-CAD software, it loses some “intelligence” (especially 3D intelligence) and gains graphic flexibility.

This month, we look at a cross-section of software rendering packages. They range from Designer (a drawing package that is CAD-like to begin with), Picture Publisher, and Adobe Photoshop (both true “paint” packages—great for special effects), Kai's Power Tools (more special effects), and Images Incorporated (for compressing the huge files that can result, and for improving apparent resolution). Some run under Windows, and some run on the Mac.

Micrografx Designer 4.1 TE

Vendor: Micrografx, Inc., 1303 E. Arapaho Rd., Richardson, TX 75081, 800/261-6123. 214/234-1769.

Price: \$695; upgrade from Designer 4.0 is \$49.95, from 3.x, \$149.95.

Equipment required: Windows-capable computer (486 CPU or higher recommended; 386 CPUs and 486SX require math coprocessor); 8MB of RAM (16MB recommended). Full installation takes 32MB of disk space; on-line tutorial, fonts, and clip art are on CD-ROM disk.

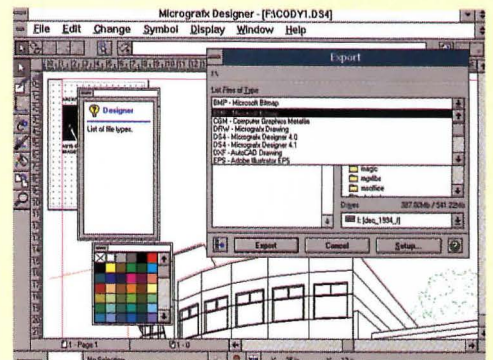
Designer is a technical illustration package, a cross between true CAD and simpler, pixel-based “paint” programs. Its strength is a fairly intuitive interface, and about 40 import filters—including robust DXF and IGES as well as AutoCAD RND (AutoShade). Thus, it can pull in wireframe or 2D work from CAD packages—ready for the addition of color, human images, and so forth.

There's also a flexible dimensioning tool, good for adding explanatory detail to marked up drawings. (Adobe Illustrator is the biggest competitor in the professional market.)

In general, you will want to pull files into Designer and work on them. But you will not want to re-export back to CAD. The exceptions would be bitmaps you may be using as textures or backgrounds, or rough sketches you start with, then transfer to CAD for hard-line drafting. This is because separate layers in CAD drawings are generally collapsed into one layer (you can still edit separate objects, however). You can string images together in a slide show as well.

There's an amazing “autotrace” module that turns bitmaps into vector images. One use not discussed in the manual: you can take funky TrueType fonts (the world is full of them) and turn them into vectors for easier addition to CAD drawings.

Designer is another good reason to buy a CD-ROM drive. There's plenty of clip art (including human figures and some architectural symbols such as trees, doors, and windows) and a tutorial on the CD.



DXF file after importation into Micrografx Designer 4.1 TE. This is what happens when the original DWG file was locked—you can see it but not edit.

Manuals: Adequate, large paperback reference and tutorial. On-line help is installed from floppies, but even better help on-line is available if you use the CD-ROM disk that comes with the package.

Ease-of-use: Excellent with 16MB of RAM. Pokey at 8MB—especially files containing loads of bitmaps.

Error trapping: You can undo up to 100 operations (the default is 5, but it can be reset). There's no automatic save—understandable for a package that handles huge files, but dangerous with Windows 3.1. Save in package's native (DS4) format first for safety, then in standard formats such as BMP. In general, if the original CAD file was locked when you DXF out, the resulting image may be viewed but not edited inside Micrografx Designer.

300 on Reader Service Card

Picture Publisher 5.0

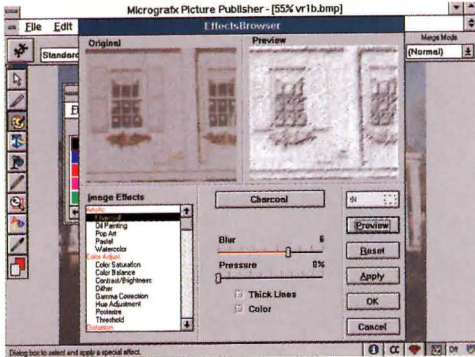
Vendor: Micrografx (see above for address).

Price: \$395 for CD-ROM only version, \$595 for disks; upgrades from older Picture Publisher versions (including LE) are \$99.95 for CD, \$149.95 for disks.

Equipment required: Windows-capable computer (486 or higher strongly recommended), 4MB RAM (8MB or more strongly recommended). Full installation takes about 15MB of disk space. CD-ROM drive strongly recommended.

Picture Publisher 5.0 is one of a select group of professional-strength pixel software pack-

Need to do a rendering but you only have 2D CAD? Non-CAD graphics software can be the answer to your quandary. Here are five packages you should take a look at.



Preview box in Picture Publisher (top) allows easy viewing of special-effects look. This is a conversion to charcoal drawing. Above: "Pastel" effect applied. Other pseudo-renderings are watercolor; oil painting, and charcoal sketch. We could have used a DXF wireframe, with sections in color.

ages that massage images for publication, but that are not too hard to use. (Among the others are Adobe Photoshop, discussed below, and Visual Reality, Visual Software, 21731 Ventura Blvd., #310, Woodland Hills, CA 91364, 800/669-7318, 818/883-7900.)

Each package of this type has its strengths and weaknesses, but Picture Publisher is, at the moment, the easiest of the "major" packages to use for Windows. It can take a scanned image—or perhaps one exported from Designer—and modify it—turning a rough shaded drawing, for instance, into a watercolor or pastel-like rendering

Because this is a pixel-based package, you cannot import a CAD vector file such as an AutoCAD DXF directly. You may, however, be able to save your CAD file to disk as an EPS file (encapsulated PostScript). Picture Pub-

lisher can then import the EPS file. Note that EPS comes in two basic versions, binary and ASCII. Make sure the conversion works on a sample file first!

For lower-power computers, you may find it convenient to work on the image at a lower resolution, then apply your changes to a final, high-resolution version.

Picture Publisher can accept "plug in" special effects—the standard was set originally by Adobe. Perhaps the most popular and most flexible of these special effects sets is Kai's Power Tools, from HSC (below).

Manuals: One paperback user's guide, fairly good on-line help. Some of the terminology is meant for publishing-oriented artists, of course. Read the manual to learn about masks, channels, and separations.

Ease-of-use: Standard operations are easy to do. None of our reviewers bothered to read the manual at all, until they got curious about the meaning of some of the more advanced commands. Architects will appreciate the ability to edit text after it is placed (each set of inserts is on a separate layer). That's not possible with low-end pixel-based packages.

Error-trapping: Good Autosave, infinite Undo (the default is one step; you'll have to reset it).

301 on Reader Service Card

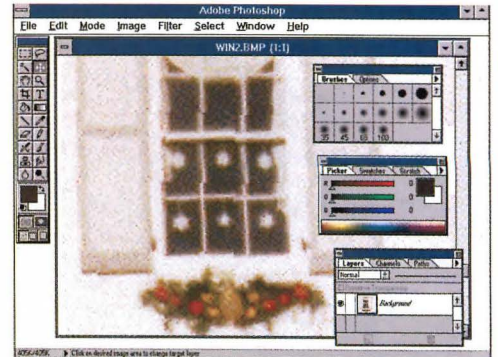
Adobe Photoshop 3.0

Vendor: Adobe Systems, Inc., 1585 Charleton Rd., P. O. Box 7900, Mountain View, CA 94039. 800/833-6687, 408/986-6555, fax 408-986-6587.

Price: \$895. Upgrade from previous versions \$149 (free if you purchased 2.5 after June 15, PhotoStyler after Sept. 1, 1994; call 800/521-1976). Adobe Photoshop LE upgrade is \$199.

Equipment required: Windows-capable computer (10 MB of RAM, 16 MB strongly recommended) or Macintosh (8 MB of RAM) computer. Full installation takes about 13 MB of disk space.

Adobe's Photoshop has been king of the hill for years in the high-end professional market—especially in its Macintosh version (we use it here at ARCHITECTURAL RECORD,



Section of window after fractal image enhancement with Images Incorporated 4.0.

in fact, on Macs). If your office is large enough to support an "expert" in its use, or if you are Mac based, this is the package to consider instead of Picture Publisher (unavailable on the Mac). Otherwise, you may waste its power.

It basically offers all the features of Picture Publisher and more. Architects will find the "lighting effects" filter especially useful—it allows you to place different "light sources" on an image.

Manuals: Outstanding, although non-publishing personnel will find some of the terms numbing. There's a quick reference card, quick guide to "beyond the basics" features, 267-page reference guide, and 150-page tutorial, all paperbacks.

Ease of use: Full of features, full of commands. Windows version can only access one directory for plug-in filters; you'll have to custom-install the plug-ins all in one place.

Error-trapping: Undo only available for last operation. No autosave.

302 on Reader Service Card

Kai's Power Tools 2.0 for Windows, 2.1 for Mac and PowerMac.

Vendor: HSC Software, 6303 Carpinteria Ave., Carpinteria, CA 93013, 805/566-6200, 800/472-9025; fax: 805/566-6385.

Price: \$199.

Equipment required: Versions available for Macintosh and for Windows. Must "plug in" to compatible graphics program, among
Continued on page 117

Materials and Systems for Renovation Use



305



307



306

305. Making the grade

Inclinators' cog-drive Hill/Climber is a custom lift designed to travel up and down steep (up to 45 degrees) landscape grades for a distance of up to 250 feet. The unit has a green-painted welded-steel frame, a 500-lb load capacity, and a rated speed of 39fpm. Applications might include travel from front door up to street level at a hillside home, or down a waterside bluff to a boat dock. Inclinators Co. of America, Harrisburg, Pa.

306. Authentic look and easy care

Solid-vinyl siding is being marketed in a greatly expanded range of color, profile, gloss, and grain-pattern options that reflect the popularity of nostalgic home designs—

like Victorian "farmhouses"—as well as interest in more-authentic appearing remodeling materials. Arvid Elness Architects, Inc., used a new Early American clapboard siding in a 3-in. exposure on town houses in a Minneapolis project (306). Part of this maker's "value priced" Encore line, vinyl boards come in eight colors, and are described as impervious to extremes of hot and cold. Wolverine Technologies, Livonia, Mich.

307. Retrofit heat-control film

A transparent polyester window film made by the makers of Heat Mirror insulating glass, Solis is said to offer similar sun-control and appearance characteristics in a site-applied product. With a micron-thin, spectrally selec-



308

tive metallic coating, Solis adds no color (tint) or reflectivity to glass. Made for professional application with a scratch-resistant coating on one side and adhesive on the other, Solis film will reduce heat gain by more than 50 percent, absorb UV radiation, and will not reduce the level of daylighting in interior spaces. Preliminary research conducted after the Northridge (Calif.) earthquake, reports *Glazing* magazine, indicates that window-film retrofits, with proper edge treatments such as locking, are an effective safety factor against fall out. Southwall Technologies, Palo Alto, Calif.

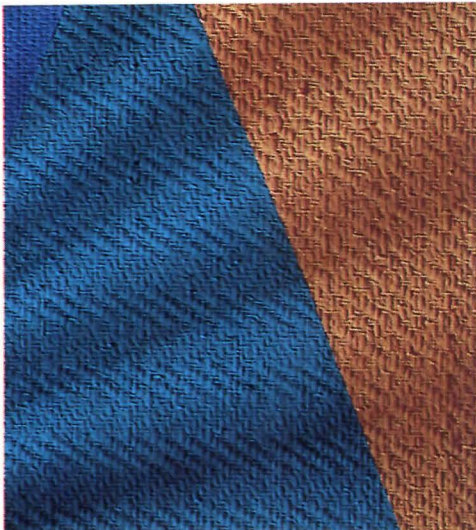
308. New windows for skyscraper

Thornton Tomasetti Engineers and Design-

A growing range of building products makes existing homes, offices, and shops more comfortable, easier to use, and more respectful of their original fabric and current neighborhood.



309

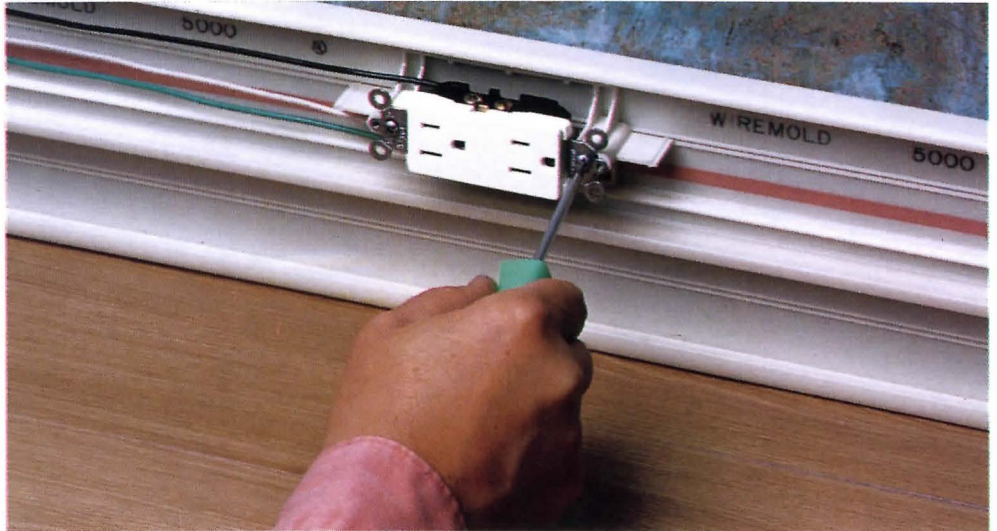


310

ers, Office of Lev Zetlin Associates, Inc., and Helmsley-Spear, owners of the Empire State Building, were able to replicate the look of original steel single-paned windows in new double-hung units for the New York City landmark. The four-in.-wide operable aluminum frame takes 1-in. tempered insulating glazing while meeting stringent Landmarks Preservation Commission standards. Paint analysis by PPG produced a modern, high-performance coating system that matched the window's original red trim exactly. TRACO, Warrendale, Pa.

309. Customized standard windows

Vinyl double-hungs reflect the appearance and sight-lines of the original wood fenestra-



311a



311b

tion of the Pierce Street Apartments, in a historic district of San Francisco. A custom muntin profile for these Devon windows matched the vertical grid pattern of the original upper lights. CertainTeed Corp., Valley Forge, Pa.

310. Wall-texture, ready-to-paint

A pre-primed version of paintable, fire-resistant woven-glass wallcovering developed in Europe, Tassoglas meets the environmental standard Oko-Tex 100. Well suited for renovations, the textile has enough body to cover cracked plaster, paneling, or cinder block, and can "breathe," even under coats of paint. Pictured are herringbone and linen textures. Tassoglas, Deerfield Beach, Fla.



311c

311. New power to an old house

Wiremold's new Access 5000 raceway is designed to resemble a standard, 6-in.-high baseboard in size, profile, and finish. A flexible, less-costly alternative to traditional pipe and box systems, the polymer molding conceals separate channels for electrical power and low-voltage voice/data wiring (311a). The mounting plate accommodates various duplex outlets, phone jacks, co-axial cables, and devices such as RJ11/RJ45 voice/data and Type F co-axial connectors. Installation at chair-rail height can be topped with wood quarter-round (311b). Finish options include maple, cherry, oak, and mahogany veneers, and white, gray, and black vinyl (311c). Wiremold Co., West Hartford, Conn. ■

Building Types Study 723/ Adaptive Reuse

Adaptive reuse, or the replacement of obsolete uses by viable new ones, is, in many respects, at odds with the traditional goals of preservationists. These include freezing in place for all time not only original design intent, but also materials and construction methods.

Such goals, notes prominent preservation expert Theodore Prudon, are meant to protect "the real from the virtually real." Now, after years in the trenches of orthodoxy, he is ready to argue for some flexibility—at least in preserving buildings from the recent past. By that he means anything erected in the Modernist Style or later. Such buildings, as he notes on the next two pages, are often victims of change due to impermanent materials, rapidly obsolescent hvac and wiring systems; and construction methods designed to minimize the high labor costs of on-site construction.

On the following pages, RECORD shows examples of buildings to make true preservationists blanch. Among them, Baruch College Library, an official landmark, is one of few to predate the 20th century. Most of the other featured projects were not of high architectural merit when built, yet each deftly demonstrates the subtle architectural and functional opportunities residing in what might have become mere utilitarian throwaways. *Charles K. Hoyt*

*Manufacturers' Sources
listed on page 121*

The Care and Nurturing of 20th-Century Landmarks

The preservation of 20th-century architecture, in particular buildings erected in the last 60 years, demands sharp changes from traditional philosophy and techniques of preservation. These changes stem from the sheer volume of buildings to be considered; from buildings shorter-lived due to new materials and construction technology; the inability of environmental systems, especially hvac and wiring, to meet current standards; and the great size of much of the newly minted building stock.

To deal appropriately with these new facts of preservation life, the traditional approach to preservation needs to be looked at from a fresh viewpoint. Historically, one yardstick for judging candidates for preservation has been age (most landmark legislation stipulates a 30 to 50 year age basis), so as to allow, presumably, for a fair assessment. Another has been to consider the degree to which a building represents a period (in line with criteria established by the National

Register of Historic Places). But the nature of the new architecture demands a different set of preservation principles and a new approach to preservation technology. You cannot save the buildings of Le Corbusier and Louis Kahn to guidelines formulated by John Ruskin.

The new criteria must consider the crucial issue of restoration to a structure's original appearance using only authentic original materials and construction technology, or replacement by newer materials and techniques. Rising labor costs placed a premium on reducing the cost of manufacturing products and their installation, raising the dilemma of how to restore economically and efficiently an architecture largely based on labor-saving technology, thinner materials, and lower margins of error. For example, in the case of Louis Kahn's 1955 Ewing, New Jersey bath house (opposite), should one try to restore the original concrete block walls and timber-framed roof, or resolve to preserve the design *intent* of the original but rebuild with state-of-

Landmarks of a new age

Should architect and client have considered landmark status when these buildings were built? Architect Michael Graves's Dolphin Hotel at Disney World in Orlando, Florida (upper left) is one of the most discussed buildings of Post Modernism. But it is made of masonry and stucco similar to Charles Moore's Piazza d'Italia in New Orleans, which now presents ongoing maintenance problems. Yet replacing the Piazza with more durable materials would be altering the original artifact, contrary to traditional preserva-

tion philosophy. Certainly the Watergate complex in Washington, D. C. by architects Luigi Moretti and Corning, Moore, Elmore, Fisher (upper right) has become one of the nation's better known structures. But functional preservation of such a large building would be prohibitive. Similar issues touch Edward Durrell Stone's Kennedy Center (lower right) and Harrison and Abramovitz's Empire State Mall in Albany (lower left).



© Photos by Theodore Prudon except as noted

The critical impact of functional change

Eero Saarinen's TWA Terminal at JFK Airport in New York City, built in 1956 and expanded in 1962, symbolized a time when air travel was promoted as an experience (right). Now, its vast lobbies, monumental stairs, and huge sculptural windows are out of step with current high-volume, discount travel, to which it is about to be adapted. It can be done, thinks Theodore Prudon, but will certainly not mean literal restoration of the original spaces or even the crumbling concrete shell.



Partial replacement

The picturesque roof profile of Cass Gilbert's 54-story 1913 Woolworth Building in New York City (top) includes terra cotta towers, which architects Ehrenkrantz & Eckstut have sheathed in aluminum replicas to preserve the original fabric and stabilize its deterioration. Architect Beyer Blinder Belle's renovation of Paul Rudolph's Yale Architectural School (bottom) includes exchanging monumental sheets of glass for new windows with mullions that can hold insulated glass for thermal efficiency.



Swanke Hayden Connell Architects' Theodore Prudon reasons that old rules won't apply to recent buildings and proposes new approaches

the-art materials and technologies to obtain that effect, possibly starting from scratch on a different site? Besides, an older low-rise, loadbearing masonry building is unlikely to encounter the same extent of failure as a veneer stone-clad, often taller structure. Moreover, traditional building facings were designed to weather; Modernist buildings were designed to look crisp for all time.

Therefore, given the shoddy construction, the now largely obsolescent hvac and other systems, and the inflexibility caused by narrowly focused programming and design, efforts to restore the original must give way to a more free-ranging philosophy for reasons of cost and technical practicality.

Finally, planning ahead for preservation is critical. Early planning, involving landmark preservation groups and owners, would help prevent many last-minute preservation crises, especially cases of "it's

the only one left." To qualify as a candidate, a building would need to be rated against its underlying architectural principles—for example, the machine-made look sought by the Modernists—the significance of its architect, the functional and economic drivers (e.g. the inherent obsolescence of an investment commercial structure vs. the long-term life of a museum), and the physical context.

Traditional preservation philosophy guards the "real" against the "virtual real." When applied to most 20th century architecture, this approach is both unrealistic and unfair to the design intent.

This essay was staff-written based on material provided by Theodore Prudon, a preservation authority on the staff of Swanke Hayden Connell Architects of New York City.



© James Russell



When is a partially replaced landmark still a landmark?

Two current buildings by important 20th-century architects exemplify the problems of preservation standards developed for earlier buildings. Substantial portions of their original construction may have to be rebuilt with new materials. Louis Kahn's Trenton bath house, built in 1955 in Erwing Township, New Jersey (top), has long been unappreciated by its owner, The Jewish Community Center. It has deferred maintenance on the exposed concrete-block walls and timber-framed

roofs (natural materials valued by Kahn for their visual integrity) until water caused settlement, cracking, and discoloration that cannot be erased by repair. Architect James Kruhly of Philadelphia has launched a restoration campaign. Alvar Aalto's 1965 Finlandia Hall in Helsinki (bottom) was meant to be seen as a pristine white object, but now its thin marble veneer has bowed and curled, destroying the intended effect—and adding safety problems. The marble will most likely be replaced with a thicker, more durable substitute.



© Peter Cook



Stripping for longevity

The De La Warr Pavilion in Bexhill-on-Sea, England was designed in 1934 by Erich Mendelsohn and Serge Chermayeff to lure tourists and entertain locals in a series of lounges and dining rooms. In 1986 it was recognized as a work of prime architectural rank, and a restoration was begun. Most existing finishes were replaced, including exterior stucco. Current restoration work guided by architect Troughton McAslan includes removing later accretions such as wood doors, and adding a thin services element.

Good Neighbor

A 1930 Detroit warehouse has been converted to a successful place for training manufacturing experts from inner-city schools.



*Focus: HOPE Center for Advanced
Technologies
Detroit, Michigan
Smith, Hynchman & Grylls Associates, Inc.,
Architect*



Seldom is a single project asked to accommodate this many diverse demands. At the social level, Focus: HOPE Center for Advanced Technologies, or CAT, was called upon to train inner-city youths for careers as manufacturing engineer-technologists of the highest caliber. Financially, the center had to manufacture products that would turn a profit. On an architectural plane, a 1930 warehouse structure had to be recycled into a comfortable, motivating, energy-efficient workplace. And at the urban level, the building in its new role had to maintain a familiar, friendly face to its neighborhood.

It makes the grade on all these counts. Focus:HOPE, an eclectic urban enterprise that is part charity, part business, and part job training, is also active elsewhere—in food-bank grocery distribution, computer instruction, and human-rights education. CAT taps graduates from Detroit's high schools and after six years of training in state-of-the-art computer-integrated manufacturing, sends them into the world, with some now earning salaries in the high five figures. Profits from production of low-volume high-skill parts, mostly for the auto industry, pay for wages and training costs, making CAT self-supporting.

The original plans of the building, attributed to Albert Kahn, were never found. "Buildings like this were considered a commodity, a consumable supply," says SHG design principal William Hartman. "Very little was invested from an artistic or historic viewpoint. With [its] standard configuration, it really didn't matter whether one had the original plan or not. Nothing was unique." So, faced with the need to develop what is at base a brand new building type, the architect divided the 180,000-square-foot single-level plant area into six manufacturing "neighborhoods," each anchored by a three-story "power tower" identified by 5 ft.-9 in. Corbu-esque numerals (see previous page spread). Each neighborhood comprises 15 manufacturing cells. The 40,000-square-foot, three-story street-front office wing contains interview and locker rooms at the first level, an electronic library on the second, and a conference center on the third.

The two segments are separated by a full-building height open atrium spine topped by a "supertooth," an enlargement of the southernmost of the sawteeth that roof over the original structure (see photo opposite and section, next page). This supertooth, at the point where manufacturing meets the office wing, opens up space for the viewing platform and is a key source of daylight.

Independent of Detroit's utilities, CAT uses natural-gas fueled co-generation to serve all its needs. Waste heat from the generators is used for heating the plant's air and water, more than doubling fuel efficiency at substantial cost savings. In summer, coolant fluids are cleaned and recycled, curtailing toxic exhaust.

CAT stems from an unusual partnership of Focus: HOPE with government, corporations, foundations, and universities. Says Focus: HOPE founder and executive director Father William Cunningham: "The building makes possible an innovative approach to teaching. There are no offices, no doors. From high to low, all are out in the open and mix together. The power towers, with their manufacturing training team rooms, are right next to the machines."

When the 1930 structure was built, Hartman points out, "a manufacturing plant was...conceived as an enclosure, a functional space for machines to operate, supplemented by humans. As a new century dawns, CAT focuses on the humans...Any leverage in competitive performance gained through building design is a significant payoff."

Stephen A. Kliment

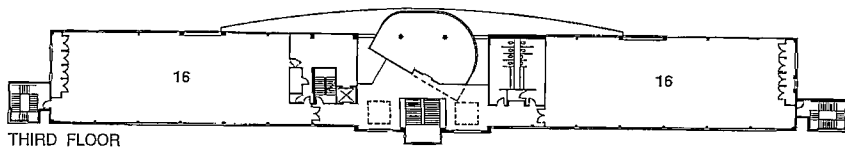
© SHG photo



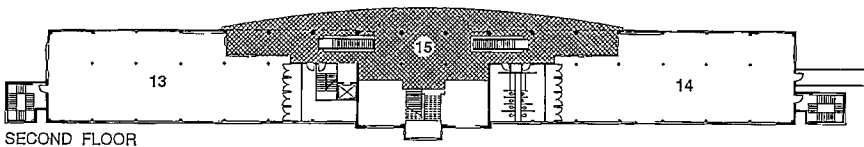
© photos by Gary Quesada of Korah/Hedrich-Blessing, except as noted

The three-story 1930 building (top) comes right up to the street-line; the central portion was altered to provide a welcoming entrance lobby and to meet ADA requirements. The three-story circulation spine (opposite page) is a gathering place for trainees and staff, and includes a platform that lets visitors observe manufacturing. Power tower #3 (above) is shown with computer-aided manufacturing units in foreground. Indirect lighting units mounted on columns are supplemented by high-intensity fixtures over each machine; they engage only when the machine is operating.

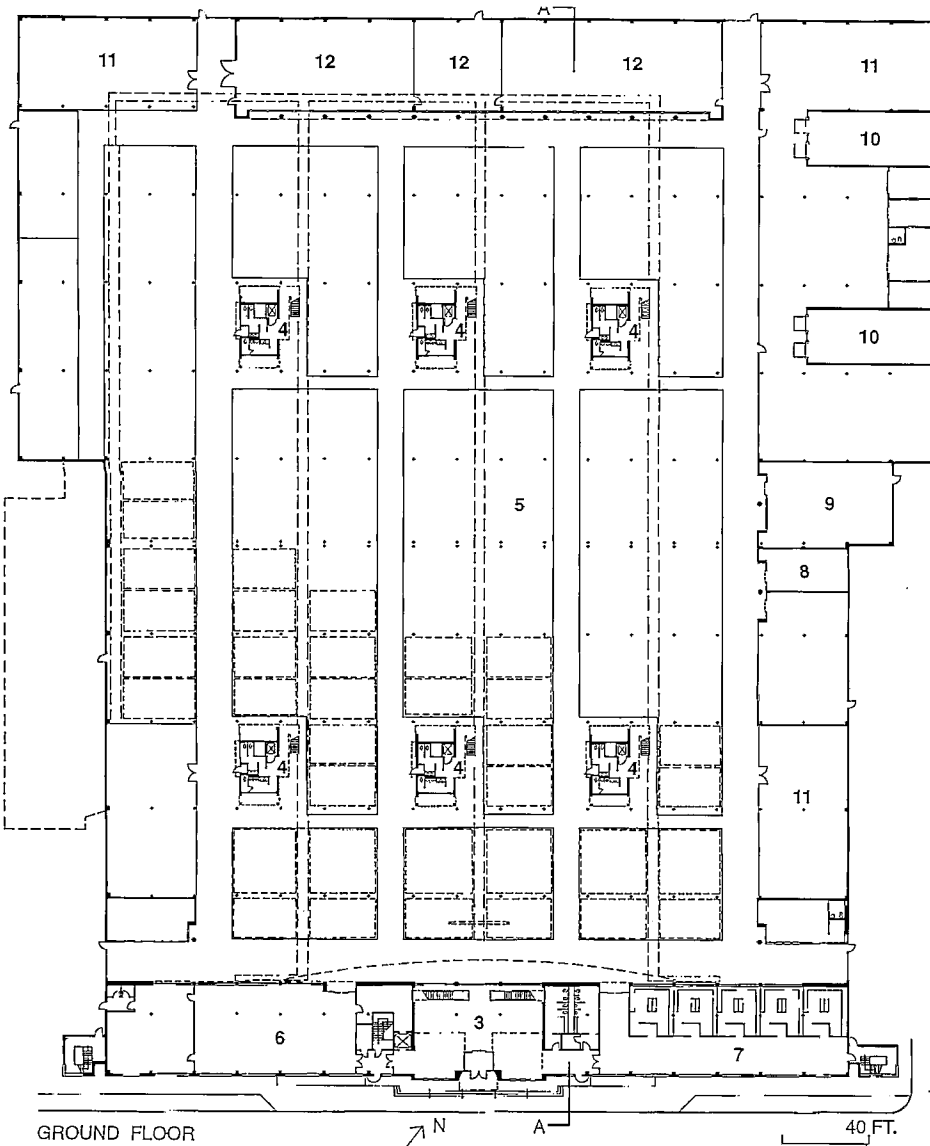




THIRD FLOOR

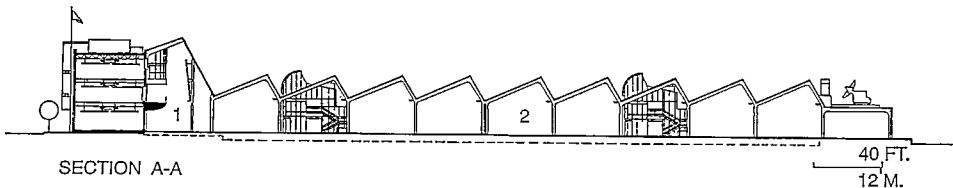


SECOND FLOOR



GROUND FLOOR

1. Supertooth atrium
2. Plant
3. Lobby
4. Power tower
5. Plant
6. Cafeteria
7. Locker rooms
8. Material testing
9. Tool room
10. Dock
11. Long-term storage
12. Total energy plant
13. Electronic library
14. Learning area
15. Viewing platform
16. Meeting room



SECTION A-A

Power towers (photo 4, opposite page) are foci for the plant's six "neighborhoods." Finished in black painted embossed steel, each tower contains air-handling equipment at the first floor; along with local temperature and power controls. Air-rotation systems circulate warm or cool air to their "neighborhoods." Power is transformed to operating levels and likewise distributed. At the second level, glass-enclosed manufacturing training rooms with computer terminals are used for meetings by manufacturing teams and for formal instruction.

Machinery is mounted on epoxy floors; other areas are rubber. Both are colored a bright chartreuse chosen over other colors for its symbolism of hope.

The spine (photos 1 and 2, opposite) is reached through a three-story lobby (photo 3). Insulation was added to the original roof structure, which consists of a series of purlins spanning 20 feet between steel arches. The roof also acts as a key component in drawing air through the plant.

Credits

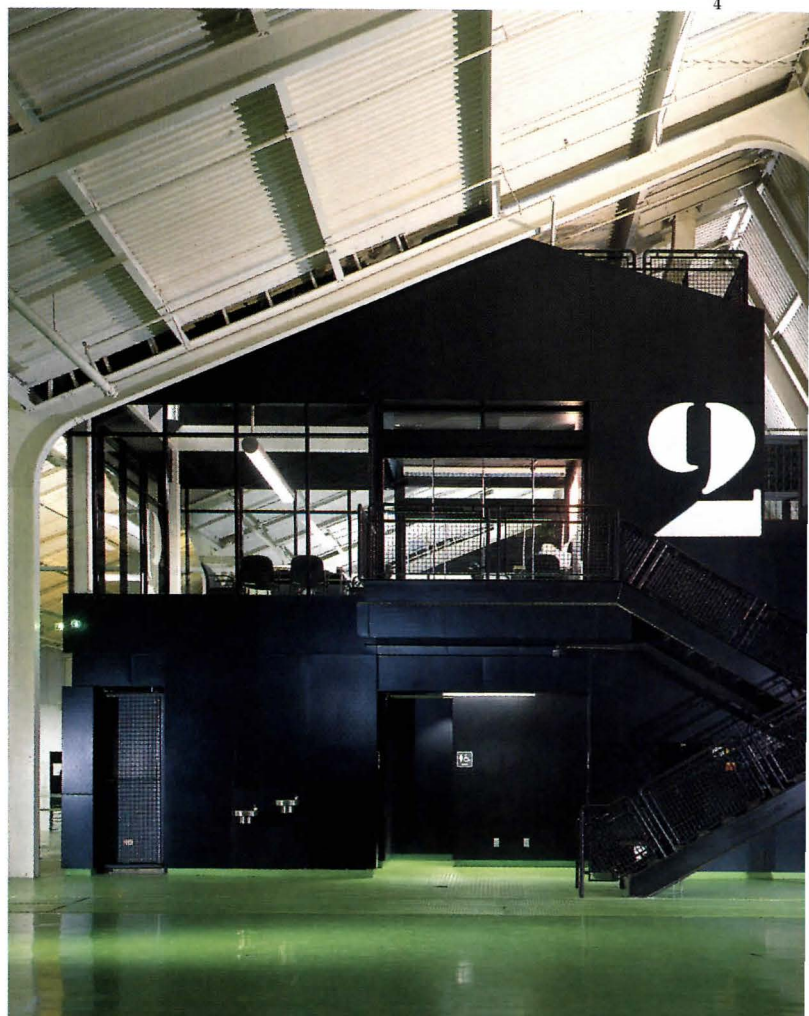
Focus:HOPE Center for Advanced Technologies, Detroit, Michigan

Architect: Smith, Hynchman & Grylls Associates, Inc.—S. B. Vora, partner-in-charge; William Hartman, design principal; Robert Mertz, project manager; Eric Lanciault, Chris Beck, Mike Paquette, Greg Graczyk, Mark Zimmerman, Art Titran, Nicole Stepanian, design team

Engineers: Smith, Hynchman & Grylls Associates, Inc. (structural, electrical, plumbing); Hale Engineering (mechanical)

Consultants: Johnson Johnson & Roy, Inc. (landscape, civil); Smith, Hynchman Grylls Associates, Inc., Gary Steffy Lighting, Inc. (lighting)

Construction Manager: R. A. DeMattia Company



Power to Science

*ZymoGenetics Lake Union Steam Plant
Seattle, Washington
Daly & Associates and NBBJ
Associated Architects*



For over 80 years, one of the most prominent and quirky landmarks on the shoreline of Seattle's Lake Union has been the City Light Steam Plant. A huge, long building, its seven smoke stacks made it appear a beached ocean liner. Designed by City Architect D. R. Huntington, it was built in four phases, beginning with a small hydroelectric station in 1911, a tiny, Mission Style house-like structure (opposite right), where turbines generated electricity from water piped from an upland reservoir.

Ten years ago, the plant was shut down. In 1989, shortly after it was designated an historic landmark, the 100,000-square-foot-building was sold to the Koll Company, which intended to transform it into condominiums. The company commissioned architects Daly & Associates to begin rehabilitation design and seek approval from the Seattle Landmarks Board. Though approval was granted, the developer was unable to secure financing. Two years ago, a new and rapidly growing biotechnology firm—ZymoGenetics—decided that the old steam plant would make a fine, if unconventional headquarters and research laboratory. NBBJ Architects had previously designed a lab for ZymoGenetics and became associated with Daly & Associates, taking responsibility for interior architecture and design, and laboratory planning. ZymoGenetics moved into its new building in the summer of 1994.

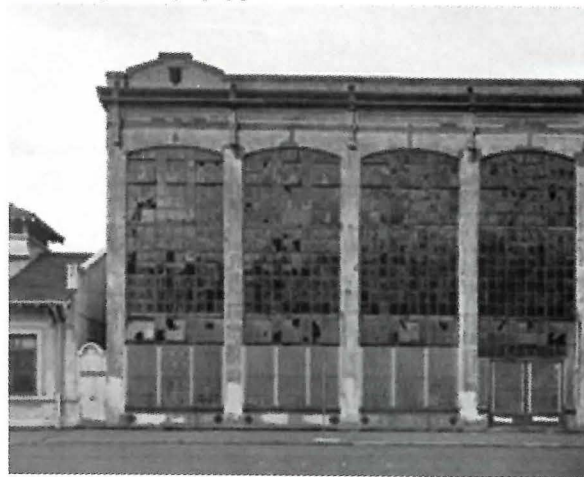
Walking through the building today, it is difficult to conceive the real extent of its transformation. Pipes, boilers, generators, turbines, and other material weighing 23-million pounds were removed. The first floor slab was replaced to provide additional headroom for two levels of parking below, where massive battered foundations that had supported machinery were removed. The distinctive steel stacks were also discarded, but eventually replaced by six smaller steel stacks now used as vents, due partly to public pressure to preserve the look.

Administrative offices occupy the first level, along with a lobby-control point. Because the building had been public, the City required some form of public access. Accordingly, visitors get a glimpse of the lobby and a typical high bay of the building through a glass-enclosed vestibule. A new public dock was built on the water. The public also has access to the original hydro plant. There is an espresso bar on the street side (this is Seattle, of course) and a dining-community room on the water side. Laboratories occupy the upper floors. The old plant had been designed with two different structural grids. The design team reflected this smashing together of two geometries repeatedly through the new building. Passing along a corridor, for example, one suddenly finds floor tiles veering off in unexpected directions.

The architects inserted a novel staircase up the center of the building. (top photo, overleaf). It serves a number of purposes including access to adjacent floors faster than the elevator. Visually, it separates two phases of the building's construction, and terminates a corridor that slices crossways from front to back, linking entry and lake. And it provides social space for employees, especially on a large landing cantilevered from the stair toward the lake (see section overleaf). The designers took their inspiration from a metal, spiral stair that had been in the steam plant, but was too unsafe to keep. In the lobby, large battered walls painted with a metallic, lead-colored coating (overleaf left) pass through the ceiling to the floor above. They are punctured by copper-colored "pipes," (in reality, new structural columns) to complete the theatrical effect. *Mark L. Hinshaw*

Mark Hinshaw is an urban-design consultant in Seattle and a columnist on architecture and urban design for the Seattle Times.

© Two Guys Photography photo



© J. F. Housel photo



The building was in sad shape (top) before Daly & Associates began an extensive exterior restoration. Daly left the original small-paned windows around the two lower floors of garage, but had to replace glazing on the upper floors to meet strict energy standards. The building sits over water, atop 2,000 first-growth original timber piles that were driven into the shoreline to support the steam plant. Geotechnical research revealed the piles to be in superb condition, so supplementing them was not required.

© Steven L. Rosen photo



© Russ Muir photo.



Credits

ZymoGenetics Lake Union
Steam Plant
Seattle, Washington

Owner: ZymoGenetics

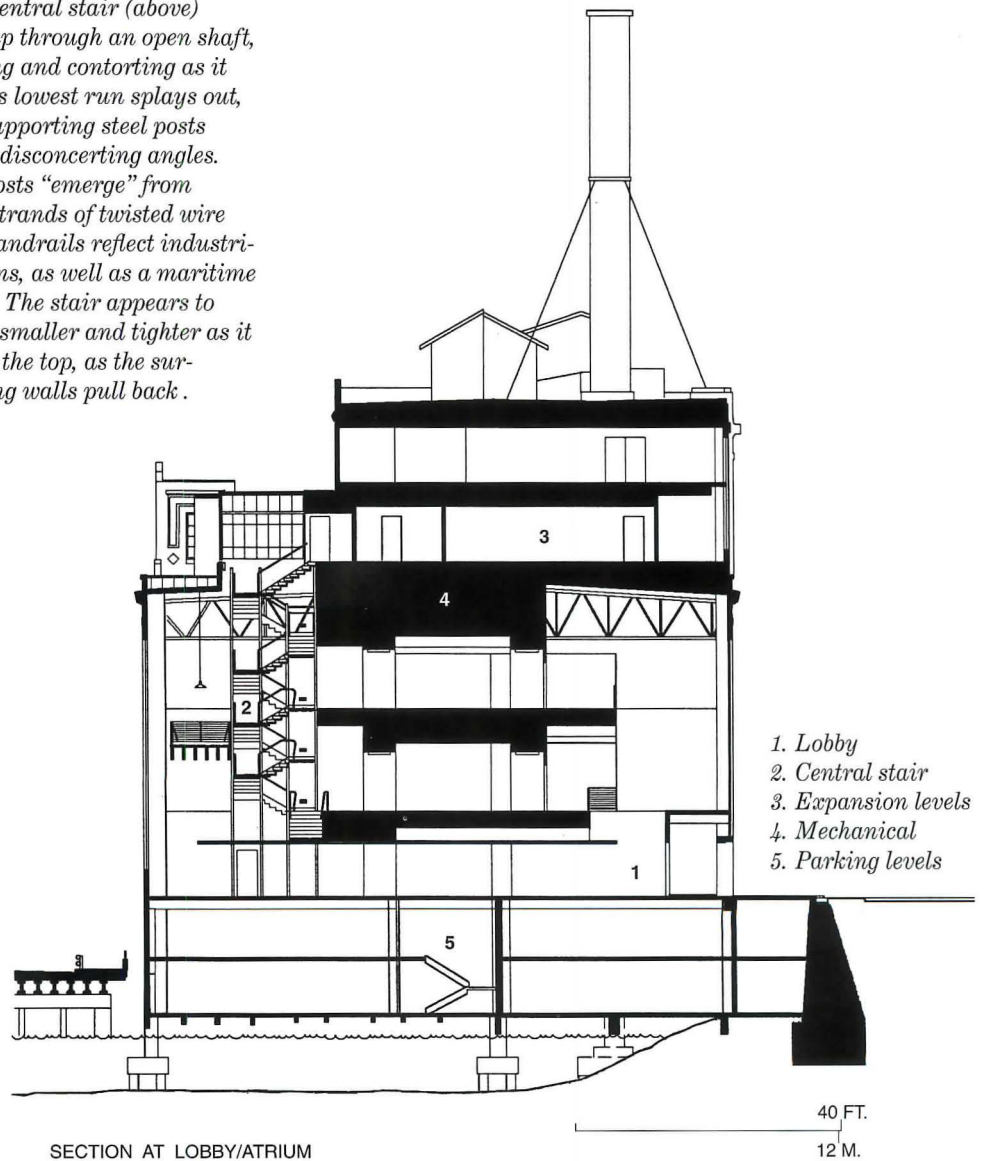
Associated Architects: Daly & Associates and NBBJ—Jim Daly, principal-in-charge for Daly & Associates; Scott Wyatt, principal-in-charge for NBBJ; John Schwartz, project manager for Daly & Associates; Brad Leathley, lab planner for NBBJ; John Palewicz, interior architect and project manager for NBBJ; Dean Longwell, Frank Martin, Jim Saunders, Ken Chipman, Rob Hutchison project team for Daly & Associates; Peter Damento, Doug Sabatke, Cathryn Kraus, Rysia Suchecka, Roger Stocker, Ed Storer, Steve Bettge, Karen Hillam, Jacqui Evanchik, project team for NBBJ

Engineers: Ratti Swerison Perbix (structural); Holaday Parks, Inc. (mechanical design-build); Cochran Electric (electrical design-build); Auburn Mechanical (plumbing design-build); Fire Systems West (fire sprinklers design-build)

Consultants: Sparling (lighting); Boss & Mayes (concrete installation)

General Contractor: Lease Crutcher Lewis

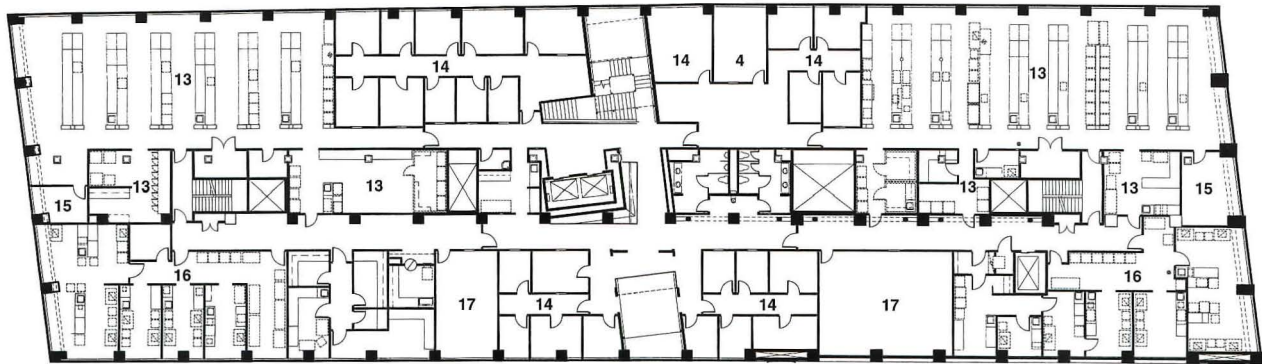
A new central stair (above) winds up through an open shaft, changing and contorting as it rises. Its lowest run splays out, while supporting steel posts bend at disconcerting angles. Some posts “emerge” from walls. Strands of twisted wire along handrails reflect industrial origins, as well as a maritime context. The stair appears to become smaller and tighter as it reaches the top, as the surrounding walls pull back.



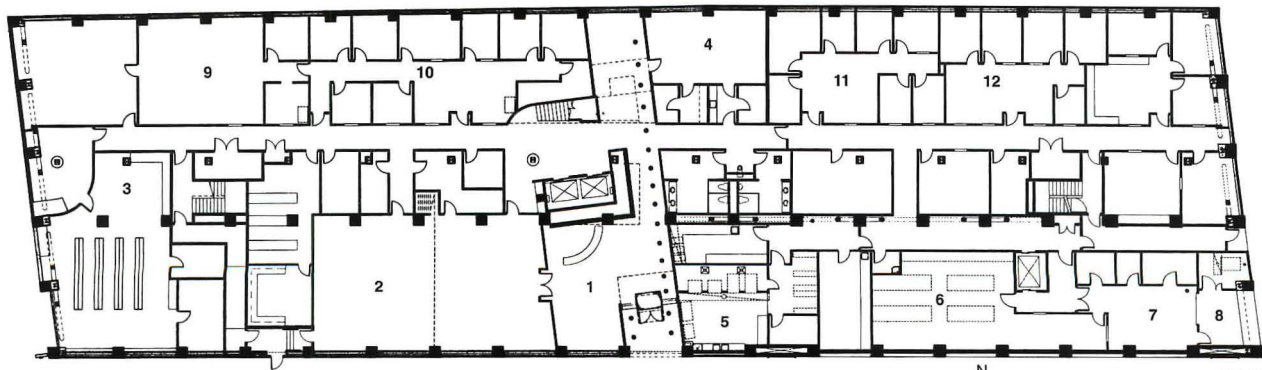
© J. F. Housel photo.



© Steven L. Rosen photo



SECOND FLOOR



FIRST FLOOR

- | | | |
|----------------------|--------------------|----------------------|
| 1. Lobby | 7. Ship/receive | 13. Labs |
| 2. Auditorium | 8. Loading dock | 14. Offices |
| 3. Library | 9. Finance offices | 15. Quiet rooms |
| 4. Exec conference | 10. Administration | 16. Tissue culture |
| 5. Glass washing | 11. Medical | 17. Future expansion |
| 6. Inventory storage | 12. Patents | |



Games Architects Play

*Game Show Network Building
Culver City, California
Steven Ehrlich Architects*

What do you get when you transform a 1930s-vintage garage into the home for the first all-digital cable network? "A very low-tech building that has been turbo-charged into a very high-tech use," according to Steve Ehrlich, who recently completed the feat for Sony's brand new Game Show Network in Culver City, California. After Ehrlich installed a second floor, inserted a large light monitor, ripped up the concrete slab to add computer wiring, and added several levels of mechanical systems to protect against interrupts, he ruefully admitted it might have been more economic to tear down the brick-walled, bow-string-trussed little structure. But, he says, "It had heart and soul, and that made it worth doing all this."

The Game Show Network Building is only the latest part of an extensive renovation of the Sony Studios that began when the Japanese company took the site over from MGM. The emphasis in this ongoing project, which has involved several architects and \$100 million so far, has been on renovation and reuse, mainly because of the availability of a large amount of under-utilized space. Ehrlich himself is currently finishing a child-care center for Sony right behind the Game Show Network Building.

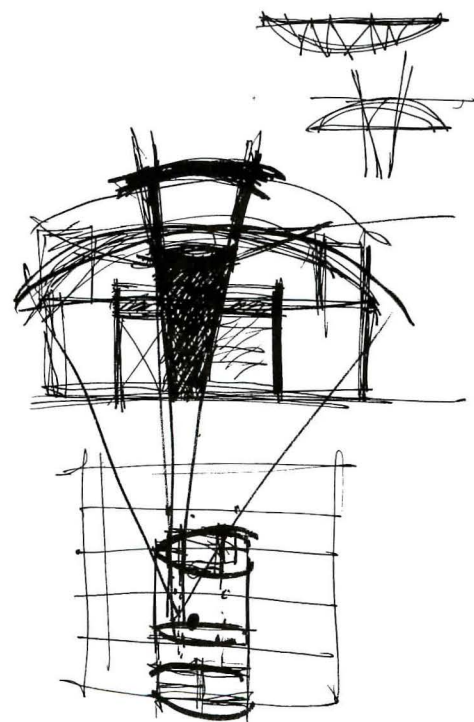
The original client for the Game Show Network project was the cartoon division of Sony. Last July, however, Sony changed its mind and asked Ehrlich to rework the almost completed plans to accommodate the new network, which broadcasts 24 hours of game shows each day. Fortunately, a "borderless design" was requested, fitting in with Ehrlich's desire to create open space. This was the only solution to incorporating bearing walls and inward-turned space. "It was imperative that everything was open," explains Game Show Network president Michael Fleming: "I wanted to make sure that, whether you were in production or sales, you would always rub shoulders with the process of production."

That shoulder-rubbing starts from the moment you walk in the door and confront the three central elements of the Network: the "tech core," a glass-enclosed studio where the programming is actually assembled and sent, through a cable to a nearby dish, up to a satellite for broadcasts; the studio, a "miniature bow-string-truss building" where robotic cameras controlled from the core film the network's original programming; and the glass-box conference room, where all important network decisions are made. These three objects occupy a two-story atrium lit by a monitor affectionately known as "the mohawk." This grand gesture of light punches through the original roof on four canted steel columns that follow the arc of the original roof. Ehrlich tucked all the support spaces around the atrium on the first floor, while the executives inhabit offices on a loft-like balcony just below the roof line.

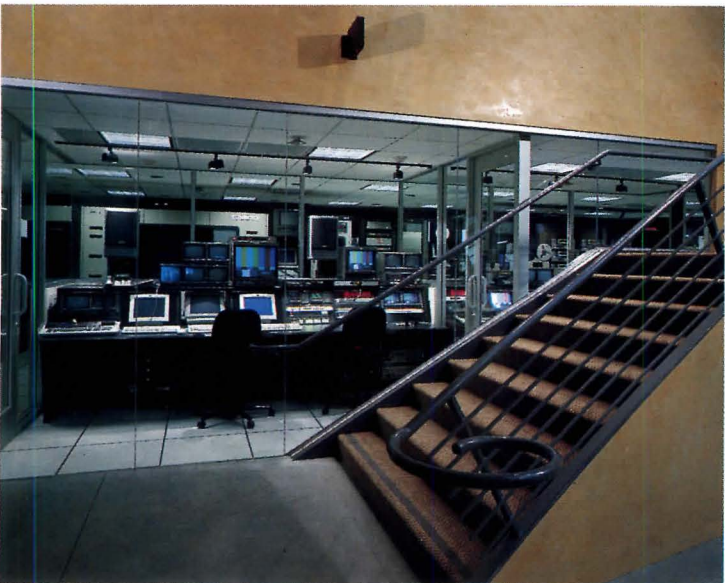
The result is a building that is more symbolic of preservation than, strictly speaking, preservation itself. Just as the clerestory roof and the glimpses of the sky it offers become, as Fleming puts it, "our window to the outside world," so the set pieces that gather around the atrium and the remaining wood members that arch overhead stand in for the nature of new and old, here brought into an artfully composed spatial relation. *Aaron Betsky*



© Tom Bonner photos



Architect Steve Ehrlich adapted a bow-string truss building to new uses by raising its roof and using the radius of the original structure for the supports of a new skylight. The result is an internal courtyard that gathers the functions of a new cable network into a light-filled "borderless space" (top). Michael Hayden's "Lumetric Sculpture" at the building's corner (above) is shatter-resistant "Implex" sheets laminated with mirrored, high-frequency, bi-directional diffraction gratings that reflect light in continually changing patterns.



The Game Show Network building's atrium, whose galvanized light fixtures and exposed riveting reminds one of the building's industrial lineage, contains the client's three signatures: a glass-enclosed conference room (top); the enigmatic studio, whose galvanized covering, painted the same color as the roof exterior, suggests an external building brought inside (center); and the tech core, the control booth from which technicians control the company's ephemeral "product" (bottom).

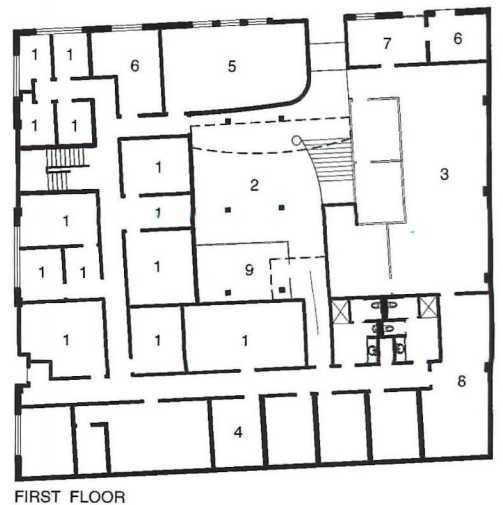
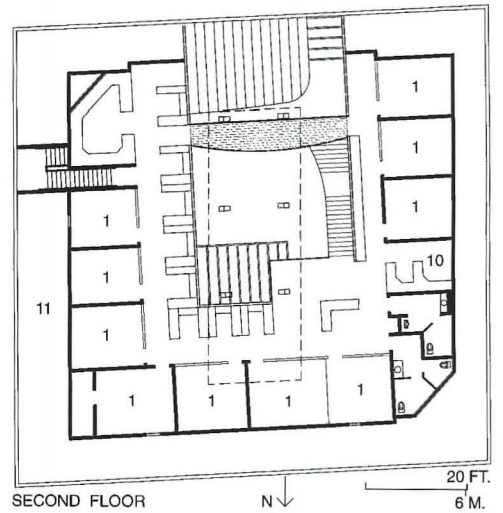
Credits

*Game Show Network Building
Culver City, California*

Owner: Sony Pictures Entertainment

Architect: Steven Ehrlich Architects—
Steven Ehrlich, principal designer; Gary Alzona, project architect; Carlos Kitzinger (model); Jeff Turner, Brent Eckerman, Iris Anne Regn, Jim Schmidt, Thomas Zahlten, production staff

Furniture: Sony Architectural Services—
Connie Fay Northrop in association with Steven Ehrlich Architects



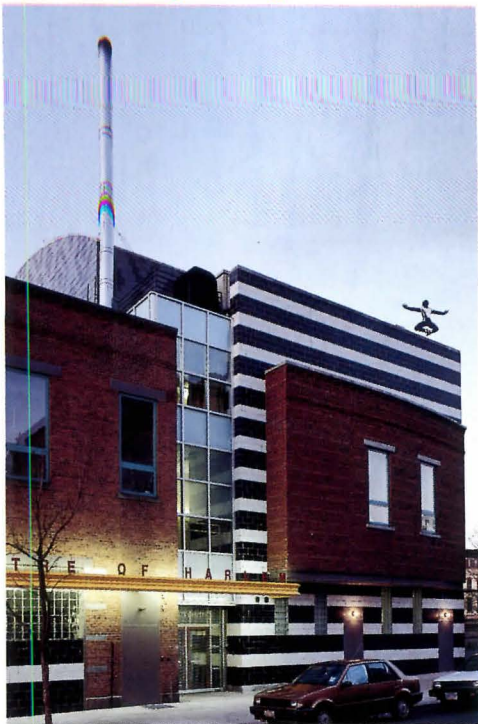
- 1. Offices
- 2. Lobby
- 3. Computer room
- 4. Editing rooms
- 5. Broadcast studio
- 6. Makeup/storage
- 7. UPS room
- 8. Storage
- 9. Conference
- 10. Clerical
- 11. Mechanical





Pas de Deux

© Elliott Kaufman photos, except as noted



1



Continuity and change are hallmarks of the Dance Theater of Harlem, the acclaimed school and dance troupe that has grown by leaps and graceful bounds under the direction of a single driving force for all its

25 years. The same is true for its home, a two-story garage that Hardy Holzman Pfeiffer Associates converted into studios in 1971 and that has now been expanded and renovated by the same architects.

The new construction added 13,000 square feet of studio, office, and support space adjacent to the existing 15,000 square-foot building and gave the institution a higher profile with a great curving roof enclosing a top-floor dance studio. On both the outside and the inside, old and new buildings act as one, although vestiges of the past remain for all to see. “We wanted the buildings to relate to each other,” explains architect Hugh Hardy. “But we didn’t want the project to be so seamless as to imply that both buildings have always been there.”

To distinguish new from old, the architects dressed the addition in materials such as black and white glazed ceramic masonry block and colored synthetic shingles set in a bold diamond pattern (left, 1 and 2). But to maintain the family resemblance, they also used sections of the same red brick as is found on the original structure (4). Because they were adding onto one of their own designs, Hardy and his associates felt freer to alter aspects of the existing building that didn’t work well in an expanded facility. So they had no hesitation about changing brick and clear glass around the old entrance into masonry and glass block and straightening out some of the angles. “That was our angled period,” jokes Hardy about the original design. More importantly, the new entry creates an expanded lobby (3) that accommodates more people and provides space for a parents lounge.

Before the expansion, the two major components of DTH—its school and its professional dance company—were squeezed together, says

*Hardy Holzman Pfeiffer performs
a lively architectural duet by
expanding one of its own adaptive
reuse projects from the 1970s.*

*Dance Theater of Harlem
New York City
Hardy Holzman Pfeiffer Associates,
Architect*





1



2



3



4

Facing 152nd Street in Harlem, the DTH building is evidence of the group's commitment to its community. DTH hopes to build production facilities and a dorm on the street.

© James R. Morse

© Norman McGrath

Continuity and change are hallmarks of the Dance Theater of Harlem, the acclaimed school and dance troupe that has grown by leaps and graceful bounds under the direction of a single driving force for all its 25 years. The same is true for its home, a two-story garage that Hardy Holzman Pfeiffer Associates converted into studios in 1971 and that has now been expanded and renovated by the same architects.

The new construction added 13,000 square feet of studio, office, and support space adjacent to the existing 15,000 square-foot building and gave the institution a higher profile with a great curving roof enclosing a top-floor dance studio. On both the outside and the inside, old and new buildings act as one, although vestiges of the past remain for all to see. "We wanted the buildings to relate to each other," explains architect Hugh Hardy. "But we didn't want the project to be so seamless as to imply that both buildings have always been there."

To distinguish new from old, the architects dressed the addition in materials such as black and white glazed ceramic masonry block and colored synthetic shingles set in a bold diamond pattern (left, 1 and 2). But to maintain the family resemblance, they also used sections of the same red brick as is found on the original structure (4). Because they were adding onto one of their own designs, Hardy and his associates felt free to alter aspects of the existing building that didn't work well in an expanded facility. So they had no hesitation about changing brick and clear glass around the old entrance into masonry and glass block and straightening out some of the angles. "That was our angled period," jokes Hardy about the original design. More importantly, the new entry creates an expanded lobby (3) that accommodates more people and provides space for a parents lounge.

Before the expansion, the two major components of DTH—its school and its professional dance company—were squeezed together, says Charmaine Jefferson, the group's executive director. Today, professional dancers have their own locker rooms and a new third-floor studio (preceding pages), making it easier for school and company to rehearse at the same time. New office space on the first and second floors lets DTH have its marketing and development staff under one roof for the first time. Expanding the old facility entailed cutting passageways through load-bearing brick walls and adding steel columns for support. It also required an entirely new mechanical system with new ducts, boiler, and air-handling and chiller units. Existing dance studios were renovated with new flooring and, on the second story, new skylights. In a whimsical tribute to Arthur Mitchell, the man who founded DTH in 1969 and remains its tireless leader, the architects placed a weather vane in his likeness on the roof so he could move in the wind as gracefully as he does on the ground. *Clifford A. Pearson*

Credits

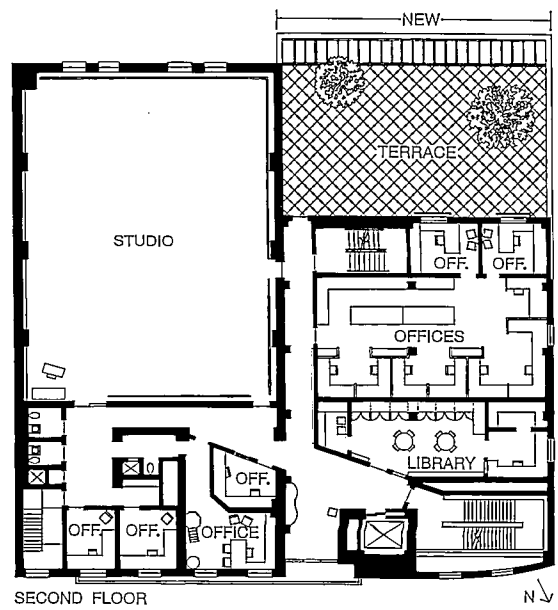
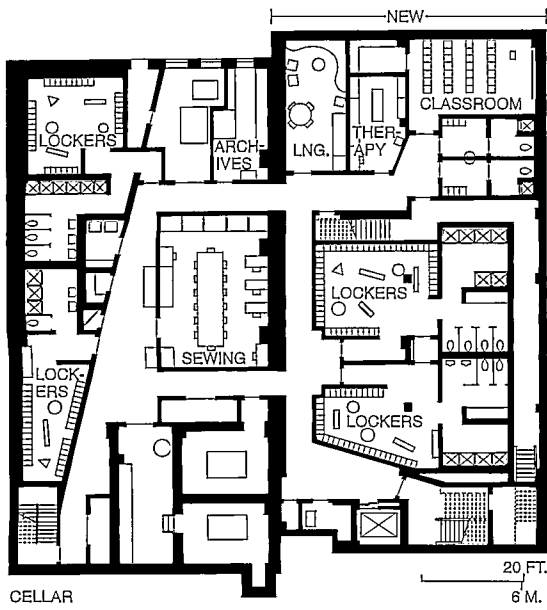
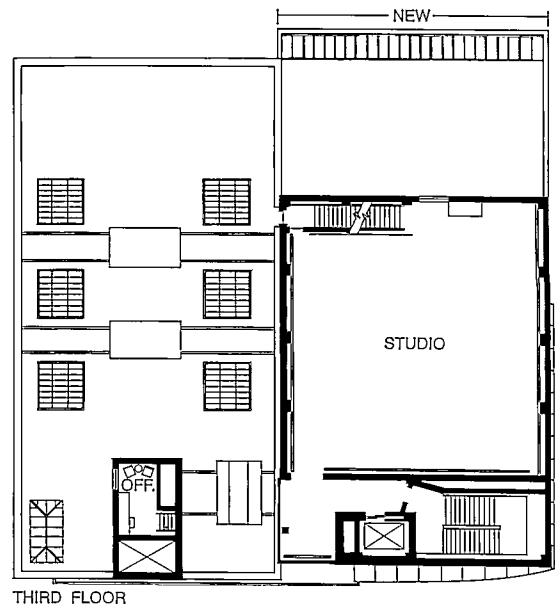
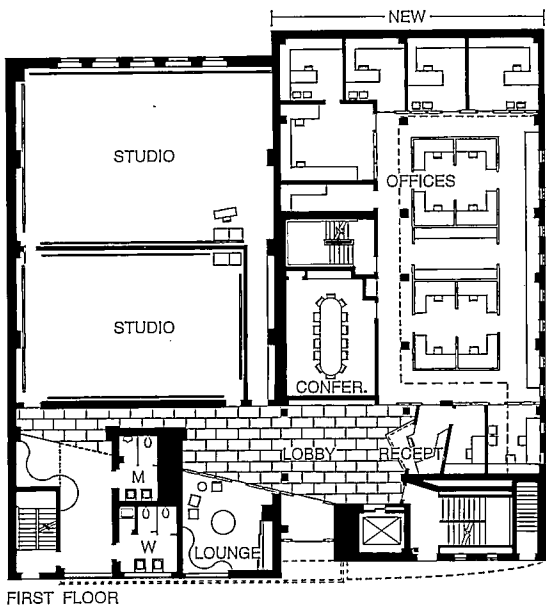
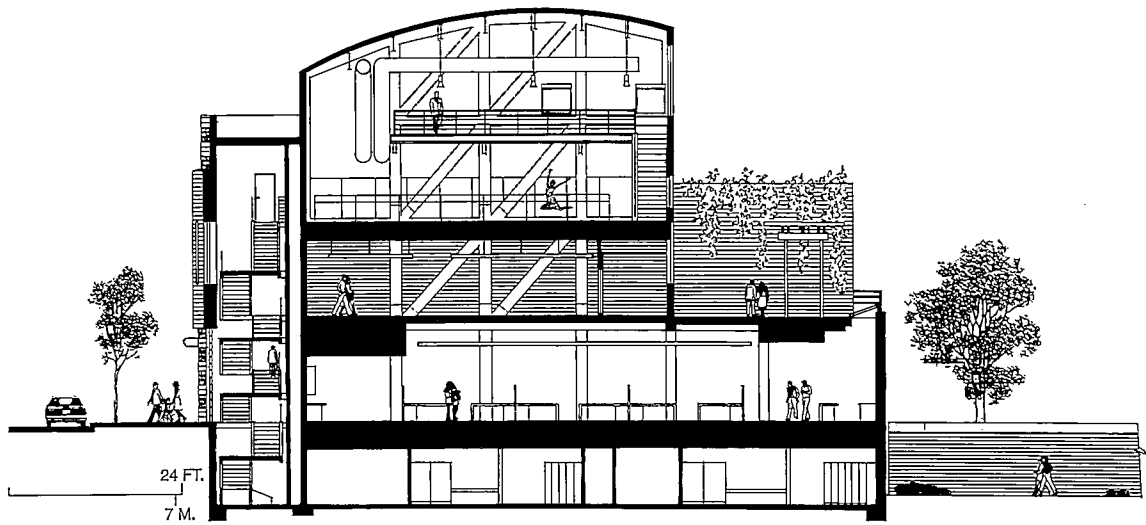
*Dance Theater of Harlem
New York City*

Architect: Hardy Holzman Pfeiffer Associates—Hugh Hardy, partner-in-charge; Victor Gong, administrative partner; Stewart Jones, project manager; Peter Ogman, construction architect; David Johnson, project architect; Caroline Bertrand, Robin Kunz, interiors; Manuel Mergal, William Leeds, Evan Carzis, architectural team

Engineers: Peter Galdi (structural); Atkinson Koven Feinberg (mechanical)

Consultants: Construction Consultation Associates (code/zoning); VJ Desai (cost estimator); Specifications Associates (specifications)

General Contractor: A.J. Contracting Company



Cable-Car College

Library and Technology Center
Research College of New York
Davis, Brody & Associates
Architect



On its face, Baruch College's new library is an exacting restoration of an 1890s Italian Renaissance former cable-car drive station that once powered some five miles of track, using 36-foot-diameter, steam-wound drums. Inside, however, everything is up-to-the-minute as befits its new function of housing the latest in electronic communications. Davis, Brody & Associates was commissioned to do a master plan for the Baruch College campus to bring together facilities scattered through different buildings in a congested midtown Manhattan location. Baruch, which is part of the New York City University system, offers business courses to the many students now seeking them. However, space was at a premium, since Baruch hadn't had a new building in over 25 years. Davis, Brody pinpointed the college's antiquated library as the first in need of a new home. The availability of the massive block-through cable-car drive station, with six floors of rental lofts above the engine room, seemed an ideal fit. A vacant lot to the north allows for future expansion with a building designed to house the remainder of the teaching program.

While the interior finishes are new, the basic building is not. The cast-iron structure and floors of shallow masonry vaults remain. So does the central light well, once open above the first floor, but now topped by a massive new skylight. It serves as a college center for a campus that previously had none. Additions, which bring total square footage to 330,000, include a new second floor inserted in the former engine room and a partial ninth floor above the original roof. The second floor houses a reference desk and plug-in carrels for students' lap-top computers orient users to the resources within. A percentage of carrels on the upper floors are currently hooked into the City University's far-reaching computer-information system, which includes access to Internet and all major financial-data systems. One day, all carrels will be on-line. The entire sixth floor is devoted to teaching students to use computers and allowing them to work on stations that are beyond the capacities of their own systems.

Another vestige of the former building's exterior is the cherry paneling of the atrium. It, together with the windows required by five city codes, visually describes the former exterior walls, while lending a warm academic atmosphere requested by the client. (It also delineates where library facilities stop and a conference center and general school functions, such as record-keeping and admissions, begin on the seventh and eight floors.) Indeed, all finishes are surprising lush (see photo on following page), given public contracting budgets, and reflect the determination not only of the architects, but college administrator, Marilyn Mikulskyk, to make quality and long-term maintenance a high priority. *Charles K. Hoyt*

Credits

Library and Technology Center

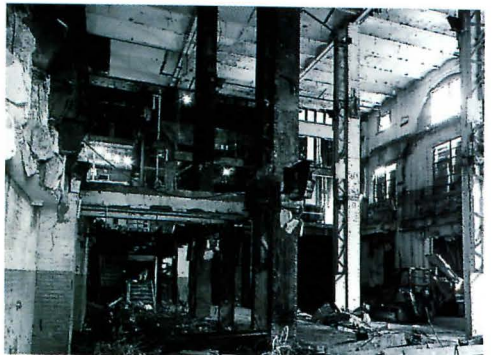
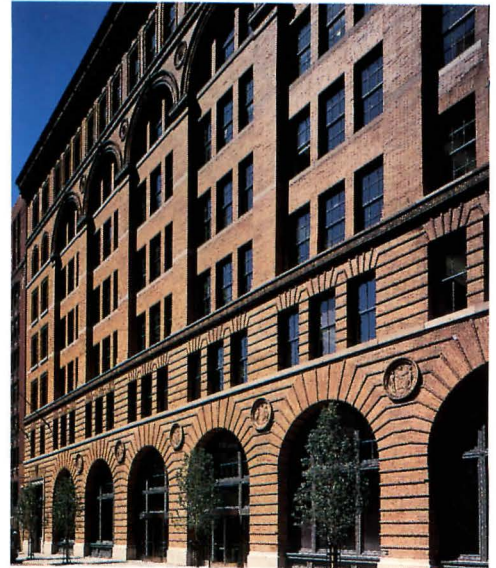
Baruch College/The City University of New York

Owner: *The Dormitory Authority of the State of New York*

Architect: *Davis, Brody & Associates—Lewis Davis, partner-in-charge; William Paxson, Shirley Dugdale, Nathan Hoyt, associate partners; Ted Schultz, project manager; George Rehl, project architect; Eric Alch, Frank Calcagni, Gary Ensana, Lelia Gilchrist, Maria Guamieri, Oscar Jobmann, Leon Joseph, Jerry Maffia, David Manty, Gene Park, Michael Regan, project team*

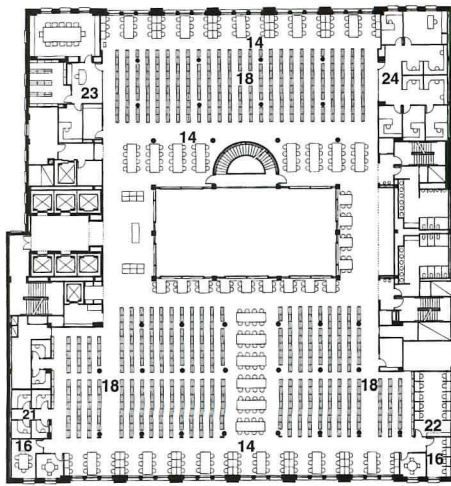
Consultants: *Ewell W. Finley (structural); Syska & Hennesy/Hardie & Associates (plumbing); Brian Smith (specifications); Fisher, Marantz, Renfro, Stone (lighting); Jay Lucker (library); Building Conservation Associates, Inc. (exterior restoration)*

Contractor: *Morse Diesel, construction manager; Anthony Marino Corp. (phase 1); Trataros Construction, Inc. (phase 2)*

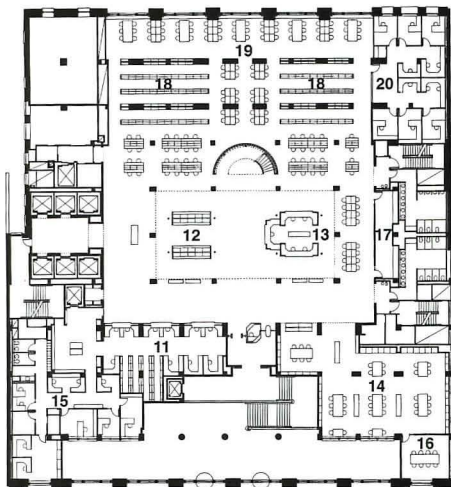


The careful facade restoration was prompted by the building's presence on the New York State Register of Historic Buildings. While the interior appears entirely new, the original cast-iron structure and masonry-vault floors were retained with some fireproofing and reinforcement. Wood paneling (opposite) stops below conference and general academic levels to differentiate them from the library.

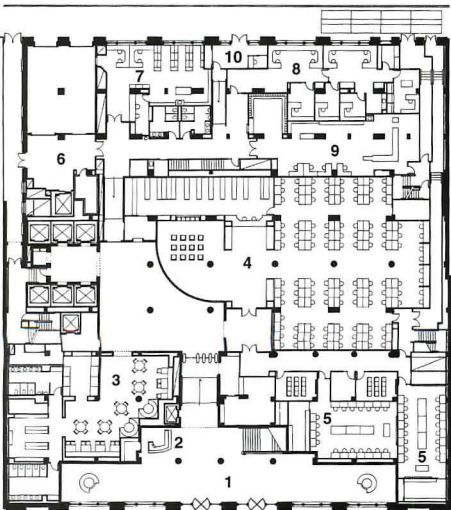




FOURTH FLOOR



SECOND FLOOR



FIRST FLOOR
N
50 FT.
15 M.

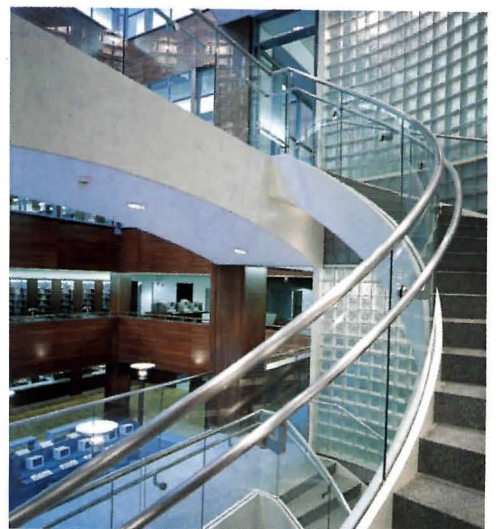
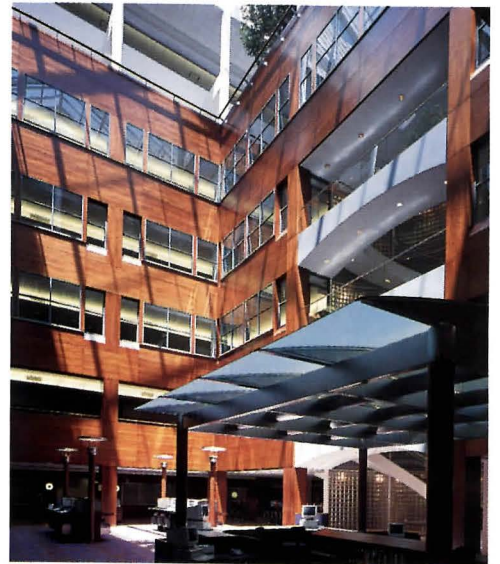
Students enter through a lobby (upper left overleaf) that reflects the high quality of the college's existing facilities in carefully maintained buildings—many from the 1930s.

They pass straight ahead to a lounge and multimedia room, which encourages experimentation with all sorts of computerized imagery, or pass to the second level at the top of monumental stairs, where they enter the central atrium. This soars to "open space" under the skylight above (right top), and holds a choice of information-access mediums, including a reference desk (right center) or plug-in carrels for students' own laptops (right bottom).

When the architects started design some years ago, there was little standard library furniture intended for the high level of computer involvement planned. Therefore, they designed their own—enough to start a whole furniture line, says Davis Brody partner Nathan Hoyt. This includes dictionary stands, tables, and carrels, all with an eye toward flexible cabling and long-term maintenance. Carrels have large chases below facing work tops. These are reached by removing perforated stainless-steel panels. Similar panels over acoustic baffles form privacy barriers at eye level. Tops on all cabinetry are 1 1/4-inch reconstituted slate. All wood is cherry.

The top floors hold general college functions, including a large flexible-use conference center (overleaf bottom), smaller conference rooms (where a downward view of the central stair is projected on a screen) and a faculty lounge behind arched windows.

- | | |
|----------------------|-----------------------|
| 1. Lobby | 13. Reference desk |
| 2. Information | 14. Reading room |
| 3. Student lounge | 15. Director's office |
| 4. Multi-media | 16. Group study |
| 5. Classroom | 17. Copying |
| 6. Loading dock | 18. Stacks |
| 7. Receiving | 19. Seating |
| 8. Administration | 20. Reference staff |
| 9. Mail room | 21. Faculty studies |
| 10. Service entry | 22. Graduate carrels |
| 11. Circulation desk | 23. Archives |
| 12. Computer files | 24. Clerical |







From Coaches to Conference

*Pocantico Conference Center
Pocantico Hills, New York
Herbert S. Newman and Partners,
Architect*



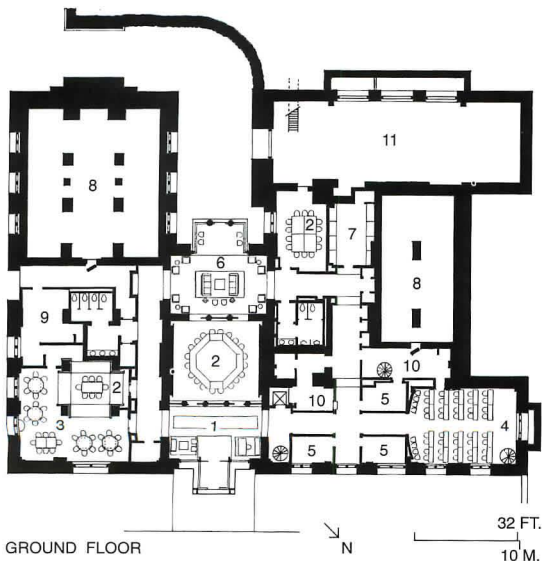
ie heavy granite ashlar structure (top, right) began in 1902 as a barn to house the Rockefeller family's coaches and later their automobiles, but took a 180-degree turn this year to end up as a key cog in the Pocantico Conference Center. Run by the Rockefeller Brothers Fund for meetings tied to the Fund's philanthropic goals under an agreement with the National Trust for Historic Preservation, the center also comprises Kykuit, the big mansion used in turn by several Rockefeller households and now remodeled to house participants. The center sits on 84 acres of gardens 25 miles north of New York City.

While the barn's upper floor is given over to the family's collection of carriages and vintage automobiles, it is the lower level, dedicated to conferences, that saw the most dramatic transformation. The architects admired the rugged quality of the loadbearing masonry, brick vaults, and arched openings (opposite page), but had to deal as well with what was, in their words, "a chaos of stable/garage spaces, filled with random partitions, rough finishes, and a tangle of pipes and conduit." Those heavy walls suggested the powerful parti, whereby the new spaces are essentially insertions or "linings" within the existing walls. These insertions of wood, metal, and glass (seen typically in the main entrance lobby, center, right), create an atmosphere of subdued colors and textures and pleasant scale within the huge space.

The room configuration meets conference needs through a series of soberly elegant meeting rooms of various sizes, the ability to demount walls to form breakout rooms, a lecture room (bottom, right), and food service. The lecture room is the least successful of the spaces, incorporating as it does a somewhat forbidding perforated mesh ceiling, a tight little circular stair left over from the old barn, uncomfortably high wainscoting, and a regimented series of desks.

By contrast, the brand new portals that determine the main axis are attractive, perfectly scaled glass and steel compositions that make arrival a highly satisfying experience. *Stephen A. Klimont*

© Norman McGrath photos



- | | |
|---------------|----------------|
| 1. Entry | 7. Prep Room |
| 2. Conference | 8. Vault |
| 3. Dining | 9. Kitchen |
| 4. Lecture | 10. Support |
| 5. Office | 11. Mechanical |
| 6. Loggia | |

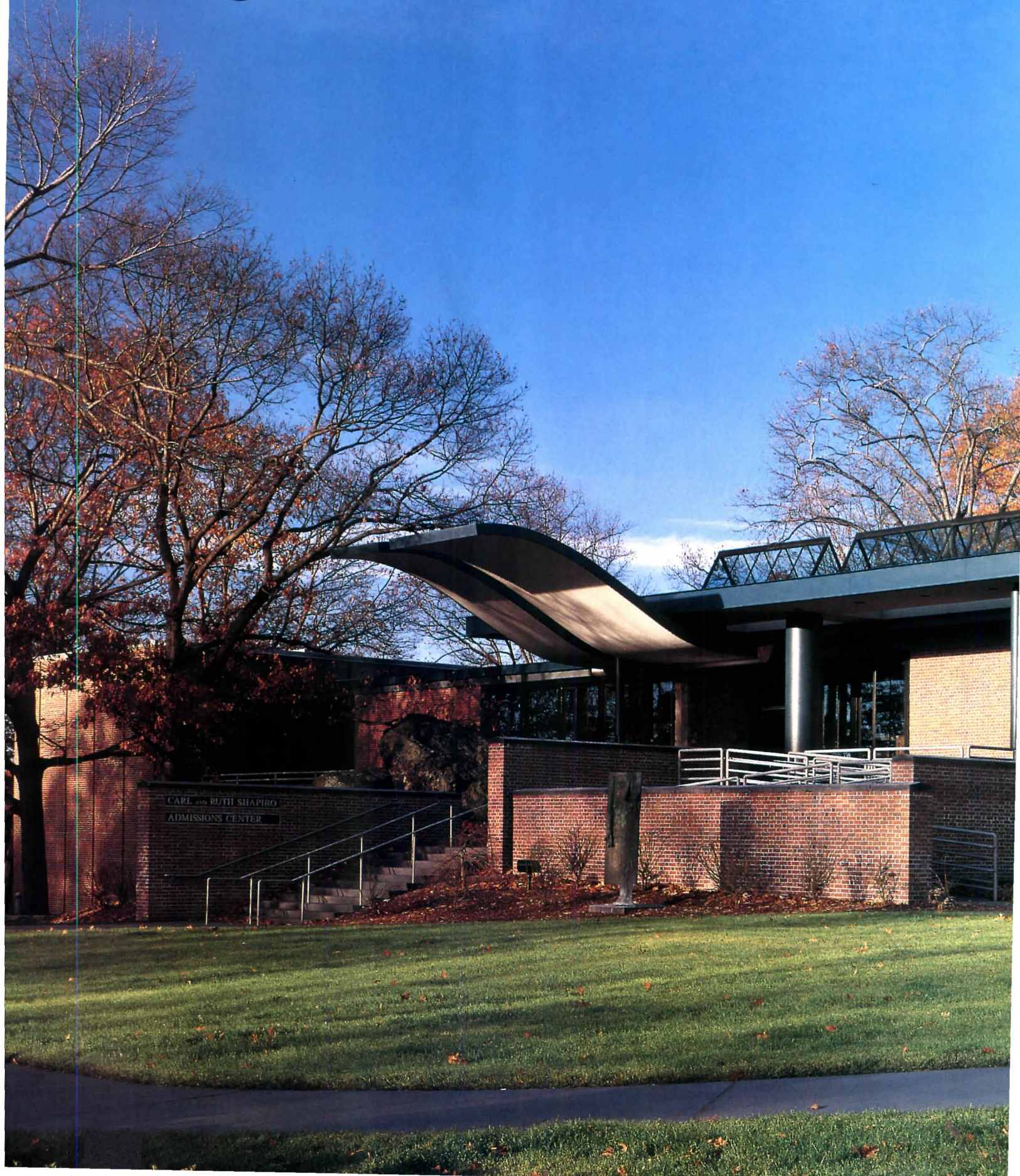


Credits

Pocantico Conference Center
Pocantico Hills, New York
Owner: Rockefeller Brothers Fund
Architect: Herbert S. Newman and Partners—Herbert Newman, architect in charge; Joseph Schiffer, project manager; Nathan Topf and Peter Clement, project architects; Gwen Emery, interior designer; Steve Lapin and Ariane Cuenoud, designers.

Consultants: Martin Horton & Associates (structural); Flack + Kurtz (mechanical, electrical); Sylvan R. Shemitz Associates (lighting); Zion & Breen (landscape); H. B. Fishman & Co. (roofing)
Owner's Representative: Lehrer McGovern Bovis, Inc.

Enticing Admissions



*Mark Simon and Mahdad Saniee
take on the challenge of bringing
verve to 1950s Modernism to
fulfill new functions.*

*Carl and Ruth Shapiro Admissions Center
Brandeis University
Waltham, Massachusetts
Mark Simon with Mahdad Saniee of
Centerbrook Architects*





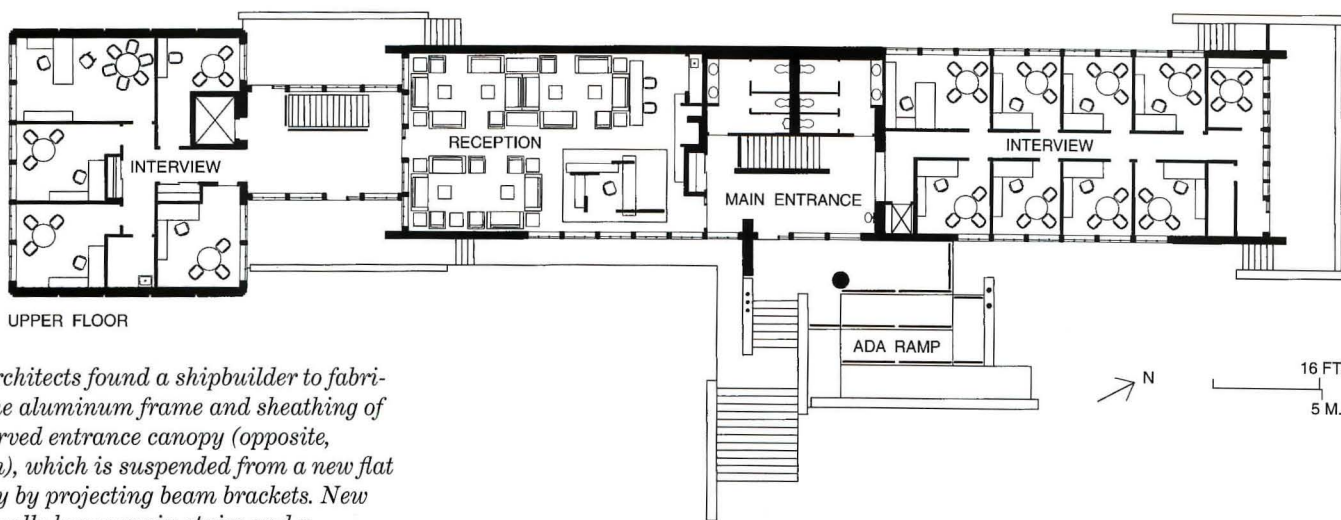
Brandeis University occupies a leafy Modernist campus outside Boston. In recent years, its administrators had come to realize the same need to compete for students felt by many educational institutions. Yet its all-important admissions office was hidden on the third floor of a building far from the campus entry, while one of the first buildings prospective students saw instead was a tired utilitarian structure built in the 1950s to shelter commuters (photo below left). Rather than build still another structure for admissions in this highly visible location, the university and two enthusiastic donors settled on turning the existing ugly duckling into a welcoming structure, which, aided by architects Mark Simon and Mahdad Saniee's swooping new entrance canopy, resembles a swan.

Indeed the upper main floor of the 10,000-square-foot existing building was ideally suited to its proposed use. It required minimal interior alteration to accommodate a program of a reception room (bottom right), presentation hall, conference rooms, and 14 interview offices (center). However, the location of processing and clerical offices on the floor below caused the administration some anxiety: It came dangerously close to resembling a basement. Simon and Saniee added lower-level glazing to the north (opposite top) and enlarged the windows on the south entrance front by dropping the grade, which also gave the building more presence. Other interior changes included new finishes, updated systems, and some custom furniture, including the Brandeis Boogie-Woggie coffee table that honors either Mondrian or Rietveld, muses Simon. Inside and out, the building is meant to convey good humor and put prospective students at ease.

The real design challenge was to make the exterior lively, while maintaining the International Style of the surrounding campus—all without making such radical changes that the conservational concept of adaptive reuse would be lost. Among functional problems, wide steps facing the main road ran into a blank wall. No one could find the front door and there was no protected area outside it where prospective students could assemble before touring the campus. The architects ran a flat canopy across the facade shielding south-facing windows and added skylights to make the area at the front door more appealing. They marked this with the new swooping canopy (opposite bottom) and a series of low brick walls that contains both stairs and handicapped ramps. Finally, they topped their composition with stainless-steel letters that leave little doubt what this building is all about.
Charles K. Hoyt

Credits

- Carl and Ruth Shapiro Admissions Center*
Brandeis University, Waltham, Massachusetts
- Architects:** *Centerbrook Architects—Mark Simon, partner-in-charge; Mahdad Saniee, project manager; Michelle La Foe, Sheryl Milardo, Darin Cook, Elizabeth Disalvo, John Doyle, design team*
- Engineers:** *Besier Gibble Norden (structural); Robert Van Houten (MEP)*
- Consultant:** *Morgan Wheelock (landscape)*
- General Contractor:** *Brandeis University/Twilight Construction*



The architects found a shipbuilder to fabricate the aluminum frame and sheathing of the curved entrance canopy (opposite, bottom), which is suspended from a new flat canopy by projecting beam brackets. New brick walls house main stairs and a handicapped ramp.



© Steve Rosenthal

Energy Field

*Ustate
U.S. Robotics
Skokie, Illinois
Valerio Dewalt Train Associates,
Architect*



Joe Valerio's designs for U.S. Robotics are a portrait of the company. As business grows, so does Valerio's metaphor. Once primarily a modern manufacturer, U.S. Robotics has concentrated its more recent efforts on producing inter-networking equipment. Likewise, Valerio's previous project for the Skokie, Illinois-based company, its U2 manufacturing headquarters in a bland modern box enlivened by tilted plywood columns and soaring plywood arches that display a hyperkinetic energy [RECORD, September 1993, pages 84-89], has been appended by consumer division Ustate, where a grid of interior streets organize and interconnect work areas spread over a vast 170-foot by 250-foot floorplate.

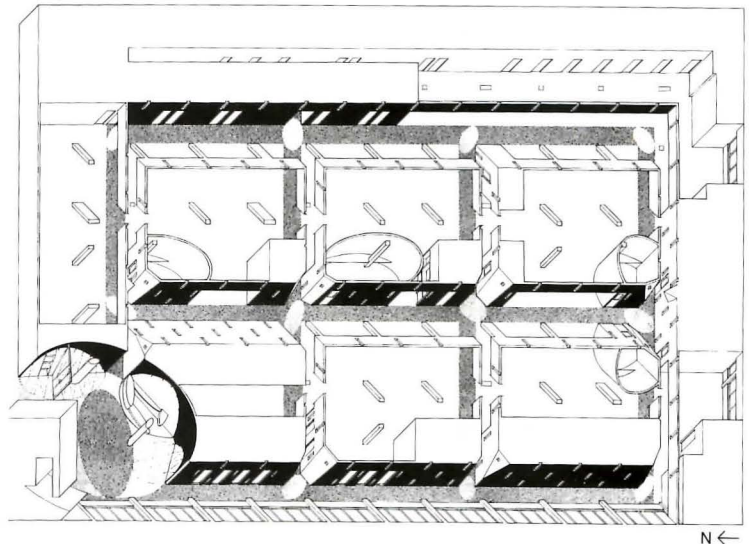
Located in another bland box, the former Allstate Insurance Building, Ustate contains the company's growing Personal Communications department. Remaking what was once essentially a warehouse of people, without sacrificing space or flexibility, was the challenge given to Valerio and associate David Jennerjahn. Says U.S. Robotics' Liz Ryan: "This is a high-volume, fast-paced division that requires easy communication and the design needs to reflect that."

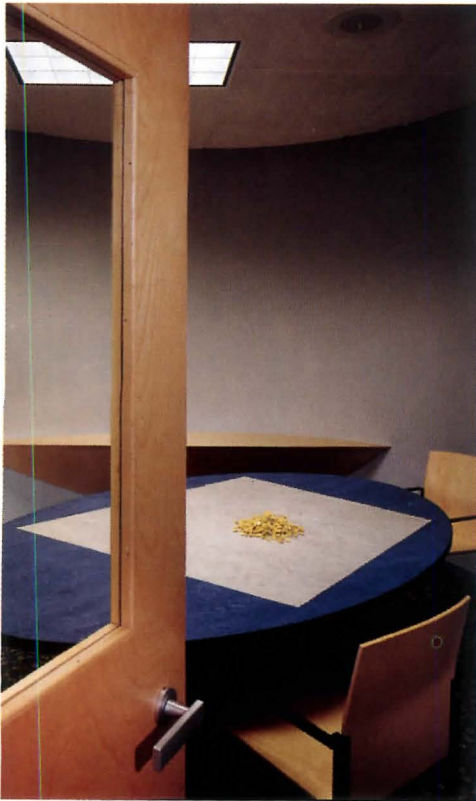
"We invented significance where there was none," says Valerio of his strategy. After laying out streets that define separate office zones, he sought to further the contrast between "inside" office areas and "outside" corridors by carving into 9-foot 6-inch-high ceilings. By breaking through the structural concrete deck along the hallways, the architects created 11-foot-high circulation swaths, which are lit from the sides. The "sunny" south and east sides of the street are painted a light green that looks almost white when washed by the existing fluorescent fixtures, which were relamped with warmer, yellow tubes. The "shady" north and west sides are painted steel blue.

At the intersection of two streets, the architects forced a collision of geometries by wedging elliptical forms into the orthogonal grid, creating the impression of energy bursts. In reaction, walls lean, soffits curve, and carpeting shifts patterns to leave an oval trace. Scattered across the floor is a series of conference rooms, also oval in shape, that in plan (following pages) resemble scouts of the reception-room mother ship (photos opposite and above right). Here, stacked surfboard-like panels of maple establish on entry a daring corporate image of exuberance. "The company is interested in energy and is driven by the energy of its staff," explains Valerio. "It's supposed to look like its out of control, almost." *Karen D. Stein*



The renovation of the former Allstate Insurance building, constructed in 1958 (photo left), included replacement of single-pane windows with more energy-efficient double-pane windows. Hvac and lighting systems had been redone by Allstate in 1985.



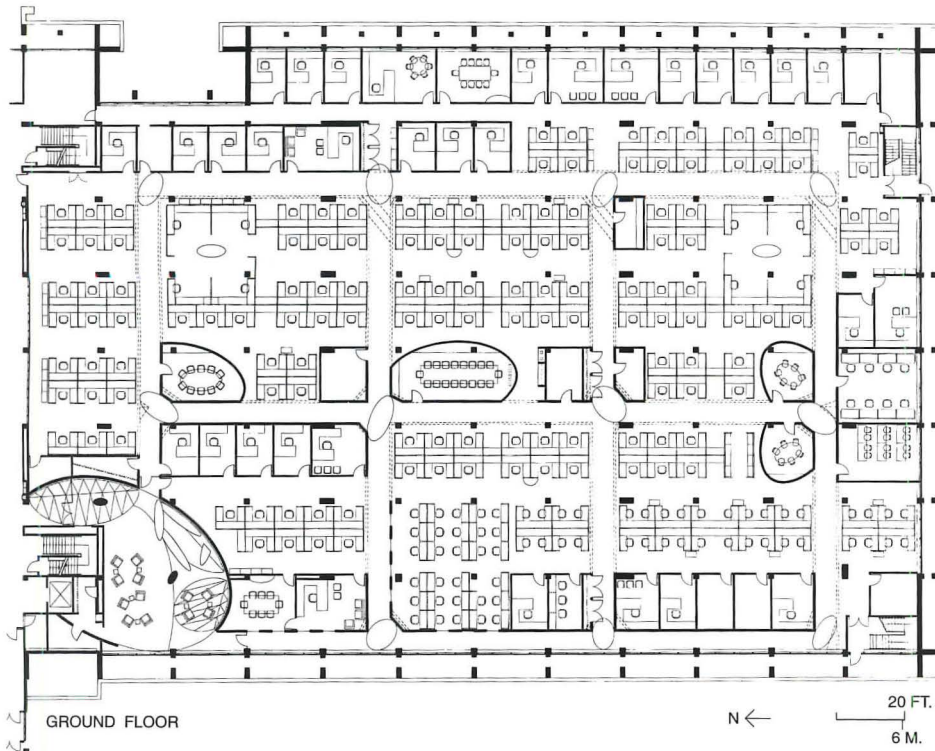


By limiting the material palette to a modest array of birch panels, colored paint, and carpeting, Valerio was able to keep project cost for the 74,000-square-foot project to a low \$18 per square foot. To animate cavernous spaces, walls are stenciled to match carpeting (opposite).

In some areas, soffits were added to mask particularly unsightly mechanical equipment or to help define separate office zones. Slots of light in the corridors and exposed ceilings differentiate "outside" communal areas from private offices and workstations (left).

Credits

- Ustate*
- U.S. Robotics*
- Skokie, Illinois*
- Architect:** *Valerio Dewalt Train Associates—Joseph M. Valerio, partner-in-charge; David R. Jennerjahn, project architect; Randall S. Mattheis, Nancy Willert, Michael Cygan, Louis Lovera, Mark Demsky, project team*
- Engineer:** *WMA Consulting Engineers (mechanical/electrical/fire protection)*
- Consultant:** *Desks, Inc. (furniture)*
- General Contractor:** *Turner Construction Company*





Focus on: Turning Ordinary into Extraordinary

In keeping with the subject matter of this month's Building Types Study, Focus on shows true diversity in a broad range of adaptive reuse projects. Two projects do have similarities. Mitchell Kurtz's Arts Bank and Kieran, Timberlake & Harris's Rock Hall display a deft insertion of performing-arts facilities into monumental period spaces designed for entirely different uses, while keeping the original character intact. In Moore Street Market (below), Hirsch/Danois Architects have turned a hodge-podge of individual vendors' booths into a cohesive space that has become a neighborhood mecca. To create a new chemical building for Indiana University, Harley Ellington

Moore Street Market

*Brooklyn, New York
Hirsch/Danois Architects, P. C.
Architect*

A lively place for buying food not found in a supermarket

During the 1930s, New York City completed a program of building identical bland brick boxes in far-flung neighborhoods to house grocers and other types of peddlers who once sold from pushcarts. Inside all was chaos. Large coolers scattered casually about the floor created a warren of spaces. Business was conducted from wood stalls.

Recently, the city set out on a program of upgrading the markets with the goal of encouraging trade for the small businesses within. Hirsch/Danois won the commission for Moore Street in a competitive RFP process in part because David Danois had grown up near another such market and was familiar with how they functioned. Moore Street Market is located in a Hispanic neighborhood in Brooklyn. Grocers sell produce from South America with a special emphasis on edible roots of every description. The architects' main goal was to create a cohesive interior space that would attract customers. The most important step was to relocate the coolers to a little-used basement, which is now accessible down two new flights of stairs. The next step was to place the grocers with their eye-catching wares in new open stalls in the center of the room and dealers in other goods, such as religious objects and clothes, in spaces along the exterior where the full-height walls and roll-down gates they required for security would be out of the way of an open vista. The architects' design for the open stalls includes dropped-canopy ceilings that hold lighting and create an indoor-outdoor effect under the bright skylights. Grocers now stand on raised floors that allow them to keep an eye on the full perimeter of their spaces.

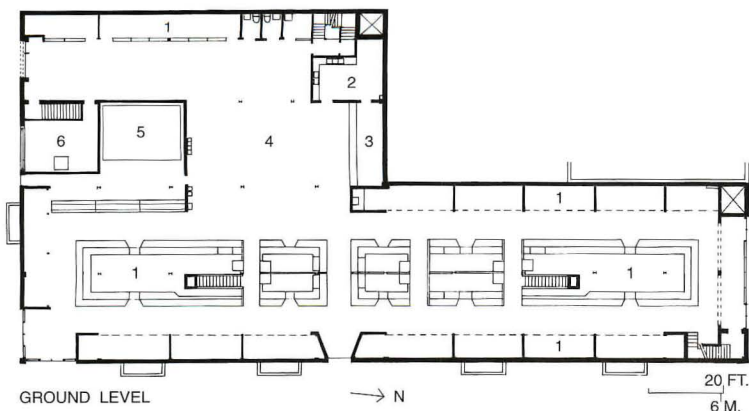
David Hirsch fully credits Keith Godard of Studio Works for giving the final enlivening touch of bright graphics, including the good-humored banners inside and the ceramic-tile mural on the exterior that replaces broken windows beneath the original stainless-steel sign. *C.K.H.*



© 1995 Elliot Fine photo

Pierce Yee Associates have united classroom buildings of varied characters within a single envelope that honors the campus's Gothic tradition. At the opposite end of the spectrum, the Architectural Resources Group has created one of the more unusual office parks in the U.S. by rescuing 11 modest Victorian houses in San Francisco from the path of an expressway and uniting them into a "village" of spaces for non-profit organizations. All of these projects do share one common factor. Each makes use of existing buildings that might well have been demolished in a less thoughtful and conservation-minded era.

C. K. H.



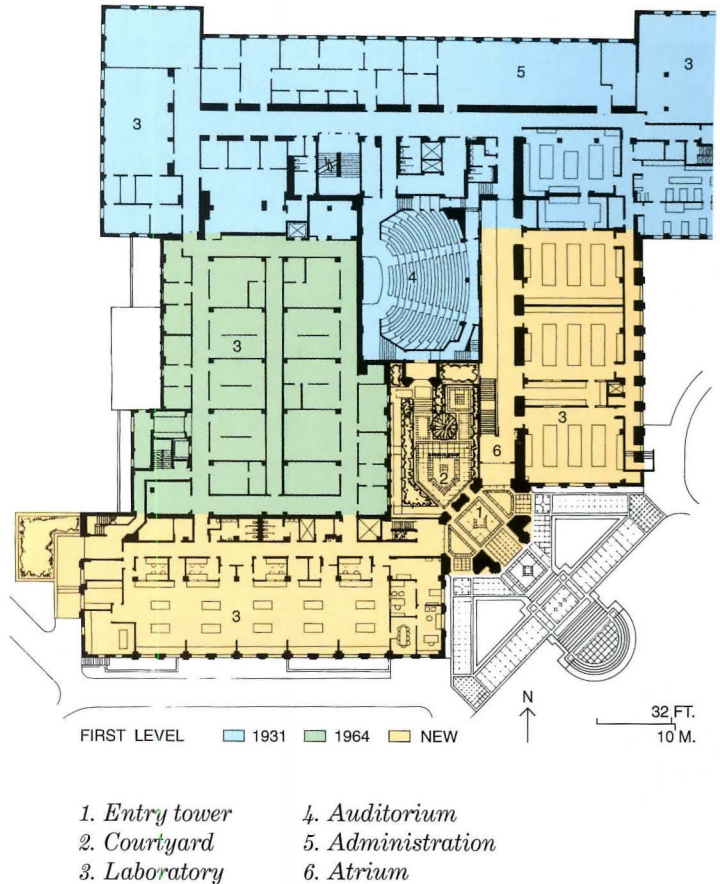
1. Sales stalls
2. Kitchen
3. Serving counter
4. Dining tables
5. Walk-in cooler
6. Refuse

Chemistry Building

Indiana University, Bloomington, Indiana
Harley Ellington Pierce Yee Associates,
Architect

New wings enhance Gothic identity

Faced with a Collegiate Gothic building from the 1930s that had been unsympathetically expanded in 1964, architects Harley Ellington Pierce Yee Associates (HEPY) used the latest addition to the complex as a way of tying all the pieces together. By wrapping two new wings around the 1964 annex and employing the same Gothic vocabulary as the original building, the architects created a single personality for the entire facility. A new entrance tower on the rear of the building orients the complex to an emerging science campus and also serves as an air-intake shaft for laboratories (opposite left). The tower leads to a courtyard that brings sunlight into the center of the building and provides access to the largest of three auditoria. The 1931 building required little exterior renovation (just some window replacement and pointing of its limestone facade), but it was mostly gutted on the inside, says Gary Skog, a HEPY principal. While the basic circulation plan was kept, old ductwork was replaced and new electrical and hvac systems were installed. Because technology has changed so much, most labs were moved out of the 1931 building and into the two new wings. Labs in the 1964 building were kept, but upgraded with new electrical and venting systems. A long narrow atrium (opposite right) ties one new wing to the original building, combining new materials with old ones. *Clifford A. Pearson*

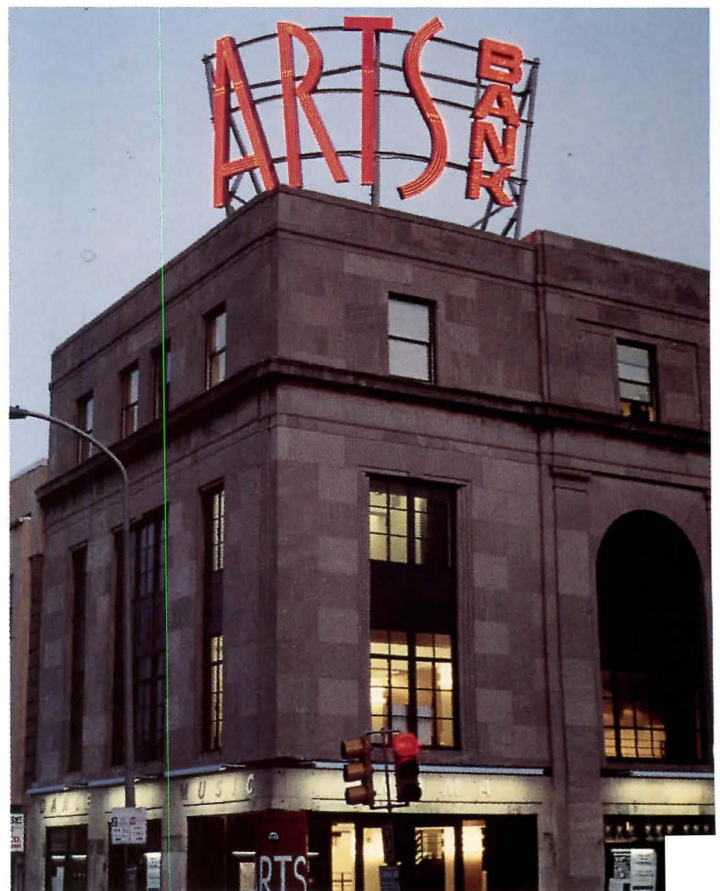


Philadelphia Arts Bank

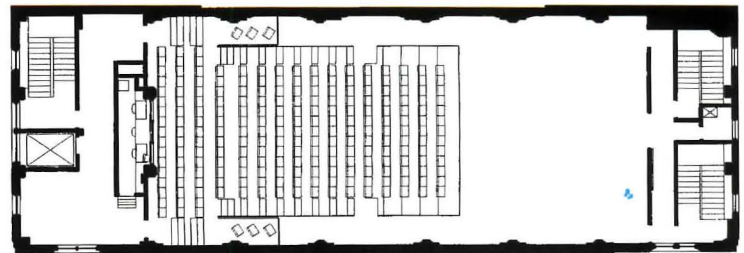
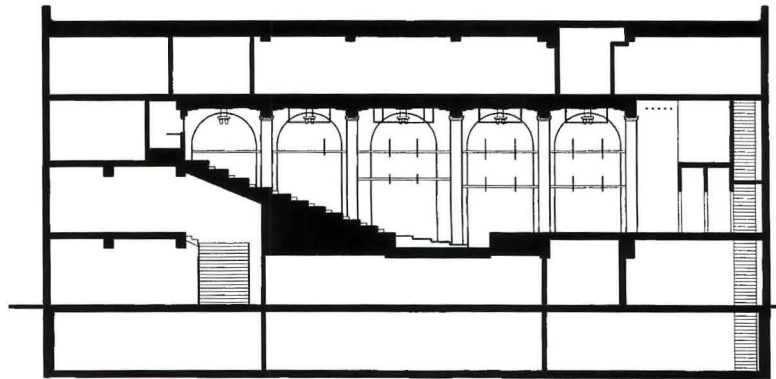
Philadelphia
Mitchell Kurtz Architect

Theater and studio deposited in former bank

Completed just over a year ago, the Philadelphia Arts Bank is a non-profit rental theater and rehearsal studio located, as the new institution's name implies, in a former bank designed in 1927 by Ralph Benke, principal architect of the automat chain, Horn and Hardart. Renovated by New York City-based Mitchell Kurtz, Arts Bank is the first theater to open on the city's Avenue of the Arts, a cultural corridor that also includes facilities for the Philadelphia Orchestra (by Venturi, Scott Brown & Associates), Wilma Theater (by Hardy Holzman Pfeiffer & Associates), and the Freedom Theatre (also by Kurtz). Exterior changes were minimal: Kurtz added a new corner entrance in the place of an old pizzeria, which he marked with a porcelain-coated metal column. A neon sign with 12-foot-high letters now crowns the roof, drawing attention to the structure along Broad Street, a busy thoroughfare. Inside, the 238-seat theater occupies the former main banking hall on the second floor (photos opposite). Kurtz removed a hall stair to accommodate the orchestra pit and a depressed seating area. One of the many fragments of the bank that the architect retained is a vault wall, which now is the green room. "We didn't try to eradicate the old," explains Kurtz, using the metaphor of a palimpsest, an ancient tablet reused several times after earlier writing has been erased. "As the name [of the new institution] implies, it's a merger of former and new uses." *Karen D. Stein*



©Nancy Kathan photo



SECOND FLOOR

32 FT.
10 M.

N ←

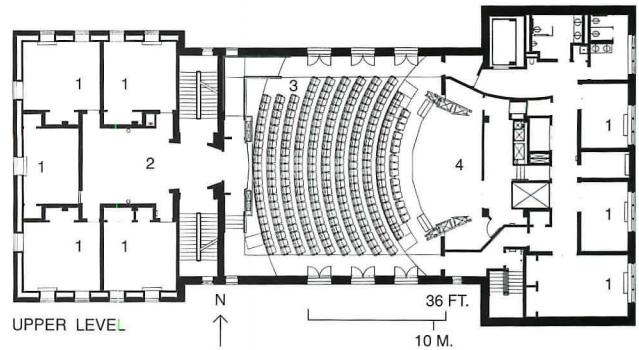
Rock Hall, Temple University

Philadelphia, Pennsylvania
Kieran, Timberlake & Harris, Architect

The interior restoration and renovation of a 1914 Neoclassical building required architect Kieran, Timberlake & Harris to work within the constraints of the existing building envelope by designing a series of limited, insertions and minimal removals for each required space. Preserved were the plaster groin-vaulted entrance hall, with its mosaic marble floors, pilastered walls, and ceiling. A new music library was created to the right of the hall, with beamed ceiling, round-head windows, and restored pendant-mounted fixtures. Studios were also inserted on the entrance level, including an audition room in which wood and metal panels were “fractured” and folded below the ceiling, making it an “instrument” to diffuse sound.

The basic configuration of the new recital hall on the second floor was essentially maintained; a sloped floor and fixed seats were added, and a new proscenium opening was inserted into the east wall. The existing deeply coffered ceiling was restored, with grilles and lighting placed discrete within the coffers. In order to preserve the existing arched windows, to keep natural light, and satisfy acoustical requirements, shutters were put in place for use as each performance required. On stage, a new proscenium frame of maple and mahogany panels was woven into a solid and void pattern so sound can reflect off the surfaces, increasing resonance in the hall. *Carolyn D. Koenig*

© Barry Halkin photos



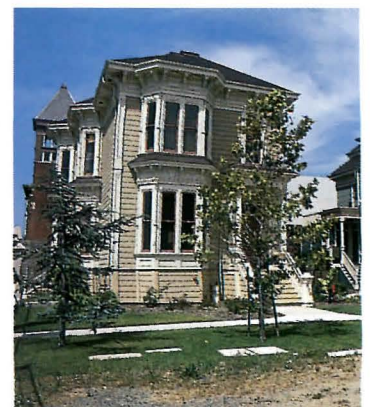
- 1. Studios
- 2. Lobby
- 3. Auditorium
- 4. Stage

Preservation Park

Oakland, California
Architectural Resources Group, Architect

Nestled in the heart of downtown Oakland, California, one block from the new Federal Towers and terminating the Center Walk pedestrian way, a small Victorian neighborhood has been resurrected, capturing a piece of the city's architectural history and contributing to revitalization of the urban core. Preservation Park, a grouping of 16 mid-19th-century Victorian homes, has become the city's newest business park. Envisioned as a catalyst for community pride and as a think-tank for non-profit organizations with environmental and cultural goals, the park now has 43 businesses, a cafe, meeting and conference facilities, and outdoor public concerts throughout the year.

As land was cleared for freeway construction in the early 1970s, 11 Victorian homes were removed (top right photo) and sited adjacent to five existing homes of National Trust historic status. A private developer began restoration. In 1986 the City of Oakland repossessed the partially built project and teamed up with Toronto-based developer Bramalea Inc., which donated much of the project-management, marketing, and leasing services needed to complete the project. Architectural Resources Group of San Francisco was responsible for restoration of the building exteriors and renovation of the interiors. Developed as a non-profit project, monetary donations and discounted materials and services supplemented the \$11 million actual cost of the project, which currently operates in the black. *Pam Kinzie*





© David Wakely photo

“NOT YOUR ORDINARY PROJECT.”

That might have been how CUH2A architect Fred Bliefenich described the November 1993 assignment from Six Flags® Great Adventure.® The project at the New Jersey theme park called for a single structure designed to look like a series of shops on a colonial “Main Street” that featured the well-known cartoon characters. The deadline was five months away. And most

Sweet’s, the project that had seemed a little looney now had everyone whistling a different tune.

For Fred and other architects, the Sweet’s Catalog Files and SweetSource®, complementary electronic product information on CD, are essential. “With manufacturers’ binders often being two to three years old, you need to go to the most up-to-date, comprehensive source of information,” he says, “and that’s Sweet’s.”

SWEET’S BROUGHT THIS PAIR TOGETHER UNDER SOME PRETTY LOONEY CIRCUMSTANCES.

of the construction would take place during winter.

The Sweet’s Catalog Files, with their depth and breadth of product alternatives, quickly became Fred’s primary reference tool for design concepts, materials, and manufacturer contacts.

“If a manufacturer wasn’t in Sweet’s, it wasn’t considered for this project,” says Fred, an associate and senior project architect at the top-20 A/E firm headquartered in Princeton, New Jersey. “The Real Brick™ catalog in Sweet’s provided enough detail for us to specify their U.S. Brick Systems®, which was ideal for cold weather installation.” And a call to Sweet’s Buyline® service put Fred in touch with regional sales representative Charlie Fieger, who quickly sent samples and assured product availability.

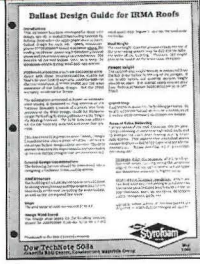
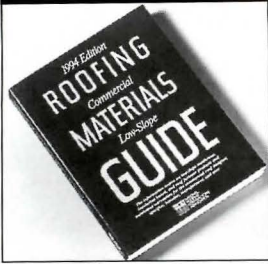
In spite of the worst winter in years, the park opened as scheduled on April 1. And with help from

Read More About CUH2A’s Project For The Six Flags Great Adventure Theme Park By Calling Us At 1-800-992-0535 And Asking For Case Study Number 2.



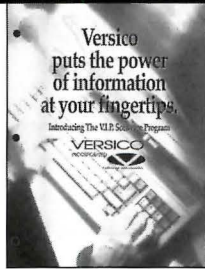
Sweet’s Group/McGraw-Hill, Inc.
1221 Avenue of the Americas
New York, NY 10020
1-800-992-0535

Product Literature/Roofing



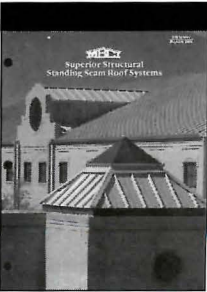
400. Roofing-materials guide
A must for any firm doing roof design, a low-slope guide describes hundreds of commercial, industrial, and institutional roof materials—built-up, modified-bitumen, single-ply membranes, metal roof panels, and coatings—plus insulations and fasteners. Order form summarizes data in each section. National Roofing Contractors Association, Rosemont, Ill. *

401. Stone and paver ballasts
A 10-page TechNote lists design, traffic, wind-load, and other factors to consider when selecting the appropriate stone or paver ballast for a protected-membrane (IRMA) roof. Charts, graphs, and a U.S. wind-speed map illustrate which ballast suits a specific roof, with respect to structure, slope, and height. Dow Chemical Co., Midland, Mich.



402. Water-termination bars
An architect's guide explains why a new reglet, made of Noryl thermo-plastic, allows more roof-design flexibility while maintaining its resilient performance much longer than metal systems. Available in custom colors, the reglet has a removable EPDM gasket; five styles suit any wall or roof assembly. 800/227-3305. O'Keeffe's Inc., San Francisco.

403. Roof-product line on disk
V.I.P. software accesses data on all Versico elastomeric roofing products—specifications, details, tech sheets, approved insulations, fastener layouts—on a single, easy-to-install disk. Generic specs can be exported. Requires DOS Windows 3.1; 2MB. Free by letterhead request. 800/992-7663. Versico Incorporated, Sub. Carlisle Corp., Akron, Ohio.



404. Standing-seam roof system
MBCI's eight-page Sweet's catalog highlights snap-together and field-seamed Galvalume roofing systems. Tested to UL fire-resistance and UL 90 wind-uplift requirements, as well as water-penetration and air-infiltration levels of ASTM E283 and E331. Wide range of finish options includes deep architectural colors; good for re-roofing. MBCI, Houston.

405. Heat-weld white EPDM
An eight-page brochure describes a new line, Hi-Tuff/EP, a hot-air-weldable reinforced-rubber singly-ply, available in white as well as black. Text and details cover weathering performance, correct installation and termination techniques, and life-cycle cost comparisons. JPS Elastomerics Corp., Northampton, Mass. *
Continued on page 113

* Product Data on CAD disk
For more information, circle item numbers on Reader Service Card.

SPEC IT. AND WE WILL BUILD IT.



National's team of professionals will work closely with you from concept to completion. We will custom design and help build any project, from pool enclosures and botanical gardens to institutional teaching and research facilities. Call today, so we can start working with you tomorrow.



Creators of Enclosed Environments
800-826-9314

Circle 30 on inquiry card

Featured
Nationally on
"This Old House"
PBS-TV



Conceal, Reveal, Swivel with a touch of a finger

AUTON POP UP TV LIFTS

YOU BUILD THE FURNITURE - WE'LL PROVIDE THE AUTOMATION



Old Fashioned "Sissor" Lift Auton Rack & Pinion Drive

Since 1955, the Auton Company has served the design community with quality motorized systems that utilize remote controls and small powerful motors. Motorized platforms glide smoothly and quietly on four racks and pinions, even swivels at a touch of a button.

Installed in homes, offices, conference rooms and luxury hotels worldwide such as the Mirage, Treasure Island, Caesars Palace, Taj Mahal, Shangri-La, Auton is the lift system professionals use with confidence.

AUTON COMPANY P.O. Box 801960 - Valencia, CA 91380-1960 - (805) 257-9282 Ask for Mr. Archer
FAX (805) 295-5638 - Beverly Hills (310) 659-1718 - Honolulu (808) 734-1260
Auton does not make furniture. US & Foreign Pat. Pend. Made in the USA



FOOTBED POP-UP TV COMPUTER LIFT SWIVEL BASE PANEL LIFT POP-DOWN PROJECTOR POP-UP TABLE

Circle 31 on inquiry card



TIMELESS BEAUTY
TIMELY SUPPORT



Get both when you build with architectural copper. Just call 800-CDA-DATA and tap into a complete network of support services — including professional design assistance. ♦ There's also CDA's comprehensive new *Copper in Architecture Handbook*. It features design details and specifications — in hard copy and in AutoCAD® files* — for nearly any application. ♦ A six-part videotape series examines the functions, forms and details of different copper roofing styles. ♦ You also get access to CDA's databases, publications, training programs, materials specialists and local supplier/contractor listings. They're all part of CDA's "Copper in Architecture Program" — providing the assistance needed to put copper's timeless beauty and dependability to work in your next project. *Get all the details today. Call 800-CDA-DATA for a free copy of our brochure, Copper in Architecture.*



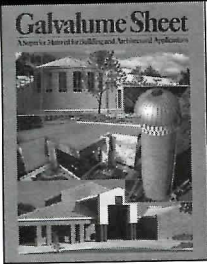
 **COPPER DEVELOPMENT ASSOCIATION INC.**

260 Madison Avenue, New York, NY 10016

AutoCAD is a registered trademark of Autodesk, Inc.
* On 3 1/2" IBM-compatible disks.

Circle 32 on inquiry card

Product Literature/Roofing



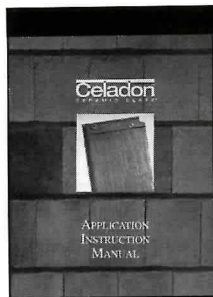
406. Galvalume performance

An eight-page technical brochure shows old (circa 1973), middle-aged, and new roofs and test panels that demonstrate the long-term durability of bare-metal Galvalume, sheet steel coated with a corrosion-resistant aluminum-zinc alloy. A design guide illustrates the metal roof's appearance and structural benefits. Bethlehem Steel Corp., Bethlehem, Pa.



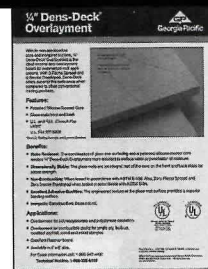
407. Ballasting pavers

A Roofblok catalog explains how the interlocking concrete-ballast paver works, and details FM systems for a range of calculated rooftop wind speeds up to 200 mph. For use with single-ply systems, the paver does not shift or scour like stone ballast, and protects the membrane from vandalism, hail, UV, and traffic damage. Roofblok Ltd., Fitchburg, Mass.



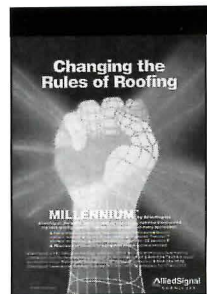
408. Tile-roof installation tips

An application manual and installation video explain Ceramic Slate, a fired-clay interlocking roofing shingle formed to look like a thick slate. Weighing 580 lbs per square, the roof has a 60 year warranty and comes in five colors. Covers design parameters, flashing, underlayments, hips and ridges, etc. 800/CEL-SLATE. Celadon, New Lexington, Ohio.



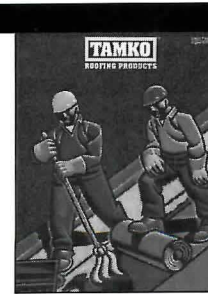
409. UL-listed overlayment

Technical bulletin describes the fire- and moisture-resistive properties of 1/4-in.-thick Dens-Deck, UL listed Class A as an overlayment for combustible decks or insulations under single-ply, built-up, modified-bitumen, metal, and wood-shingle roofing systems. Comes in 4- by 8-ft sheets that resist handling and traffic damage. Georgia-Pacific Corp., Atlanta.



410. Reformulated coal tar

Brochure introduces Millennium, a polymer-modified product said to build onto coal tar's superior waterproofing characteristics an enhanced level of materials compatibility, fire resistance, and application flexibility. Supplied in rolls and other systems, Millennium has no slope restrictions: dead level to vertical. 800/221-6490. AlliedSignal, Inc., Morristown, N.J. *

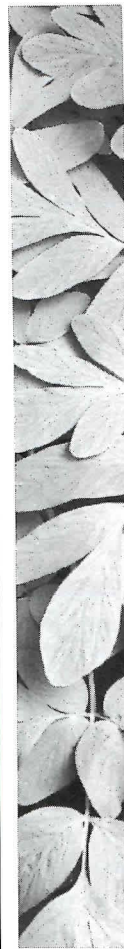


411. Bituminous roofing guide

A 1995 brochure highlights the design, performance, and appearance characteristics of SBS-modified materials, both polyester- and fiberglass-reinforced, as well as built-up systems. Excellent application chart matches individual product with desired applications, installation methods, and certifications. 800/641-4691. TAMKO, Joplin, Mo. * ■

* Product Data on CAD disk

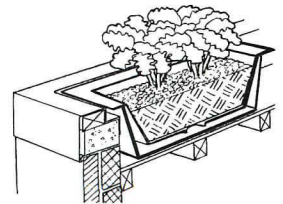
For more information, circle item numbers on Reader Service Card.



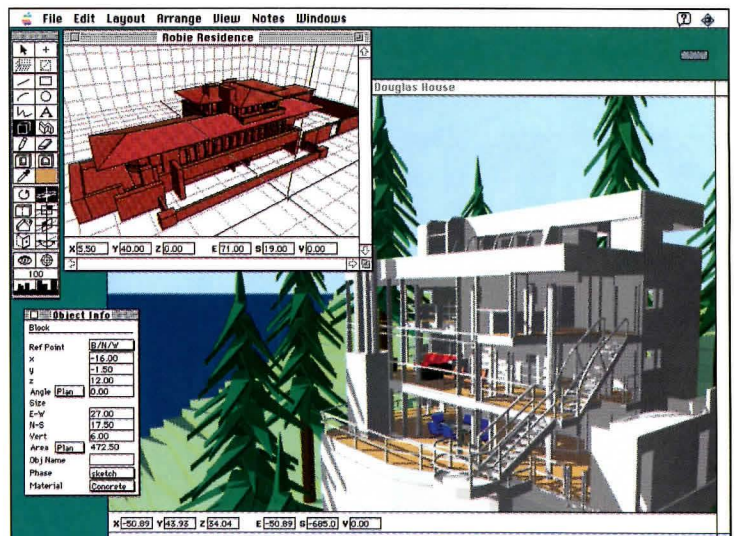
Planter liners for the next millennium. And they're only three short steps away.

1. **Consider the Options.** Planter Technology crafts seamless, rigid planter liners out of rugged polystyrene or polyethylene thermoplastic. So unlike metal and flexible liners, these won't crack, corrode, or leak sometime in the future. And with Planter Technology's optional Controlled Watering System™ a revolutionary irrigation system is built *right into the liner*—no drainage or separate hook-ups required.
2. **Make the Call.** At 800-542-2282 you'll find people experienced in helping specifiers make decisions about planters. Just tell us your application—and odds are, Planter Technology has a proven solution.
3. **Relax.** If only all specifications were this easy!

Since 1979 **Planter Technology™**
Mountain View, CA
800.542.2282
Fax: 415.962.8875
Made in U.S.A.



Circle 33 on inquiry card



DesignWorkshop™ Macintosh 3D modeling for architecture

The shortest path from your ideas to computer visualization, based on a design-oriented, 3D direct-manipulation interface. With other software, you build a model by drawing in plan, and renderings are look-but-don't-touch. In DesignWorkshop, you quickly and easily create solid models in live 3D perspective with real openings and object-based shadow casting.

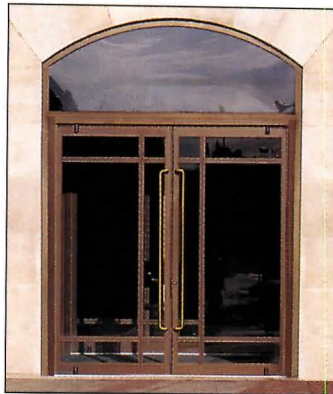
Now available for Power Macintosh with radical 6-10X acceleration!

Call 800-203-8324 or fax 503-346-0782 **Artifice, Inc.**

Circle 34 on inquiry card



R-4 Automatic Balanced Doors



Manual Balanced Doors



M-3500 Automatic Sliding Doors



R-2 Swinging Door Operator



R-1 Automatic Swinging Doors



ICU/CCU Doors

A GREAT OPENING LINE.

Introducing the EFCO® RotoSwing™ Series. A complete line of automatic swinging, sliding and balanced doors, manual balanced and ICU/CCU doors. Call 1-800-221-4169 for a line that'll really impress you.



ROTSWING DIVISION

Software...*continued from page 41*

which are Adobe Photoshop 2.5 or later, Aldus PhotoStyler 2.0, Fractal Design Painter 2.0 or later, Fauve Matisse, Corel Photopaint (in CorelDRAW 5.0 or later), Altamira Composer, Micrografx Picture Publisher 4.0 or later. There are 33 special effects in this package, including a tone-gradient designer, gradients on paths, fractal patterns (more on that below), textures, lens effects (globes, pincushions, and so forth), and page curls.

Manual: Terrific, highly readable (even funny) spiral-bound 106-page guide.

Ease of use: Good; the effects are generally quite fast. Ease of installation varies, depending on the software it is being plugged into. We reviewed it inside Micrografx Picture Publisher 5.0 and Adobe Photoshop.

Error-trapping: You can undo effects only if you have Undo available and enabled in the package Kai's is plugged into.

303 on Reader Service Card

Images Incorporated 4.0

Vendor: Iterated Systems, 5550-A Peachtree Parkway, Suite 650, Norcross, GA 30092. 404/840-0310, fax 404/840-0806.

Price: \$149.

Equipment required: Computer that can run Windows 3.1 or later (386SX or faster CPU). Installation takes 3 MB of disk space. SVGA card is strongly recommended. If you use a standard 16-color, low-resolution card, color changes forced by the software may make the on-screen menus and dialog boxes hard to read.)

What happens when you turn a pixel image into a mathematical description of a pixel image? That's what fractal imaging is all about. Your image takes up less space on disk—typically a tenth to a hundredth of original size. You can increase the apparent resolution as well, adding new pixels between old ones—pixels that are defined as to what they probably should look like, by the pixels around them. (That's the secret behind inexpensive "800 dpi" or "1200 dpi" scanners; most of the resolution gain beyond 400 dpi is a mathematical software trick.)

The technology is showing up in many games, CD-ROM encyclopedias, and so forth (Iterated Systems sells developer kits for DOS, Windows, and Macintosh).

Images Incorporated is an inexpensive

package that accepts the standard pixel-based file formats: BMP, RAS, TGA, and TIFF (all to 24-bit color, 16.7 million hues). GIF and PCX are only supported for 8-bit color (256 colors). The starting image can be no larger than 800 by 576 pixels.

Without the add-on Fractal Transform Compression board, an image compression takes a long time (typically 3 to 20 minutes, depending on the computer speed, image resolution, and color; doubling resolution of a megapixel image can take an hour or more) Four board models are available; they increase speed 3- to 10-fold and more.

Manual: Spiral-bound, 86 pages.

Ease of use: Good with high-resolution SVGA, or 640 by 480 pixels with 256 colors instead of the standard 16. There's a "batch mode" that allows you to process many images at a time, overnight, or during lunch.

Error-trapping: Good. The compressed file is saved in the package's own format (FIT or FITT) so it will not overwrite the file you start with. But if you use the software to change resolution rather than for compression, you can overwrite the old file with the new one.

304 on Reader Service Card

Important Information About Schuller Phenolic Foam Roof Insulation and Possible Steel Deck Corrosion

From January 1989 to February 1992, we produced UltraGard® Premier, a glass mat faced phenolic foam roof insulation, which is no longer manufactured by us.

Recent observations suggest that phenolic foam roof insulation contributes to the corrosion of steel roof decks. In extreme conditions, where insulation is wet or damaged, the corrosion reaction could progress to a point which could weaken or penetrate an area in the metal deck.

Therefore, where evidence of wet or damaged phenolic insulation exists, or severe deck corrosion is observed, care should be taken in operating equipment, moving heavy loads and walking across the roof.

If you have Schuller* Phenolic Foam Insulation on your roof, please call us at 1-800-345-9602

SCHULLER

Roofing Systems Division
Schuller International, Inc.
P.O. Box 5108, Denver, CO 80217

1-800-345-9602

Monday through Friday
9:00 a.m. to 3:00 p.m. (Mountain Time)

*Schuller phenolic foam insulation was formerly manufactured and marketed by Manville® Roofing Systems.



A fire can leave you with a reputation that's hard to shake. So having Class A protection throughout your hotel isn't a far-fetched idea.

That's why you should specify Duraflake FR[®] in casegoods and furniture, as well as in wall panels and elevators. It's America's first fire-retardant particleboard,



with a UL flame spread rating of 20, and a smoke developed rating of 25. Combined with fine veneers and laminates, it provides added protection for little added cost. Without sacrificing aesthetics.

So don't take the heat. Keep your hotel a popular spot by using Duraflake FR. Available cut-to-size, and in four and five-foot panels.

 **Duraflake FR[®]**

Willamette Industries, Inc.
Duraflake Division
P.O. Box 428
Albany, Oregon 97321
(503) 928-3341

Circle 39 on inquiry card

**WE'D LIKE TO KEEP YOUR HOTEL FROM
BECOMING ANOTHER HOT SPOT.**

New Congress *continued from page 29*

Construction is among the economy's most interest-rate-sensitive sectors. Already the runup in rates has dampened housing starts, which is usually echoed by the retail sector within a few months. If rates continue to bound upward, local-government borrowing—which finances schools construction and public works—will be affected.

However, CATO's Moore figures a more favorable tax picture will provide a needed economic shot in the arm. "We estimate that \$1.5 trillion in assets have been locked-up [by tax-code changes passed in 1986]. If Congress changes the capital-gains rules, there should be an immediate unlocking effect, encouraging investment in buildings as well as other vehicles." Investment tax credits, passed in the early days of the Reagan Administration, offered generous protection to real-estate investors in the 1980s, helping to spur the huge overbuilding in commercial construction—and the subsequent market collapse. (In 1986, Congress repealed them.) Dean Schwanke, a researcher at The Urban Land Institute, a real-estate research and education organization, reports some concern that too much capital available too

rapidly could lead to a repeat of 1980s overbuilding in a number of markets, upsetting the fragile real-estate recovery.

Regulations under the microscope

The Republican Contract calls for greater flexibility in the interpretation of regulations, and would block passage of rules whose costs exceed their benefits. Both Representatives Jan Meyers (Kan.), chairwoman of the Small Business Committee, and Thomas Bliley, (Va.), chairman of the Commerce Committee, are looking to prevent what some consider onerous legislation. Environmental rules are sure to get a closer look under this measure. Many in the new Congress would like to see compensation for any rules that reduce the value of private property—a significant broadening of the Fifth Amendment's "takings" clause, that could have profound effect on the regulatory environment in which architects work [RECORD, October 1994, pages 50-53].

At one point, Gingrich mentioned the Americans with Disabilities Act in the possible category of too little benefit for too much cost, but industry experts report it will likely not be altered. "Provisions of the ADA would

be too hard to appeal, change, or overturn," said architect Kim Beasley, with Paradigm, a Washington, D.C., firm that helps owners and designers with disabled compliance, "but there could still be flexibility in interpreting the intent of the law."

The American Consulting Engineers Council, which shares many government concerns with architects, has urged its members to "storm the capital" to urge liability reform (supported by many in the new Congress), retention of quality-based selection, and infrastructure investment. The AIA has mounted no similar effort, satisfied, says CEO Terrence M. McDermott, that "many [lawmakers] are familiar with and have lent their support to various programs and policies of interest to architects." Though quick consensus on the Contract is likely in the House, Republicans do not hold the necessary 60 seats in the Senate to prevent lengthy delays and inaction caused by potential Democratic filibustering. In addition, the President can veto legislation Congress sends him. As NRG's Brazeman says, "In Washington, it's never over until it's over." ■

Everyone needs a good roll model.

INTRODUCING THE TECHJET™ DESIGNER 720

There's a lot to admire about our newest monochrome inkjet.

With both roll-feed and cut-sheet capability, it's the only large-format plotter that's truly built to handle the long and the short of it.

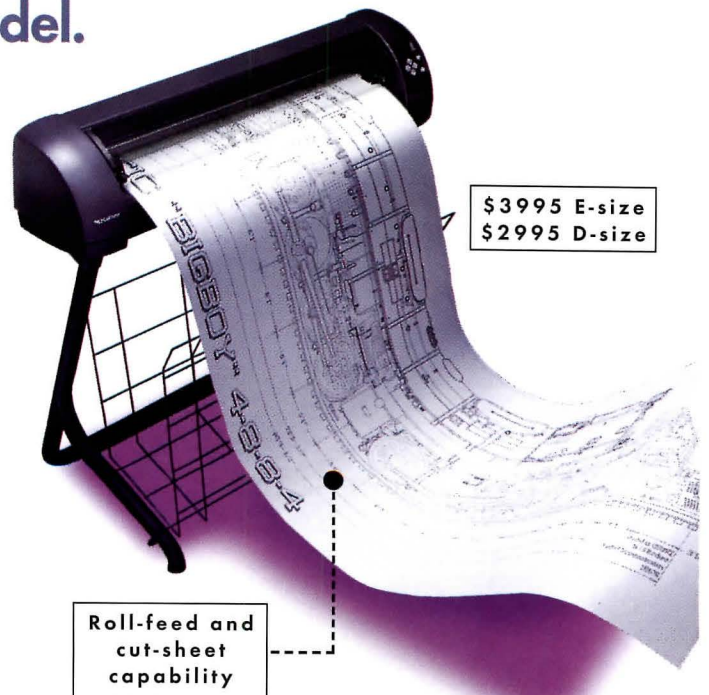
Its 720 dpi print engine offers 44% higher resolution than the competition, for more detailed lines and solid area fills. Not to mention a two-pass printing mode, for smoother shading – especially on CalComp vellum, film and plain paper.

Plus, it comes with automatic data format recognition, for hassle-free setup and compatibility. 4Mb of standard RAM, upgradable to 16Mb. And speedy throughput that delivers E-size plots in under 8 minutes, D-size in less than 4.

All at a price that makes it the clear choice for precise line drawings, area fill mapping and 3-D rendering.

For more information, just see your CalComp reseller, or call **800-445-6515, Ref. A00.**

We'll show you a plotter that sets a good example.
And delivers a tough act to follow.



TOOLS OF THE TRADE

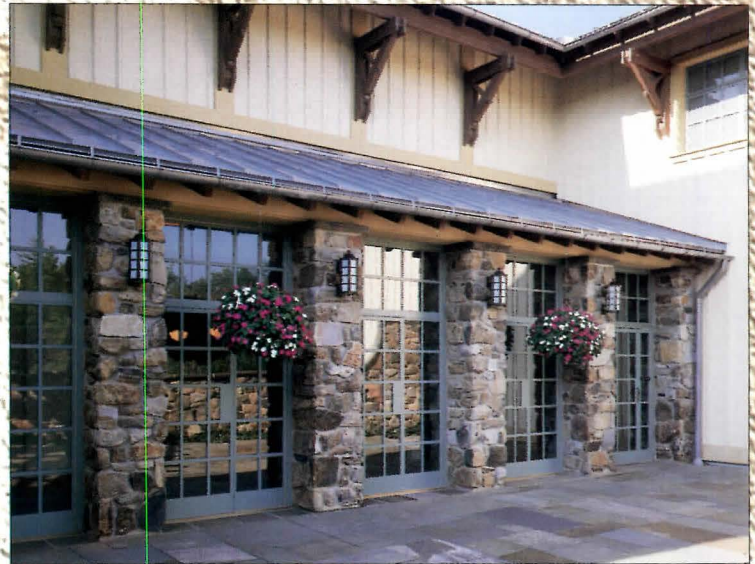
CalComp
A Lockheed Company

List price in U.S. dollars. Floor stand and basket are optional. TechJET is a trademark of CalComp Inc. © 1995 CalComp Inc.

Circle 40 on inquiry card

The Case for Steel Windows & Doors.

With graceful, linear sight lines Hope's windows evoke classic themes. With understated strength they seem to confer real permanence upon a building. Renowned for their visual message, and respected for their timelessness, Hope's steel windows always contribute structural integrity and



enduring performance. They will not rack, regardless of size. They can survive any environment without degradation. They do not require thermal-breaks. They eliminate the serious dry shrinkage problem now associated with rapidly aging thermal-break aluminum windows. They can be designed in any ventilator configuration, in any shape, any dimension. Hope's steel windows define their purpose immediately and eloquently. Comprehensive literature, videos and technical information are available.

HOPE'S
SINCE 1818

84 Hopkins Avenue / P.O. Box 580 / Jamestown, New York 14702-0580
716 665-5124 / Fax: 716 665-3365

Circle 41 on inquiry card

Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 68-73

Focus: HOPE Center for Advanced Technologies Smith, Hynchman & Grylls Associates, Inc., Architect
Entrances and sliders: Besam, Inc. Panic bars: Von Duprin. Ceilings: USG Interiors; Hunter Douglas Architectural Products. Special coatings: Triarch Industries (Duroplex). Paints: Sherwin-Williams; Glidden. Embossed stainless-steel panels: Baker. Rubber flooring: Freudenberg (Nora). Column covers: Pirelli. Office furniture: Steelcase, Inc. Incandescent fixtures: BEGA. Fluorescents: Zumtobel. HID lighting: Holophane. Elevators; custom-enclosure escalator: Otis.

Pages 82-85

Dance Theater of Harlem, New York City Hardy Holzman Pfeiffer Associates, Architect
Exterior brick: Ram Building Products (Bartex). Glazed masonry units: Trenwyth Industries. Insulating light-transmitting panels: Kalwall Corp. Aluminum windows: TRACO. Slate-pattern shingles: Eternit. Locksets: Schlage Lock Co. Acoustic ceiling panels (studio): Tectum, Inc. Glazed interior partitions: Raco. Special wall coating: Triarch Industries (Duroplex). Paints: Benjamin Moore

Terrazzo-tile flooring: PermaGrain Products, Inc. (Armstone). Fluorescent lighting: National Lighting Co. (custom perforated-metal enclosures). Prismatic-reflector fixtures: Beta Lighting. Down-lighting: Lightolier, Inc.; Zumtobel. Elevators: Dover.

Pages 86-91

Library and Technology Center, Baruch College Davis, Brody & Associates, Architect
Brick and terra-cotta renewal: Restoration Concepts. Wood windows: J. Zeluck, Inc. Atrium skylight: Fisher Skylights. Entrances: Dawson Door Co. Revolving doors: Crane Fulview. Wood doors: Weyerhaeuser Co. Paints: Benjamin Moore. Curved stair: Zephyr. Stainless-steel fabrications: I.D.A. Linoleum: Forbo (Marmoleum). Acoustical ceiling and suspension grid: USG Interiors. Interior lighting: Edison Price; Elliptipar (atrium); Lam; Winona Lighting (lobby). Exterior: BEGA; Rambusch Co. Furnishings: Knoll International (Pensi Collection seating; Brno and Wassily chairs; Pfister lounge; Platner table). Elevators: Dover. Cement terrazzo: Magnan.

Pages 92-93

Pocantico Conference Center
Herbert S. Newman & Partner PC, Architect
Entrances: Ellison Door Co. Glazing: PPG Industries. Paints: Benjamin Moore. Reception desk, tables, and seating: Thos. Moser. Leather seating (lecture hall): Matteo Grassi. Suspended metal ceiling: Avpro.

Pages 94-97

Admission Center, Brandeis University
Mark Simon with Mahad Saniee of Centerbrook Architects
Aluminum and glass entrance: LEED/Himmel Industries, Inc. Paints: Benjamin Moore (eggshell); PPG (flat). Reception and conference furnishings: custom design by Centerbrook Architects. Fluorescent lighting: ICE; Halo; Lithonia. Exterior fixtures: Kim Lighting.

Pages 98-101

Ustate/U.S. Robotics
Valerio Dewalt Train Associates, Architect
Entrances: Tempglass. Custom woodwork and casework: Barsanti Woodwork Corp. Stencils: Miller-Wagenaar Studio. Resilient flooring: Forbo. VCT: Armstrong World Industries. Custom balustrade and railings: P.I.W. Corp. Corridor carpet: Shaw Industries.

Corrections

- Bercat Construction should have received credit as construction manager for the Chiat/Day offices in New York City [RECORD, Sept. 1994].
- The photo of Danadjieva & Koenig Associates' design "Future Park" [page 12, Nov. 1994 RECORD] should have been credited to Peter Xiques.
- Though undoubtedly good looking from any angle, the Simpson doors featured in February's New Product coverage, page 41, appeared upside down.

Announcing a CSI Exclusive—

The Construction Contract Administration Module

"Finally documentation that promotes harmony and the win/win attitude needed to produce a successful project. The new CCA module presents the basic responsibilities of the owner, A/E, and contractor in the construction contract administration process."

Paul W. Simonsen, FCSI, CCS
Director of Specifications
RTKL Associates Inc., Baltimore, MD

"The new CCA Module of the MOP addresses the subject of contract administration with a perspective that consulting engineers will relate to and find useful. It provides a what-to-do commentary on the process of construction contract administration that will help improve the practice of CCA."

Robert M. Seipold, CDT, CSI
Construction Engineer
HDR Engineering, Inc., Omaha, NE

CSI's Manual of Practice (MOP) has long been acknowledged as the industry's most comprehensive guide to construction documentation. Now with its new Construction Contract Administration Module, the MOP has no equal.

This newest module of the MOP offers contract administrators a single source of reference tools for administering construction contracts efficiently and effectively. Other MOP

modules provide guidelines for specifications writing and aiding product representatives in understanding project manuals.

Make your mark in the next century, use the guide with a history of setting standards.

Order your *Manual of Practice* today by calling the Construction Specifications Institute at

(800) 689-2900



Advancement
of Construction
Technology

AWAPLAN



© 1993 TAMKO ROOFING PRODUCTS, INC.

CREATED TO DEFY THE POWERS OF NATURE.

Once in a great while, a new product is created that makes its predecessors obsolete. In the world of roofing that product is Awaplan—America's first SBS-modified polyester roll roofing.

Crafted to withstand the perils of heavy roof traffic and building movement, it continues to be the standard in roll roofing, displaying extraordinary elasticity, tensile strength, tear strength, and puncture resistance.

Triumph over the elements with the legendary strength of Awaplan.
Call 1-800-641-4691 ext. 284 for more information.

TAMKOTM
ROOFING PRODUCTS

Circle 43 on inquiry card

adaptability
 beauty
 longevity

FOLLANSBEE® ROOFING METALS

at home around the world

TCS® and Terne roofing metals, produced by Follansbee, are responding to the world's design needs, simply because they are adaptable to structures which express the cultural character of various countries.

TCS—terne-coated stainless steel—and Terne are being specified for prominent buildings in the Near and Far East, in the British Isles, and throughout Europe. These Follansbee metals not only meet the architectural needs of the designers, but offer a beauty and longevity unmatched by other roofing metals.

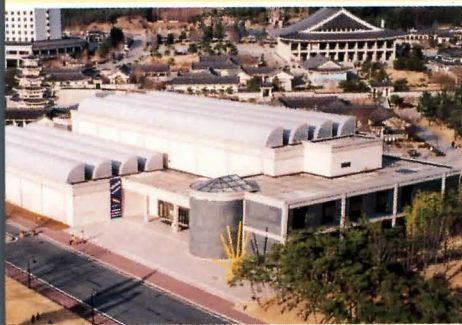
We will be happy to send you substantiating evidence of the suitability of TCS or Terne for your next project ...wherever it might be.

ENGLAND



Arena
 Stockley Park, Heathrow
 Architects: Arup Associates

KOREA



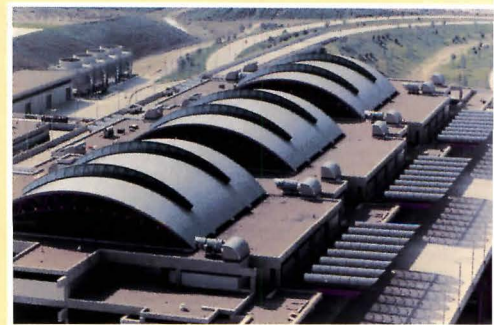
Keishu Art Museum
 Seoul, Korea

JAPAN

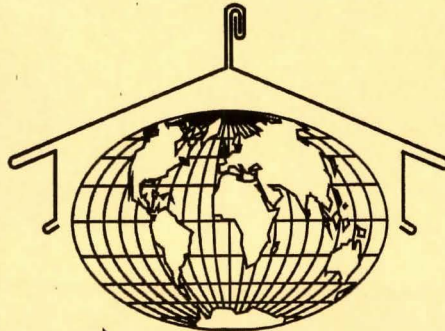


Dazaifu Treasures Museum
 Tokyo, Japan
 Architects: Satoh Total Planning and Architecture

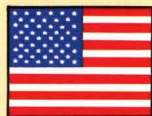
UNITED STATES



International Airport
 Pittsburgh, Pennsylvania
 Architects: Tasso Katselas Associates



FOLLANSBEE® STEEL
 World Class Roofing

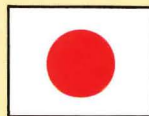


MADE IN U.S.A.
 and available



in the UK and in Europe
 through
FOLLANSBEE UK, Ltd.
 44-81-367-6463
 and

BRODERICK STRUCTURES
 44-483-750-207



in the Pacific Rim
 through
SUMITOMO
 (03) 3237-4134

TERNE...the beauty of color
TCS®...beauty by mother nature



FOLLANSBEE®

FOLLANSBEE STEEL • FOLLANSBEE, WV 26037

Call us toll-free 800-624-6906

Circle 85 on inquiry card



FROM THE REMNANTS OF FIRE
COMES THE SECRET TO CONTAINING IT.

NOW UL WITNESSED

Ash. Cinders. Material that can burn or melt no longer. That's the essence of the THERMAFIBER® Fire-Containment System for curtain wall construction. A complete system of THERMAFIBER CW FireSPAN® and THERMAFIBER safing insulation, with an added option of FIRECODE® smoke penetration compound, that resists temperatures up to 2,000°F (while glass fiber insulations begin to disintegrate at 1,050°).

It's the only fire containment system witnessed by Underwriters Laboratories for a two- and three-hour rating. And it's only available from USG Interiors.

For superior fire containment, call (800) 950-3859 and ask for more information about THERMAFIBER.

©1994, THERMAFIBER®, FIRESPAN® and FIRECODE® are registered trademarks of USG Interiors, Inc. Second in a series of landscape photographs by Gary Irving. For a poster, while supplies last, call (800) 950-3859.

USG Interiors

Circle 86 on inquiry card