DETROIT SCIENCE CENTER, BY WILLIAM KESSLER AND ASSOCIATES

SUCCESSFUL ADD ON: THE EAST CAMBRIDGE SAVINGS BANK

LAW SCHOOL, UNIVERSITY OF MINNESOTA, BY LEONARD PARKER ASSOCIATES

POSTURES: TWO EXPERIMENTAL DESIGN PROJECTS FOR HOUSES

BUILDING TYPES STUDY: DESIGN FOR THE PERFORMING ARTS

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

APRIL 1979 4 A McGRAW-HILL PUBLICATION FIVE DOLLARS PER COPY

FOLLANSBEE

FOLLANSBEE STEEL CORPORATION FOLLANSBEE, WEST VIRGINIA
FOR FURTHER INFORMATION CALL TOLL-FREE 800/624-6906

St. Procopius Abbey is an impressive example of contemporary architecture, and like many other recently erected buildings of comparable distinction, it is roofed with TCS (terne-coated stainless steel). There is an inherent logic here, for TCS is unmatched in its resistance to corrosion, never needs maintenance if properly installed, and weathers to a uniform and attractive warm gray. Thus excellence of product complements excellence of design.

TCS: THE LOGICAL CHOICE

Circle 2 on inquiry card

ST. PROCOPIUS ABBEY, LISLE, ILLINOIS ARCHITECTS: LOEBL, SCHLOSSMAN & HACKL, CHICAGO, ILLINOIS ROOFING CONTRACTOR: SYTSMA SHEET METAL, INC. BRIDGEVIEW, ILLINOIS

WATTS NEW

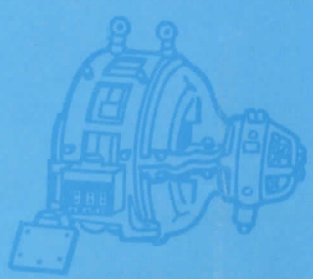
ENERGY MANAGEMENT VIEWS FROM THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION VOL. III, NO. 1

THE ENERGY SITUATION — VIEWED FROM 20-20 HINDSIGHT.

It's difficult to tell when the turning point actually occurred. Perhaps it was in 1950, when we began to import oil because it was cheaper than oil produced at home. By 1973, we were helplessly addicted to foreign oil, at any price. Maybe it was in 1978, when we began to quietly import natural gas.

It might have been in 1979, when the country finally began to try and conserve energy. The "Energy Conservation Standards for New Buildings Act," PL-94-385, Title III, emphasized the need to conserve energy, beginning with new building design. Plenty of examples were constructed in the early 1980s, showing what could be done when the architects were given energy efficiency as the design priority. But it wasn't enough. By then, the trend was already irreversible.

Maybe the problem was just too subtle to get the support of a majority of voters. It had accomplished its insidious damage before the symptoms really became obvious. From this perspective it now seems probable that it was consumer apathy that did us in. That should have been obvious by 1980. If only we could have seen where we were headed.



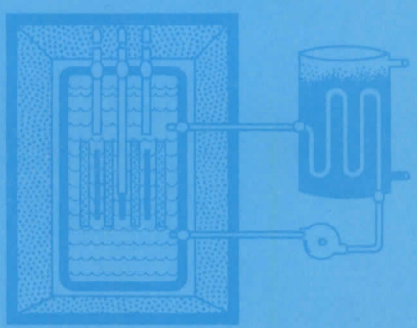
The economics of supplying power for manufacturing shifted to electricity sometime shortly before 1985. Even though the cost of electricity was climbing, it became more profitable to run plants with energy created from coal, uranium, or hydro-power.

Imported oil had gotten scarce at any price, and gas production from new methods such as coal gasification didn't pan out as expected. Neither did oil from shale. Attempts to import the enormous amounts needed were turned back by foreign suppliers who decided that the American dollar was no longer a viable medium of international exchange.

In retrospect, the final turning point may have occurred in 1988.

By then, the voters had a taste of life with $10,000 automobiles that averaged 27.5 miles per gallon of gas that cost $2.25 per gallon. Inflation became hopelessly confused with capital gains. Strangely, it wasn't until then that public demands for more electric generation began. But the damage had been done.

There we were, with hundreds of years of coal in the ground. But we could not mine it fast enough, and we could not burn it clean enough. By then, nuclear power was closed out as an option and it was impossible to restart the construction program that was abandoned in 1985 when delays had lengthened the time to build a new generator to nearly 20 years.



Looking back, the biggest problem was probably one of values. We just couldn't seem to put the necessary effort into new energy sources and expansion of electric power. Too many people just refused to face reality. Too many people just would not believe that this could ever happen to our country. They just could not accept that we had to pay the price one way or another. And the Congress went along with them.

If only they could have believed ...if only they could have believed... if only...

Of course, all of the above is pure fiction. Maybe it is pure entertainment. But, then again, truth sometimes turns out to be stranger than fiction. Whether this scenario becomes fact, or remains fiction, is crucial to our existence as a nation. As you plan for the future, contemplate these things. And depend on a qualified electrical contractor because "if electricity makes it possible, qualified electrical contractors make it practical."

If you are a designer or manager of energy-efficient buildings, we have a free offer for you. Write on your letterhead that you read this page and we will send you a copy of the Total Energy Management Handbook — the most comprehensive guide to energy conservation in buildings yet published. Write soon, because the time for options is growing shorter, and shorter, and shorter...

THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
Department AR-49
7315 Wisconsin Avenue
Washington, D.C. 20014

Circle 4 on inquiry card

Letters to the editor

What a perfectly beautiful and *important* issue (RECORD, December 1978, "Federal architecture: An agenda for quality).

James Stewart Polshek, Dean
The Graduate School of
Architecture & Planning
Columbia University
New York City

I was shocked to see in the December 1978 RECORD a quote of an inaccurate statement from the book *The Federal Presence: Architecture, Politics and Symbols in United States Government Buildings* by Lois Craig, published by MIT Press.

I refer to the statement that the Wright Brothers Memorial at Kitty Hawk was designed by the Quartermaster Corps.

Actually, this design was the result of one of the most successful competitions ever held in the United States. Won by Alfred Easton Poor, it was recognized by the competitors and by architects at large as brilliant.

And give a big hand to Al Poor, who while approaching 80 years of age may still receive the AIA Gold Medal for a distinguished career.

George Cooper Rudolph, AIA
Rudolph, Russell & Fleury
New York City

The December 1978 issue of ARCHITECTURAL RECORD was outstanding.

Those of us involved in renovating and reclaiming beautiful landmark buildings are proud when feature articles are presented in such a professional manner.

Thank you for enlightening all of us in the field of architecture of the number of GSA projects that have been accomplished.

Wayne R. Winsor, AIA
Winsor/Faricy Architects, Inc.
St. Paul, Minnesota

In the December 1978 issue of ARCHITECTURAL RECORD [page 84], the architects for the Federal Office Building in Santa Rosa, California, should be identified as Roland/Miller/Associates, Frank L. Hope & Associates, Joint Venture Architects.

Craig W. Roland
Roland/Miller/Associates
Santa Rosa, California

I read with interest the letter from R. E. Cumrine, FCSI, AIA [RECORD, November 1978, page 157] on the free interchange of information, and concur with it 100 per cent.

The golden rule of the Society of American Registered Architects is "architect helping architect." W. Gregson, FARA, of Atlanta had that as his basic credo when he established SARA in 1956.

It works. Our members throughout the country call on one another for information and help, which is given freely. More often than not, it works to the benefit of both men, as we borrow from each others' expertise and often wind up collaborating. I know of no case where a job or fee has been stolen. And if more of us cooperated, architecture would be a better and happier environment to work in.

Jerome Salzman, FARA
Past National President
SARA
Chicago

In your August 1978 editorial ["Some thoughts about all those young people in architecture school. . .", page 13], you argued that the graduate looking for a job is a talented survivor who has got that far mostly on his or her own. In response to that editorial, the president of the National Council of Architectural Registration Boards, in a letter published in the October 1978 ARCHITECTURAL RECORD [page 4], applauded your editorial and also enlightened your readers about the Intern-Architect Development Program.

Since February 1976, much has been said about the IDP, and in each case the program has been explained in terms of the architectural school graduate. The IDP Pilot Program, sponsored by the NCARB, AIA, ACSA, and ASC-AIA, was composed of 100 architectural school graduates. It appears to me that a large group of individuals has been excluded from any consideration in the IDP and in your editorials. I am talking about the draftsman who does not have an architectural degree—that group of very talented individuals who turn a mass of illegible sketch paper into contract documents.

If one reviews the registration requirements of 50 states and four territories, he finds that only two states require architectural degrees for licensing. That's less than four per cent. Yet your editorial and the NCARB strongly support the architectural school graduate as if the graduates were the only people qualified to be architects.

In the past nine years, I have worked for four different architectural firms. Of the six principals involved, only one was a graduate of an architectural school; and of the remaining five, only one had a college degree of any kind.

In closing, let me say that this letter is not an attack on the college graduate or the importance of a college degree, but only to say that there are a lot of hard-working, ambitious individuals besides the graduate who need the help and encouragement of the architectural profession.

James E. (Eddie) Grimsley
Hattiesburg, Mississippi

Calendar

APRIL

7-10 The 67th Annual Meeting of the Association of Collegiate Schools of Architecture, Savannah, Ga. Contact: ACSA, 1735 New York Ave., N.W., Washington, D.C. 20006.

17-18 Two-day lighting seminar workshop conducted by Abe Feder, sponsored by *Interior Design*; New York City. For information: *Interior Design*, 850 Third Ave., New York, N.Y. 10022.

18-21 Recreation Planning and Development Conference, co-sponsored by the AIA, American Planning Association, American Society of Consulting Engineers, American Society of Landscape Architects, Institute of Transportation Engineers, and the Transportation Research Board. Contact: William Ayer, ASCE, 345 E. 47th St., New York, N.Y. 10017.

19-20 Professional Marketing Workshops, sponsored by BIDS, Inc.; at Embassy Row, Washington, D.C. Contact: BIDS, Inc., 1301 20th St., N.W., Washington, D.C. 20036.

20-21 National Conference on Rural Preservation, sponsored by the National Trust for Historic Preservation; Annapolis, Md. Contact: Samuel N. Stokes, National Trust for Historic Preservation, 740 Jackson Place, N.W., Washington, D.C. 20006.

26-27 Passive Solar Workshops, sponsored by Passive Solar Associates; the Holiday Inn, Philadelphia. Contact: Passive Solar Associates, P.O. Box 6023, Santa Fe, N. Mex. 87501.

MAY

6-21 The Tokaido Travelor's Architectural Tour of Japan. Contact: The Tokaido Travelor, 10225 S.W. 130 Lane, Miami, Fla. 33176.

11-15 National Solar Heating & Cooling Workshops & Product Exhibit, sponsored by the Solar Energy Industries Association; Anaheim Convention Center, Anaheim, Calif. Contact: SEIA, 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

17-21 "Old Buildings . . . Presents From the Past: A Renovation and Preservation Idea Market," sponsored by the Utah State Historical Society; to be held in Salt Lake City. Contact: Larry Jones, Utah State Historical Society, 307 W. 220 South, Salt Lake City, Utah 84101.

22 Seminar, "Design/Build & the Law (for Architects, Engineers & Owners)," The Halloran House, New York City. Contact: Charles E. Hamlin, ARCHITECTURAL RECORD SEMINARS, 1221 Avenue of the Americas, New York, N.Y. 10020 (212/997-3088).

23-24 Seminar, "Developing Design Opportunities in the Commercial Building Market," The Halloran House, New York City. Contact: Charles E. Hamlin, ARCHITECTURAL RECORD SEMINARS, (see May 22).

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER) (USPS 132-650)
April 1979, Vol. 165, No. 4. Title® reg. in U.S. Patent Office, copyright© 1979 by McGraw-Hill, Inc. All rights reserved. Copyright not claimed on front cover and editorial four-color separations. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, and The Architectural Index.
Quotations on reprints of articles available. Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, 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, N.Y. 10020.
OFFICERS OF McGRAW-HILL PUBLICATIONS COMPANY: president, Gordon L. Jones, group vice presidents: Gene W. Simpson, James E. Boddorf; senior vice presidents: Russell F. Anderson; Ralph R. Schulz, editorial; vice presidents: James E. Hackett, controller; Thomas H. King, manufacturing; Robert L. Leyburn, circulation; John W. Patten, sales; Edward E. Schirmer, international.
CORPORATION OFFICERS: Harold W. McGraw, president, chief executive officer and chairman of the board; Robert N. Landes, senior vice president and secretary; Ralph J. Webb, treasurer.
ASSOCIATED SERVICES/McGraw-Hill Information Systems Co.: Sweet's Catalog Files (General Building, Engineering, Industrial Construction and Renovation, Light Residential Construction, Interiors), Dodge Building Cost Services, Dodge Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Management Control Service, Dodge Construction Statistics, Dodge regional construction newspapers (Chicago, Denver, Los Angeles, San Francisco).
SUBSCRIPTIONS: Subscriptions solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders. Please allow 4-12 weeks for shipment. Subscription rates for U.S., U.S. Possessions: $21.00 for architects, engineers and others in the field served; all others $29.00. In Canada: $23.00 for architects, engineers and others in the field served; all others $31.00. In all other countries: $40.00 for architects and engineers; all others $49.00. Single copy price $5.00, except the mid-May issue which is $5.95.
GUARANTEE: Publisher agrees to refund that part of subscription price applying to unfilled part of subscription if service is unsatisfactory.
CHANGE OF ADDRESS: Forward changes of address or service letters to Fulfillment Manager, Group A, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, NJ 08520. Provide both old and new address, including zip code; if possible attach issue address label.
PUBLICATION OFFICE: 1221 Avenue of the Americas, New York, New York, 10020. ARCHITECTURAL RECORD (UPS 132-650) published monthly except May, August and October when semi-monthly, by McGraw-Hill, Inc. Controlled circulation postage paid at Strasburg, VA.
POSTMASTER: PLEASE SEND FORM 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.
THIS ISSUE is published in national and separate editions. Additional pages of separate editions numbered or allowed for as follows: Western Section 32-1 through 32-4.

Wait 'til you see the light.

Holophane Interior Lighting/Ceiling Systems.

Architects, and a lot of other people, appreciate beautiful ceilings.

That's why they look to Holophane® for interior lighting/ceiling systems.

All the ceiling components are engineered by Johns-Manville. So our complete systems are not only beautiful on the outside, they have inner beauty, too.

Because good ceilings start with good lighting, J-M gives you a broad choice of high performance, energy-efficient fluorescent and HID luminaires.

Then, we provide a grid suspension that adds crisp lines to the total look, integral air handling, and a selection of acoustical panels.

These components can be formed into a variety of ceiling modules – giving you the freedom to create virtually unlimited design themes.

Ask your local Holophane sales representative to go over all the facts and figures with you, including ESI, STC and NRC information.

You can also consult Sweet's Div.13 or contact Larry Edwards or Neil Thompson, Johns-Manville Sales Corp., Holophane Div., P.O. Box 5108-AR4, Denver, CO 80217. Phone: 303/979-1000.

JM

Johns-Manville

Circle 5 on inquiry card

Interstitial steel frame helps hospital achieve optimum space flexibility...

costs 20% less than competitive framing systems considered.

How do you design a full-range, 404-bed health care center, integrate it with a medical teaching curriculum, and blend it architecturally into the surrounding retail community? That was the problem facing the designers of Thomas Jefferson University's new Clinical Teaching Hospital, Philadelphia, Pa. The solution: A ten-story, steel-frame building arranged around horizontal and vertical circulation spines. The spines run from the basement to the penthouse and east-west through the center of the building. The conventionally framed portion of the structure is located north of two large 56-ft x 120-ft skylighted courtyards. This portion, fed vertically from the mechanical penthouse, contains all bedrooms and physicians' offices. The interstitial section extends the length of the site on the south side of the spine. Odd-numbered floors contain diagnostic and therapeutic facilities; even-numbered floors include interstitial space framed with steel trusses 84 ft 5 in. long. The interstitial spaces house mechanical services for the intervening floors and are flanked by additional spaces for physicians' offices.

Economy points to steel

"Steel was the outright winner in cost savings against other structural systems," reports Charles C. Ang, chief structural engineer, D'Ambly, Inc., consulting engineers. "Considering material costs, fabrication, erection, and engineering time, we estimated that steel could save between 15 to 20 percent over other framing systems on this project."

Beyond this several other reasons for selecting steel were cited:

(1) "Rapid erection of the structural frame was critical to the building's fast-track construction schedule.

(2) "The program requirement for flexible space arrangement on the ancillary floors involved long, clear spans suitable only for steel trusses.

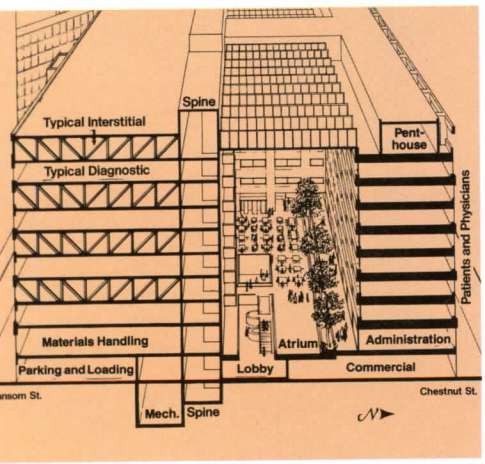
(3) "Longer than average spans and minimal ceiling cavity space required that deflection control be achieved with minimum-depth members. This was dictated by the mechanical services required in the patient care and physicians' offices."

Story-high trusses

Much of the steel frame is conventionally designed using steel columns, beams, and girders with spandrel trusses supporting the architectural curtain wall.

The interstitial service area utilizes story-high trusses which support a 3-in. composite steel floor deck topped with 2½ in. of concrete. An inverted cellular steel floor deck is installed in the interstitial areas.

Our Sales Engineers offer a broad variety of technical and advisory services. They'll be happy to give you the details. For more information, get in touch with a Bethlehem Sales Engineer through one of the Bethlehem sales offices listed below. Bethlehem Steel Corporation, Bethlehem, PA 18016.



Cross-sectional view shows how patient rooms are separated from diagnostic areas by a building-high atrium.

(ABOVE CENTER) The 750,000-sq-ft Clinical Teaching Facility is essentially a series of smaller, administratively autonomous hospitals stacked vertically within one building.

(ABOVE LEFT) All ductwork, plumbing, electrical distribution, and large pieces of equipment are arranged within the interstitial spaces to permit future revisions to rooms without disrupting adjacent spaces.

(LEFT) A building-high atrium separates the patient care areas from the diagnostic and treatment areas. A dining area, located on the deck of the atrium, serves visitors, students, and staff. Glass-enclosed elevator lobbies overlook the center court.

(ABOVE RIGHT) A steel-framed bridge, utilizing curved beams to accommodate differences in floor levels, connects the new building with the existing hospital.

Owners: Thomas Jefferson University, Philadelphia, Pa.
Architect: H2/L2 Architects/Planners, Philadelphia, Pa.
Consulting Engineers: D'Ambly Inc., Philadelphia, Pa.
Prime Contractor for Structural Steel: Lehigh Structural Steel Co., Allentown, Pa.
Sub-Contractor for Erection: Cornell & Company, Philadelphia, Pa.
General Contractor: Hospital Constructors, A Joint Venture of R. M. Shoemaker Co. and Irwin & Leighton, Inc., Philadelphia, Pa.

The Alfred C. Glassell, Jr. Art School of the Museum of Fine Arts of Houston was designed by S.I. Morris Associates and constructed by McGregor Construction Company.

SOLAR REFLECTIVE GLASS BLOCK.

A BEAUTIFUL NEW ALTERNATIVE IN HIGH-PERFORMANCE GLASS.

Solar Reflective Glass Block from Pittsburgh Corning is a beautiful way to save energy. And at the Alfred C. Glassell, Jr. Art School of the Museum of Fine Arts of Houston, Texas, it helped create a masterpiece.

A masterpiece of beauty because outside Solar Reflective Glass Block draws the character of natural surroundings into the design and reflects it back with brilliant articulation. It's beautiful inside, too. A wall of Solar Reflective Block shields against external sounds while providing a source of light, opening a quiet view of the world.

Solar Reflective Glass Block helps create a masterpiece of efficiency, too. The special thermally bonded surface coating can reduce solar heat gain by as much as 80% compared to conventional ⅛" plate glass. That's equal to most high-performance plate available. And that can be reflected in both initial and long-term air-conditioning costs.

Solar Reflective Glass Block also has an average U-value of .56—the insulating equivalent of a 12-inch-thick concrete wall—so you can demand less and expect more from your heating, as well as your air-conditioning systems. For more details on both gray and bronze Solar Reflective Glass Block, write for our new brochure. Pittsburgh Corning Corporation, Dept. AR-29, 800 Presque Isle Drive, Pittsburgh, Pa. 15239.

PITTSBURGH PC® CORNING

Circle 6 on inquiry card

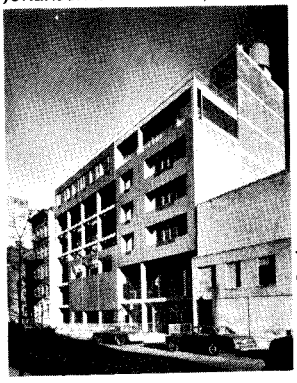
Cover: Detroit Science Center
Detroit, Michigan
Architect: William Kessler and Associates, Inc.
Photographer: Timothy Hursley/Balthazar Korab Ltd.

THE RECORD REPORTS

ARCHITECTURAL BUSINESS

FEATURES

BUILDING TYPES STUDY 529



Norman McGrath

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study: Industrial Buildings
One of the most active areas of design and construction is in buildings where products, or bits and pieces for them, are made. Amazingly, with all of the worries about the state of the economy in coming years, companies have been moving ahead with massive expenditures for manufacturing plants and similar facilities. Five of the best designed of these heavy-duty types will be features in RECORD's May study of this important field.

We've done something unusual with

Ceramic Tile!

Forms & Surfaces has developed a completely new collection of ceramic tile in colors and sizes required for today's architecture. Handcrafted unglazed pavers and glazed tiles meet specifications for commercial installations. Sizes range from 3"x 6" to 12"x 12", and include a new 6"x 6" radius-corner tile and slip-resistant textures for floors. Prices are reasonable and delivery is prompt.

Forms & Surfaces, Box 5215
Santa Barbara, CA 93108 (805) 969-4767

FORMS+SURFACES

Circle 7 on inquiry card

Some thoughts on the AIA Convention (the nub of which is if I were you I'd go)

For a number of years, before and after AIA Conventions, I've complained on this page about the lack of emphasis on design and design concerns at that great event. For example, just two years ago (February 1977): "I wonder whether—in the midst of very real concern over business conditions and search for new forms of 'expanded' or 'comprehensive practice'—do we not need to put more emphasis on what architects do best, which is design? I wonder whether—in the midst of a major professional debate over whether or not architects should 'take a piece of the action' as equity partners in a building project—do we not need to put more emphasis on what architects are uniquely qualified to do, which is to design?" January 1978: "Maybe this is a year that part of the discussion when architects get together might be on design philosophy." Well, we did get off to a start on that (albeit a controversial start) in Philip Johnson's design seminar on the last day of last year's convention.

And now anyone who has complained in the past about lack of emphasis on design has simply to applaud loudly for the concept and content of the upcoming (June 3rd through 7th) AIA convention in Kansas City—and for AIA President Bud Mitchell who, as he said he would two years ago in his early comments as president-elect—set the theme: A Celebration of Architecture.

Mind you, the program makes clear that it's not all going to be complex (and probably contradictory) talk about design: the professional development seminars will include, for example (and much to the point of today's real problems) sessions on starting and organizing your own office, creative opportunities in design-build, construction cost management, financial analysis of building projects, financial management for the small firm, effective management of local controls (zoning, for example), the architect as land developer, two sessions on two of the tenderest subjects around—"Flashings: Working Solutions . . ." and "Glass and Glazing Techniques," and of course the mandatory How to Market Design Excellence.

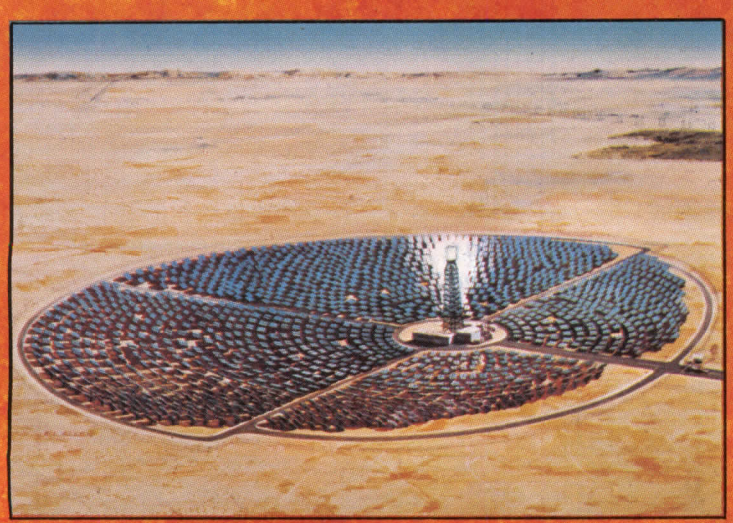
But (and here is where past complainers become enthusiasts) there will also be sessions on:

- The Pursuit of Design Excellence—"a critical discussion of the meaning of design excellence," which I really want to hear;
- "Energy Concious Design" and "Solar Designing," with emphasis on design;
- "Design Issues in Preservation," and—in a separate meeting—"an examination of the economic, functional, *social, and cultural* issues [italics added, because that is what is so often overlooked and what separates the good guys from the bad guys] that determine whether a building or neighborhood is restored or adapted—or torn down;"
- "Design Excellence in Public Architecture," which will not just outline the "decision points" but, wisely, use award-winning case-study projects;
- "Public Involvement in Urban Design," on "the contribution of site selection/planning and landscape treatment to achieve design excellence," and "Preserving Interiors."

What's more, the theme programs all relate to issues of design and its impact on the public—and one of those theme programs (Wednesday afternoon) will be a discussion by Gold Medal winner I.M. Pei, who is not just a very good designer but a very thoughtful man and who can therefore be expected to produce a very important statement on design and on the role of architecture.

And what's more, the National Honor Awards—instead of being presented as they often were in the past on the Sunday of the convention before most people get there—will be presented at 11 o'clock on Monday, right after the first business session. Which means that this important part of the Convention should get the attention it deserves. This year's Honor Awards (see Record Reports), are an exceptionally handsome and thoughtful group of buildings—and it seems to me few architects would not profit from not just viewing the Awards ceremony—but thinking about *why* these buildings have been so honored. I've had the honor to serve on many local and state juries and am amazed at the work that many architects submit for the consideration of their peers. Most juries have no trouble putting aside perhaps half of the entries as "not worth further consideration" on the first pass. Conversely, except for an argument or two, juries seldom have any real problem choosing the buildings to premiate. There does seem to be broad agreement on what good design is—whether it is a major new public building or the rehabilitation of a run-down building; but it seems that a lot of architects either don't agree with or can't approach that standard. Which suggests that attendance at this convention (and, as important, attendance at the design sessions) might be valuable for a lot of architects. —*W.W.*

FORD GLASS. HARNESSING THE SUN



Solar Farm rendering courtesy of McDonnell Douglas Corp.

Ford Glass Division's revolutionary new Powerlite™ was chosen by the Department of Energy to harness the sun's energy for electrical power. Project: the government's first solar farm, in Barstow, California.

The Ford contract includes 1 million square fee of Powerlite, to be fabricated into a mirrored reflec tive field totalling 3.6 *million* square feet.

These mirrored Powerlite receptors will computer-track the sun and beam the rays to a central collector. There, steam will be created for generation into electricity.

When operational in 1982, the solar farm will be able to provide enough electricity for a city of 7 to 10 thousand.

With near optical quality, Powerlite is ideal for both solar

The Energy Collector

Powerlite

The American Institute of Architects will present 15 Design Honor Awards at its June convention in Kansas City. The awards are almost equally divided between new buildings designed for current use (eight) and older buildings rehabilitated for extended use (seven). Details on page 41.

Design professionals and code officials advise DOE to make haste slowly in the issuance of rules for BEPS (building energy performance standards). Critics suggest a dual-path system to allow voluntary implementation of DOE's performance standards and to allow the continued use of the prescriptive ASHRAE 90-75. Details on page 36.

A bill before Congress would allow A-Es to establish tax-exempt liability protection funds. The bill, introduced by Congressman Guyer of Ohio, is designed to reduce the cost of liability insurance. Details on page 39.

January construction contracts maintained a level close to 1978's record fourth-quarter pace, despite a sharp drop in the Dodge index for housing activity, according to the F.W. Dodge Division of the McGraw-Hill Information Systems Company. Nonresidential building largely offset the housing decline, however. Factories, offices and stores all showed increases over last January "with a combined gain of better than 50 per cent" in dollar volume, said George A. Christie, Dodge's chief economist. In dollar volume, January nonresidential contracts increased 42 per cent, residential contracts 14 per cent, and nonbuilding contracts 31 per cent.

New York City's Museum of Modern Art opened a major and controversial architectural exhibit, "Transformations in Modern Architecture," surveying 400 buildings completed over the last 20 years. Details on page 37.

On February 15, the National Museum for the Building Arts opened its first exhibition in the Pension Building, its prospective home in Washington, D.C. Funds for "De Stijl: 1917-1931" were provided by Owens/Corning Fiberglas, Skidmore, Owings & Merrill, Hellmuth, Obata & Kassabaum, and Hechinger Company.

The American Bar Association has completed a model code for state and local government A-E selection, calling for procedures similar to those in the Federal government's Brooks Law. Details on page 39.

The American Institute of Architects has named 12 honorary members: William W. Chase, chief of the school construction branch, Office of Education, Department of Health, Education and Welfare; Rear Admiral Donald C. Iselin, commander of the Naval Facilities Engineering Command; Gerre Jones, marketing/public relations consultant; Maureen Marx, director of AIA's membership procedures; Janet W. Solinger, director of the Smithsonian Resident Associate Program; Judge William S. Fort, author of *The American Courthouse: 1973—Planning and Design for the Judicial Process;* Ruth Fuller, executive director of the Houston Chapter/AIA; Donald J. Hall, developer of Kansas City's Crown Center Complex; Ian L. McHarg, landscape architect/planner/educator/author/lecturer; David S. Miller, professional consultant, and chairman of the board of the National Institute of Building Sciences; and John Yeon, designer and conservationist.

GSA has lowered the thermostats in all Federal buildings to 65F during working hours, and to 55F during nonworking hours, in response to the President's call for fuel conservation. If temperatures "drift" above 65F because of lamps and insolation, GSA expects "common sense" to prevail over use of mechanical cooling.

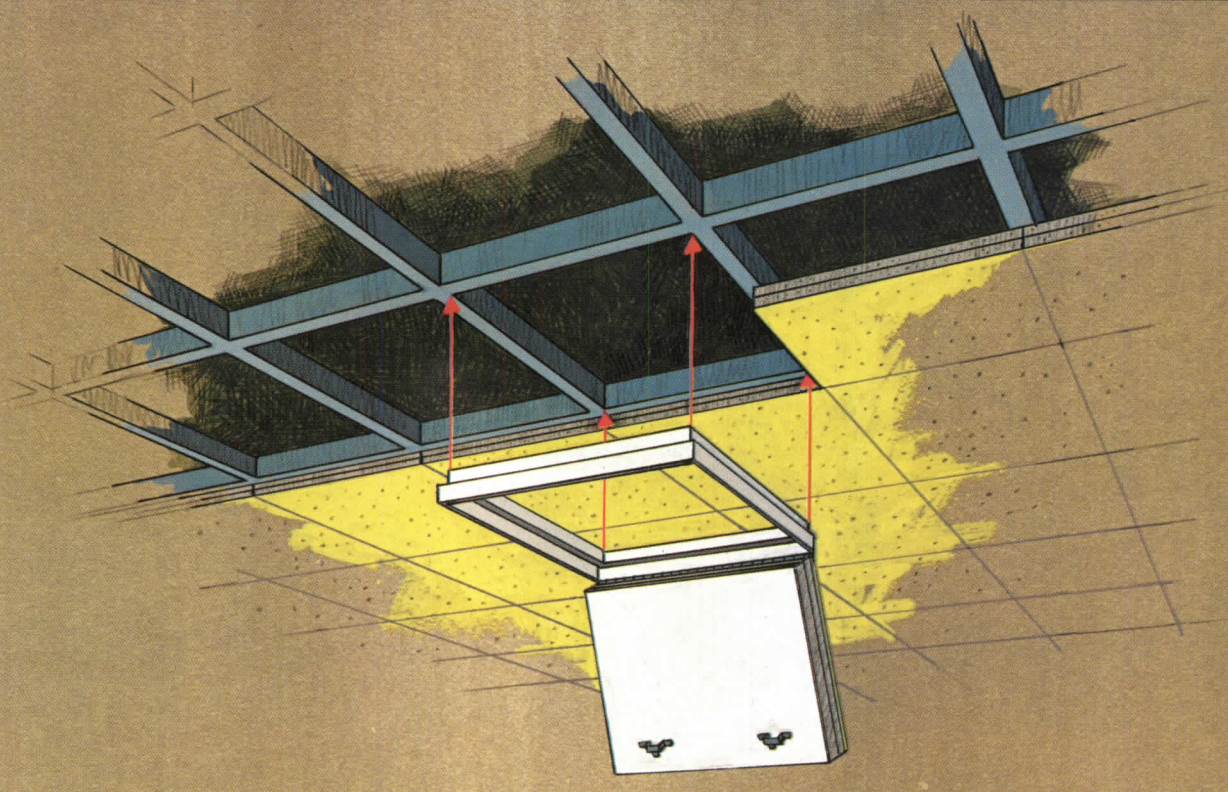
The NOW Legal Defense and Education Fund will sponsor a panel on "New Architecture for New Family Needs" in late May in New York City as a kind of curtain-raiser for its National Assembly on the Future of the Family November 19, also in New York City. Walter Wagner, editor of ARCHITECTURAL RECORD, will moderate the panel, which will consider urban and suburban architecture to house nontraditional families.

Ten American architectural educators will visit architectural schools and technological institutions in China on a tour lasting from April 1 to April 22. The delegation, led by Elmer E. Botsai, past president of the American Institute of Architects, will also include Chinese architectural offices, communes, neighborhoods, markets, department stores and significant historic and cultural sites in its itinerary.

A two-day conference in Indianapolis will focus on "Access to Recreation: Barrier Free Facilities and Parks." The regional meeting, to be held July 11-12, is directed at architects, planners and other designers, as well as park administrators. For information: Virginia Sheets, Indiana Department of Natural Resources, Division of Outdoor Recreation, 612 State Office Building, Indianapolis, Indiana 46201.

The Milwaukee Public Library will house the newly established Wisconsin Architectural Archive, and offers the use of its collected drawings and documents to scholars and practicing architects. The archive, which is privately funded, is under the direction of curator H. Russell Zimmerman.

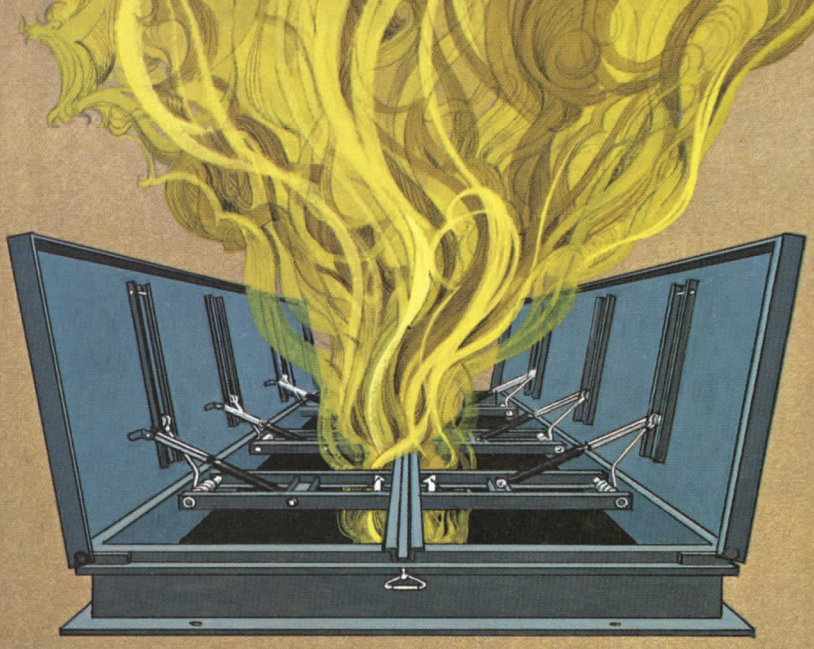
What's New in Doors & Vents from Inryco?



Milcor® Brand Steel Access Door for Fire Resistive Suspended Drywall Ceilings.
Door panel is recessed to receive double layer of wallboard or layer of wallboard and layer of ceiling tile to maintain integrity of fire resistive ceiling surfaces. Inside frame is offset for installation in ceiling supporting grid system without additional framing or grid adjustments. Units are custom sized to match modular sizes of wallboard and tile, eliminating material waste.

Catalog 33-1 describes this and other styles of Milcor access doors for walls and ceilings. See Sweet's, section 8.12/Inr, or send for your copy.

Circle 21 on inquiry card



Big Smoky™ – Heat and Smoke Vents for 5′ 0″, 5′ 6″ and 6′ 0″ Joist Spacings.
The first automatically operating Heat and Smoke Vent available in economical steel construction in widths to span wide joist spacings...permitting installation without special supplemental framing. Furnished in lengths from 6′ 0″ thru 12′ 0″. Underwriters' Laboratories listed and Factory Mutual approved. Also available in aluminum.

Catalog 34-1 has complete details on Big Smoky and other Inryco/Milcor heat and smoke vents, roof hatches and floor and sidewalk doors. See Sweet's, section 7.8/In or send coupon for catalog.

Circle 22 on inquiry card

Inryco® Telescoping Door for High Traffic Openings In Industrial, Commercial and Institutional Buildings. Unique telescoping design offers many advantages over traditional vertically opening, power operated doors. Reduces maintenance costs—has no counterbalancing springs or weights, multiple hinges, pivot joints and roller guides subject to wear and tear. High reliability and damage resistance minimize down time losses. Superior draft exclusion and excellent insulating values conserve energy. Fast, quiet operation. Attractively finished with durable, two coat baked enamel. Wide range of standard and custom sizes. See Sweet's, section 8.9/In, or send for catalog 36-1.

Circle 23 on inquiry card

To receive catalogs describing any of these new and practical Inryco/Milcor products, just fill out this coupon and mail to the address shown at left below.

Please send catalogs on the products I've checked:

☐ Milcor Access Door for fire resistive drywall ceilings
☐ Big Smoky Heat and Smoke Vents
☐ Inryco Telescoping Door

Name_____

Title_____

Firm_____

Address_____

City, State, Zip_____

Inryco
an Inland Steel company

INRYCO, Inc.
Milcor Division
Dept. D-4033
P.O. Box 393
Milwaukee, WI 53201

A7-39-2

As DOE readies its BEPS, A-Es urge heedful care

Last month, as the Energy Department prepared to release its proposed rule for building energy performance standards (BEPS), it got a lot of advice to go slow and build on the energy standards already adopted by many states.

The department's schedule for release of the proposed rule has slipped at least six weeks behind its original mid-February target. And design professionals and code officials were urging additional delays so the government would not be locked into firm rules in August, as the schedule now specifies.

The department is, in addition, being urged to accept a dual-path system that would allow voluntary implementation of the rigid performance standard described in the Advance Notice of Proposed Rulemaking last fall, and that would at the same time permit the continued use of the largely prescriptive standards in ASHRAE 90-75 as long as these result in equivalent energy savings.

Maxine L. Savitz, Deputy Assistant Secretary of Energy for Conservation and Solar Applications, and the official in charge of standards development, suggests that she is amenable to the dual approach if modifications are made to the ASHRAE standard that permit its measurement in performance terms, and if some of the values are tightened up.

Jerold W. Jones, head of the Department of Mechanical Engineering at the University of Texas, suggests a middle ground—the use of subcomponent energy performance standards (SEPS). He notes that, under ASHRAE 90-75, the first attempts at developing energy standards were directed at recognizable building components and systems.

"Since the components approach subdivides buildings at the traditional interfaces with the design professions," Mr. Jones says, "it has had less impact on design practice." He goes on to say that specifying performance criteria for recognizable components eliminates the necessity of determining the complex and widely varying interactions among building component systems.

Mr. Jones, who was co-chairman of the Technical Advisory Group (TAG), the professional panel that advised the American Institute of Architects when it drew up the basic criteria for performance standards, acknowledges that the use of SEPS would not assure that "a set of energy-efficient subcomponent systems will be assembled in an optimal way." But he argues that such standards will nevertheless "result in significant energy savings."

What worries Mr. Jones is that the government will implement BEPS too quickly, without recognizing subcomponent standards or the ASHRAE approach. The result will be confusion, he feels, because design professionals and enforcement officials "simply do not have the tools, training or experience" to carry out a complete energy analysis of every building built.

Meanwhile, Dr. Savitz's staff was showing some flexibility in the implementation of the standards. Dr. Savitz says that where the Advance Notice said that seven climatic zones would be used, there is now an intention to use instead many more zones, such as those employed by the Weather Service. She also says that the building category classification system would be made more flexible by recognizing how space is used—that different parts of buildings have different uses—and that energy-use classifications will be defined to recognize this.

Dr. Savitz also reports that her staff is working to come up with a new system for houses and other light construction for which the services of design professionals are not generally employed. What the department seeks is a system that will be usable by homebuilders and others who are not working with an architect or an engineer, and which can still be verified in terms of performance. —*William Hickman, World News, Washington.*

Buffalo architects protest competition from students

Alarmed by what they perceive as professional competition from unlicensed practitioners, architects in the Buffalo area have set up a task force to study the ethical and economic impact of the recent awards of Buffalo municipal contracts to the School of Architecture and Environmental Design at the State University of New York at Buffalo.

In the past 18 months, the school has received at least $110,000 in contract work for the city's new theater district and for modernizing local housing projects. Several architects grew upset when the school appeared as a subcontractor in a bid for the preparation of a master plan for one of the city's low-income areas. Architect Robert Traynham says that the school's bid of $48,000 was only two-thirds the size of his own, and he says this amounts to unfair competition.

The role of the School of Architecture in city planning has been under study for some time now by a task force of the Western New York Chapter of the American Institute of Architects. Phillip Scaffidi, co-chairman of the task force, says that his group has worked quietly because "we didn't want to stimulate concern when it might not be justified." He reports that the task force is looking into the complaints of local architects, which he says center on the question "should the university compete with the private sector in a significant way."

Says Mr. Scaffidi, "We are seeking interpretations from both sides. We're trying to get a fair evaluation. We have received several complaints." He says that even if the university's role is found to be unethical, he does not see how the AIA's Code of Ethics could be enforced, since the university is not an individual member of the Institute. The School of Architecture does its contract work for the city using the services of students and faculty members who are not licensed architects.

Harold L. Cohen, dean of the School of Architecture, says, "My feeling is that we are a state university and the Governor and the Chancellor have asked us—mandated us—to participate in the community. We are not doing what is prohibited by law or by professional ethics."

The dean says that the city work constitutes part of the training of students who want to become planners and architects. "Since we have been involved, local people have got, I think, half-a-million dollars in requests for proposals," he argues, and continues, "We have helped and have in no way reduced the earning power of architects."

Mr. Coles, however, says that through its city work, the school "purports to practice architecture. The school charges a fee for its services. It doesn't have the overhead we have, and it uses student architects."

Architect David Stieglitz says of the school, "They claim they can do it cheaper, and they can't. They do lousy work and charge top buck, so the community of architects who are breaking their backs to make a buck in this community are starving." Buffalo, Mr. Stieglitz says, is a "disaster area" for architects, with insufficient new construction to support its small professional community.

Roland Coleman, neighborhood planning manager for the Buffalo City Department of Community Development, counters that "all contracts emanating from this office are open to any applicant." He adds, "When a professional architect looks at the theater district, he feels highly opinionated and threatened. It's subjective. All that the school has ever done for us is study, and that's all it can ever do. Working drawings are done only by licensed architects."

The local AIA task force expects to continue its study for several more months and has asked its parent organization for help. It is still interviewing architects for their views on the issue. —*Matt Gryta, World News, Buffalo.*

Defense Department resists Congressional efforts to make cost a factor in A-E selection procedures

Another battle is brewing over the way the government selects its architects and engineers.

This time the flap involves the military and a Congressional appropriations subcommittee, which last year ordered a test of a cost-as-a-factor selection procedure. Now the Defense Department says that such a test would be illegal.

The military construction agency leaders have never favored such a test, saying they prefer the traditional, most-qualified method. Nevertheless, the proposal to go forward with the test last year was ordered by the subcommittee in the conference reports of the House and Senate Appropriations Committees. What was forgotten, apparently, is that the authorization committees have each year added a provision to their act that says A-E contracts should "be awarded in accordance with presently established procedures, customs and practices."

Defense Department attorneys say that the services must be governed by the statutory law of the authorization committees rather than by the conference report of the Appropriations Committees—despite the fact that the Federal agencies usually treat conference reports as if they had the force of law.

The House Military Construction Subcommittee of Appropriations, headed by Rep. Gunn McKay (D-Utah), is pushing the issue toward a showdown, saying that it does not accept the Defense argument that a trial of the cost-as-a-factor selection procedure would be unlawful.

The subcommittee says it will continue pushing the Defense agencies to figure out a way to conduct the test or, failing that, will seek to change the language in the authorization act.

In any event, it seems likely that the two powerful Congressional panels could be at loggerheads over the A-E selection procedures.

As a practical matter, the military services buy very little architectural work. But the AIA is following the controversy because its outcome may shape the entire government's dealing with design professionals.

Defense's top official in charge of A-E procurement, Perry J. Fliakis, Deputy Assistant Secretary for Installations and Housing, clearly favors the traditional selection method. He fears that the introduction of price-as-a-factor awards "would result in price becoming the dominant factor and that the result would not be economical designs but cheap designs, in all the less desirable connotations of that word." —*William Hickman, World News, Washington.*

DOT issues progress report on its program for the arts

One year after the Department of Transportation undertook its program to enhance design, art and architecture in transportation, a progress report finds that many of the plan's goals have either been carried out or are underway, and that several agencies within DOT have issued guidelines making art and special design features in transportation facilities eligible for Federal funding.

The report says that other accomplishments so far chalked up by the program include:

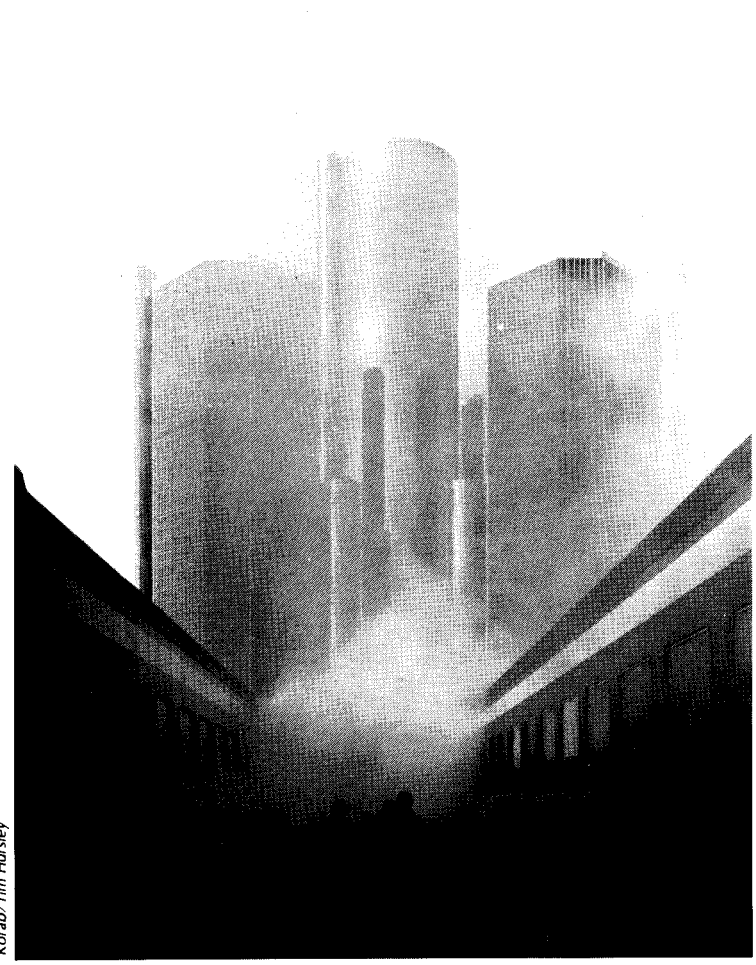
- setting aside three-fourths of one per cent of the cost of station renovation along the Boston-to-Washington Northeast Corridor rail improvement project for original works of art;
- granting $200,000 to the Atlanta airport for sculpture and other art work in a new terminal;
- granting $45,000 to the Massachusetts Bay Transportation Authority for artistic improvements to three new subway stations on Boston's Red Line;
- adding Eero Saarinen's building at Dulles International Airport to the National Register of Historic Places;
- requiring that consideration of design quality be reflected in environmental impact statements for projects funded by DOT.

Many of the first efforts of the program have been policies rather than actual accomplishments. For example, the Federal Aviation Administration has issued an order encouraging design consideration in the early planning stages of airport terminals and other facilities. And the Federal Highway Administration has begun to advocate the consideration of, in the words of the report, "esthetic factors throughout the highway development process."

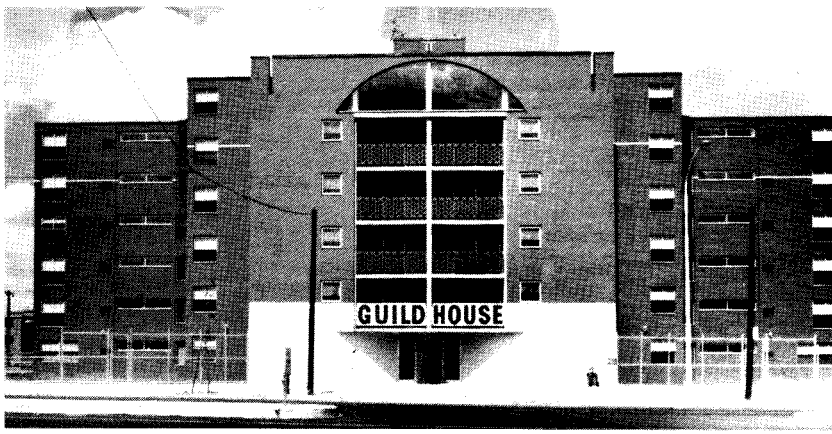
Lastly, the Urban Mass Transportation Administration has issued guidelines for using UMTA transit funds for artistic enhancement of transit facilities, and the Coast Guard is developing design guides for buildings at its major facilities.

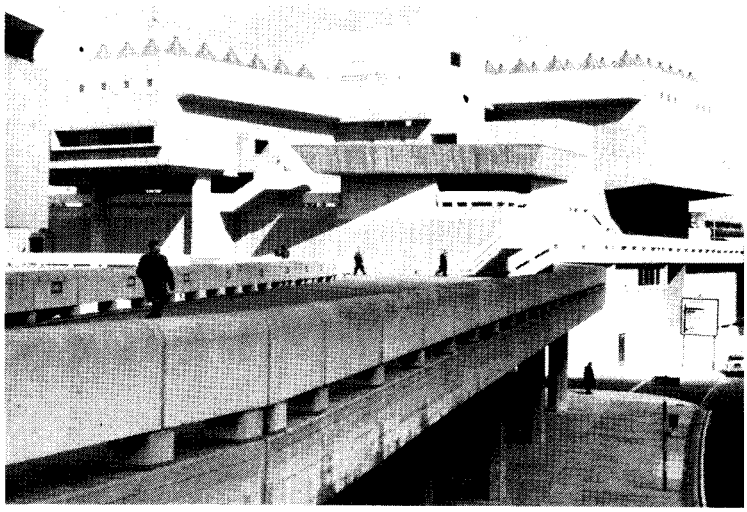
DOT is also considering such additions to the program as allocating portions of transportation grants for design and art, selecting artists to aid in renovating stations along the Northeast Corridor, and developing a training course for transportation executives and staff professionals on design quality. —*Anne Swardson, World News, Washington.*

Museum of Modern Art's current exhibition shows modern architecture as a house of many mansions



Robb/Jim Hansley





At the end of February, the Museum of Modern Art opened its eagerly awaited show "Transformations in Modern Architecture," a formidable survey of more than 400 buildings designed by more than 300 architects and completed in the United States, Canada, Mexico, Europe and Japan over the past 20 years. The collection focuses on exterior building form, using only one photograph (no plan) per building.

The show, organized by Arthur Drexler, director of the museum's Department of Architecture and Design, can be read on its most superficial level as a corrective to the "post-modern" argument that "pluralism" is foreign to "orthodox" modern architecture.

"Modern architecture is a great deal more varied than our daily experience is likely to suggest," writes Mr. Drexler in his introduction to the exhibit. "Because that variety is not easily remembered, we tend to describe as radically new, or 'post-modern,' ideas that originated 30 or 40 years ago. But the history of architecture during the last two decades has been one of sorting out, developing and transforming possibilities implicit at the beginning. . . .What has changed recently is not so much architectural practice as the way we see it and talk about it."

The show divides into three major categories:

- The sculptural, derived from post-war interpretations of Cubism and Expressionism, and encompassing such movements as Brutalism (typified here by Hubert Bennett's design for the Hayward Gallery in London, above, lower right), buildings "modeled on living organisms rather than hard-edged geometry," and those with interlocking volumes and thin planes, *à la* Le Corbusier in the '20s.
- The structural, conceived as Mies's "skin and bones" architecture, including the expression of "bones," as in William Kessler's Center for Creative Studies in Detroit, but recently most visible in the design of "skins," typified here by the reflective glass walls of John Portman's five towers at Renaissance Center in Detroit, and the theme photograph of the show, (above, top right).
- Regionalism and its vernacular variations, together opening the door to "eclectic historicizing, which may now be understood as another term for 'pluralism.' " The work of Venturi and Rauch, such as their Guild House in Philadelphia (above, top right), appears here in a subcategory titled "Complexity & Contradiction."

Mr. Drexler has also added a fourth category to the exhibit focusing on such architectural elements as windows, roofs and parapets. Moreover, the works of Louis Kahn and of James Stirling escape the established categories and receive their own sections.

The exhibit continues through April 24, and the museum will publish Mr. Drexler's catalog in June.

The only true Perlite/Urethane/ Perlite sandwich insulation.

GREFCO, Inc./Building Products Division, 3450 Wilshire Blvd., Los Angeles, CA 90010
Please send me a free sample of Permalite Pk Plus Roof Insulation.

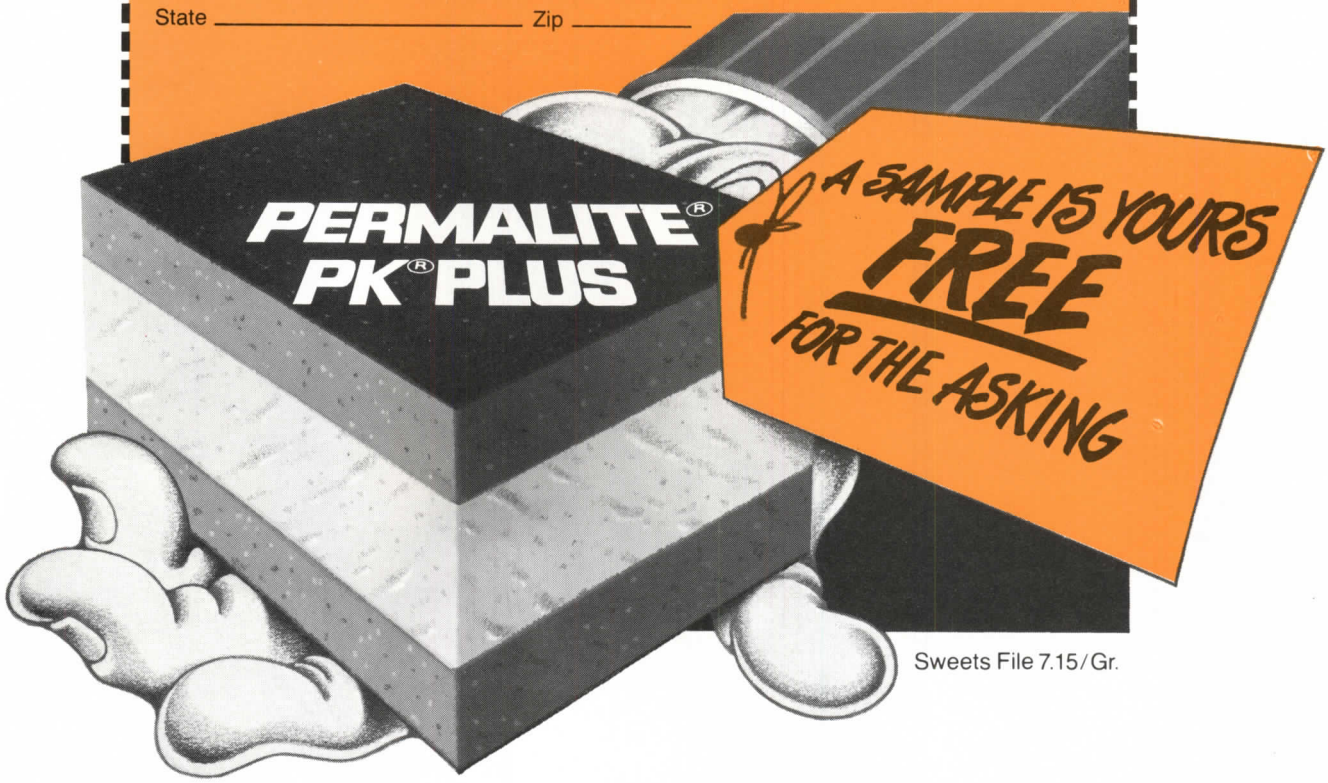
Name _____ Title _____

Company _____

Address _____

City _____

State _____ Zip _____



Sweets File 7.15/Gr.

New, more efficient, long-lasting Permalite Pk Plus is FM approved for class 1 insulated steel deck construction and for windstorm resistance classifications 1-60 and 1-90.

What makes Permalite Pk Plus so great?

- ☐ Permalite Pk Plus is a true, chemically bonded 3-part composite sandwich of perlite, urethane and perlite in which the rigid, urethane core is protected from extreme temperature fluctuations.
- ☐ In hot weather and long exposure to sun, the top perlite layer with its Sealskin® surface helps protect the BUR from excessive loss of oils and natural elasticity.
- ☐ Permalite Pk Plus helps keep the urethane warpfree and stressfree. Asphalt can be applied at normal application temperatures.
- ☐ Permalite Pk Plus is fire rated...dimensionally stable...and proven in hundreds of installations.
- ☐ Integral Sealskin® treatment of top perlite layer provides resistance to bitumen soakup and superior bond of roofing felts to insulation.

Permalite®

GREFCO, Inc./Building Products Division
General Office:
3450 Wilshire Blvd. Los Angeles, CA 90010
National Sales Office: 2905 Butterfield Road
Oak Brook, IL 60521—(312) 654-4500
Grefco A subsidiary of General Refractories Company.

Circle 24 on inquiry card

House bill would allow tax-free liability funds

Legislation proposed in Congress would allow architects and engineers to set up professional liability protection funds with tax-exempt dollars.

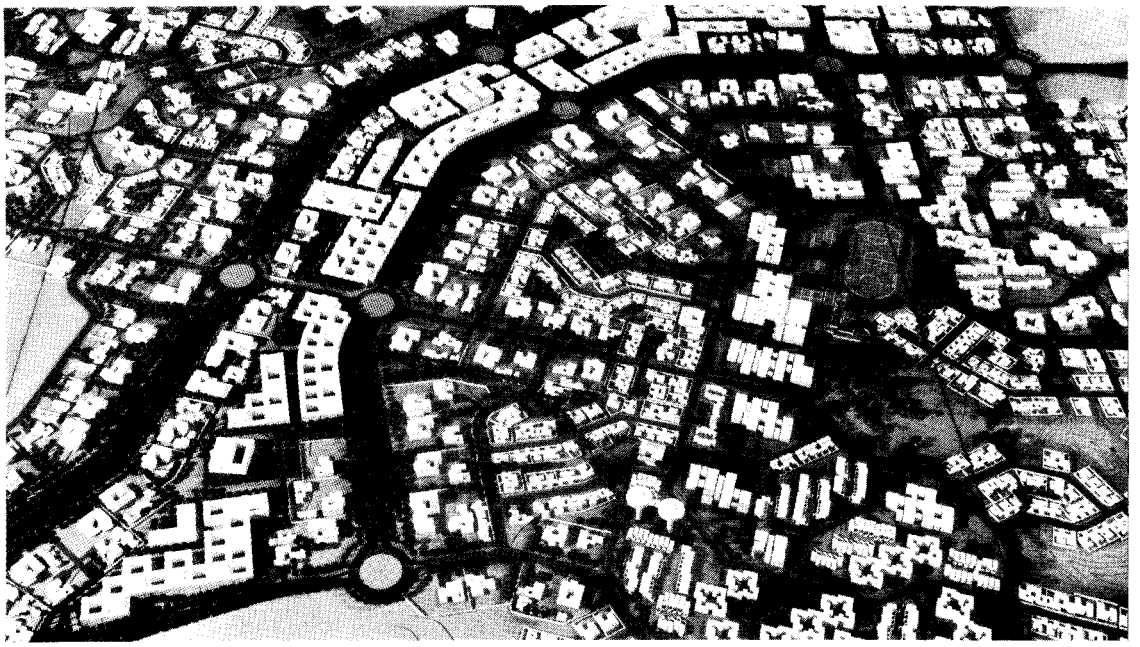
Such a fund, supported by organizations representing construction design professionals, is not expected to equal the amount of potential liability exposure, but it should permit practitioners to raise the amount of the deductible and thereby qualify for lower premiums.

Rep. Tennyson Guyer (R-Ohio) introduced the bill (H.R.2341), which he calls the Product Liability and Professional Design Liability Tax Equity Act. While it would cover manufacturers and A-Es, it is carefully crafted so as not to extend to other professions like medicine and law.

Payments into the fund would be treated as simple business expenses and therefore would be tax-exempt. The money could be used to pay the administrative costs of the trust, legal and investigative costs relevant to a liability claim, and settlement of the claim.

The bill does not specify how much money could be funneled into the fund account, saying only that the Treasury Department shall write regulations to permit a deduction for any contribution to "the extent that such contribution exceeds the reasonable cost to the taxpayer for insurance for such year for the payment of product and professional liability claims and expense directly related to such claims."

Congressman Guyer says that A-Es tend to practice defensively and to use tried and proved materials, equipment and processes in order to reduce liability exposure. "It is only when the threat of litigation is removed that the design professional will be willing to move forward with new and innovative planning and design," he says. —*William Hickman, World News, Washington.*



Saudis make plans for an embassy row in the capital city of Riyadh

A new diplomatic quarter in the northwest section of Riyadh, capital of Saudi Arabia, will accommodate 24,000 residents. The West German city planning firm Speerplan GmbH of Frankfurt, in international competition with more than 180 other planning firms, has been awarded a contract for the development of its master plan for the new district.

The plan defines the city layout and infrastructure for a 1,235-acre site to house the facilities of between 80 and 120 foreign embassies and their staff and support facilities, as well as housing and facilities for Saudi residents in order to avoid "ghettoization" of the area, which is located near the new Riyadh University.

Consultants included some 30 experts—architects, landscape planners and engineers—from four other German firms, who spent more than eight months in Riyadh in close collaboration with the High Executive Committee for the project in the Ministry of Foreign Affairs.

The area is conceived as "a planned desert landscape," emphasizing shadow through the means of narrow lanes, high walls and covered walkways. Embassies and public facilities will line a boulevard bordered by a palm-tree allée.

Traditional Saudi architectural criteria were used as design guidelines, although the design of individual establishments will be left to the embassies concerned, within the framework of the guidelines.

All office buildings in the complex will be limited to heights of three and four stories, while residential buildings will be only one or two stories high.

Total construction cost is estimated at $1.5-1.75 billion. —*Peter Hoffmann, World News, Bonn.*

ABA completes model code for local A-E procurement

State and local governments will soon be asked to adopt a totally new procurement system, one that includes a provision proposing the selection of architects and engineers with procedures almost identical to those used by Federal agencies operating under the Brooks Law.

The American Institute of Architects is encouraging the adoption of the A-E section of a model code written over the last four years by the American Bar Association.

The code says that the lower governments' A-E selection policy should be "to publicly announce all requirements for architectural and engineering services and to negotiate contracts for architectural and engineering services on the basis of demonstrated competence and qualification for the type of services required, and at fair and reasonable prices."

The language in the code makes it clear that any discussion of fee should begin only after A-E applicants have been ranked. But the commentary accompanying the proposed code says that some jurisdictions could consider an alternative that would involve making cost a factor in selection.

If a jurisdiction chooses this latter alternative, it would make selection after taking into account "in the following order of importance, the professional competence of offerors, the technical merits of offers, and the price for which the services are to be rendered."

During the ABA's early efforts to formulate the procurement code, design professionals feared that the lawyers would favor price bidding over traditional procurement procedures.

ABA developed the model code with funds from the Federal Law Enforcement Assistance Administration. It has received an additional grant for use in encouraging state and local governments to adopt the code. —*William Hickman, World News, Washington.*

Professional self-regulation may not satisfy public needs

Unless they themselves act to become more responsive to public needs, professions will find themselves saddled with more government regulations. So a top Justice Department official recently warned a group of attorneys.

Richard J. Favretto, Deputy Director of Operations for the Antitrust Division, was the government's chief lawyer in its successful case against the National Society of Professional Engineers' ethical ban on competitive bidding. In a speech in Atlanta, Mr. Favretto addressed the problems of lawyers only, but by implication included all the professions.

He said that the public views the legal profession with continued and increasing suspicion and lack of respect. If that continues, he said, the result will be pressure "for new kinds of truly independent government regulation of a stricter and more far-reaching kind than is now in place."

Mr. Favretto expanded his prevision: "I am referring to a kind of instrusive regulation of the day-to-day practice of law, one which may seek to supervise the terms of the lawyer-client relationship, oversee the types of services performed, and regulate the fees charged."

Avoiding this kind of regulation, says Mr. Favretto, is a matter of eliminating the kind of professional codes that substitute anti-competitive self-regulation for marketplace regulation. Moreover, the professions should modify or end those conventions that leave professionals accountable only to other professionals. —*William Hickman, World News, Washington.*

Supreme Court ruling lets states regulate firm names

A recent Supreme Court decision on the regulation of titles for professional firms ruled that state legislatures may ban the use of corporate names or the use of names of partners no longer active in the practice.

The court handed down the decision in response to a suit involving the imposition of such a ban on optometrists by the Texas legislature; one of the largest optometric practices in the state, with more than 100 branch offices, had been conducted under the name Texas State Optical.

The ruling does not immediately affect architects, since at present no state has a law regulating their choice of firm names. —*William Hickman, World News, Washington.*

All-Steel 8000 Series Systems Furniture:

New freedom of choice for your office plan.

Consider the possibilities inherent in the 8000 Series. At one extreme, it is a complete system of integrated, modular components which can be combined to create the total office plan.

At the other extreme, 8000 Series components can be introduced into any existing office piece-by-piece, over an extended period of time. The transition will be smooth because Series 8000 components are compatible with conventional free-standing furniture.

As growth, change, or relocation require, Series 8000 components can be rearranged quickly and easily to meet new needs.

To learn how smoothly our 8000 Series Systems furniture can meet the present and future needs of your clients, write All-Steel Inc., Aurora, IL 60507.

ALL·STEEL
ONE OF THE CIT COMPANIES

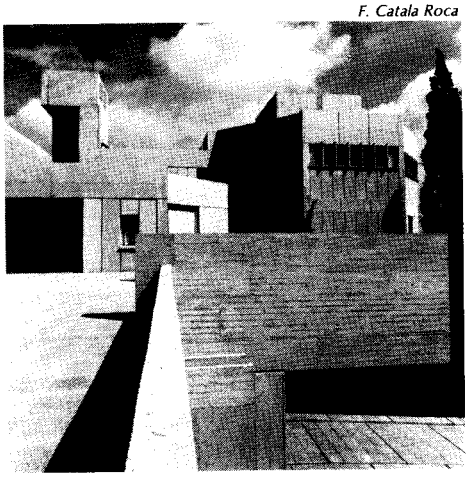
Showrooms in:
New York: 212/752-2610
Aurora: 312/859-2600
Chicago: 312/321-9220
Los Angeles: 213/659-2000
In Canada:
All-Steel Canada Ltd.
Montreal, Toronto

Circle 25 on inquiry card

ne AIA honors 15 buildings with 1979 design awards

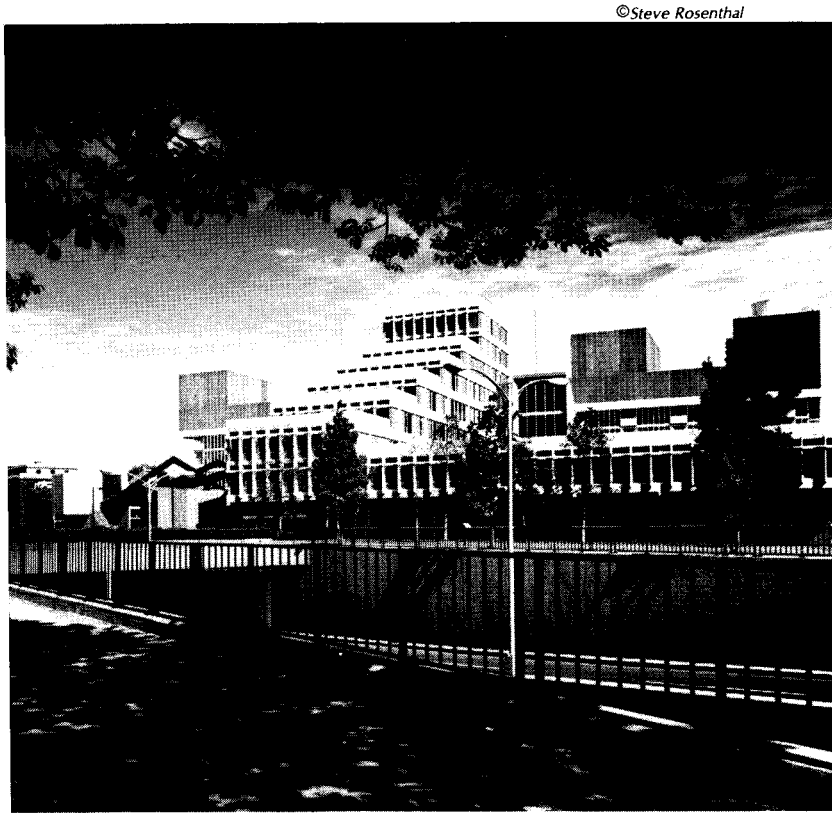
e American Institute of Architects selected 15 buildings to receive 1979 Design onor Awards—eight designed for current use, seven for extended use (renovaon). William W. Caudill, FAIA, of Houston, chairman of the jury for current use, escribes the two juries' lively deliberations and peripatetic on-site investigations: One juror took pictures in −12F weather. Another pushed through a wilderness ail that permitted only a four-wheel-drive vehicle. Can you believe one member ent as far as Spain?" He also reports some disappointments, however. "The jury as surprised that few entries considered energy," for instance. And though the rors were convinced of the validity of regionalism in design, "we wish we had en more evidence." Most difficult for the jurors was the time lag between esign conception and evaluation, sometimes as much as ten years. "The values the early '70s are becoming old-fashioned. Let's face it, this is not a 'cutting-dge' competition." Members of the juries included: for current use—Mr. Caudill; unnar Birkerts, FAIA, Bloomfield Hills, Michigan; Robert L. Geddes, FAIA, Princen, New Jersey; Alan R. Lauck, Associate Member AIA, Dallas; Ian MacKinley, AIA, Oakland, California; and George Timothy Rosenbury, student, Mississippi ate; and for extended use—Hugh Newell Jacobsen, FAIA, Washington, D.C. hairman); Peter Blake, Boston; Boyd A. Blackner, AIA, Salt Lake City; Stephen ertis, student, Virginia Polytechnic Institute; William G. McMinn, AIA, Mississippi ate; Martha Jo Ramsay, Associate Member AIA, Raleigh, North Carolina; and D. . Unthank, Jr., AIA, Eugene, Oregon.

F. Catala Roca



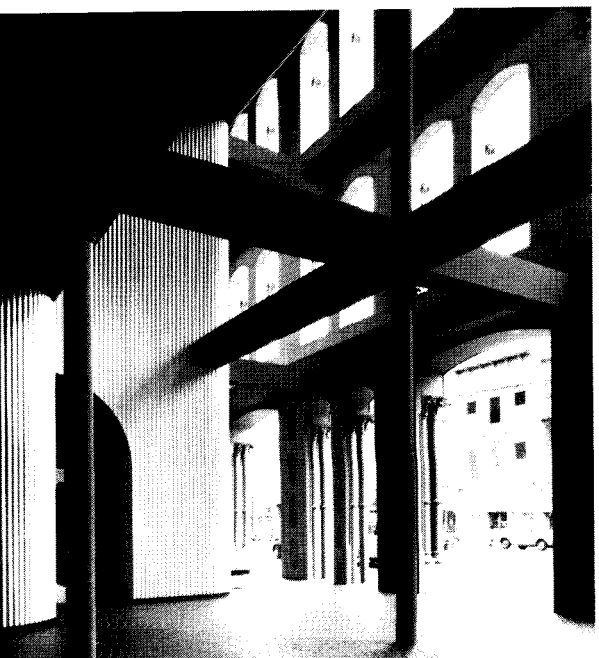
urrent use: Joan Miro Foun-ation, Barcelona; Sert, Jack-on and Associates, architect ee RECORD, March 1977, ages 85-92). "As one walks hrough, it is possible to see all he art in the building reflected the glass core," the jury bserved. "The extraordinary orms reflect those native to atalonia."

©Steve Rosenthal

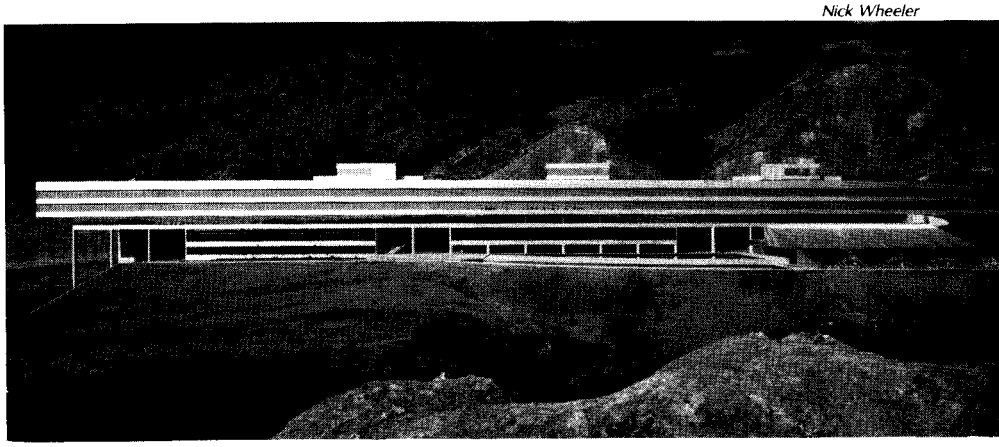


Current use: Undergraduate Science Center, Harvard University, Cambridge, Massachusetts; Sert, Jackson and Associates, architect (see RECORD, March 1974, pages 111-118). "The assemblage of building components is handled masterfully. The structure and services are articulated but not overdone," the jury said. "This is a case of exposure without exhibitionism. [The] location on an existing path system and its continuance through the interior 'street' have made science accessible and attractive to students."

xtended use: Louisville Muum of Natural History and cience, Louisville, Kentucky; ouis and Henry, architect. The ury commended the retention f an 1878 cast-iron riverside facade, which "serves as a civic symbol and monumental sculptural arcade while functioning as a sheltered entry and gathering area for museum visitors."



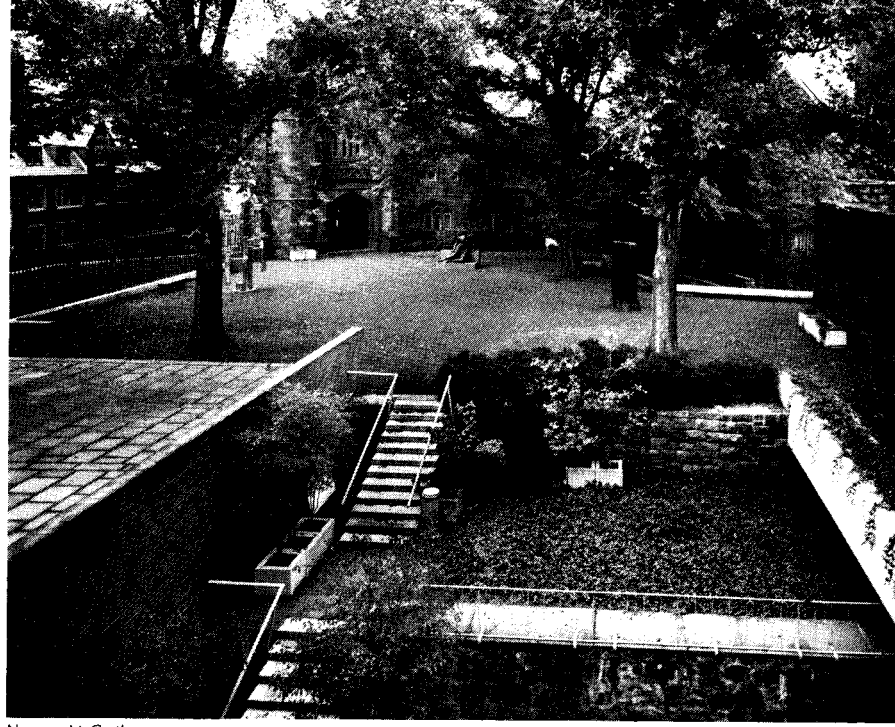
Nick Wheeler



Current use: Johns-Manville World Headquarters, Jefferson County, Colorado; The Architects Collaborative, architect (see RECORD, September 1977, pages 89-100). "The architects perceived that they could not fight with nature," the jury commented. "There was no way to blend, so they chose to contrast. The result is thrilling and stunningly beautiful."

Extended use: St. Louis Art Museum; Hardy Holzman Pfeiffer, architect (see RECORD, October 1978, pages 85-96). "Using a sophisticated vocabulary of contemporary technology, [the architects] reaffirmed the timeless qualities of this grand public space."

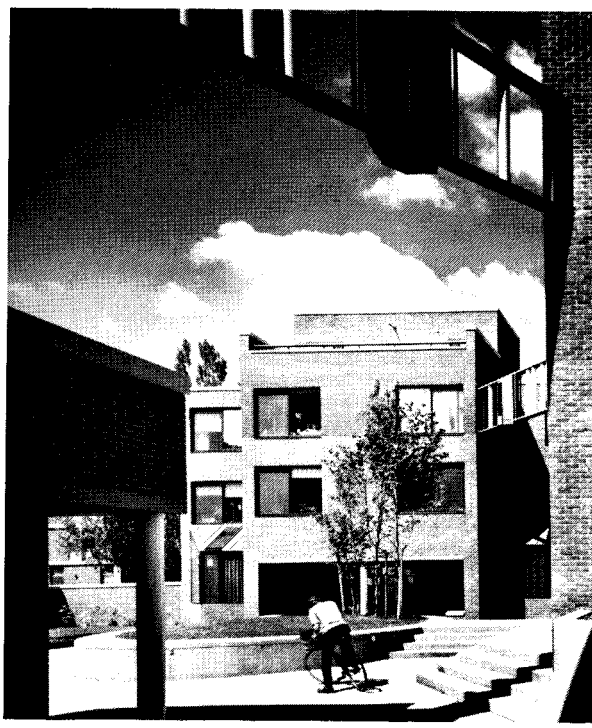
Cervin Robinson



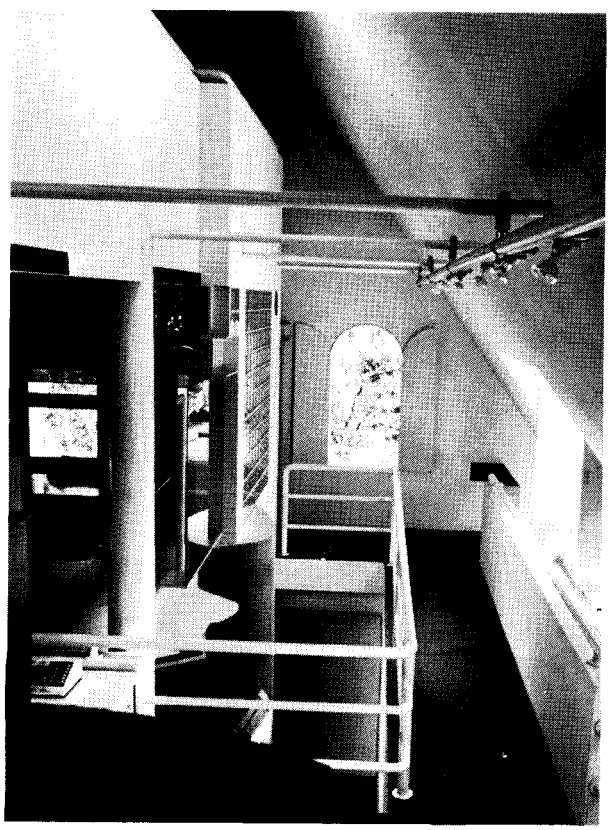
Norman McGrath

Extended use: Center for American Arts, Yale University, New Haven, Connecticut; Herbert S Newman Associates, architect. "The new lecture hall beneath the surface of a existing sculpture court is grand example of architectur respect through sublimation, said the jury.

Current use: Pembroke Dormitories, Brown University, Providence, Rhode Island; MLTW/Moore, Lyndon, Turnbull, architect. The jury found the building "an outstanding example of the weaving of an institution into the urban fabric. That is, it successfully maintains the scale and activity of the shopping street [it faces], simultaneously creating a great and intense focus of its own."



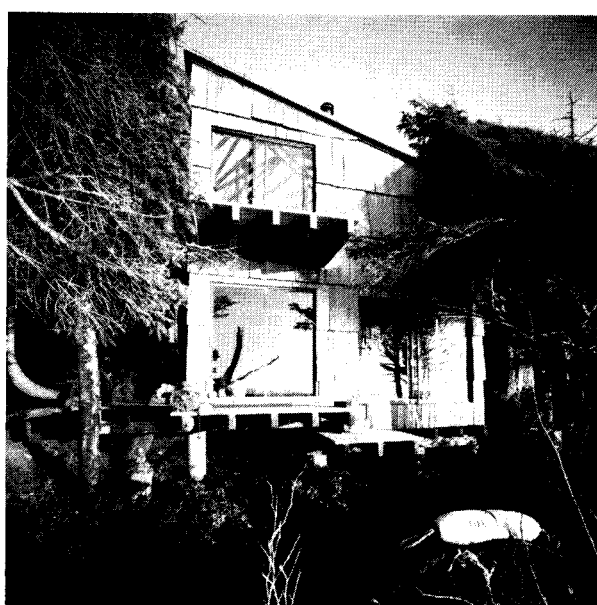
Cervin Robinson



Norman McGrath

Extended use: Gunwyn Ventures, Princeton, New Jersey; Michael Graves, architect. Inside a neo-Dutch shell, "the architect has created an interplay of form, color and space." The space is "a private world of studied relationships and forceful expressions of symbolism, light and movement. It makes the office an art form of our time."

Current use: Bystrom Family Beach Cabin, Pacific Coast, Washington; Arne Bystrom, architect. "Every inch was designed with function and esthetics in mind. Nothing was left out, nothing more is needed," said the jury. "Not a branch was disturbed during construction. This is what Thoreau would have liked to do. It's a jewel of a design."



Arne Bystrom

urrent use: Transit Mall, Portnd, Oregon; Skidmore, Owgs & Merrill, architect. The ry cited the design as "an utstanding example of the tegration of architecture and other design professions," and observed that while the mall is "a discontinuous structure," it is a "continuous experience made more vivid by its architectural design."

Current use: Angela Athletic Facility, Saint Mary's College, Notre Dame, Indiana; C.F. Murphy Associates, architect. The jury found the building "a dramatic departure from the old campus Gothic style of stone and brick," and "quite refreshing against its drab surroundings."

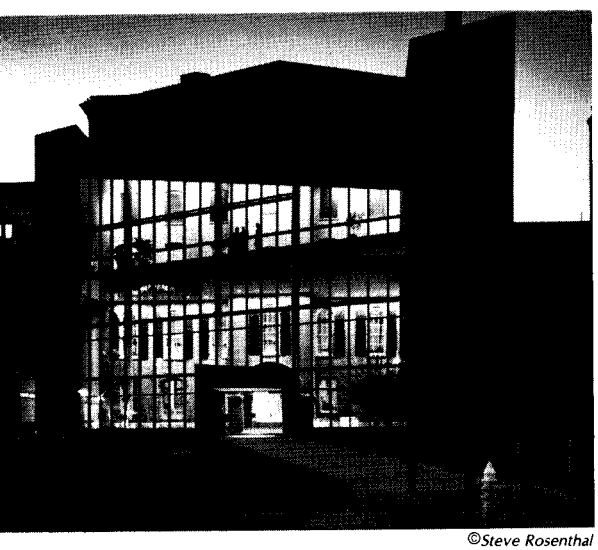
Keith H. Palmer

George Cserna

Current use: Citicorp Center, New York City; Hugh Stubbins and Associates, architect (see RECORD, June 1978, pages 107-116). "Here is a gift of public space," said the jury. "It is a welcoming, invigorating gathering place for people. More than a building, it is an act of urban design. The award recognizes the vision of the client and the excellence of the program as much as the building itself."

James Norris

Extended use: Chicago Public Library & Cultural Center; Holabird & Root Architects/Engineers/Planners (see RECORD, January 1978, pages 96-99). The jury praised "the integration of new spatial, functional, energy and handicapped requirements with handsome craftsmanship and materials of the past. The result is a building which is open and positive both to its past history and its current function."



©Steve Rosenthal

Extended use: Mechanics Hall, Worcester, Massachusetts; Anderson Notter Finegold, architect. "A hall of memorable acoustical qualities that once hosted Caruso, Paderewski and Sousa has been reborn. Modern environmental systems and life-safety requirements are respectfully integrated within the distinguished 19th-century interior."

Christian Staub

Current use: Lindstrom Residence, Bainbridge Island, Washington; Morgan and Lindstrom Architects (see RECORD, mid-May 1979). To achieve "minimum site interference," the jury commented, "the approach was to reflect the multiplanar translucent character of the site through the use of materials, variable massing and applied redundancy."

prefabricated vitrified tile panels

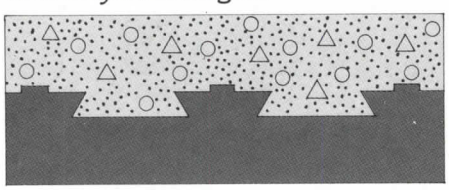
It's a new look and a new concept in the United States, though used extensively in Europe for years; precast concrete panels (in any size) faced with Gail Brickplate frostproof vitrified tile with a keyback design to insure permanence. The tile are mounted on sheets up to 3′ x 3′ and shipped to the precast plant where they are integrated into concrete panels. After curing, they are shipped to the jobsite where they are hoisted by crane into place. Advantages of such prefabrication for high-rise construction are many:

ECONOMY: Elimination of costly scaffolding since panels are hoisted into place by crane.

QUALITY CONTROL: Factory supervision assures greater accuracy, consistent quality.

SPEED OF ERECTION: Extreme weather does not hamper installation since tile is precasted in the precaster's factory.

MAINTENANCE FREE: All of the advantages of a vitrified tile (less than 3% absorption); no need for repainting, sandblasting or acid cleaning. Frostproof tile is permanently locked into the concrete panels with keyback ridges.



Gail will provide technical assistance through factory engineers. For more information or brochures, mail the coupon.

Gail ARCHITECTURAL CERAMICS

1481 North Main Street, Orange, CA 92667 Phone: (714) 997-9383

1201 Douglas Avenue, Redwood City, CA 94063 Phone: (415) 365-6212

6265 McDonough Drive, Norcross, GA 30093 Phone: (404) 448-8304

Yes, I'm interested in factory assembled ceramic tile / precast concrete panels.

☐ Send available literature.

☐ Have a representative call me.

YOUR NAME _____

TITLE _____

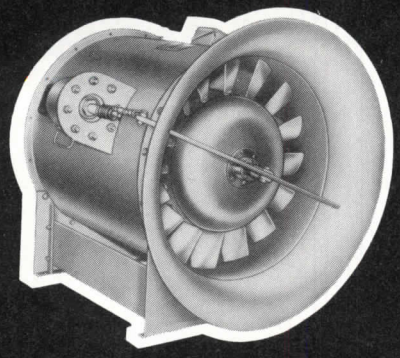
COMPANY _____

ADDRESS _____

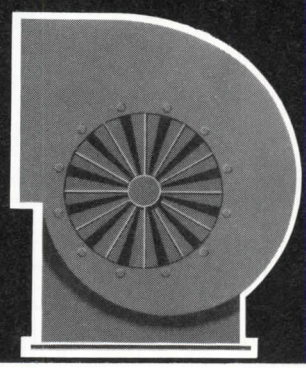
CITY, STATE, ZIP _____

PHONE NUMBER _____

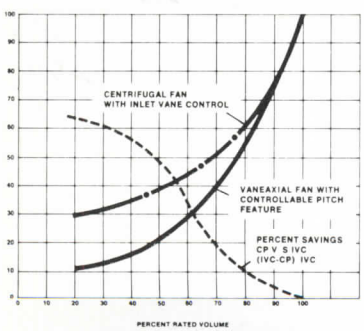
Harristown Key Block, Phase 1, Harrisburg, Pennsylvania. Over 240,000 sq. ft. of Gail tiles set in precast tile panels, 8′8″ x 30 ft. Architecture: joint-venture, Lawrie & Green — Mitchell / Giurgola.



This fan will give you a 35% savings in power when compared to this fan.



PERCENT OF FULL LOAD BRAKE HORSEPOWER, AND APPROXIMATE PERCENT OF INPUT KILOWATTS PERCENT SAVINGS IN POWER



It's true. When comparing a typical volume varying installation operating at 60% volume flow, Joy Controllable Pitch axial fans require 35% less power than an inlet vane-equipped centrifugal fan.

Today, more than ever, we are faced with the responsibility of conserving energy. The Joy Controllable Pitch Axivane® fan meets the challenge.

Joy Controllable Pitch fans automatically supply your VAV system with just the right amount of air. In response to a control signal, the blade angle changes while the fan is operating. Air volume flow can be adjusted to meet changing system requirements in seconds. In addition, they offer all the advantages inherent in the vaneaxial fan. Lightweight, compact design, ease and ecomomy of installation in any position.

For complete information on fan power savings write Joy Manufacturing Company, Air Moving Products, New Philadelphia, Ohio 44663. In Canada: Joy Manufacturing Company Ltd., Alpha Fan Division, Winnipeg, Manitoba.

Offices and plants throughout the world

NEW PHILADELPHIA DIVISION

JOY

Circle 37 on inquiry card

Circle 38 on inquiry

A management consultant expands its services to include AE

Three years ago, one of the West Coast's largest management consulting firms—Los Angeles-based Theodore Barry & Associates—added a full range of engineering disciplines to its capabilities, and then acquired the architectural organization of Richard L. Dorman. One indication of how well this MC/AE combination is working can be seen in the latest fiscal figures: of TB&A's $8.7 million gross income, the AE division accounts for $1.6 million, or about 18 per cent. The $1.6 million is twice the year-before volume. And, during the same period, division staffers doubled, from 25 to 50. Marketing the different TB&A services has had a synergetic effect for both arms of the company: extra projects. The MC's turn up clients for the AE division; the AE's find opportunities for the MC's. And it's not unusual for both sides to sell a job together.

Says TB&A chairman and president Theodore Barry: "The AE division gets the qualifying interview, then we get together and decide what team will go over. We analyze every job we go after to make sure we bring in the right kind of people to address themselves to that sale. This gives the client a feeling he's not just dealing with an AE, but with people who have great expertise and background in the area."

Comparing his former practice to the new setup, architect Dick Dorman feels there is equal creativity resulting—plus greater efficiency. Melding the creativity of architects with business specialists, Dorman says, helps meet today's complexities in building. "Pressure is growing for better backup than the typical, pure architectural firm can provide. For many projects, we have to be responsible for more than ever before—from site selection to engineering to design to building. And this route enables us to carry all those responsibilities in one tested firm."

Dorman, who started his architectural practice in 1957, sees "the Barry setup as a wonderful chance to get involved in a team effort, to do more interesting, more varied and larger jobs, to become part of expertise where it's possible to limit myself to the things I do best."

Adds Dorman: "And the merger expands the scope of the market potential. It gives us tremendous latitude of exposure and salesmanship. When I go to a client, I can talk about a larger facility, expanded services, greater personnel."

Dorman is not a captive architect. The arrangement still gives him time for his operations as a developer-contractor, a sidelight he began in Los Angeles to keep control over his design of office buildings, apartments and houses.

TB&A, founded in 1954, now has 70 management consultant professionals, offices in New York, Chicago, Atlanta, Portland, Oregon, and Rio de Janeiro, plus 10 foreign affiliates. From the TB&A standpoint, Dorman adds design recognition—including more than 30 national awards—and the lure for a new market.

Says AE division president John Day: "Management consulting is now a growth industry. It hasn't been for quite some while. Any MC has to be looking for new services if it's interested in growth. We've been fortunate in being able to expand MC work at a pretty rapid clip, but it has been the result of some pretty strenuous and active business development, and it's going to be very hard to maintain that pace. There's a limited market. The AE division is a very salable commodity because, in the past, a lot of architects have been accused of—and have been guilty of—disregard for business economics. So, if you can present an image of being good business managers as well as having architectural talents, it should be salable. And when you throw in industrial engineering as well, you really have a good spectrum of services."

However, the profit motive is not the bottom line for TB&A's move into AE services. With management consulting bringing in 20 to 22 per cent pre-tax profit and architecture 7 to 12 per cent, TB&A would have to do twice as much architecture to generate an equivalent amount of management consulting earnings.

"We're taking a longer view of it," says Barry. "We're saying they [AE and MC services] do belong together and it's fun to be in. Maybe we want to see the end product of the pre-architectural exercise we've been through."

Consulting, Barry points out, can be described as a two-step process: helping the client identify what his problem is, and then, after examining a number of options, coming up with a solution.

"We adhere to the philosophy that there is a third step—helping a client get implementation," says Barry. "Instead of telling him this is the answer, we help put the answer to work. This has led us into a lot of studies we call pre-architectural."

Often, management consultants shape the client's decision to build

Frequently, a client's growth requires new structures: office buildings, factories, distribution centers and other special-purpose facilities. "Planning this type of growth is as important as planning sales growth," says Barry. "The major costs of a badly-designed building are not the construction costs; they are the lost time and maintenance costs in the years ahead. Effective design requires detailed analysis of operations, careful space planning and, finally, an architect who is sensitive to and knowledgeable in this important industrial engineering program."

And, in fact, Barry broadened out because he was convinced that combining "pre-architectural" expertise and AE talents on a single team would increase the functional utility of a structure and reduce client costs over the life of the building.

Historically, pre-architecture has accounted for 20 per cent of TB&A's consulting business. Then, several years ago, TB&A added architecture and planning in the form of a division called the Architects and Consultants Group. The group, handling mostly industrial shell-type buildings, did an annual business of about $200,000 to $300,000. Then Barry decided to give clients the whole package—planning and design services for all kinds of buildings plus a variety of heavily engineered facilities.

Jim Collison

Theodore Barry (left) and Richard Dorman

"We *think* there *is* a terrific market for design in industry as well as commercial and institutional," says Barry. "And even in heavy industry—with a larger ingredient of engineering—there also is an opportunity to

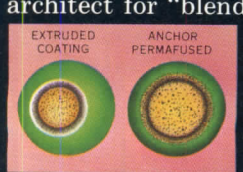
ANCHOR® Fence. Easy on the eye, strong on security.

Only ANCHOR® makes the perfect frame for your architectural statement.

Some people think all chain link fencing is pretty much the same. If you happen to be one of them, take a few minutes to see why an ANCHOR® chain link fence is better than ordinary chain link fencing.

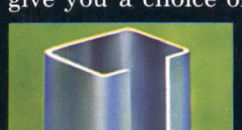
ANCHOR® has elevated the art of chain link fencing to its highest levels, with fencing systems that are both attractive and protective.

You can blend an ANCHOR® chain link fence right into the landscape, because the galvanized frame and fabric can also be coated with vinyl in Woodland Green (formulated by a landscape architect for "blendability") or black.



Our permafused vinyl coating is thermally bonded to heavier gauge wire, so the good looks will last.

We can anchor our posts with a special drive anchor system that's stronger than concrete footings, so you are sure an ANCHOR® fence will stand straight and tall for many, many years. And we give you a choice of post styles, including square corner and end posts and rigid-C line posts.



And the working part of any fence . . . . the gate . . . . is an ANCHOR® specialty. We offer a complete selection of standard gates that work exceptionally well, and we also offer expert design services for projects that call for highly specialized gates, including some that exceed 100′ in width and vertical lift gates.

ANCHOR®also engineers recreational chain link systems, such as tennis enclosures and backstops.

So whatever your project, whatever you need in the way of chain link fencing, frame your work with an ANCHOR® chain link fence . . . the best-looking protection your client can own.

Ask for details on our competitively priced products and a free specifications kit.

Anchor Post Products, Inc., Balto., Md. / Anchor Post Products, Inc., of California, Whittier, Ca. / Anchor Post Products, Inc., of Texas, Houston, Tx. Other factories: Freemont, In. / Seattle, Wa. / Harrison, Ar. / Carnegie, Pa.

ANCHOR FENCE

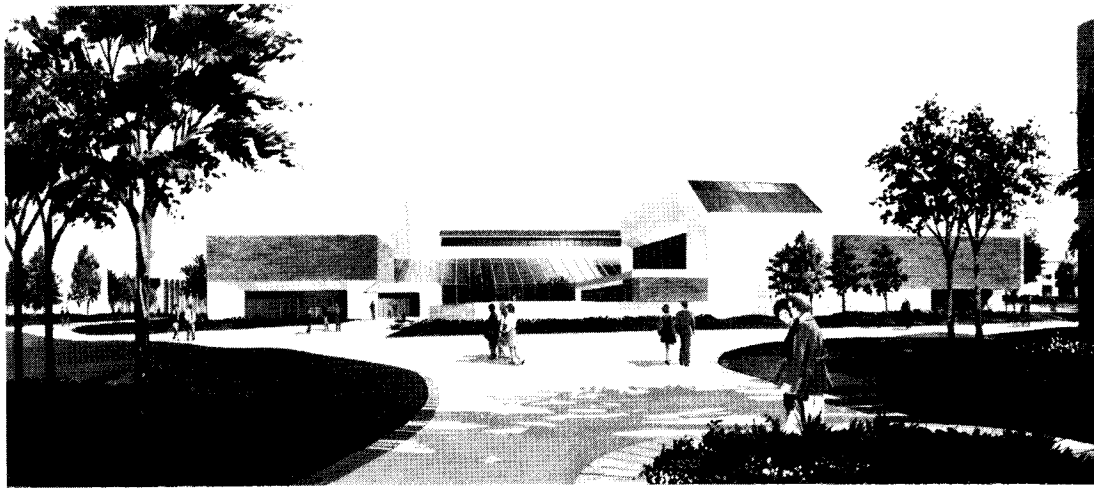
Anchor Fence Division / Anchor Post Products, Inc. / Dept. 10
11350 McCormick Road / Hunt Valley, Md. 21031

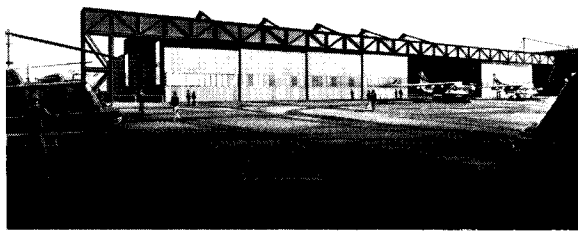
The Fencescape . . . only ANCHOR® makes it look so good so long.

Circle 42 on inquiry card

make an attractive design out of what often are very unsightly buildings."

TB&A's first move toward the total package was to set up TBA Engineering, headed by structural engineer John Day, who was brought in from Albert C. Martin & Associates, where he was director of the industrial division, specializing in heavily-engineered projects. Next, the Dorman organization was acquired and became TBA Dorman FAIA. Finally, the two operations were combined into one division, with Day as president. Dorman, as executive architect, controls design of all projects.





Recent TB&A projects: Cinema/Television Facilities, School of Performing Arts, University of Southern California (above); Naval Air Reserve Unit Hangar (below), Point Mugu, California.

At TB&A, 40 per cent of the AE jobs come from management consultant leads

Selling of the division works from both the MC and AE ends. Some jobs are jointly sold, perhaps by Barry and Dorman, or perhaps by bringing in people with special expertise and background that will add to that particular project.

Competing recently for the new UCLA library (which TB&A got), for instance, was a joint effort. The AE division, which had not done a library, was up against architects who had. However, the MC expertise came in handy in the search for new ideas for a quick retrieval system, an important aspect of the project.

TB&A has worked for over 700 clients, and about 40 per cent of the AE jobs come in as a result of MC leads.

Says Barry: "Our consultants are alerted to keep their ears open. They may find their client is going to build something. If they hear of anything, they pass it back to the AE division."

A typical tip grew out the MC studies for Tucson Gas & Electric Company which indicated that its service operation was hampered by inadequate facilities. Crews were spending up to 90 minutes each morning riding around the lot trying to find what they were supposed to take out on the job that day.

Says John Day: "It wasn't difficult to demonstrate that if they added a new plant, they would do the job much more efficiently and pay for the plant in two or three years. The new service center we've designed will bring together, into an integrated facility, offices, crew-changing rooms, briefing rooms, a warehouse for parts and supplies, and a yard for equipment."

At the AE selling end, when Day calls on people he thinks are clients for his division, he often detects a need for management consulting.

One job where this happened was at Cal Tech's Jet Propulsion Laboratory. Its AE selection board was looking for someone to work on a Federally funded solar array manufacturing facility program. Basically, the program calls for managing development of new technology—and then determining manufacturing costs and finding out how to reduce them.

Says Day: "We thought it was an AE project when we went to the interview. So did JPL. We got the job, but we found out by degrees that it was more of a system analysis type thing. The people at TB&A qualified to do that kind of work all fit into the MC side of the house. So they were brought into the picture."

Sometimes, one set of services has to bow out in a conflict of interests

Sometimes, marketing the different TB&A services runs into a conflict of interest. One such case involves a 200,000-square-foot corporate headquarters in Texas. TB&A, handling MC work for the company, went on into the pre-architectural phase.

Says Barry: "That was the logical thing to sell—they were ready to make a move. The company was then going to select project management. We had to decide whether we wanted to go after the PM or AE work. We made a tactical decision that a company in Texas, which has a lot of good architects, is not likely to buy a California one. There was a better chance of getting the PM work, so we went that way."

The AE division, itself, has run up against a couple of problems, both internal.

Says Barry: "The major problem has been growth. The division has been so successful that it has created success problems, such as bringing jobs in on schedule and budgeting costs. It is very difficult to double business—as we did in the last year—and have things work perfectly."

Clients expect the AE relationship to match the MC relationship. It doesn't.

The second problem stems from client relationships.

"There is a relationship that builds between a management consultant and a client that is continual," says Barry, "and there is a relationship between an architect and a client that is intermittent. Typically, the architect visits the client long enough to gather design inputs, goes back and works on the design, then returns to the client; there are several iterations—but they take place weeks apart. We've found it necessary for the project managers of our architect teams to spend more time than they feel is needed with the client, because the client has come to expect that from our earlier management consulting relationships."

Agrees Dorman: "Consultants have to hold client's hands when it is expected, whereas the architect says, 'I have the people relationship already developed by the firm and I don't have to hold hands for it—I'll go back and do my thing, which I understand very well.'"

Clients want to see Dorman. He is injected as a very important part of a project. But they want to see the project manager long after design and schematic decisions have been made.

Says Barry: "We thought at first the problem was just lack of attention by our project managers. But that wasn't it. It's cultural shock. We're going from a people type of client relationship to mechanical system design."

Is the MC/AE team going to be a trend?

"No one else has gone into it," says Barry. "And I think it's not likely to sweep management consulting. There's a reason. Architecture is not really a national profession. It tends to be dominated by regional presence. If we did a lot of work on the East Coast, we'd probably have an AE presence there, rather than parlaying this relationship worldwide. We're glad we did it. It fits us nicely. While we're a national firm, this is our home base and it makes sense."

From the designer standpoint, Dorman feels the TB&A scope of work doesn't affect the smaller architect as much as it does the medium-size and larger architect who deals with a multi-disciplined, large conglomerate looking for someone to help solve all its problems. "This architect has to keep going to a group of consultants. Our type of setup offers more expertise under one roof."

Barbara Lamb
McGraw-Hill World News, Los Angeles

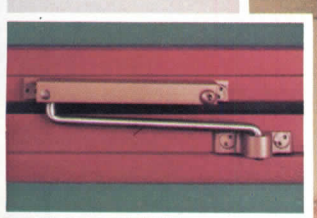
Hope's custom steel windows-the new way to build with an old tradition

Hope's has been custom making windows for over 150 years. Architectural concepts have evolved, of course, but so have the products created at Hope's. Why the long history of excellence? Innovation is one reason. New approaches to window design, new fabrication techniques and rugged new finishes (Like Ultraclad PVC) make steel windows just about timeless. But the most compelling reason for Hope's success has nothing to do with "newness" at all. The reason is strength. Steel windows are three times stronger than aluminum. That means narrower, more graceful window sight lines, increased structural integrity, plus an unlimited range of design possibilities. If you want to know more about the window company with the old tradition and the new products, contact the people at Hope's. Steel windows can make a building what a building should be. Hope's can make the windows.

ROBLIN
HOPE'S WINDOWS

84 Hopkins Avenue
Jamestown, N.Y. 14701 (716) 665-5124
A division of Roblin Industries, Inc.

Circle 43 on inquiry card



Architect: Benjamin Thompson Associates, Inc. **Photographer:** Esto Photographics, Ezra Stoller

Recovering legal costs when suing for professional fees

When architects fail to keep current with their billings to clients, collecting professional fees can involve substantial legal expense. And lawsuits to collect fees can generate counterclaims alleging professional negligence. Under the so-called "American Rule," each side in a lawsuit bears its own legal expenses, regardless of the outcome. However, this rule can be changed by contractual agreement or by statutory provisions related to the recovery of attorney's fees. Attempting to recover attorney's fees through contract provisions can be risky for the architect, but two recent Texas cases indicate that a statutory approach to the problem may warrant further attention. [Although statutes like the Texas one discussed in this article are not prevalent in other states, their existence should be checked in individual instances—and such statutes should be encouraged.—Ed.]

by Arthur T. Kornblut, Esq.

The most practical way to avoid fee collection problems is to bill on a monthly basis for professional services rendered. Billing clients monthly does not guarantee that monthly payments will be forthcoming, but when bills are not paid on time, the architect will be quickly alerted to potential fee-collection problems.

The standard AIA owner-architect contract (Document B141) contains some helpful provisions related to billing for professional services. Regardless of the method of compensation, this contract states that payment for services shall be made monthly in proportion to the services rendered (Subp. 6.1.2). The contract also states that unpaid bills bear interest from the date payment is due. If the client fails to make payment through no fault of the architect, the architect ultimately has the right to terminate the contract and seek legal recourse to recover compensation for all services rendered prior to the termination date.

Contractual provisions for legal fee recovery could work against architects

The AIA agreement form does *not* contain any provision giving the successful party the right to recover lawyers' fees and related costs in the event of a lawsuit between the parties. The absence of such a provision is probably advantageous to the architect. If included, its greatest value to the architect probably would be to recover legal fees in an action to collect unpaid bills—a problem that can be avoided to a large degree by having adequate billing procedures.

On the other hand, a provision permitting the recovery of legal fees would give the owner substantial advantage whenever there are allegations of professional negligence. If the project has problems stemming from the professional's services, the client might be tempted to gold-plate his case when he has the right to recover all legal expenses.

A contract right to recover legal fees could militate against a settlement of a lawsuit because it presumes a party must be "successful" to be entitled to the recovery. A settlement probably would result in each side having to bear its own costs. And, finally, this type of clause could increase substantially the amount of a recovery against the architect if the client has retained counsel on a contingent fee basis. Normally, an attorney on a contingent fee basis receives a percentage of any award made to his client, with the fee deducted from the award. If the client is entitled by contract to recover legal fees, that amount might be *added to* the award even with a contingency fee arrangement. Clearly, it would be far better to avoid or minimize fee collection problems than to try to solve them by having a contract right to recover lawyers' fees in any legal action.

Two architects used a Texas statute to recover legal fees

A statutory approach to the recovery of legal fees may warrant some investigation. The State of Texas has enacted a statute that authorizes the recovery of legal fees in a lawsuit to collect compensation for services rendered. Article 2226, Texas Revised Civil Statutes Annotated allows the recovery of legal fees by a person with a "valid claim against a person or corporation for services rendered, labor done. . . ." In 1978, this statute was relied on successfully by architects in two separate cases to recover legal fees in actions against clients.

In the first case (*Juarez* v. *Dunn*), the architect had entered into a written contract with the defendant for the partial design of a shopping center. The architect received four payments totaling $5,250 but did not receive a balance of $7,139 which he alleged was past due and owing. The trial court found that the architect had substantially performed the contract for architectural services and was entitled to the full amount being claimed. The court also determined that the architect's reasonable attorney's fees were $2,427.80, but it would not permit that amount to be recovered as a matter of law. The architect then appealed the court's failure to award attorney's fees.

On appeal, the appellate court rejected a number of the architect's assertions about why he was entitled to recover attorney's fees. The one point raised by the architect which met with success, however, was his claim that Article 2226 of the Texas Statutes applied. Even though the case was tried prior to the latest amendment to the statute in 1977, the appellate court awarded the full attorney's fee to the architect.

Shortly, thereafter, another Texas court went further in applying Article 2226 to permit an architect to recover attorney's fees. In this case (*Beller* v. *DeLara*), the owner and architect entered into a contract using the standard AIA agreement form for services in connection with a house project.

When the construction documents were almost ready, the owner terminated the contract, having paid the architect only a small amount of his fee. When the architect sued to collect the balance, the jury awarded him the sum of $3,000 (less the amount previously paid) for services and $2,500 for attorney's fees. The owner appealed.

On appeal, the court noted that there had been testimony at the trial that the reasonable value of the architect's services was in the neighborhood of $5,500 and reasonable attorney's fees would be $4,500. In upholding the judgment in favor of the architect, the court rejected the owner's claim that attorney's fees could not be awarded because the contract did not provide for the recovery of such fees. Looking to an earlier Texas Supreme Court decision, the court said that a contract for purely personal services will support an award of attorney's fees. An architect's direct services to an owner are "personal services" as are contemplated by Article 2226.

Mr. Kornblut is a registered architect and practicing attorney in Washington, D.C.

ACME BRICK

THE DETAILS BEHIND THE DETAILS. A SERIES FROM ACME BRICK.

These structural details are made possible by Acme's Engineered Brick Design. A technology which has opened bold, new solutions in today's architecture. Solutions which were unthinkable only a few years ago.

The real beauty of Engineered Brick Design is in how it provides maximum function and design with minimum cost. Walls are not only structural, but are also energy-conserving, fire resistive, sound attenuating, and finished both interior and exterior with no "hidden" costs.

All this, with little or no maintenance. And at an initial construction price which, according to a 1979 analysis by the American Appraisal Company, is dramatically more cost efficient than comparable steel or concrete systems.

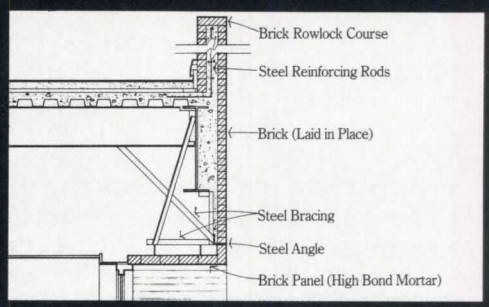
Whether you consider cost, flexibility, or beauty, no other system can match the total performance of Acme Brick and Engineered Brick Design. It's the best all-around choice for your next building commission.

For more details, call collect, 817/332-4101, ext. 365. Or write Acme Brick Technical Services, P. O. Box 425, Fort Worth, Texas 76107.

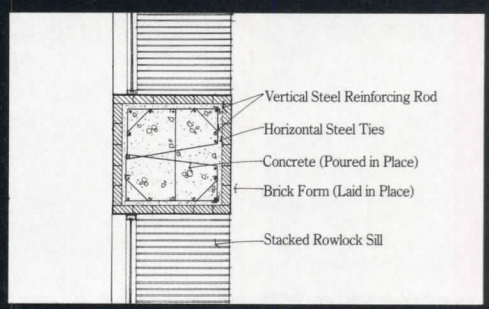
ACME BRICK. THE BEST ALL-AROUND BUILDING MATERIAL.

Circle 44 on inquiry card

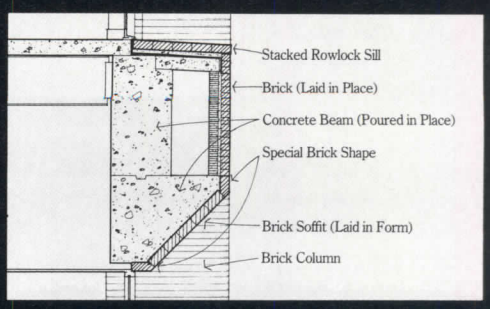
Architect-Engineer: Geren Associates, Architects Engineers Planners, Fort Worth, Texas;
General Contractor: Thomas S. Byrne Inc., Fort Worth, Texas;
Masonry Contractor: Dee Brown Masonry, Dallas, Texas.



Hung soffit panels constructed of Acme Brick and high bond mortar produce deep, shadowed recesses below the parapet.



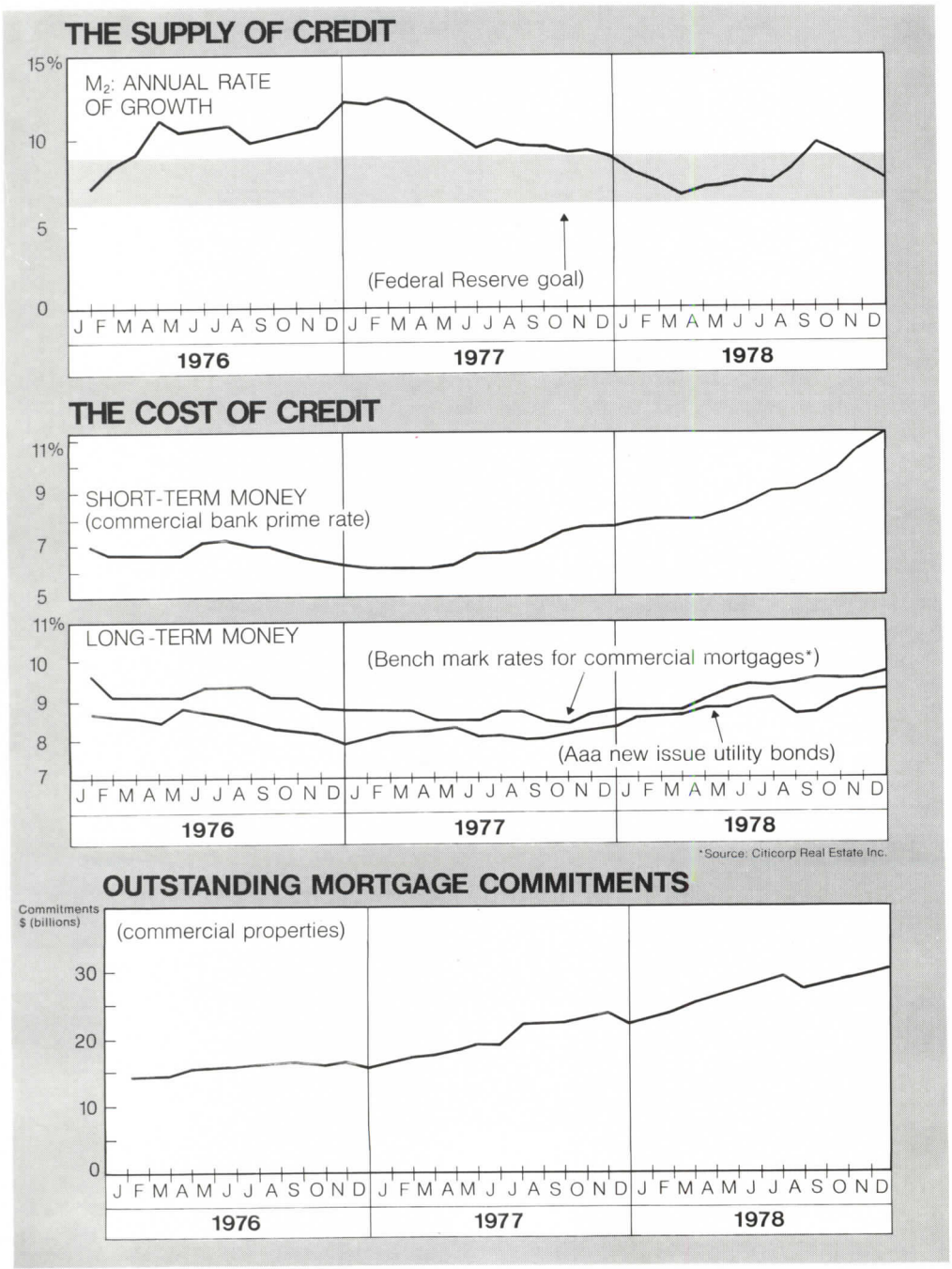
Acme Brick laid in place is the concrete column form, and becomes a part of the structural section.



Concrete forms are lined with Acme Brick separated by foam spacers. After concrete beams are poured, face joints are then pointed.

Commercial mortgage rate may reach 10.5 per cent soon

Outstanding commitments for nonresidential mortgages more than doubled between year-end 1975 and year-end 1978, growing from $14.5 billion to $31 billion. Seventy per cent of that expansion occurred after mid-1977, reflecting the rapid growth in construction of offices, stores and warehouses at that time. Throughout this period, four private financial institutions—life insurance companies, commercial banks, savings associations, and mutual savings banks—accounted for almost 90 per cent of the nonresidential mortgage commitments issued. However, there has been a significant change in the relative contribution of several of these institutional lenders since 1976.



Commercial banks have been the most consistent, writing about 20 per cent of the total nonresidential mortgage commitments issued between 1976 and 1978. On the other hand, thrift institutions, particularly savings associations, started the period very aggressively, issuing nearly a third of the total nonresidential commitments written in 1976. But, as the demand for single-family mortgages soared, making interest rates on those loans as attractive as rates on commercial mortgages, these institutions used more of their deposit inflows to fund home loans.

Life insurance companies, which usually are the leaders in nonresidential mortgage financing, were still recovering from the lingering effects of the 1974/75 recession in 1976. However, as the economic recovery renewed the demand for stores, warehouses and office buildings, life insurance companies used more of their rapidly growing savings inflows to step up their commitments for nonresidential mortgages. Their share of these commitments grew to more than 50 per cent of the total issued in 1978.

Not surprisingly, the surge in nonresidential construction since mid-1977 has been accompanied by a rise in commercial mortgage interest rates of nearly 1.25 per cent. Still, despite the shift in suppliers of funds, commercial mortgage rates at 9.75 to 10 per cent (contract rate) were no higher at the end of 1978 than at the end of 1975. In 1979, thrift institutions will cut their nonresidential mortgage lending back even further, as more of their diminishing savings inflows are used to fund home loans. In addition, commercial banks, whose consumer and business loan demand grew steadily throughout 1978, will be hard pressed to maintain their share of commercial mortgage commitments issued.

Life insurance companies, which are still receiving good savings inflows, will expand their nonresidential lending, but not enough to fill the gap. Consequently, commercial mortgage rates should surpass their previous peak in late-1974/early-1975 of 10.25, and rise to 10.5 per cent sometime this spring. These rates will not turn down again until after commercial construction activity begins to slide in the second half of 1979. On the brighter side, the slump in commercial construction is expected to be relatively mild.

Phillip E. Kidd
Director of Economic Research
McGraw-Hill Information Systems Company

Architect — William Kessler and Assoc., Detroit, MI
Contractor — A. Z. Shmina and Sons, Co., Dearborn, MI

Montgomery Moves People at the Detroit Science Center

This escalator, a thrill in light and motion, is part of the Montgomery-built system which moves people at the new Detroit Science Center. The system includes another similar escalator and a giant elevator that can hold two bus loads of children — that's 140 — or 21,000 pounds. Beautifully and functionally designed for fast, efficient movement of people, these Montgomery escalators and elevators were specified to compliment the Center's unique architectural concept. Montgomery offers total capability in design, production, installation and maintenance of elevator and escalator systems, to assure uninterrupted service and long equipment life.

montgomery®
ELEVATORS/ESCALATORS
POWER WALKS & RAMPS

montgomery moves people

Montgomery Elevator Company, Moline, Illinois 61265 / Montgomery Elevator Co., Limited, Toronto, Ontario M9B3S5 / Offices in principal cities of North America

Circle 45 on inquiry card

Cost estimating service combines two broad data bases

To be effective, control of construction costs should start the second a structure is conceived and continue throughout the entire design process. Estimates must be appropriately detailed and have sufficient flexibility to allow for normal modifications which occur during the various building stages. McGraw-Hill's new Cost Information Systems Division offers a range of services which provide building cost estimates quickly and inexpensively.

The new McGraw-Hill division includes the former Dodge Building Services unit and the recently purchased assets of Wood & Tower, a Princeton, New Jersey, national construction cost consulting firm, founded 28 years ago. It offers professional consultations and a number of data base services specifically designed to help architects estimate and control costs.

With the acquistion of Wood & Tower, McGraw-Hill has brought together two complementary building cost data bases. The data base originally created by Wood & Tower consists of costs of more than 12,000 individual building components (windows, masonry, bricks, lumber, etc.) along with productivity data and wage rates of the 22 building trades that put these materials in place. The data base is updated quarterly with material and wage rate data gathered in each of 485 cities. Using this information, cost data can be adjusted for time and for zip code location.

The other data base was originally developed by McGraw-Hill, using information from its daily Dodge Reports service. It contains the actual construction costs of many thousands of recently built residential, commercial, industrial, and institutional buildings. The information is continually updated with data from the Dodge Reports service, after the Dodge information is rechecked with the architect and more descriptive data on the building is obtained.

The construction cost of virtually any building can be calculated using one or both data bases. Using one data base and the dimensions of the structure, the computer calculates quantities of the various building materials required and the labor needed to put these materials in place, with all cost figures adjusted to the desired zip code. With the other data base, the computer searches for buildings comparable to the one under consideration, adjusts the cost of those it finds to the current time and the desired location, and determines the current construction cost.

Completed analysis will be sent to the following address:

Company Name ____ Phone ____

Attention of ____ Phone ____

Address ____ City ____ State ____ Zip ____

Building Name ____

Location ____ City ____ State ____ Zip ____

Construction Date ____ Inflation Factor (if desired) ____ %

Quality: ☐ Superior ☐ Above Average ☐ Average ☐ Minimal

Building Use:

Primary ____ % of total area

Secondary ____ % of total area

Other ____ % of total area

Please complete all of the following:

Basic Data:

Gross Floor Area (excl. basement) ____ Sq. Ft.

Number of Floors (excl. basement) ____

Area of Ground Floor ____ Sq. Ft.

Perimeter at Ground (if known) ____ Ln. Ft.

Floor to Floor or Eave Height ____ Ln. Ft.

Basement—% of Main Floor ____ %

Approx. Length/width Relationship ____

Superstructure:

☐ Steel Frame ☐ Wood Frame-Commercial

☐ Concrete Frame ☐ Wood Frame-Residential

☐ Wall Bearing ☐ Pre Engineered

Other ____

Exterior Wall: ____

Elevators: ☐ None Number

Partitions: ☐ Dry wall ☐ Block ☐ Plaster

Roof Cover:

Finishes/Equipment: Check if normal for bldg. use Otherwise describe below

Interior Finish—Wall ☐

—Floor ☐

—Ceiling ☐

Built-in Equipment ☐

Htg., Vent. & Air Cond. ☐

Plumbing ☐ Sprinklered %

Electrical ☐

4712-027

An inexpensive, one-day service provides an initial estimate by phone

Almost as soon as a project is conceived—even before the preliminary plans are drawn—McGraw-Hill's *Conceptual Budget Analysis* can provide a cost estimate. The Conceptual Budget Analysis can also be used to compare the costs of alternative design solutions, or costs of the same building in alternative locations.

The Conceptual Budget Analysis provides cost estimates for residential, commercial/industrial, and institutional buildings. Division I of the Sweet's General Building Catalog File contains an input form for the Conceptual Budget Analysis. Architects can also obtain the service by calling (609/921-6500), or by leaving a message on Sweet's Buyline: (800/447-1980); (in Illinois, 800/322-4410).

The input form (see illustration) for the Conceptual Budget Analysis is divided into several categories. The first section asks the architect's name and address, the building name, its location and the expected date of construction. The architect is also asked to indicate the quality of the structure: superior, above average, average or minimal. This classification is a function of quality of materials and type of construction. The architect can indicate an inflation factor, or leave it up to a McGraw-Hill estimator, who will extrapolate the local inflation factor to the assumed midpoint of the construction process. Finally, the architect is asked to indicate the building's primary, secondary and other uses by allocating a percentage of total area to each function—for example, an office building with an underground parking lot or an apartment building with retail stores.

The next section asks for approximate dimensional data. The computer will determine the complexity of the design by comparing relationships among the gross floor areas and number of floors, area of ground floor and perimeter at ground. The gross floor area is the sum of the areas of all floors on or above grade. Number of floors refers to floors on or above grade.

The perimeter at ground floor, along with the gross floor area, number of floors, and area at ground floor will enable the computer to adjust for setbacks or overhangs. The basement may be more, equal to, or less than 100 per cent. For example, two underground stories would be considered a basement constituting 200 per cent of the main floor.

The approximate length/width relationship helps the computer interpret the shape of a building. If it's circular, for example, the architect would indicate that fact and give the measurement of the diameter.

Superstructure framing may be composed of one or more of the elements mentioned on the form. If more than one element is to be used, percentages for each should be given.

The final section of the Conceptual Budget Analysis input form considers exterior wall materials and fenestration, number of elevators, types of partitions, and type of roof cover. The form also asks for information on finishes and equipment, and requires the architect to specify whether or not they are "normal for building use." In answering these questions, the architect should consider what is normal *for that type of building*. For example, an indoor swimming pool in an office building would not be considered normal; in a health club or YMCA, an indoor swimming pool would be normal.

At any point in filling out the input form for the Conceptual Budget Analysis, the architect can call the Princeton office of Cost Information Systems at (609/921-6500). Trained personnel can assist the architect in describing the building for the computer. The form is meant to be a guide. Additional descriptive information can be included on a separate sheet of paper, although for this service the submission of actual plans is not appropriate.

The Conceptual Budget Analysis is essentially designed to give the architect a quick, accurate, one-page estimate at the earliest possible stage in the development of a building design, before plans have been drawn. The resulting analysis of total cost and costs of major systems is both phoned and mailed to the architect within 24 hours of receipt of the input form. The cost is $35.00.

A more detailed estimate, taking one week, requires plans and outline specs

As the building design develops and is expressed in preliminary floor plans and elevation drawings and outline specifications, more details of the design solution emerge and some changes likely occur. To re-estimate the cost of the building at this stage, McGraw-Hill makes available a *Preliminary Design Estimate*. This requires that the drawings and outline specifications be sent to Cost Information Systems' Princeton office. A construction cost expert does a takeoff from the plans and describes the building to the computer, which then calculates quantities of materials and labor needed to construct the building in the particular location.

The resulting multi-page report (see illustration) contains a summary of material, labor and total costs by individual building systems and in total. Each system is further broken down into major components. Material quantities as well as costs are provided. Normal mark-ups and fees are also included. Cost data can be adjusted to the anticipated construction date. The architect can specify the inflation factor, or McGraw-Hill can supply it. In either case, the inflation percentage is given on the output form.

McGraw-Hill's Preliminary Design Estimate is generally completed and sent to the architect within one week of receipt of plans and specs. This $350 service is used primarily to pin down the anticipated cost of a preliminary design solution, while it is still early enough in the design process to make cost-saving changes.

Each such estimate is limited to one configuration. Site work preparation, landscaping, alterations, additions or renovation work are not included. These and any other unusual design or difficult-to-communicate concepts would require a personal consultation with a McGraw-Hill estimator. A personal consultation is also recommended for any renovation, conversion or alteration work.

A personal consultation would be indicated when an architect wants to establish a final cost to evaluate contractors' bids and to compare costs of alternative design solutions. It is also useful in situations involving litigation, or to establish a budget at any stage of an unusual or problem structure. If an architect runs into budget trouble during construction and has to modify the plans, such a consultation would also be helpful.

A McGraw-Hill estimator can visit the architect to discuss a particular project and its problems. He will then review all the elements of that building's construction and compare it with the project program and cost budget. This will help determine any major discrepancies or problem areas in the plans which can be adjusted.

At any point in the design or construction process, McGraw-Hill can prepare a comprehensive detailed estimate for a structure. The computer data can be supplemented or adjusted for any specific job. Output can be expressed in metric units or foreign currencies as well. By identifying areas of major cost impact, the detailed estimating service can help the architect determine where design modifications will result in economies in materials and/or labor.

The price for the consultation service depends on the size and complexity of the building and the preparation time required.

Elizabeth Brager
McGraw-Hill
Cost Information Systems Division

DODGE PRELIMINARY DESIGN ESTIMATE
A SERVICE OF DODGE BUILDING COST SYSTEMS/WOOD & TOWER
POST OFFICE BOX 600
HIGHTSTOWN, NEW JERSEY 08520

GOOD CONSTRUCTION
SAMPLE CITY
SAMPLE CITY, U.S.A. 27628

GENERAL EDUCATION BUILDING
SAMPLE CITY

FEBRUARY 21, 1979 ESTIMATE NO. 1070

DESCRIPTION	QUANTITY	UNIT	LABOR	MATERIAL	TOTAL
FOUNDATIONS					
EXCAVATION-BULK	1385	CU YD	1,288	1,369	2,657
EXCAVATION-TRENCH	234	CU YD	347	270	617
COLUMN FOOTING FORMWORK	2534	SQ FT	3,273	1,027	4,300
COLUMN FOOTING REINFORCING	6336	LBS	667	1,847	2,514
COLUMN FOOTING CONCRETE	117	CU YD	778	5,723	6,501
WALL FOOTING FORMS	1130	SQ FT	1,339	458	1,797
WALL FOOTING REINFORCING	1130	LBS	121	358	479
WALL FOOTING CONCRETE	42	CU YD	210	2,040	2,250
WALL FORMS	3153	SQ FT	4,024	1,359	5,383
WALL REINFORCING	3153	LBS	378	919	1,297
WALL CONCRETE	58	CU YD	465	2,935	3,400
WALL FORMS	791	SQ FT	1,009	341	1,350
WALL REINFORCING	791	LBS	95	230	325
WALL CONCRETE	15	CU YD	116	733	849
ASPHALT DAMPFG	396	SQ FT	42	59	101
			14,152	19,668	33,820
FLOORS ON GRADE					
POROUS FILL	363	CU YD	2,271	2,980	5,251
S O G MESH	21120	SQ FT	1,902	4,818	6,720
S O G CONCRETE	240	CU YD	2,388	11,715	14,101
STEEL TROWEL FLOOR FINISH	19642	SQ FT	4,422	499	4,921
POROUS FILL	27	CU YD	171	224	395
S O G CONCRETE	18	CU YD	180	884	1,064
STEEL TROWEL FLOOR FINISH	1478	SQ FT	334	39	373
			11,666	21,159	32,825
SUPERSTRUCTURE					
STRUCT STEEL COLUMNS & BEAMS	177	TONS	21,126	139,511	160,637
CONCRETE SLAB FORMS	16723	SQ FT	23,097	12,081	35,178
SLAB REINFORCEMENT	16723	LBS	1,758	5,299	7,057
SLAB CONCRETE	480	CU YD	6,986	31,656	38,642
STEEL TROWEL FINISH	39321	SQ FT	8,854	997	9,851

GENERAL EDUCATION BUILDING
SAMPLE CITY

FEBRUARY 21, 1979 PAGE 2

DESCRIPTION	QUANTITY	UNIT	LABOR	MATERIAL	TOTAL
SUPERSTRUCTURE	(CONT.)				
PRECAST HOLLOW CORE PLANK	5876	SQ FT	6,175	13,553	19,728
MESH REINFORCING	22598	SQ FT	1,697	5,156	6,853
CORRUGATED GALV DECK	21120	SQ FT	3,804	19,809	23,613
INSULATION	21120	SQ FT	3,804	9,636	13,440
PRECAST COLUMNS	1596	LN FT	9,583	56,638	66,221
PRECAST SPANDRELS	1130	LN FT	6,785	42,966	49,751
METAL DECK-COMPOSITE	22598	SQ FT	13,570	24,345	37,915
STAIRS COMPLETE	3	FLT	4,053	12,167	16,220
			111,292	373,814	485,106
ROOFING					
BUILT UP ROOFING	21120	SQ FT	5,072	7,763	12,835
FLASHING	1	LP SM	550	1,379	1,929
INSULATING CONCRETE	196	CU YD	7,356	12,421	19,777
			12,978	21,563	34,541
EXTERIOR WALLS					
EXTERIOR BLOCK 8"	11562	SQ FT	11,975	10,550	22,525
FACE BRICK	11562	SQ FT	23,779	15,532	39,311
STEEL SASH	1935	SQ FT	2,585	4,586	7,171
INSULATING GLASS	1935	SQ FT	4,939	10,497	15,436
INSULATION-FOAMED	11561	SQ FT	3,471	11,722	15,193
INSULATION-RIGID	4520	SQ FT	1,697	2,864	4,561
			48,446	55,751	104,197
PARTITIONS					
PARTITION BLOCK 8"	21100	SQ FT	21,877	18,203	40,080
HM DOOR-FRAME & HARDWARE	1	LP SM	5,175	24,962	30,137
MOVEABLE PARTITIONS	7150	SQ FT	6,437	27,171	33,608
			33,489	70,336	103,825
WALL FINISHES					
PAINTING	47000	SQ FT	9,177	4,768	13,945
SPRAYED VITREOUS ENAMEL	9630	SQ FT	3,324	4,149	7,473
			12,501	8,917	21,418

GENERAL EDUCATION BUILDING
SAMPLE CITY

FEBRUARY 21, 1979 PAGE 3

DESCRIPTION	QUANTITY	UNIT	LABOR	MATERIAL	TOTAL
FLOOR FINISHES					
LIQUID HARDENER	8026	SQ FT	362	610	972
CERAMIC TILE	845	SQ FT	927	1,392	2,319
VINYL ASBESTOS TILE	24499	SQ FT	6,988	19,871	26,859
			8,277	21,873	30,150
CEILING FINISHES					
LAY IN ACOUSTICAL TILE	27456	SQ FT	5,772	16,703	22,475
GYPSUM BOARD	2957	SQ FT	710	599	1,309
PAINT CEILING	2957	SQ FT	844	301	1,145
			7,326	17,603	24,929
CONVEYING SYSTEMS					
CAB ALLOWANCE	1	EACH	930	4,024	4,954
DOORS|GUIDES|CONTROLS ETC	1	LP SM	1,303	5,193	6,496
ELEVATOR-HYDRAULIC	1	EACH	4,653	18,495	23,148
			6,886	27,712	34,598
SPECIALTIES					
TOILET ACCESSORIES	1	LP SM	589	1,793	2,382
TOILET PARTITIONS	1	LP SM	621	4,189	4,810
			1,210	5,982	7,192
FIXED EQUIPMENT					
FOLDING PARTNS HEAVY DUTY	605	SQ FT	1,980	5,928	7,908
CASEWORK ALLOWANCE	42240	SQ FT	21,120	42,248	63,368
			23,100	48,168	71,268
HVAC					
CENTRAL SYSTEM	43178	SQ FT	103,712	159,795	263,507
			103,712	159,795	263,507
PLUMBING					
FIXTURES & PIPING GROUPED	42	EACH	10,844	16,101	26,945
STORM DRAINAGE	21120	SQ FT	5,390	6,959	12,349
			16,234	23,060	39,294

GENERAL EDUCATION BUILDING
SAMPLE CITY

FEBRUARY 21, 1979 PAGE 4

DESCRIPTION	QUANTITY	UNIT	LABOR	MATERIAL	TOTAL
ELECTRICAL					
ELECTRICAL COMPLETE	43718	SQ FT	69,949	157,385	227,334
			69,949	157,385	227,334
CONSTRUCTION TOTAL			481,218	1,032,786	1,514,004

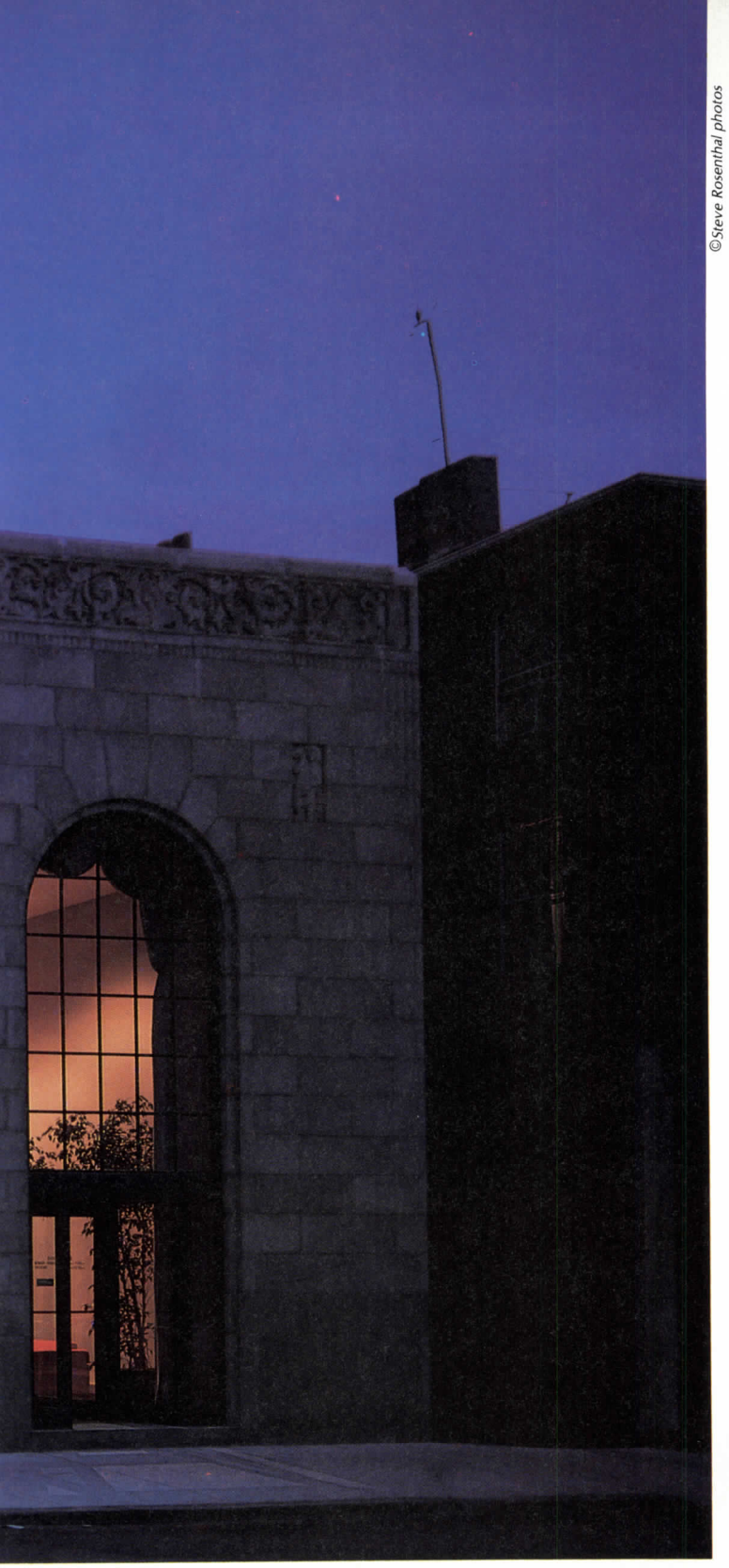
A 10-acre roof of TEFLON...and air

THE EAST CAMBRIDGE SAVINGS BANK

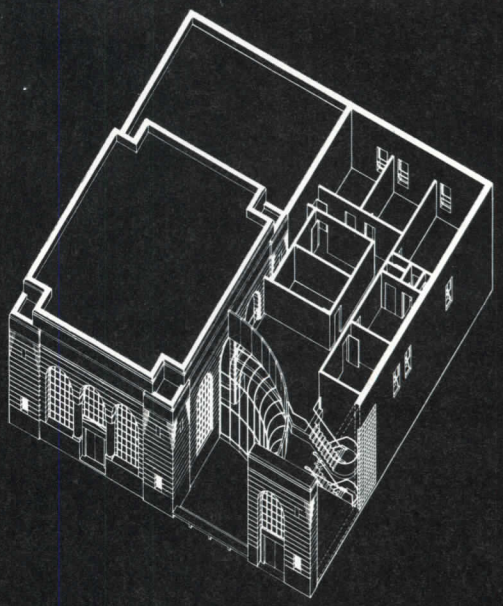
MAGNIFICENCE IN THE EXPLODED VIEW

In as facile and elegant a transition from old to new as can be found anywhere, architects Charles Hilgenhurst & Associates have designed a light, airy and surprising addition to an impeccably restored Massachusetts landmark—surprising not just because of the "fit," but because of the way that part of the older building has been reused as if it was in a drawing in exploded view—*C.K.H.*

Similar to many older single-purpose buildings ranging from courthouses to stores, the East Cambridge Savings Bank is a familiar and distinctive landmark that might have been demolished because it was no longer adequate for the increasing complications and magnitude of its functions—even while arousing strong, possibly passionate sentiments in its owners, clients and passers-by. Fortunately, the irreplaceable qualities of such older buildings are being increasingly appreciated, and the decision—when function falters these days—may not be so much whether to tear down and start over as it is how to add on or alter without wrecking the imagery that was so valuable in the first place. Accordingly, the recent work of Charles Hilgenhurst & Associates in adapting this bank to new roles becomes an object lesson in adding on successfully. The elegant Byzantine Revival landmark was optimistically built with the richest of materials—granite, marble, and bronze—at the height of the Great Depression in 1931. And its symmetrical form would have seemed to be complete in itself, so that no addition could be an improvement. But the architects have indeed enhanced the old building both by contrast in opening once-rather-somber interiors into bright new spaces and by carrying the current vogue for historical recall one step further. As can be seen in the photos above and right, the straightforward new construction is partially contained within a section of the older building's side facade that has been pushed forward to the street—a section that would have been covered by the new construction. And the wonderful composition that has resulted clearly enhances the visual importance of the whole bank, *and* the original part as well.



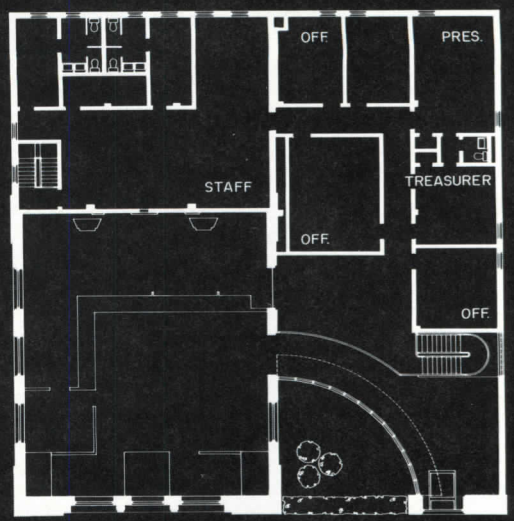
©Steve Rosenthal photos



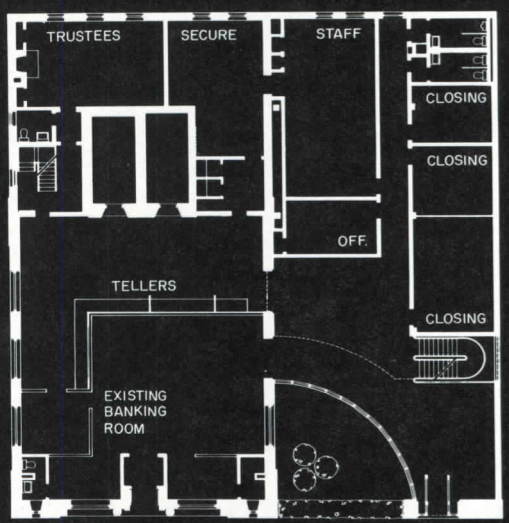
The new addition has been added to the right of the existing building in the photographs and in the isometric view above. By reusing a section of the granite facing from the side of the existing building as part of the addition, the architects have effectively extended the original street facade, while separating the two solid elements with a glazed connection that invites passers-by inside. And while creating a lively new image for the bank, the glazed connection has been designed to clearly state that the relocated facade is indeed an "artifact."

Commissioned to almost double by 9,000 square feet the size of the existing structure to accommodate staff offices and mortgage facilities, the architects not only met the requirements admirably, but provided a new, more accessible public image in that part of the addition that faces the street. By connecting the old facade and its relocated offspring with a recessed and lightly framed glass and plastic wall in such a way that the form of the older building keeps its three-dimensional character, the architects have also softened a once-formidable image by inviting the eyes of the passers-by into the new double height public reception area. To facilitate the relocation of the granite facing, the architects located the original quarry, which supplied the 50-year-old stonecutters' drawings. The new curved transparent wall is framed with steel mullions cut from half-inch-thick steel plate—with glass in wall sections, acrylic in the skylight. The structure is steel attached to the steel frame of the old building. The project has received an Award of Excellence from the American Institute of Steel Construction. Construction costs were $500,000 or approximately $48 per square foot, and have saved an irreplaceable building at any cost.

THE EAST CAMBRIDGE SAVINGS BANK, Cambridge, Massachusetts. Architects: *Charles G. Hilgenhurst & Associates—principal-in-charge: Charles Hilgenhurst; associate-in-charge: Robert Silver; design architects: Warren Schwartz, Robert Silver, William Buckingham; project manager: George Fisher; staff: Barbara Ford and William Powell.* Engineers: *Simpson, Gumpertz & Heger* (structural); BR + A (mechanical/electrical). General contractor: *Bond Brothers Incorporated.*



SECOND FLOOR

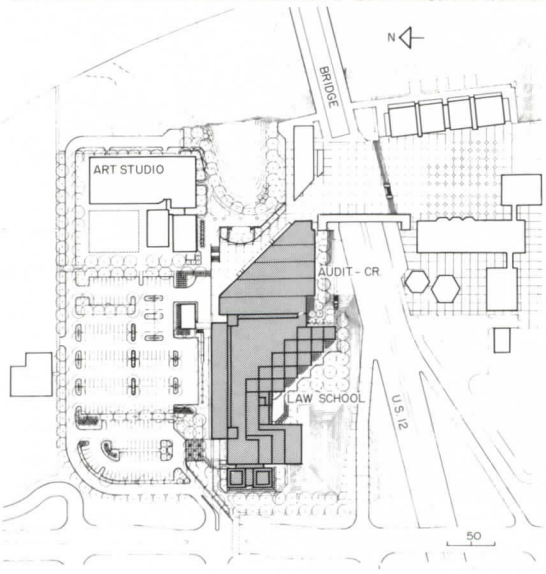


FIRST FLOOR

To accommodate functions that did not exist or were far less important when the original structure was built, the new addition provides a series of enclosed spaces behind a grand new reception area (photo left) that is an invitation to enter when passers-by look through the new curving glass wall. (Note the sympathetic way in which this wall meets the arched opening in what was the original outside wall.) The meticulously restored banking room is seen below.

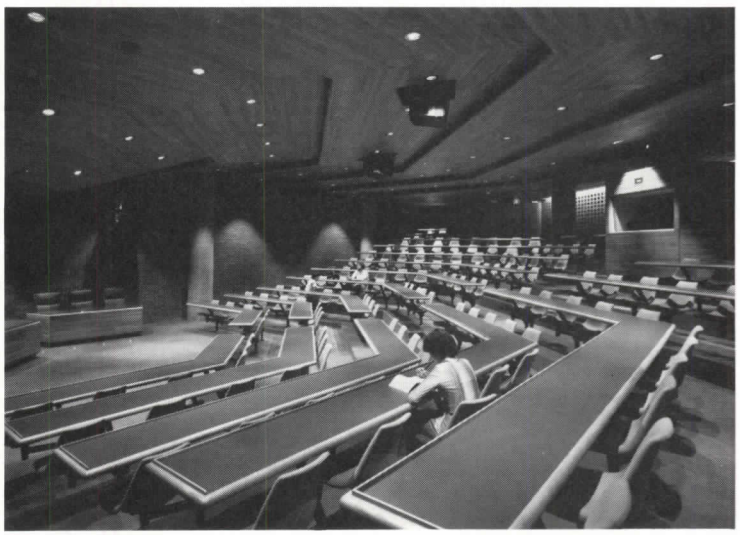
In the view from the mezzanine above, the open quality between the new and old spaces can be fully appreciated—the new deriving visual richness by its proximity to the old and vice versa. The architects have purposely chosen to accentuate the differences in detailing and spatial concepts, so that there is no ambiguity between what was there and what has been added. By a successful contrast of scale, light, color and surfaces, the once dark original interior is enhanced. And new life has been brought to both a building and a downtown street.

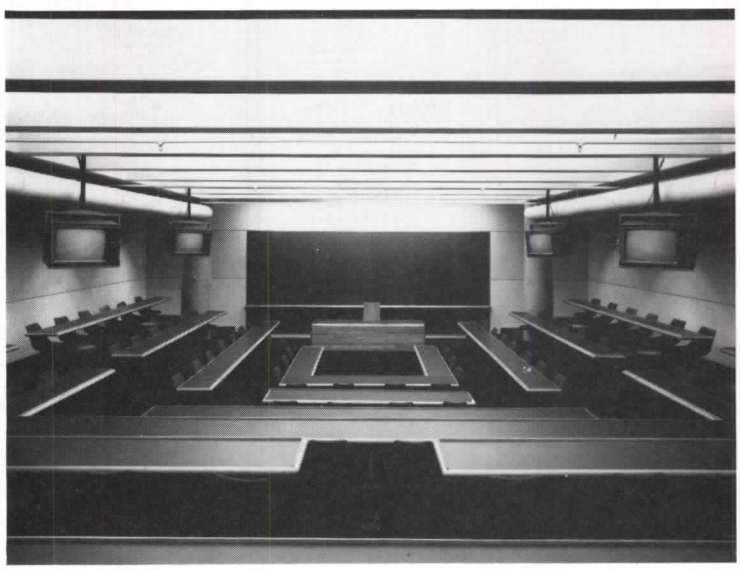
Shin Koyama photos



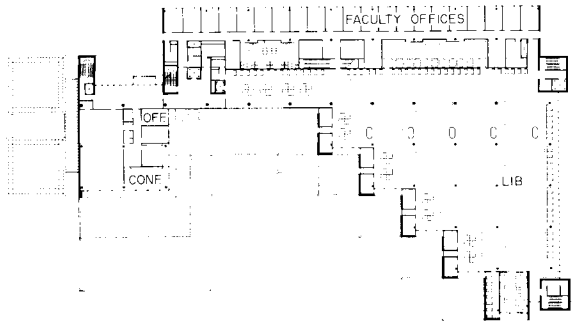
A JUST DESIGN DECISION

The stepped massing and spatial order of the Law School of the University of Minnesota, by Leonard Parker Associates, comprise a serious architectural opinion about the relationship between the law, learning, and life.

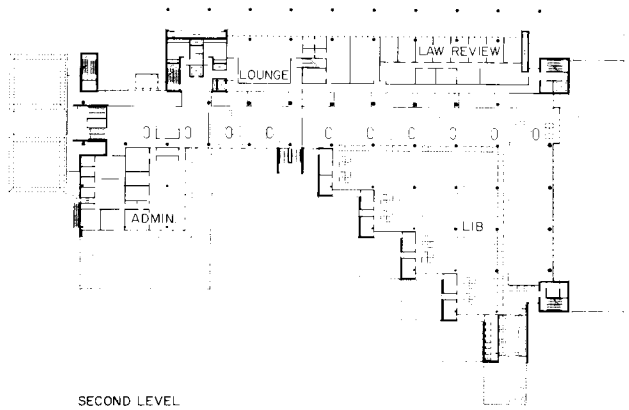




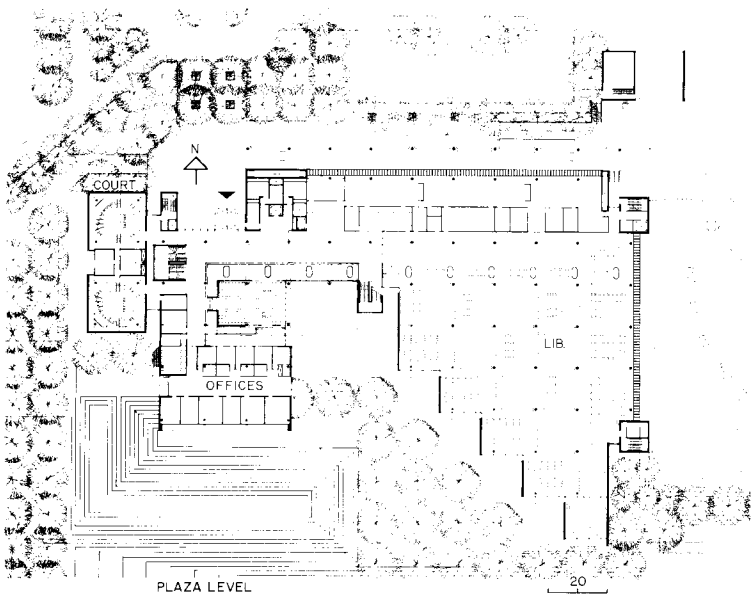
The new Law School of the University of Minnesota, designed by Leonard Parker Associates, is impeccably detailed throughout, handsomely finished, and brings together an array of functional and philosophical elements in a superbly organized plan. Approaching from the south, where the site is bordered by a busy highway, one passes through a plaza embellished with landscaping and sculpture (see previous page). This approach leads into the subplaza level of the building where most of the classrooms are located, the typical type being square in plan (photo above), the larger being a triangle, with sophisticated multi-media equipment, set into the center (above, middle photo). On the main plaza level, one enters from the north into the more formal lobby (upper photo, left), which rises to take in views to and from the second level. Two court rooms (top photo, above) are off the lobby, both with octagonal layouts set into basic square spaces. Lounge areas (near left), with varying degrees of casualness about them, are sprinkled throughout the building. The relationship between floors and functions is punctuated by skylit openings.



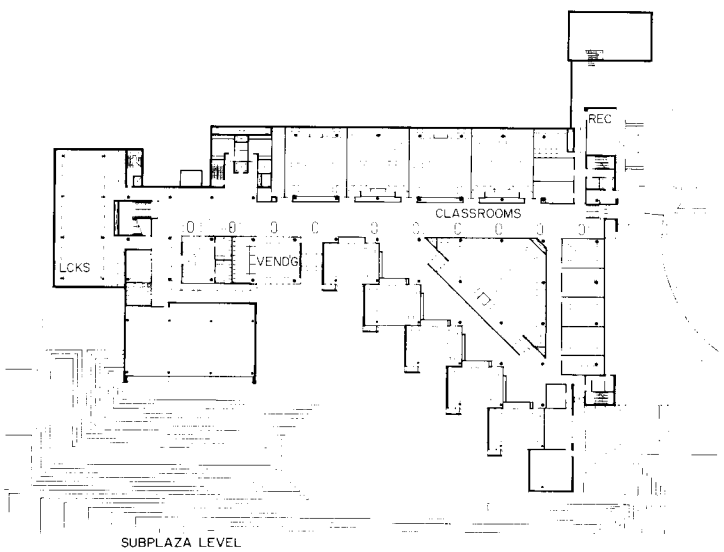
THIRD LEVEL



SECOND LEVEL



PLAZA LEVEL



SUBPLAZA LEVEL

Supreme Court Justice Oliver Wendell Holmes, Jr., like his father, the famous poet, thought that stately mansions are what society needs more of. His own mansion was the logic and experience of the law, and because the Justice set about making it a warm and roomy place, people of every sort felt warmer and roomier themselves. This is because he explained things in a way that was never intimidating, but graciously plain and practical.

One can cite a similar motivation in the design for the new Law School of the University of Minnesota. The architect, Leonard Parker Associates, has accommodated both abstract ideals and actual needs, just as the more thoughtful jurists have responded to specific problems, referring to precedent for philosophical guidance and practical justification. Their opinions, while addressing immediate issues, have also dealt with the historical underpinnings and the future implications of how a problem has been addressed.

This analogy is pertinent to the Law School, here on the West Bank Campus of the University—and to the larger body of architectural thinking today. Much of a useful nature can be learned about the interpretation of precedent by studying, not just the great architects, the great judicial essays.

This building is judicial, indeed—and jumping. More exactly, it steps lively. The reason, besides the some 1,000 students coursing through, is that certain abstract ideals of the law are interpreted as building blocks. And organized around a luminous, lofty area for student activities, these blocks represent the courts (being instruments of justice), the functions of administration, public defender, and legal aid (being instruments of service), and the 600,000-volume law library, with faculty offices edging up around it (being instruments of education).

The massing literally steps up, from the southern facade, which angularly banks a landscaped approachway to an entry plaza. This plaza contains a sculpture by the late John Rood. The configuration of these smaller building blocks, clustering upward, allows a maximum number of law books to be placed on the main plaza level where the main reading room is situated. The stepping up, along with the set-backs of the facade along the approachway, create quiet, room-like areas for reading along the edge of the building. All of which, in turn, helps cut off views to, and noise from, the highway which raucously runs past this side of the site.

The northern facade where the nominally major entry is located, is comparatively simple and flat, facing out on a parking lot—an area where more buildings are planned later on. And the eastern facade is simple and flat too, because there had to be an easy juncture with an existing auditorium and classroom building on that side.

With all the difficulties of the site—that highway, that parking lot—the architects have nevertheless managed to create an enjoyable quality in both entry areas—the tree- and berm-embellished approach from the south giving way to the plaza with its

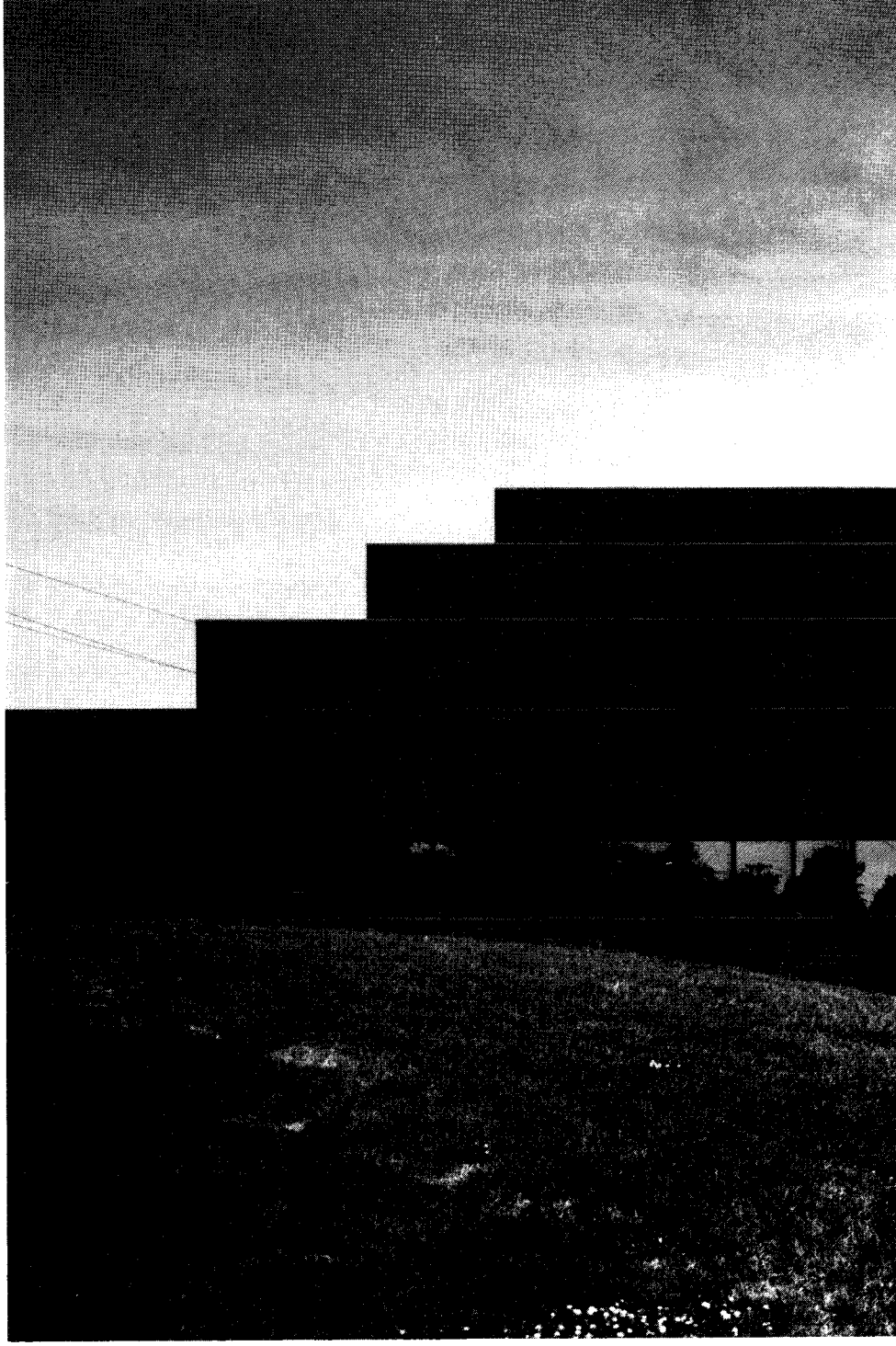
sculpture; and the dramatic depth of shadow offered by the arcade and recessed entry on the north, except that the northern one is more formally and ceremoniously scaled, whereas the southern one gives directly into a subplaza level packed with classrooms off commodious linear lounges. Like one of those big precedent laden books in the stacks, one delves into this building at that point most proximate to the purpose at hand.

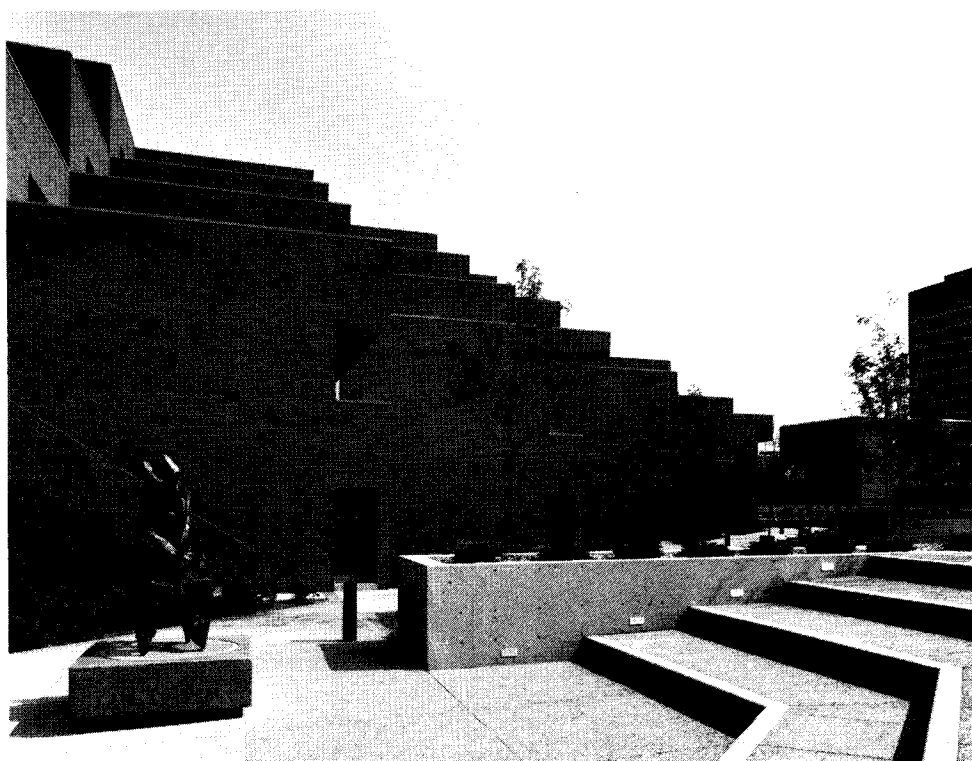
Cracking this volume, one discovers that the brick outside, with its tawny and ebony hues, has been taken inside. The basic concrete structure, with its soaring circular columns, emboldens runs of space that range from the higher entry areas to plentiful patches of seating, where intensive but informal dialogue occurs. Where it is symbolically apt—or otherwise just plain convenient—to have spatial and visual connection between the floors, these openings are enlivened by skylights and stirring views, up or down or both. Such connections occur, for example, between various areas of student activity, between the reading room and stacks, and between the faculty offices and the faculty reading room. There is not a boring staircase or dull passage in here. It is impossible to sit in this place, or walk through it, without having intriguing glimpses into some other area, such as the stacks and carrels that overlook each other, or the promenade-style expanse which introduces the new building to the existing auditorium. Even the most sequestered seating area overlooks, or looks out toward, some other space—so there is a constant sense of motion gathered together in an atmosphere of remarkable calm.

As remarkable, and perhaps contributing to this calm, is the detailing. Outside, the reflective insulating glass ranges between the planes of brick, and beneath the crisply framed overhangs, secured by spare frames; inside, even the fire sprinklers are of the nicest sort. The reason for this is that the sprinklers themselves are not obvious. In terms of energy conservation, the building is frank in its tactics, from the deep overhangs to the nature of the glass to every last roof surface, all of them covered over with earth and planted with evergreens.

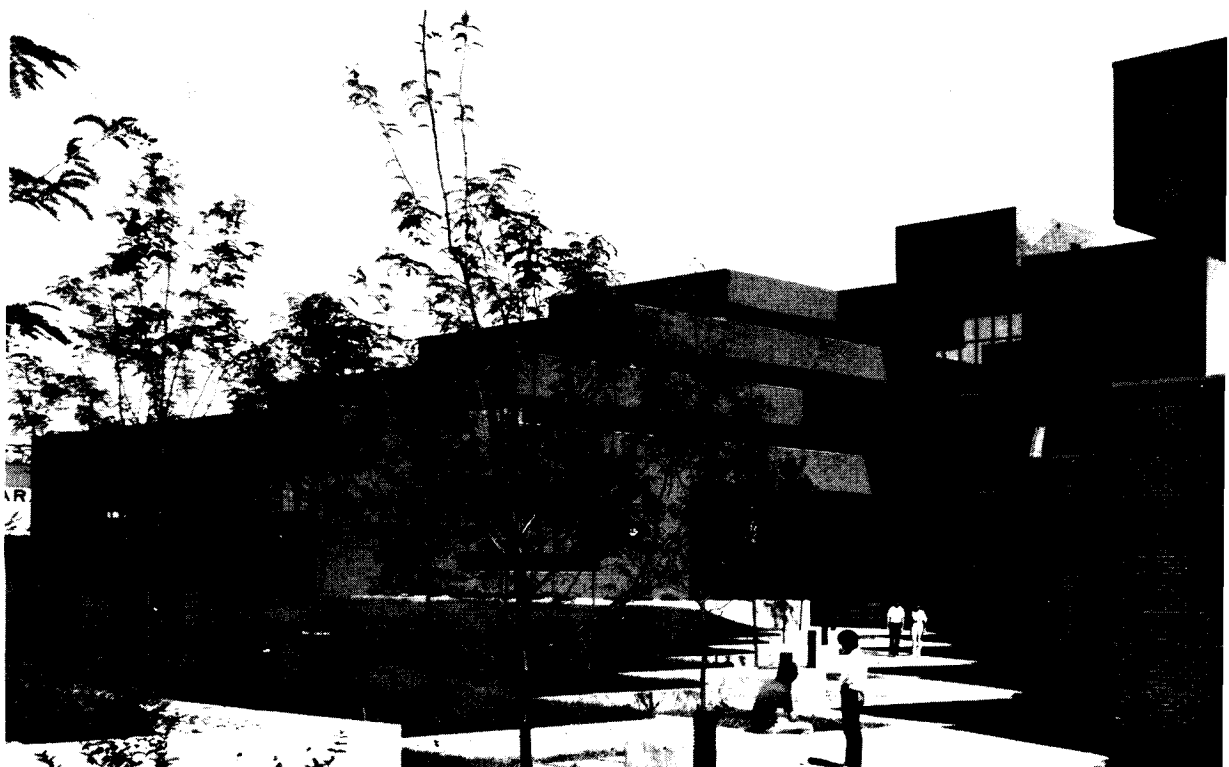
Finally, after having reconnoitered the stacks and students, one comes upon the two court rooms, each octagonally configured within a square space. Instruments of justice, indeed—elegantly, perfectly done. And their dignity doesn't depend upon the word justice having been carved into the handsome woodwork behind the bench, which (hooray!) it isn't. Like the building as a whole, these courts express a civility of spirit, a quality of conduct, that people would readily get on their feet for, whether a judge was coming in or not. That impulse is what this stately mansion brings out. —*William Marlin*

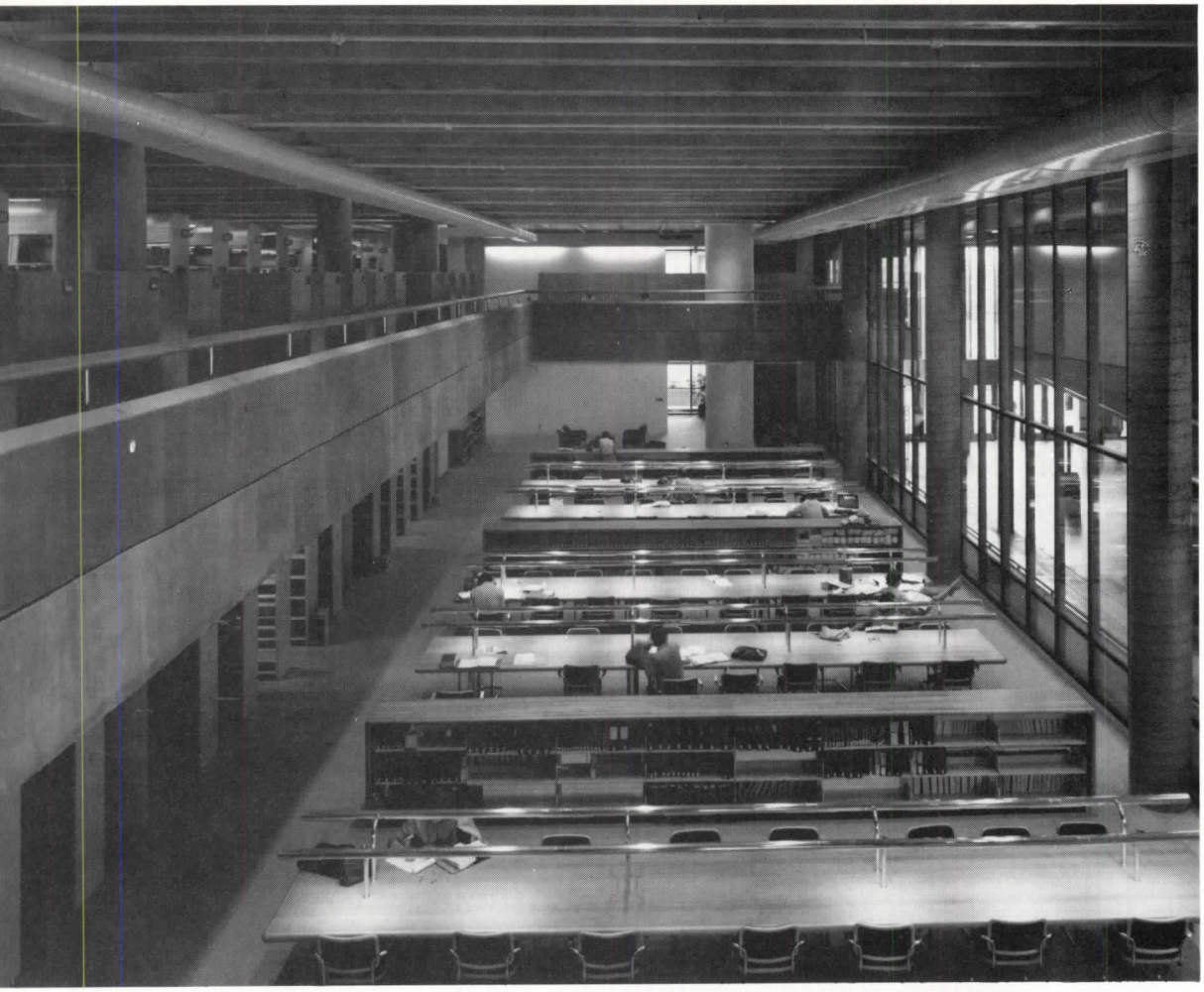
LAW SCHOOL, UNIVERSITY OF MINNESOTA, Minneapolis. Architects: *Leonard Parker Associates*. Engineers: *Bakke Kopp Ballou & McFarlin* (structural); *Ericksen Ellison & Associates* (mechanical/electrical). Landscape architects: *Bailey & Associates*. Contractor: *Bor-Son Construction, Inc.*

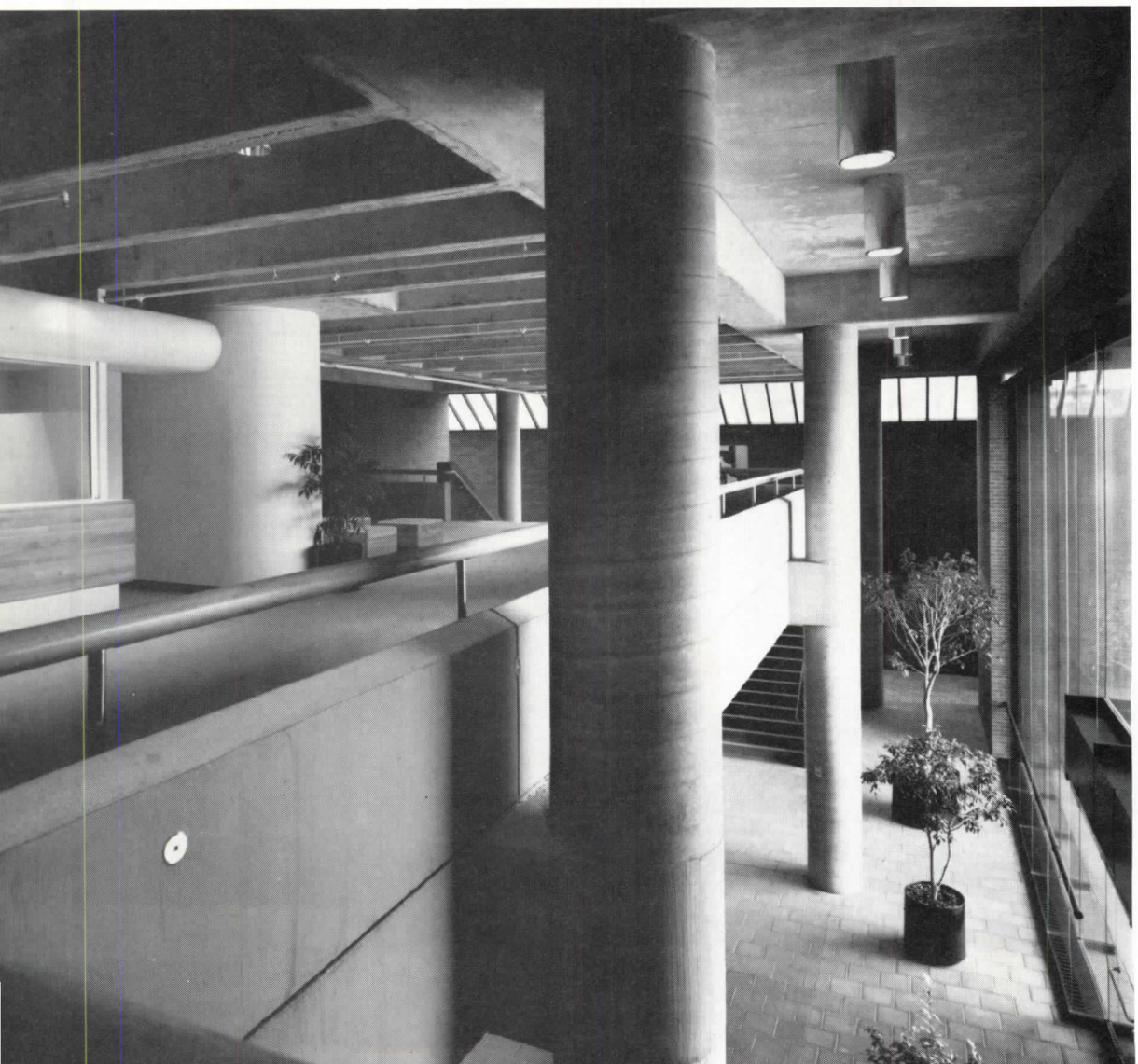




The Law School rises from the site like a series of brick river bluffs, which is natural enough considering that the Mississippi runs just to the east. Looking from the southern entry area (left), or to it, down the landscaped approachway (right), the stepped-up massing makes for a richly tactile presence while also expressing the interior arrangement of functions. Looking at the photo above, administrative functions are housed in the section to the left; lounge areas, including one with an outdoor terrace overlooking the entry plaza, rise in the middle; and the law library clusters up toward the right. Taking an honorable mention in the Owens-Corning Fiberglas Corporation's Energy Conservation Awards Program, the building's orientation, overhangs, and careful use of glass yield an annual savings of 3.35 billion BTUs below state requirements.



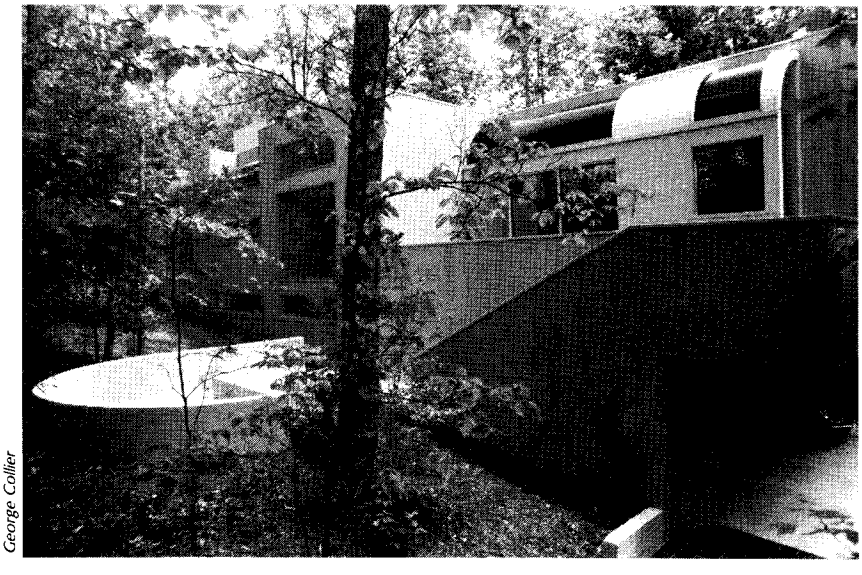




The stacks and carrels of the 600,000-volume law library range up from and overlook the main reading room (upper photo), and running along the eastern edge of the new building, this area in turn overlooks an expansive lobby area connecting the new building with an existing auditorium. Smaller reading areas, arranged in the setbacks around the edge of the library section, afford options for even more quiet and intense study. The skill with which such vertical connections are handled is dramatized in the main northern lobby (lower photo) where, once more, the spaces prove to be as tactile as the building's adroit interplay of concrete and brick.

All photos by William Mills except as noted

Sunlit spaces in a large Virginia residence

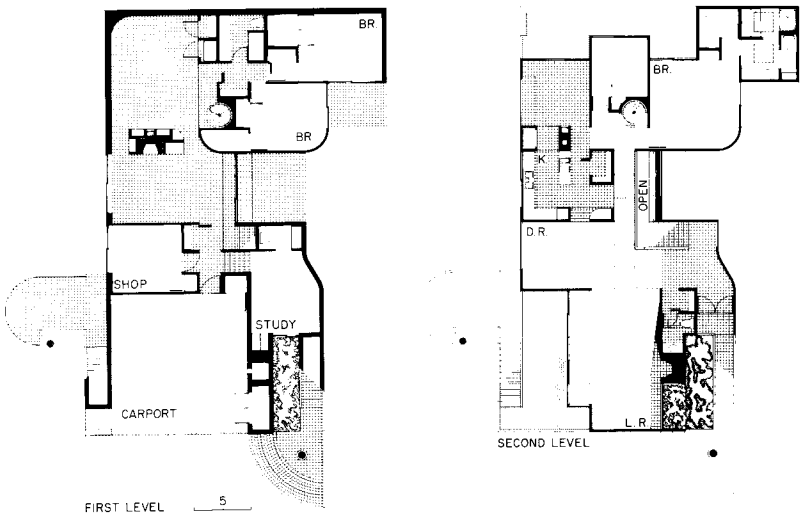


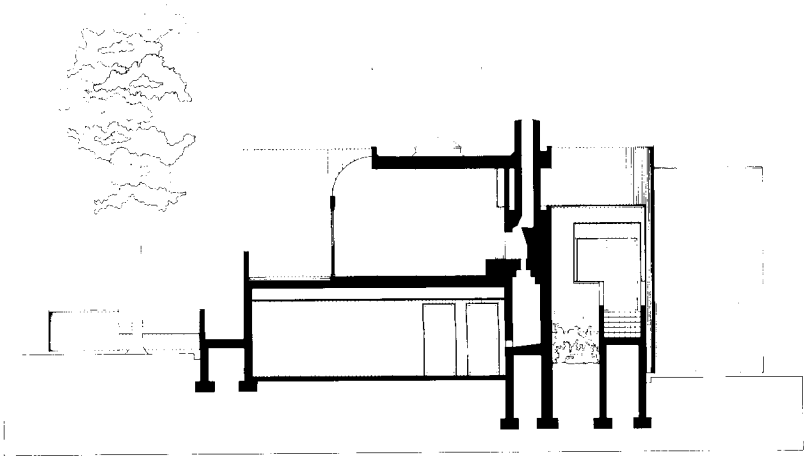
George Collier

A large detached house on a small site often looks like a child who's outgrown its clothes. But architect Joseph Boggs has succeeded in circumventing this problem in his design of this Virginia residence.

Boggs, who has a studio with Dewberry, Nealon and Davis in Annapolis, Maryland, designed this house for his parents. The elder Boggs desired privacy and separate areas for work, entertaining and extended family visits. The result—4,600 square feet of enclosed space on a one-acre lot—fills these requirements while fitting comfortably into its surroundings.

Artful siting and a careful use of materials are some of the reasons the house does not overwhelm its wooded site. The exterior, finished in natural cypress siding and stained, has large





expanses of clean, uncluttered surfaces upon which the delicate play of shadows from the neighboring trees can be seen to best effect. The horizontality of the house serves as an effective contrast to the height of the trees; and the squares and rectangles that make up the exterior are not so complex as to seem in discord with the natural surroundings.

This wooded site was selectively cleared to give the Boggs the best of both worlds. Enough trees remain to cloak the structure in a private film of green while still permitting large amounts of sunlight to enter. In fact, natural daylighting was a major priority for the Boggs when visualizing their house. For this reason, the house was sited with a southwest/northeast axis and set on a four-foot-square grid for proportional and dimensional control. The siting allows morning sun to penetrate the kitchen and bedroom areas, while other sections of the house receive light at times of peak usage. A series of curved skylights further serve to accentuate the feeling of light and openness that is prevalent throughout the house. The skylights are an elegant design detail and do not detract from the energy efficiency of the house. Made of heat-formed ¼ in. acrylic, with an 80 per cent transparent tint, they permit direct

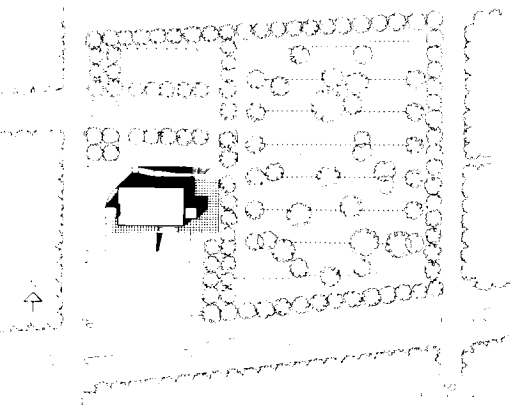
sunshine during the winter when the sun is low, but shield harsh glare during the summer months.

Although heightened by the skylights, the open, airy feeling that pervades the house is due in great part to the 1,405 square feet of thermal glass used in its construction. This passive solar design minimizes the heat load of the all-electric house—the mechanical system consisting of a heat pump split system with humidification. Energy efficiency and economy have been imparted to the structure by the care taken with insulation, including the use of double-layer drywall, R-30 batt insulation, rigid insulation and aluminum insulating sliding doors and windows.

The major portion of this construction work, including the installation of the kitchen, roof, and mechanical systems was done by the owner, a mechanical engineer, thereby holding construction costs to a remarkable $19 per square foot.
—Gauri Bhatia

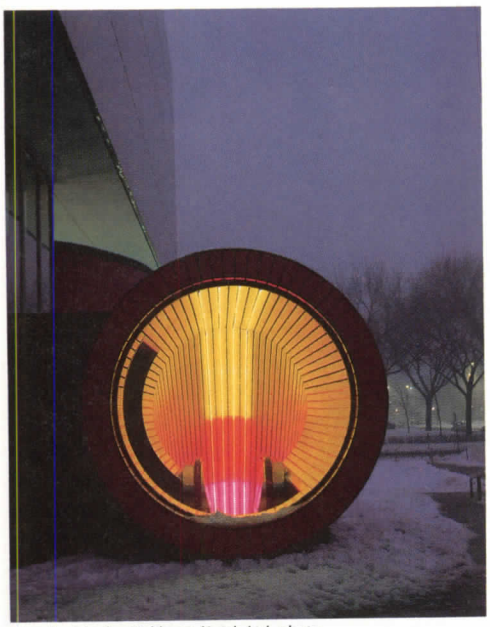
BOGGS RESIDENCE, Richmond, Virginia.
Owner: *Mr. & Mrs. Beryl A. Boggs*
Architect: *Joseph Boggs, Joseph Boggs/Studio of Dewberry, Nealon & Davis.*
Engineer: *B.A. Boggs.*
Lighting consultant: *Peter Barna Lighting Design.*
Contractor: *Boggs Construction Co.*

SCIENCE EXPERIENCE FOR THE PUBLIC



The Detroit Science Center offers a unique kind of experience for the public—a "hands on" opportunity in which one can experiment with various kinds of science exhibits. While the building is the first major science exhibition hall in Detroit, it is more importantly one of the first to be specifically designed to accommodate this "participatory" approach, the new direction in science museums. Detroit is finding itself in league with a few other successful science play worlds, including Seattle's Pacific Science Center, San Francisco's Exploratorium and Ontario, Canada's Science Centre. This facility is just a beginning—when all the squares on the master plan are filled in, a four-block area adjacent to the cultural center will be multi-purpose exhibition space. —*Janet Nairn*

Balthazar Korab photos except as noted



Timothy Hursley/Balthazar Korab Ltd. photo

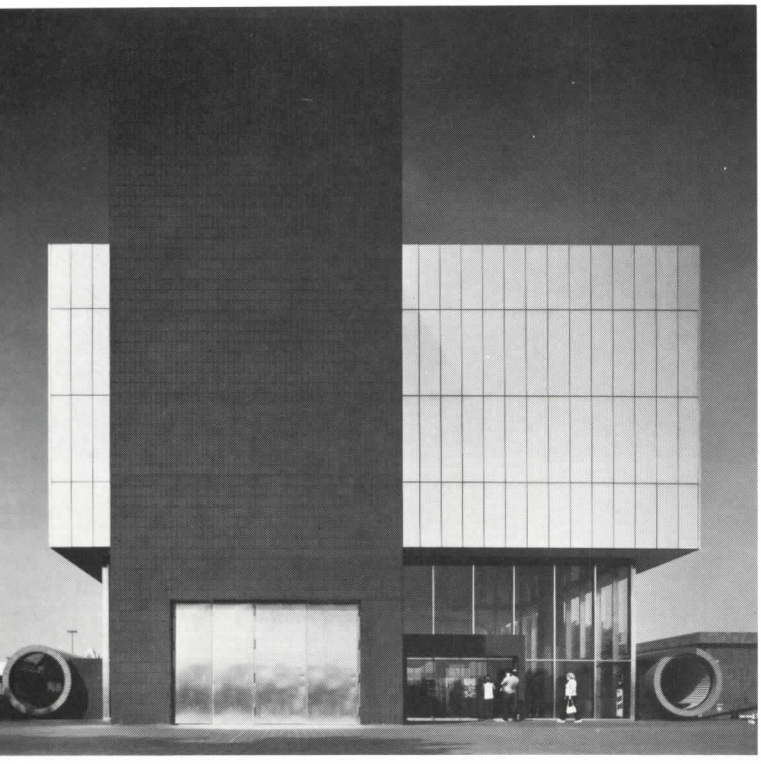
A clean, crisp, attractive and unpretentious structure is the outcome of conflicting spatial necessities in the Detroit Science Center. Each of the three major interior spaces had quite different criteria—the exhibit hall needed to be large and windowless, while the lobby wanted to be open and inviting to visitors, and the theater as a self-contained unit required a large area for its high dome. This diversity is reflected on the exterior through form, color and materials.

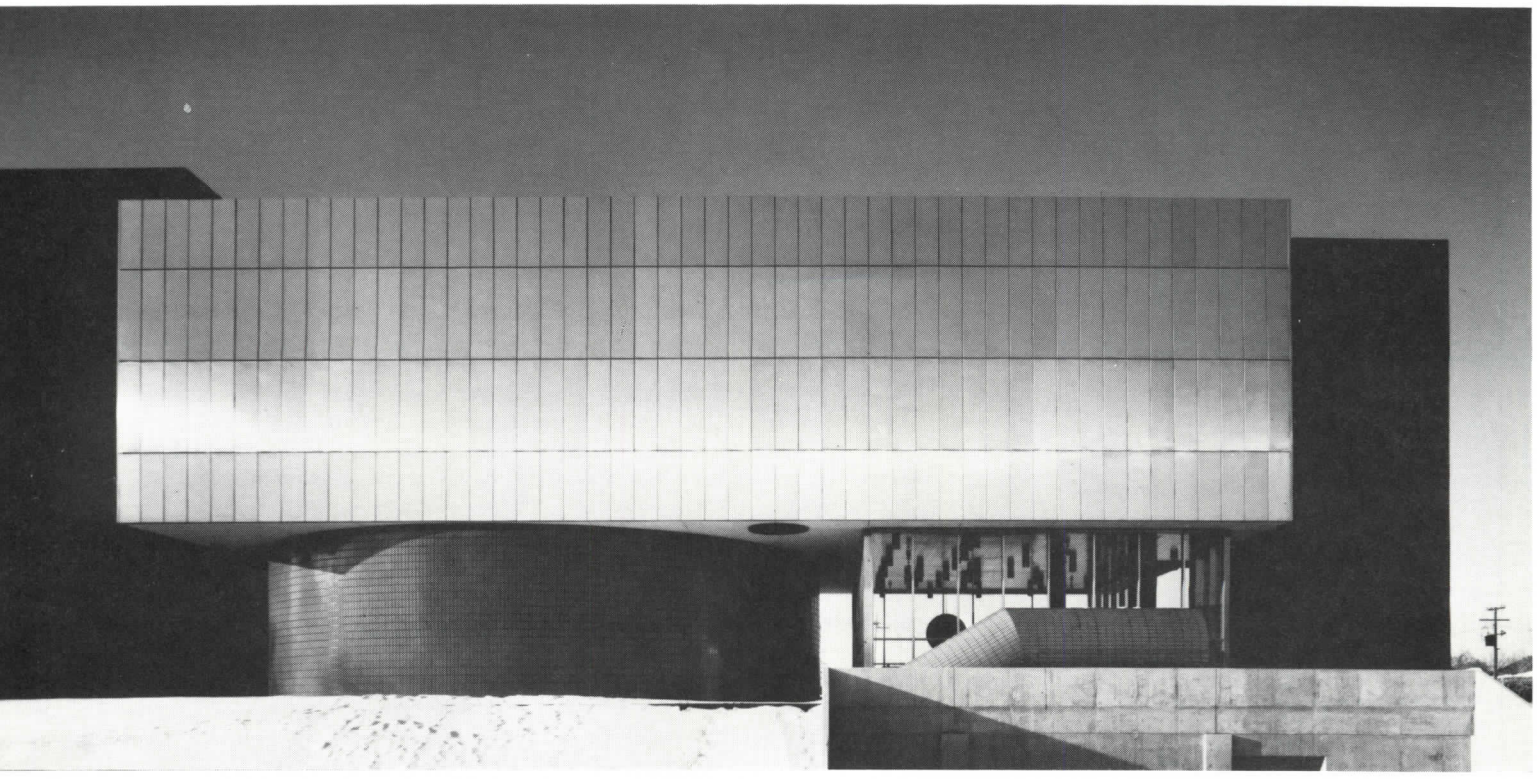
The Science Center is strategically located in the Detroit Cultural Center, adjacent to the Institute of Arts, the Center for Creative Studies, Public Library, State University and other cultural institutions. It was sited to enhance its identity, as a terminus of a vista corridor flanked by the Detroit Art Institute and Rackham Memorial building. This structure is only one-twentieth the size of the master plan; as Phase I it sets the design vocabulary for the entire project. Future exhibition buildings will be a series of interconnected boxes of different sizes to house any type or size exhibit. Each expansion will be clad in the same materials and have similar stair/elevator towers.

The goals of any science center are to entice, stimulate and educate. This physical structure carries out the first two goals by providing some very exciting experiences through the creation of space. Part of its enticement is through its visual identity in siting, form, and bold and colorful use of exterior materials, but the most noteworthy attempt in spatial creation is the design of a special transition space (one usually dull and uninviting)—passage on the escalators to and from the sunken theater. Two escalator tubes (see cover and last page) are designed and positioned on the outside of the building, one tube parallel to the south elevation and one parallel to the north elevation. An internal light display is both attractive and intriguing from the interior and the exterior.

The building form is expressive of its interior spaces. Even though the site is flat, architect William Kessler decided to position the large special theater mostly below grade, minimizing the height of the structure; where the top of the theater does break through at the plaza level, its circular shape was retained. The top rectangular exhibit floor is set atop the lobby and theater, with open plaza working in and around the building outline.

An important aspect of this public building is its outside circulation patterns. A two-part entrance (left) has one stairway for large student groups which leads to below-grade facilities adjacent to the theater; for the handicapped, a ramp leads to the front entrance and elevators open directly off the lobby. Located on the west tower is a service elevator for exhibit entry and removal (below). Exposed tubes along the perimeter house escalators; a glass end wall (detail far left) permits a view to the exciting escalator tubes before entering the lobby.





Detroit Science Center interiors are varied to handle the diversity of exhibits displayed. The structure consists of 35,000 square feet of space on three levels: a sunken level housing a circular Space Theater and ancillary facilities; a plaza level with entrance and information booth; and a large, open, windowless exhibition space on the upper level.

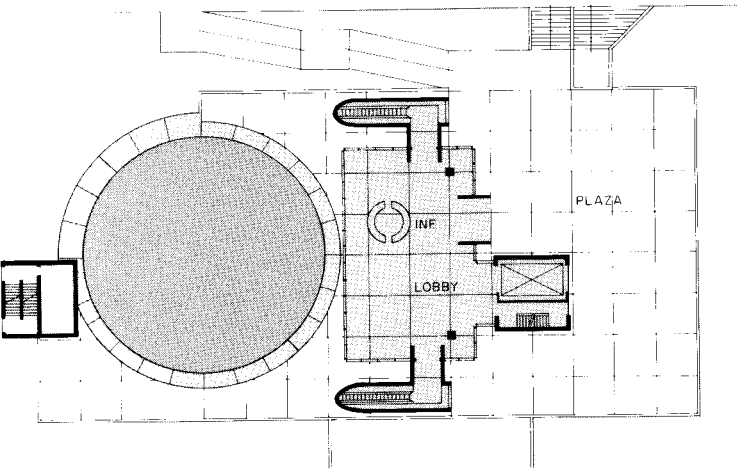
One of the most important spaces is the Space Theater, also called a "sensorium," that is a hemisphere, 67½ feet in diameter. As a multi-purpose dome, it is perforated for use as a planetarium, but unlike older planetaria, the floor is tilted at a 20-degree angle with all seats directed westward with a full view of the curved ceiling. A highly sophisticated set of projectors and a computer have the capability of producing the most up-to-date shows with a wrap-around, fish-eye effect. High-back, semi-reclining seats were specified with individual electrical earphone hookups.

The exhibition hall was meant to be a backdrop to the exhibits. It is open, column-free (due to trusswork at ceiling height) and windowless, all painted black. An interstitial space frame floor provides easy and immediate access to all mechanical/electrical services.

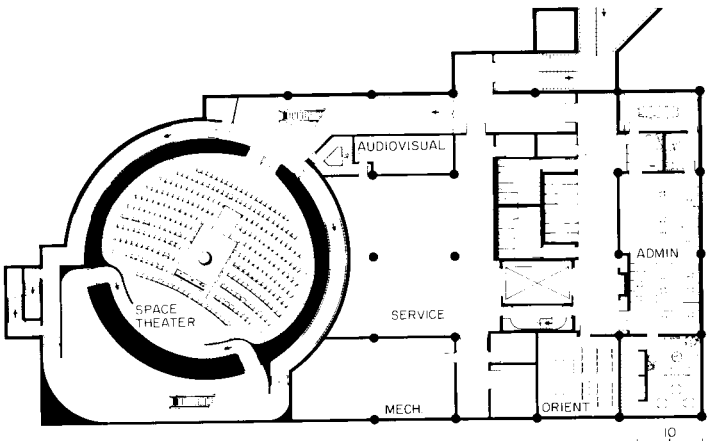
Museum "fatigue," a common problem in many facilities, is minimized here in several ways: the size of the museum is not overwhelmingly large; there is a change in textures, colors and spatial volume on different levels; and in moving from floor to floor views are directed to either special exhibits, the exterior plaza, or to the immediate surroundings, as in the escalator tube.

Of all the interior spaces the most exciting are the escalator tubes (see overleaf) through which people move to and from the Space Theater. Because the tubes connect only the lobby and theater and are located outside the building, they are mostly underground, providing Kessler with an unparalleled opportunity to design a unique experience. While this experience is different than others in the museum, it does carry forth the participatory theme.

DETROIT SCIENCE CENTER, Detroit, Michigan. Owner: *Detroit Science Center, Inc.* Architects: *William Kessler and Associates, Inc.* Engineers: *McClurg and Associates, Inc.* (structural); *Hyde and Bobbio, Inc.* (mechanical/electrical). Acoustical consultant: *Klepper, Marshall, King Associates, Ltd.* General contractor: *A.Z. Shmina and Sons Co.*

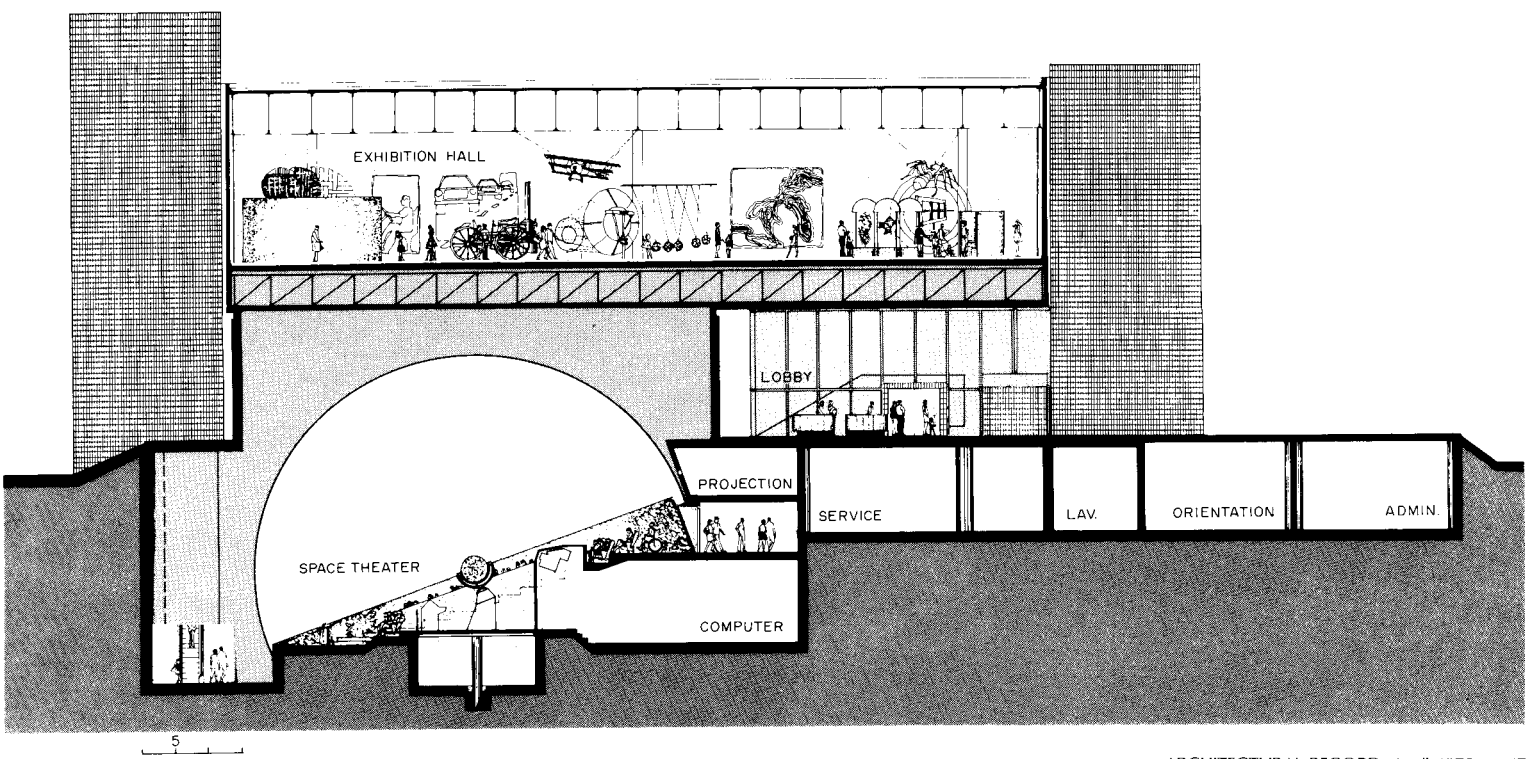


PLAZA FLOOR



GROUND FLOOR

A large, open exhibit area on the top floor (left and right) is capable of housing large-size exhibits, and particularly those in which individuals can participate. A Space Theater (above right) can accommodate nearly all types of shows, with rear screen projection and projection from the center (as with a star projector). The entrance lobby (lower left) is entirely glass-enclosed with a connection to escalator tubes (see overleaf).

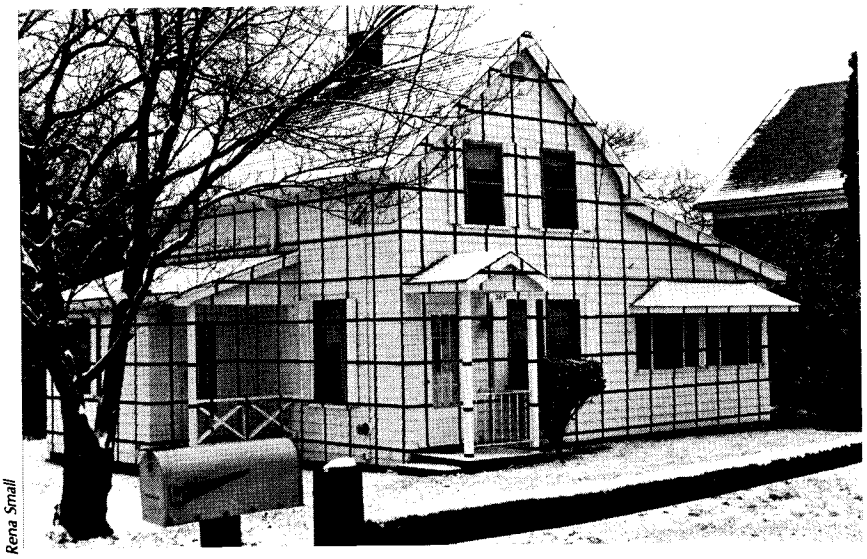


Timothy Hursley/Balthazar Korab Ltd. photo

Undoubtedly the most visually exciting space is the unusual ride up and down the escalators. Two escalators connect the lobby at plaza level to a sunken Space Theater, but each is positioned outside and on opposite sides of the building, and connected to the lobby by a short flange. A 75-foot-long escalator descends to the entrance of the theater at its deepest point, while a 45-foot-long escalator ascends from the theater exit to the lobby (see section on preceding page). The tube through which one passes is lined with linear panels, white for high reflectivity, with neon lights of different colors of the spectrum running in the grooves between the panels. As one rides through the tube, several additional effects heighten the experience: light pulsates through the neon fixtures from the top to the bottom of the tube; natural light streams in from the end of the tube, which is enclosed with ¾-in.-thick glass; and one ascends from a small open area painted dark blue through a circular opening, highlighting the entrance to the tube. From the sidewalk outside, this compound multiplicity of lights and movement can be seen through the glass end of the tube, serving as an enticement to passers-by.

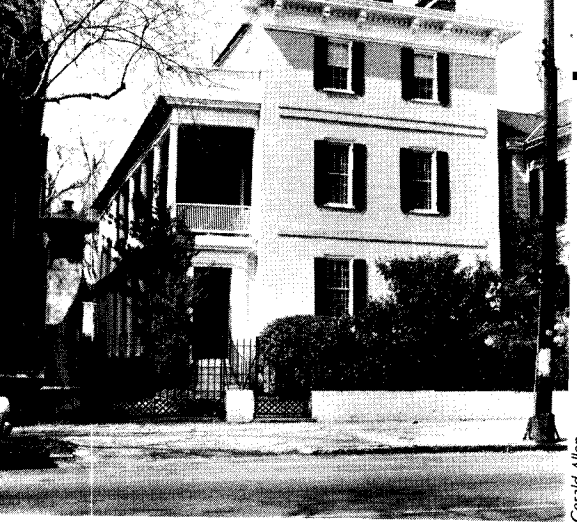
POSTURES

Architects use houses as the vehicles for their latest notions about design. Here and on the following pages, with a commentary after that, are two recent entries in the rhetorical race. One is a house (below) in South Carolina, built in a new suburb but nonetheless taking its cues from elegant Charleston townhouses of memory. The other is near Boston, an old house to begin with, but now sporting an obviously contemporary addition. Both cause wonder, and maybe delight. Both were clearly meant to.



Rena Small

Gordon H. Schenck, Jr.



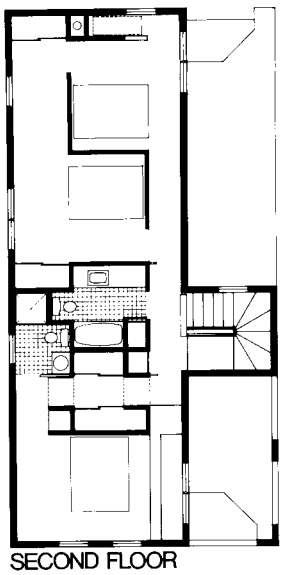
Gerald Allen

CCSH 1 (CONTEMPORARY CHARLESTON SINGLE HOUSE ONE)

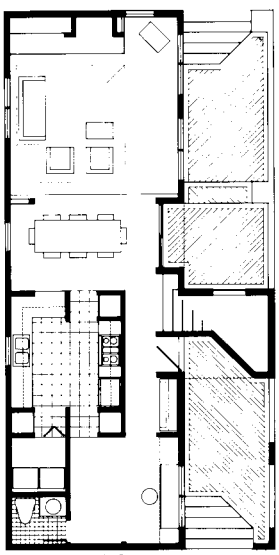
The architect of this house reports that his goal was not to create a "caricature" of traditional Charleston architecture (photo left) by mimicking its details, but instead to seek "the physical and philosophical characteristics of the eighteenth- and nineteenth-century Charleston single house which are valid in our own time, and to interpret these in a contemporary building." Built in a suburb near Charleston designated by its developer as a version of the traditional Charleston neighborhood, the house turns its short side to the street, and on the south it opens onto a side yard. The old-fashioned two-story piazza, or porch, is here left unroofed, and it is interrupted by a stair tower which moved outwards to make room for the un-traditional kitchen which was inserted inside.

PENNEY HOUSE, Mount Pleasant, South Carolina. Architect: *Thompson E. Penney*. General contractor: *Baker-Hunt Construction Co.*

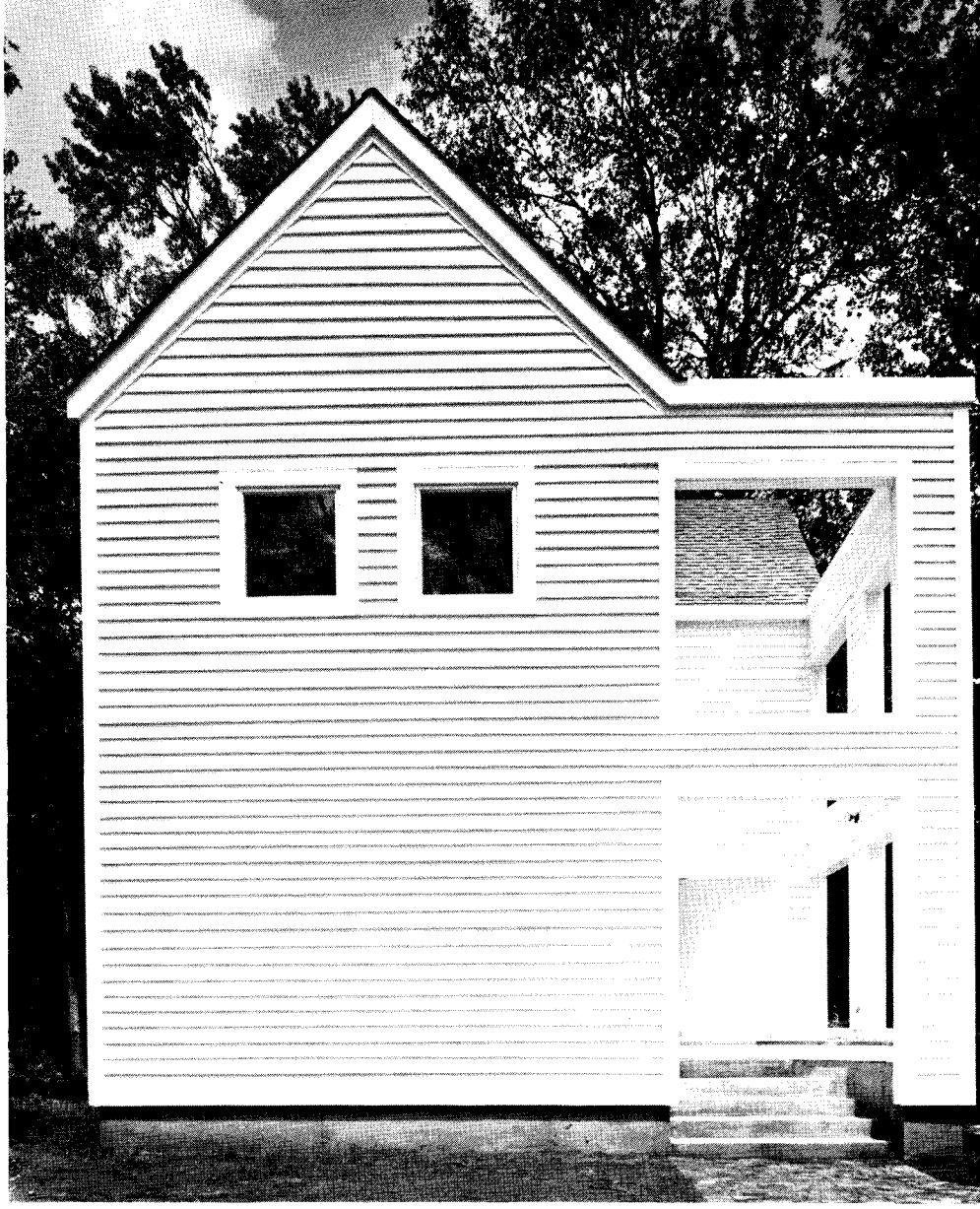
Gordon H. Schenck, Jr. photos

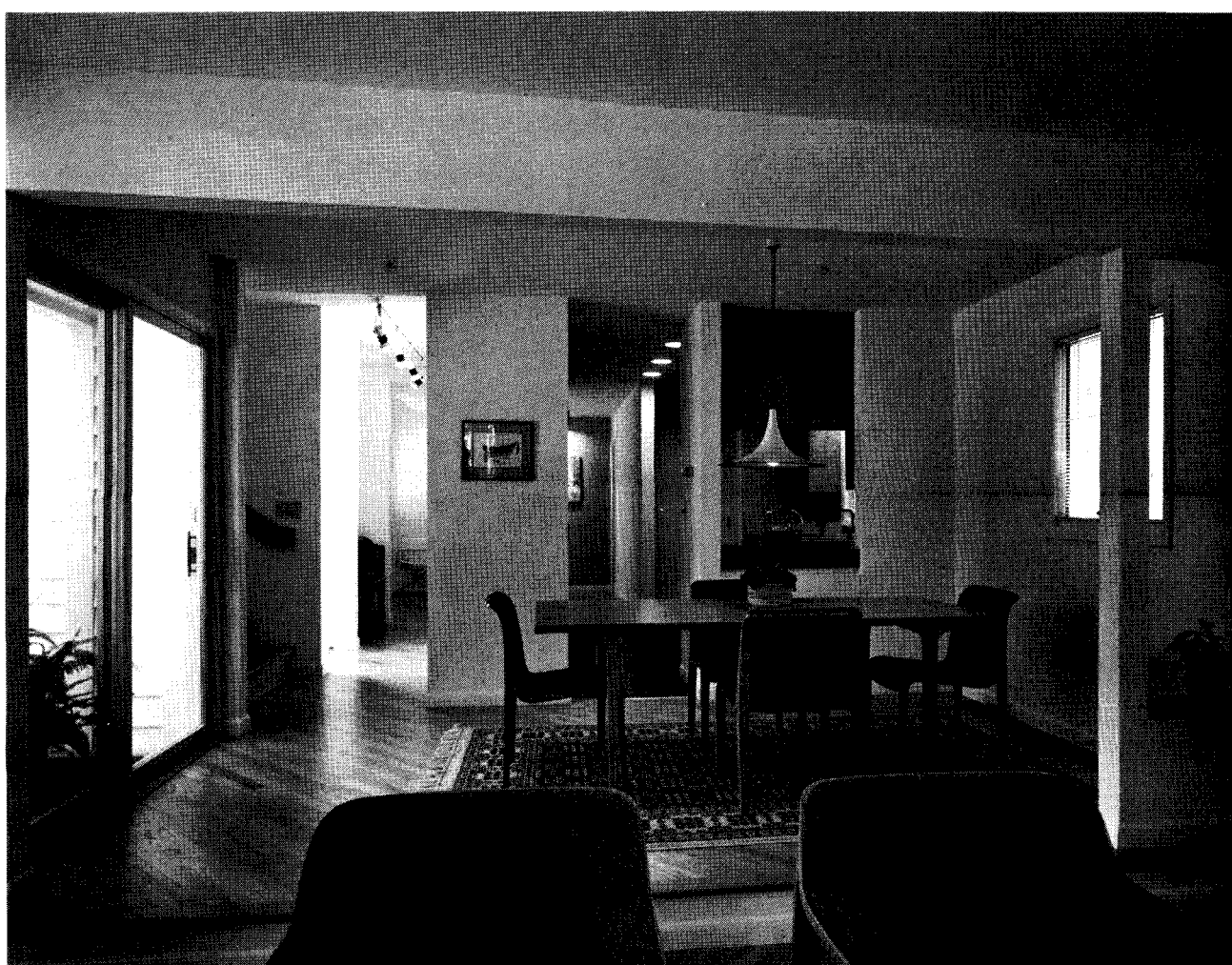


SECOND FLOOR



FIRST FLOOR



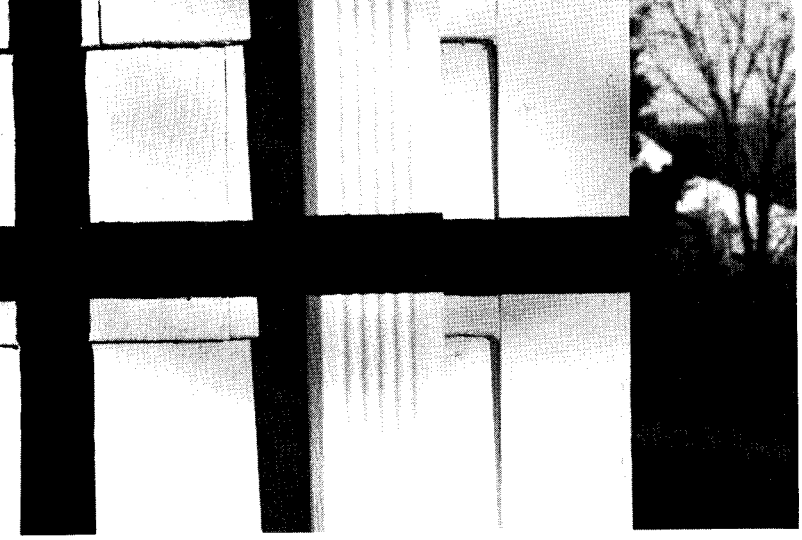


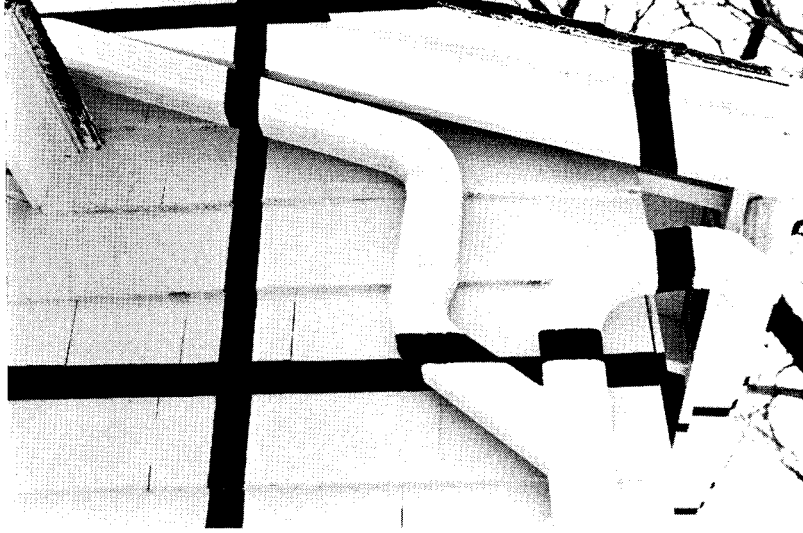
Rena Small photos

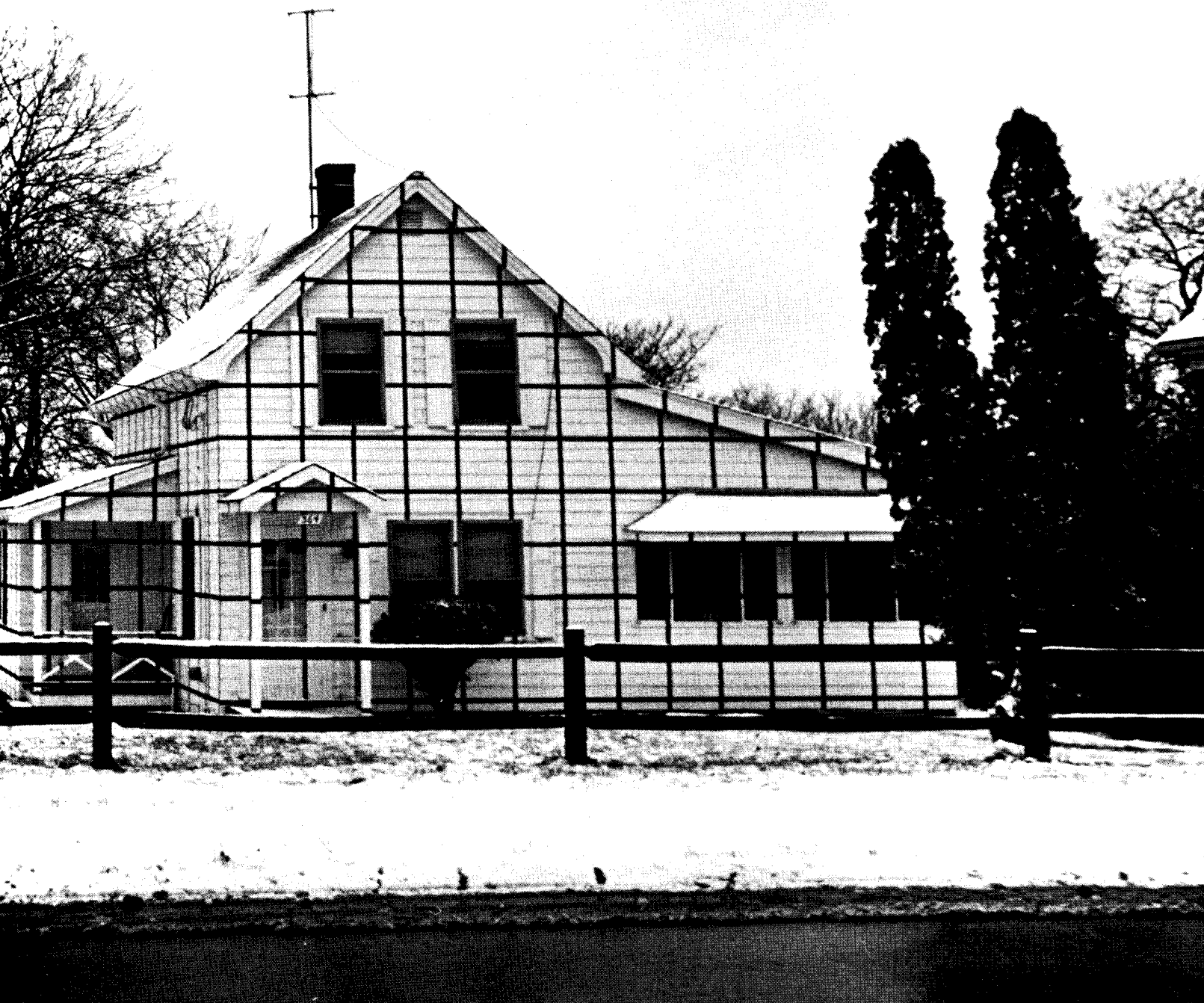
GRID HOUSE

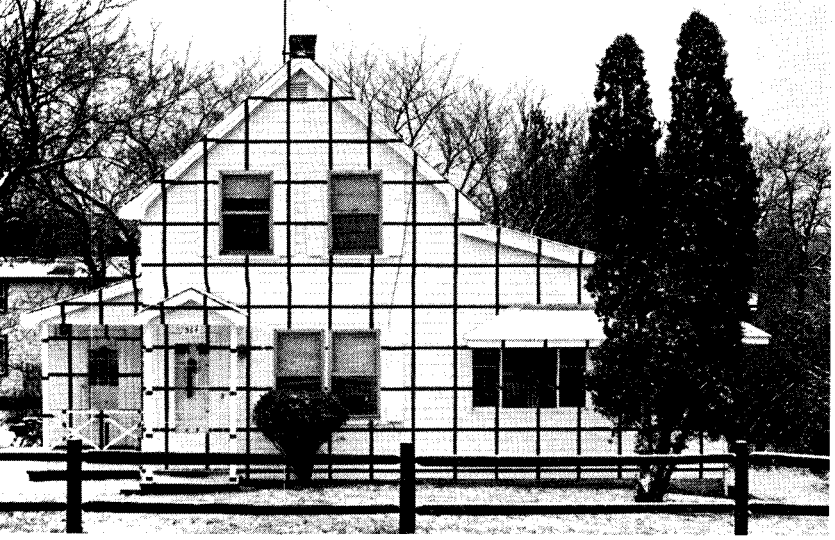
The author of this design describes it as an "instant landmark," and indeed it does provide an impressively quick solution to the problem of how to make a house special. Grid House began as a plain nineteenth-century farmhouse with dark red shingles. It was then painted over entirely in flat white, then a black grid was painted on. It consists of two-foot squares, and the lines are about two inches wide; they wrap around porch railings, shutters, doors, windows, and downspouts to create in the mind an abstract envelope that embraces the buildings. The rigidly regular pattern of the grid, too, results in a surprising richness as it falls across the more circumstantial shapes of the house and barn. In all, it is a startling and startlingly economical way to achieve effect and notoriety.

GRID HOUSE, Braintree, Mass. Artist: *Michael Mc-Donough.*

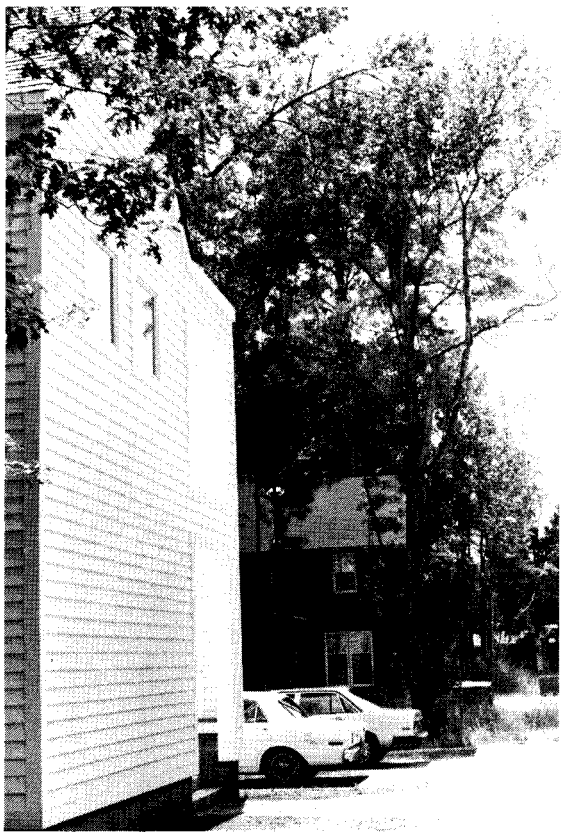








Rena Small



Thompson E. Penney photos

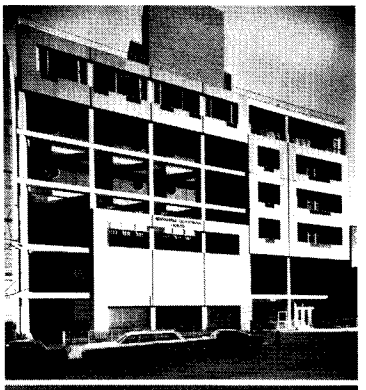
"Grid House" and "Contemporary Charleston Single House One" have two sets of things in common. The first is that each house has in it elements that are particular and elements that are abstract. In the case of Grid House, the particularities of an ordinary New England farmhouse are overlaid with the abstract patterns of a grid. In the case of CCSH 1, most of the elegant particulars of the traditional Charleston townhouse are abstracted to reveal what its architect hopes will be its essence—and, of course, other more contemporary particulars are added in the process.

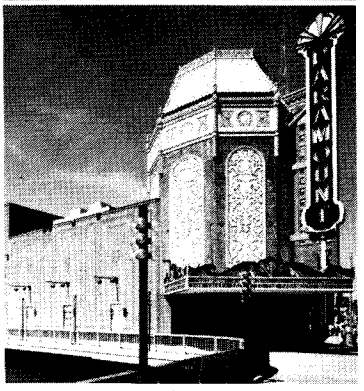
The second thing both houses have in common is their urge to feed on the past to gain partial, but not complete, sustenance for the design task at hand. The Grid House project starts with an old house already there, and thus it is as traditional and up-to-date as it is particular and abstract. CCSH 1 starts only with the memory of older houses and then updates it at the same time as it abstracts it.

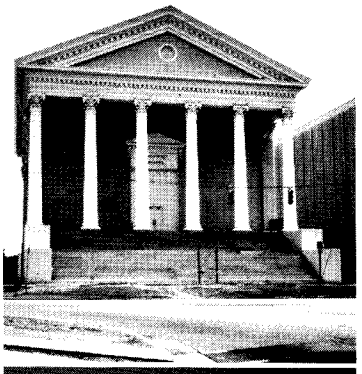
So what? What does any of this have to do with the rest of architecture? Surprisingly, perhaps, quite a lot. Leaving aside for the moment the questions of how much what was done was really worth doing, and of how well it was actually done, it has to be pointed out that the business of being particular (having to do with time and place and personality) and at the same time abstract (having to do with more general verities), of being traditional (drawing on the manifest productions of the past) and at the same time contemporary (drawing on more up-to-date visions) lies close to the heart of the creation of any art—and, by virtue of that, it lies close to the heart of the creation of any piece of architecture. The relatively off-beat way in which the designers of these two houses go about their work helps remind us of how we, in perhaps more conventional ways, go about ours.

As for the question of quality—of how well what was done was done—what seems most remarkable in the case of Grid House is the almost effortless finesse by which it achieves its effect. Surprise and delight, after all, are not absolute quantities, but are measured to some extent against the degree of effort and pain that went into achieving the given effect. In Grid House, two utterly ordinary things are quite simply and easily combined to produce something that is not ordinary one bit. Can it be repeated? No, but the designer said he wanted to create an "instant landmark," and landmarks are by definition unique. What can be repeated (and often is) is the process itself: identifying two things that are in themselves unremarkable and combining them into something that is.

In the case of CCSH 1, the question of quality seems more problematic. In itself the house appears fresh, forthright, and quite elegant. But the architect said he wanted to seek the *essence* of a traditional house and make it contemporary (what, in our limited view of the subject, we would now call a "Modernist" attitude). If one compares the result to the real thing, it is hard not to feel some sense of loss. Perhaps what happened is that the designer shot at the wrong target, taking the essence of the old-fashioned house to be a *formal* rather than a *perceptual* one, having to do with what people really sense and appreciate. Traditional Charleston houses were placed sideways on their narrow lots (and slid to one side) to concentrate the available amount of outdoor space, to improve cross ventilation, and to provide the best possible garden for their owners to survey from the long porch along the side of the house. This is a uniquely clever and economical invention in the history of American housing, and it is also one based quite clearly in *human* concerns, not formal ones—though form of course implements it. To repeat the form, without the content, in a more relaxed, more suburban context seems altogether to miss the point. In addition, in CCSH 1 (middle photo), most of the traditional details have been "abstracted" (i.e. removed), presumably to make clearer the formal essence of the whole. Meanwhile, a house down the street (left), which appears to have not much to do with the form of old-fashioned Charleston houses, nonetheless sports many of their details—shutters, double-hung windows, an entrance gate with a walk leading to it, and, above all, plants. Until the azaleas grow up around CCSH 1, at least, it seems arguable that the "essence" of the more conventional building down the street will be much more immediately palpable to most people. And this perhaps says something about essences. —*Gerald Allen*





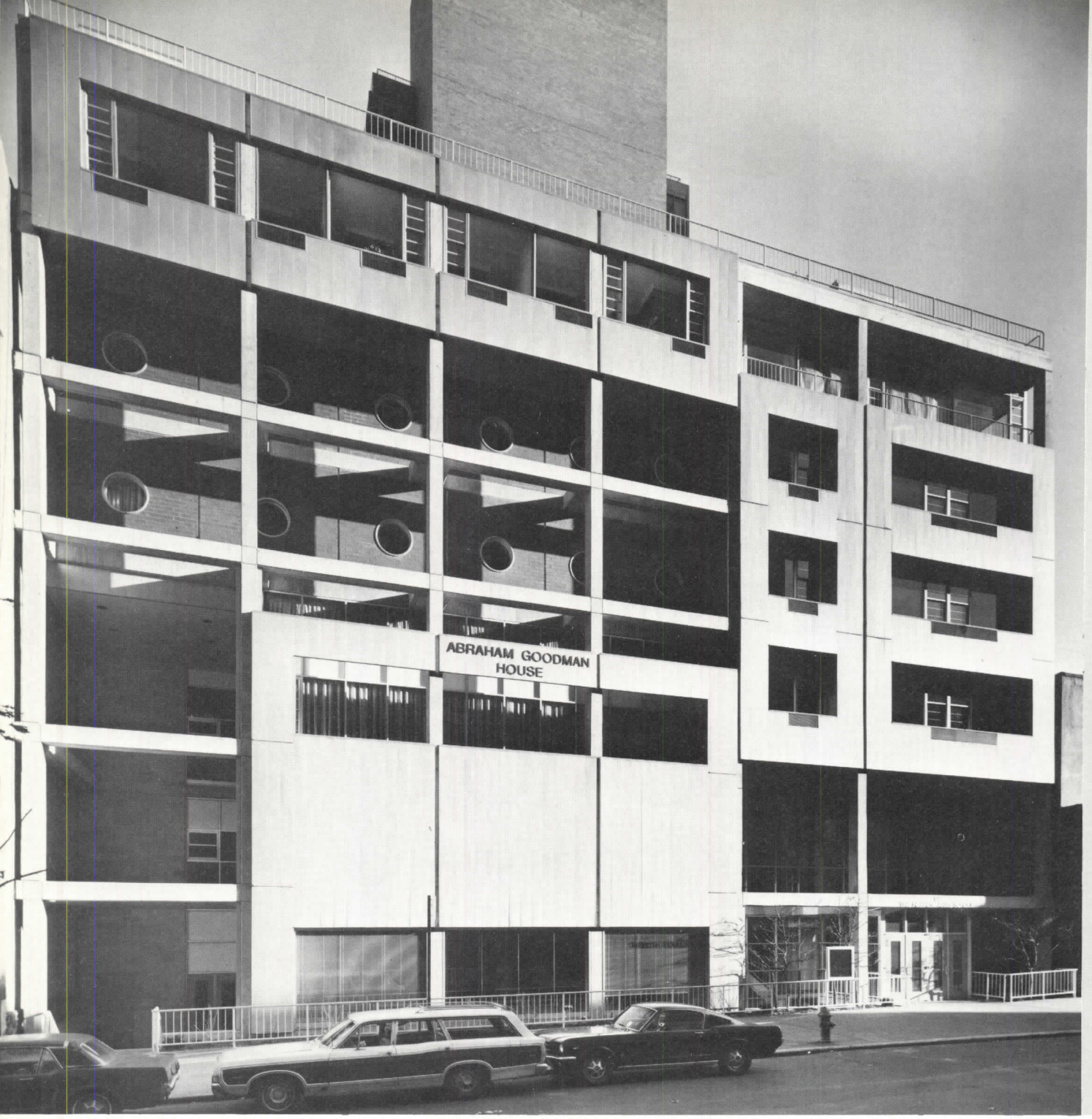


DOING LESS AND ACHIEVING MORE:

Four modest and flexible designs for the performing arts

Music, dance and drama groups, which need a better place to perform, are more likely these days to remodel an old theater or landmark building than to build a new structure. Three of the four performing arts centers shown in this study are excellent examples of imaginative recycling for reuse. The Paramount Arts Centre in Aurora, Illinois, forty miles from Chicago, was originally a lavishly decorated Art Deco movie and vaudeville house which opened in 1931. The Longstreet Theater at the University of South Carolina began as a college chapel—a fine example of Southern *ante bellum* Classic Revival architecture dating from 1854. The third recycled theater emerged from a fifty-two-year-old auditorium, which according to theater design and acoustic consultant George C. Izenour, had nothing to recommend it before its renewal.

The Abraham Goodman House in New York City was constructed under an extremely tight budget. Designed by Ashok Bhavnani of Johansen & Bhavnani it is truly spartan. The architects relied upon factory components to reduce costs and on very simple esthetic means to make it a part of the New York scene. Although not a recycled building it can be said to have helped to recycle its upper West Side neighborhood by incorporating the forms of its surroundings—juxtaposed massing heights, strip planting behind front yard railings, a roof water tank, and descending stoop stairs to a sunken entrance. The only performing arts building of the four which cannot inspire nostalgia or enchant by the elegance of its ornament, it nonetheless achieves the contemporary lightness and delicacy architect Bhavnani sought. —*Mildred F. Schmertz*



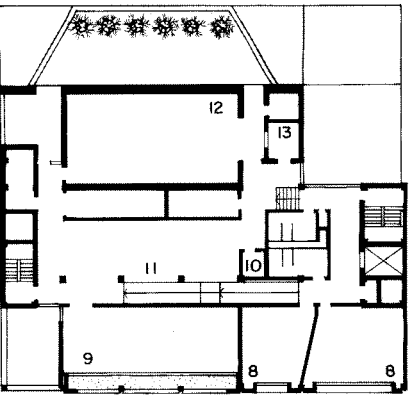
Norman McGrath photos

A friendly new neighbor for Lincoln Center: the Abraham Goodman House *by Johansen & Bhavnani*

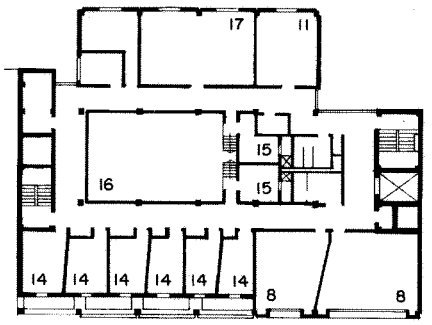
This performing arts center serves two distinct organizations: The Hebrew Arts School which is a school for music and dance, and the Tarbuth Foundation—for the propagation of Jewish culture. They share such public spaces as the concert hall and recital hall but each has special facilities separated by location and circulation.

The most important shared space is the 460-seat concert hall. This room is of great cultural importance to the City of New York which until now has lacked a public hall of ideal proportions for chamber music. It is of intermediate size in comparison to the Carnegie Recital Hall (297 seats) and Juilliard's Alice Tully Hall (1,088 seats). Because it is located on the West Side near Lincoln Center and is as accessible, it augments that almost comprehensive performing arts institution. Atlhough the hall has been completed for only a few months, it has received almost unanimous acclaim from music critics and the musicians who have performed there. They find the wide shallow room which brings everyone close to the sound and the performers greatly preferable to the traditional rectangular box shapes. They have pronounced the sound to be warm and friendly with good tonal quality in all registers. Ensemble players hear each other quite well.

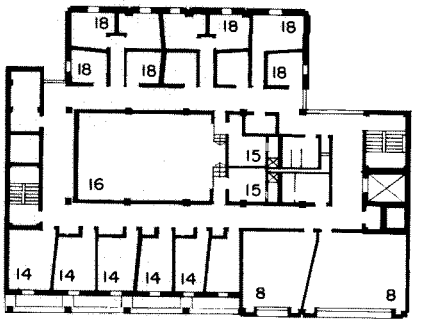
The budget was tight—$3.23 million for the building and $200 thousand for furnishings and equipment. The total of 45,000 square feet has been organized into ten inde-



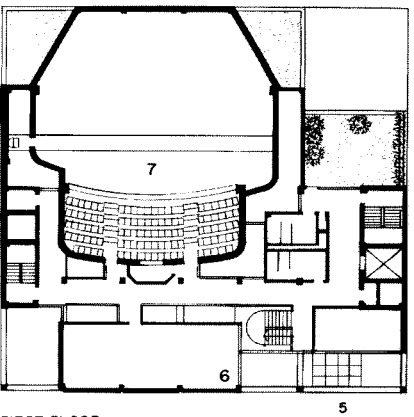
SECOND FLOOR



THIRD FLOOR

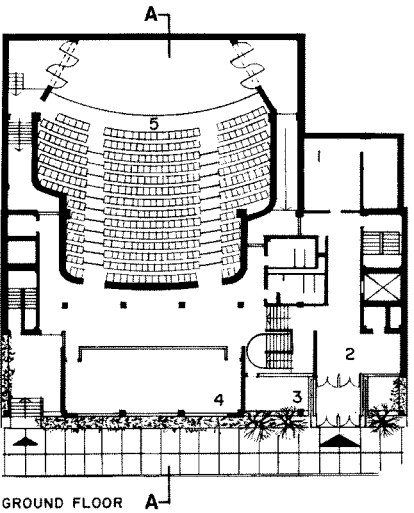


FOURTH FLOOR

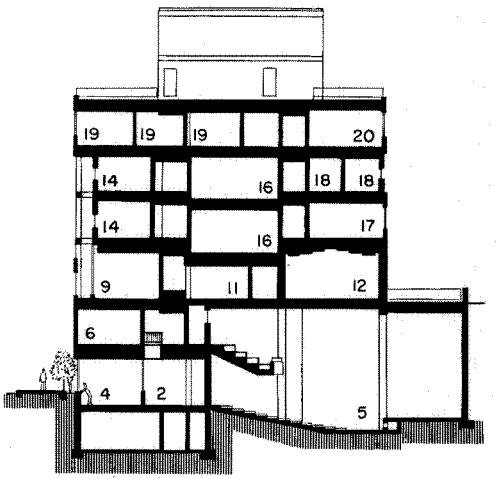


FIRST FLOOR

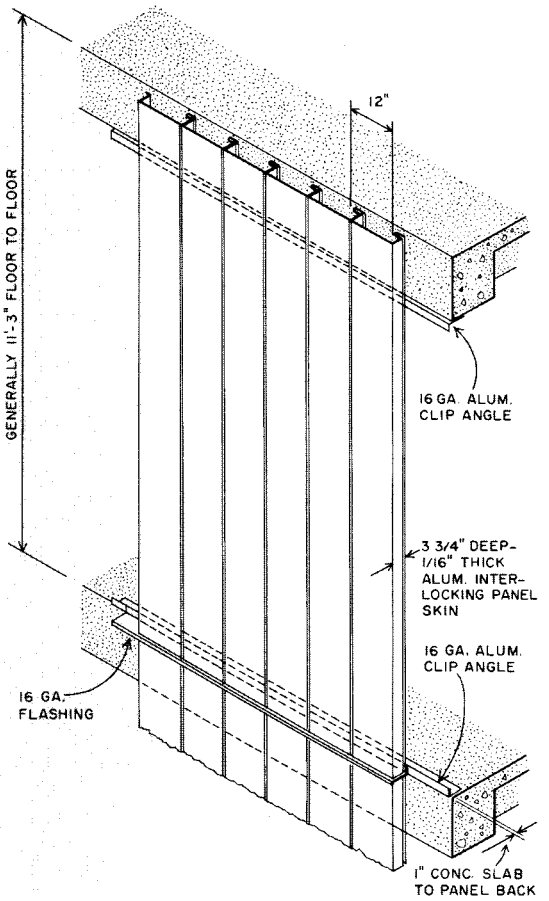
1 Coats
2 Lobby
3 Terrace
4 Judaic Library
5 Concert Hall
6 Exhibition
7 Balcony
8 Music Classroom
9 Music Library
10 Kitchen
11 Lounge
12 Recital Hall
13 Recording
14 Piano Studio
15 Dressing
16 Dance Studio
17 Art Studio
18 Instrumental Studio
19 Office
20 Academic Classrooms



GROUND FLOOR



SECTION A-A



EXTERIOR ALUMINUM SKIN DETAIL

pendent building elements: the concert hall, a recital hall, six group-instruction music classrooms, three academic classrooms for the Tarbuth Foundation, three non-music academic rooms for the music school, twelve piano studios, ten instrumental music studios, two dance studios, library/exhibition space and administrative offices.

For acoustic reasons many of these "buildings" have their own individual walls, floors and roofs built within the structural grid of columns, beams and slabs. The building's exterior appearance from all sides is an expression of the principle of assemblage within a rectilinear structural matrix. The paneled exterior skin enhances this image. It is constructed from 1/16-inch-thick paint-sealed aluminum, structurally formed and bolted from inside the building as in a truck body.

Architect Ashok Bhavnani was not after a slick, high-tech look although he points out that a building as complex as the Abraham Goodman House could not have been reasonably built, with all its sonic isolation needs, and other acoustic and mechanical requirements without advanced building technology—particularly with the lean budget, the multitude of varied use spaces and the small site (9,300 square feet). "I felt encouraged," he said, "to pursue my conviction that for today's architecture, maximum use of factory components ensures the best control of quality." He hopes that his building, technologically sophisticated as it is, "conveys a spirit of lightheartedness and delicacy to express its purpose as a place for children to learn music."

ABRAHAM GOODMAN HOUSE, New York City. Owner and principal tenant: *The Hebrew Arts School;* co-tenant: *the Tarbuth Foundation.* Architects: *Johansen & Bhavnani—designer & partner-in-charge: Ashok M. Bhavnani; job captain: Thaddeus Hanser; job captain for concert hall: Benjamin Baxt; furnishings and graphics: Kathryn M. Kerrigan.* Consultants: *KBNA/B Associates* (structural); *Flack & Kurtz* (mechanical); *Nordheimer Associates, Inc.* (electrical) Acoustic/Noise Control Consultants—Peter George (acoustics); *Jean Rosenthal Associates, Inc.* (theater and lighting). General contractor: *Blitman Construction Corporation.*

For buildings in which various musical activities are going on simultaneously, the quality of the sound isolation is as important as the quality of the sound itself. Acoustical consultant *Peter George* describes how he solved both problems for the concert hall, recital hall and studios of the Abraham Goodman House:

Three primary determinants affected the acoustical design for this building: restricted budget, restricted space and an acoustically sophisticated client.

The restricted budget called for fairly simple designs and the cost effective use of standard building products. As a result of the small size of the lot upon which the building was constructed, it was necessary to stack acoustically critical spaces one above the other. These lightweight structures had to be acoustically sealed from one another. In spite of these restrictions, the client demanded a high-quality acoustical environment for use by the school and by the public that would compare favorably with, and contribute to, the cultural environment of Lincoln Center and the Juilliard School, both immediate neighbors one block to the south.

Concert hall

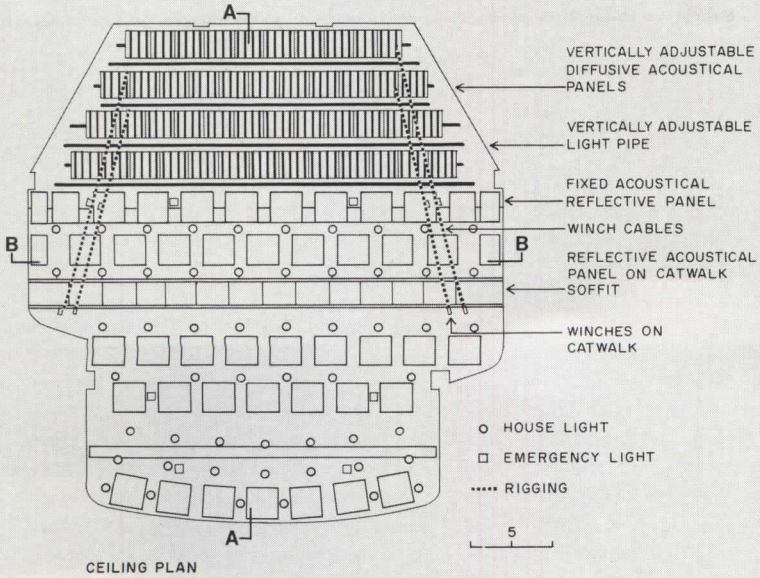
The shape of the concert hall in plan view at the rear of the seating area was determined primarily by the need to fit other ancillary spaces (elevators, corridors, etc.) into the building envelope. Furthermore, the angled walls at either side of the open stage were set up to create larger wing areas in addition to the requirement for reflecting sound into the audience. A large steel door, with STC (Sound Transmission Class) 50 performance, is mounted on a center pivot in each of these angled walls. Its perimeter is fitted with neoprene seals. When open, the doors give access to the stage from the wings but also perform as sound reflectors at continuously variable angles. Furthermore, by opening these doors, the air volume of the wings can be coupled into the Concert Hall volume to increase the over-all reverberation and to provide some "tail" to the sound.

In order to use all of the available volume—again for reverberation—the full height of the hall is used (except for a sound isolation ceiling which is hung closely beneath the ribbed concrete deck—see below). At the same time it was necessary to introduce sound-reflecting elements within the space in order to propagate the early reflected sound energy into the seated areas (late reflected sound energy is that which constitutes reverberation). These elements are in the form of flat rectangular panels, as can be seen in the ceiling plan (**1**), made from fire-rated particle board. These panels are set at elevations that vary one from the other in each row, and from row to row. The angles of the panels over the audience were predetermined and set but they can be varied, if necessary, for tuning purposes. The four rows of panels over the stage are intended to act as a simple form of orchestra shell. The two downstage rows are fixed (in elevation only) but the last two upstage rows can be varied in angularity as well as elevation since they are mounted on winch-operated pipes (**2,3**). In this manner both the ceiling elements and wall panels can be adjusted for any number of group sizes from orchestra plus chorus through chamber ensemble to soloist.

The upstage rear wall is finished with vertical wood strips of different sizes and random spacing to provide diffusion and improve the hearing between performers. Similar strips are placed, for similar reasons, on the face of the four rows of overstage acoustical panels. Seats and aisle carpeting were carefully selected to meet strict acoustical specifications in terms of sound absorption. The walls of the hall are concrete and concrete block finished with a textured paint (which has no acoustical value). The sound isolation ceiling is continuous from wall to wall. This ceiling reduces the transmission of sound both entering and leaving the hall to the critical spaces above, which include the recital hall. It is of gypsum board with glass fiber in the plenum space hung on vibration-isolating ceiling hangers. Even the ductwork, catwalk, and sound reflecting panels are hung with this type of hanger. Allowing these hangers to penetrate the sound isolation ceiling, without short circuiting the isolation, was a difficult detail to implement. Fiberglass ductwork is used within the hall. In addition, duct silencers are located at entry points to control airborne mechanical noise as well as carry-over of exterior space noise. Air speeds within the ducts are kept below 400 ft/min. The resultant levels within the space fall in the range of (NC) Noise Criteria 20-25.

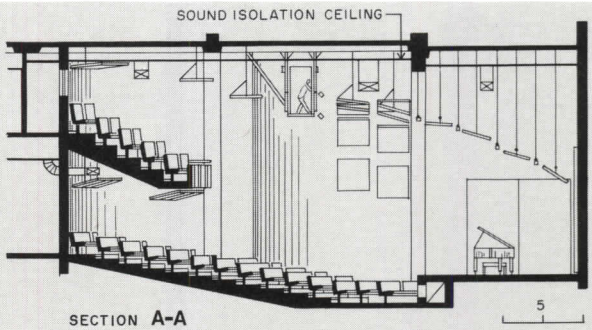
Reverberation times in the concert hall vary from 1.3 seconds full to 1.7 seconds empty at the middle and high frequency ranges. Bass response of the hall yields reverberation times which are about 1.3 times longer than the middle and high ranges, contributing to the acoustical 'warmth.'

1

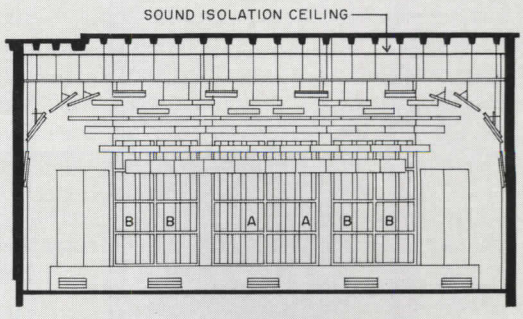


CEILING PLAN

2
3



SECTION **A-A**



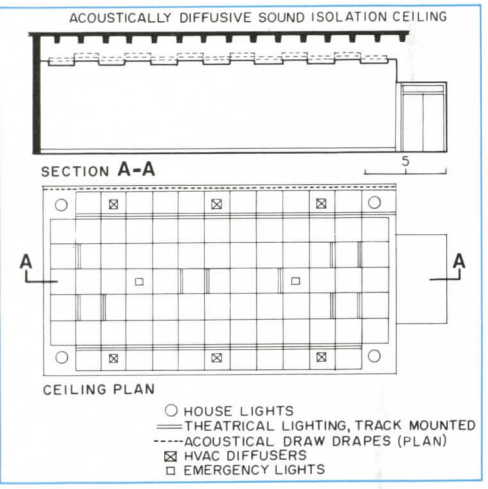
SECTION **B-B**

PLAN OF PANEL A PLAN OF PANEL B

A & B - ACOUSTICAL DIFFUSION PANELS ON STAGE REAR WALL

Recital hall

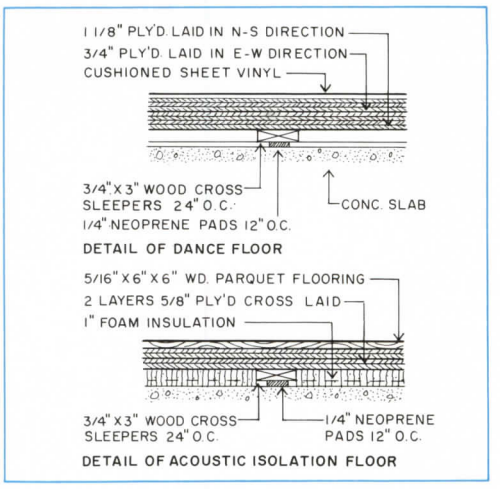
Immediately above the concert hall is a rectangular recital hall. This hall is a multi-purpose space for recitals, as well as lectures, rehearsals (it is used by the New York Philharmonic Chamber Ensemble) and recordings. It has a flat floor and all seating is movable to any number of configurations. For this reason, the ceiling was designed to be non-directional and to be uniformly diffusing. It consists of a series of square planes of gypsum board joined vertically at the edges and set at a total of four different elevations above the floor (**4**). The ceiling is continuous



and there is no volume coupling to the plenum space above. In fact, this ceiling is constructed and resiliently hung in an identical fashion to the sound isolation ceiling over the concert hall (to protect practice studios on the floor above).

The raised wooden floor is resiliently isolated from the concrete slab by the use of neoprene pads (**5**). This adds further to the

5



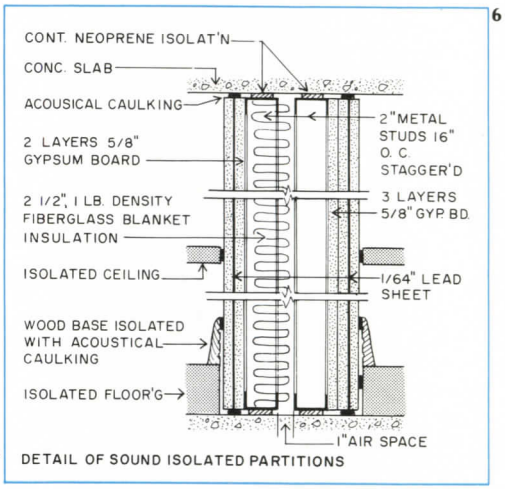
sound isolation between the recital hall and the concert hall beneath as well as providing resiliency for dance. Below the parquet flooring are two layers of plywood on sleepers with *Styrofoam* insulation. The walls are faced with multiple layers of gypsum board (for sound reflection without sound absorption at the lower frequencies). As a means of controlling reverberation for different activities and levels of occupancy, sound-absorbing draw draperies are provided along one long wall.

These draperies also serve to control potential flutter echoes between the long parallel walls. At one end of the hall is a control room for lights, projection, CCTV and recording equipment. Reverberation within the recital hall varies from 0.9 seconds full to 2.5 seconds empty. This wide range is due to the lack of absorption of the empty seats. Variable absorption is provided by the operable draperies and by the room occupants.

Studios

Two full floors above the recital hall are filled with piano classrooms, dance and practice studios (there are 23 of the latter). In order to control sound between these spaces (horizontally and vertically) some elaborate construction measures were taken. The walls are constructed with a total of five layers of

6

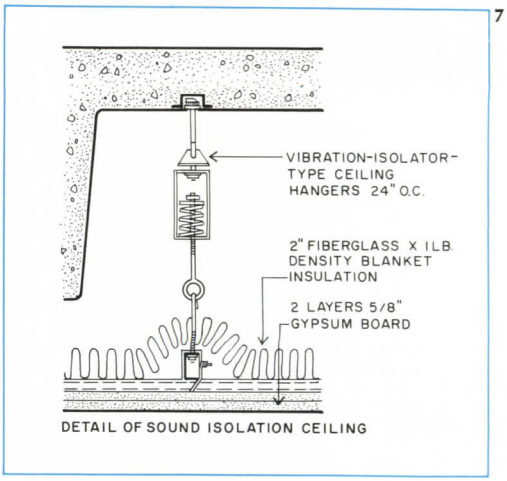


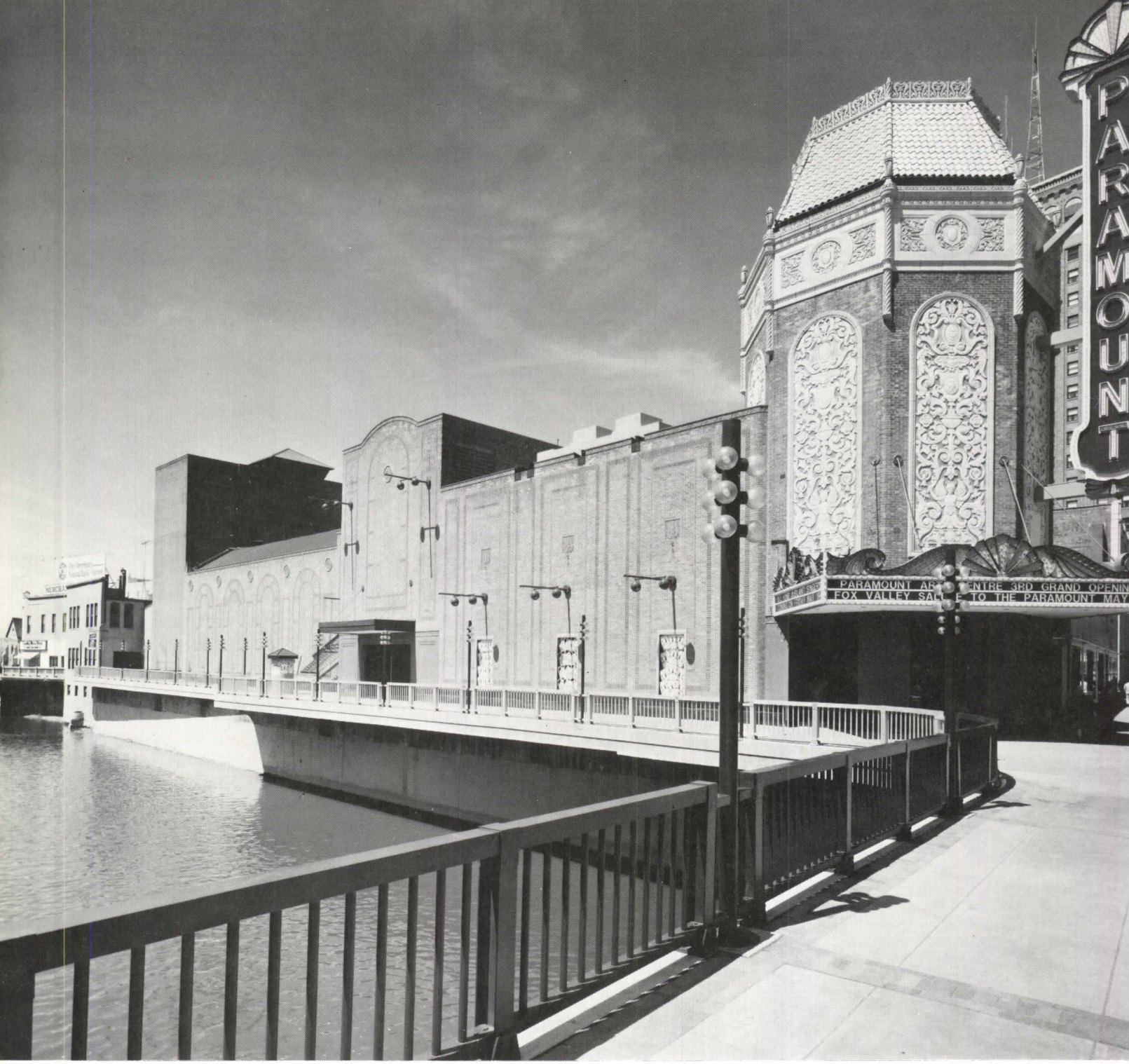
gypsum board unbalanced (three and two) on two separate sets of studs and runners (**6**). Lead sheet is laminated between two of the layers of gypsum boards and there is a low-density fiberglass in the cavity. The runners sit on continuous neoprene strips and are attached via resilient inserts in the slab. Such a construction provides STC 59 performance. Special details had to be worked out to cover the problem of walls that were full height and angled to grid (one per studio), whereas the deep concrete ribs were parallel to grid.

The floors are of built-up wooden construction and are the isolated type (**5**) in order to reduce horizontal and vertical transmission of structure-borne noise from instruments which touch the floor, such as the piano, double bass, and percussion.

In order to complete the box-within-a-box concept, the ceilings are the resiliently suspended sound-isolation type (**7**) and the doors are metal acoustical doors rated at STC 42. Since the client required relatively "live" practice spaces, the only absorption within each studio is provided by a large panel consisting of a rug mounted over framed fiberglass, hung upon one of the long walls. Movable flannel draperies are also used.

7





Bill Engdahl, Hedrich-Blessing photos

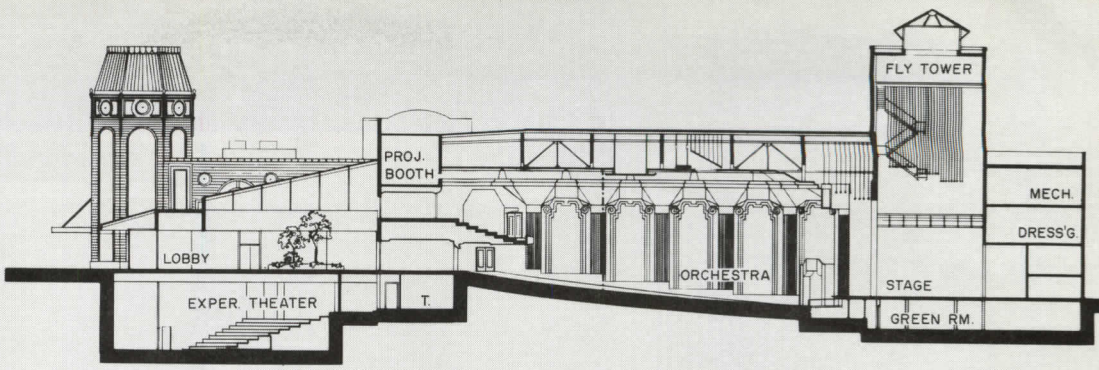
An Art Deco movie house of 1931 transformed into a multi-use theater for the performing arts: The Paramount Arts Centre in Aurora, Illinois

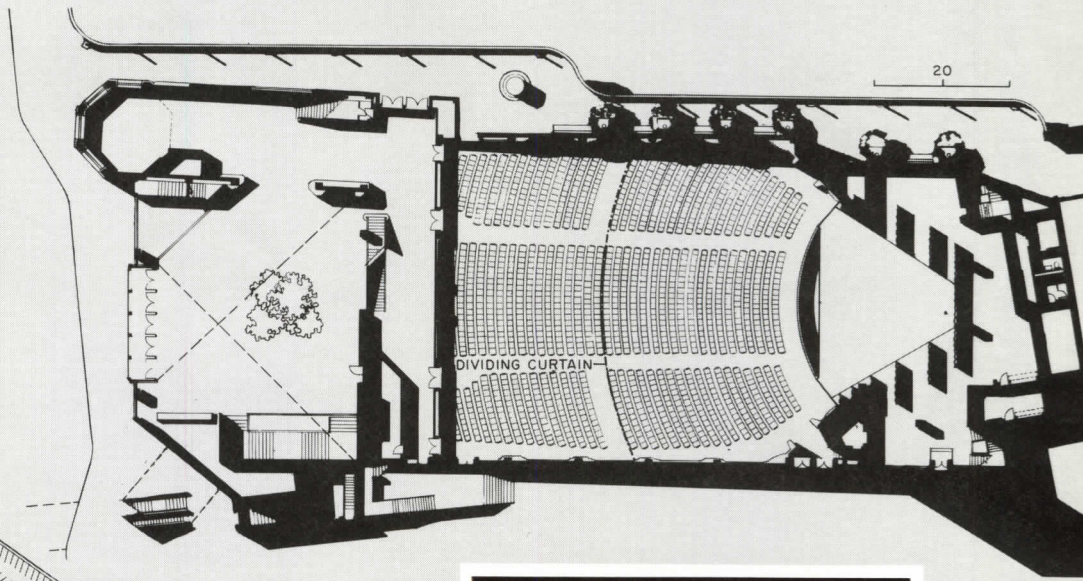
by Elbasani Logan Severin Freeman

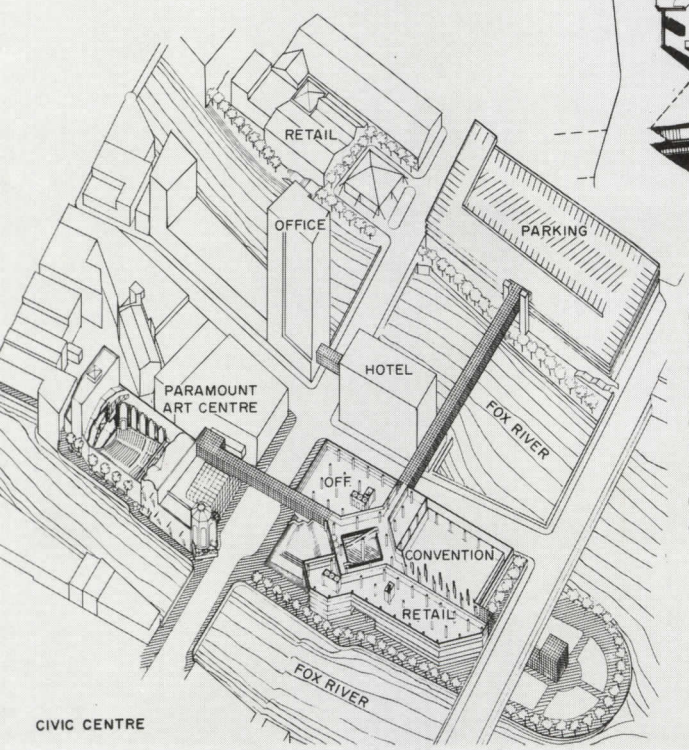
Once referred to as "Aurora's most precious jewel," this former film palace with a stage for vaudeville was designed by two forgotten masters of the Art Deco style—C.W. and George Rapp. Had not these thirties architects made it possible for the last of the doomed vaudevillians to perform "live" in a theater designed for the wonderful new "talkies," there would have been no stage for today's live instrumentalists, singers, actors and dancers.

The remodeling of the entire building, badly neglected for at least fifteen years, posed difficult problems. In adapting the movie house into a 1,900-seat theater for symphonic performance, various kinds of smaller musical ensembles, dance and Broadway shows, it was necessary to enlarge the old stage considerably in width and depth. In addition to building a thrust apron stage, the architects removed the original plaster proscenium and extended the width of the stage opening to a new frame defined by a pair of existing pilasters on either side of the apron (see page 132). They extended the rear of the stage beyond the fly tower and built new dressing rooms on the perimeter and above this extension (section above).

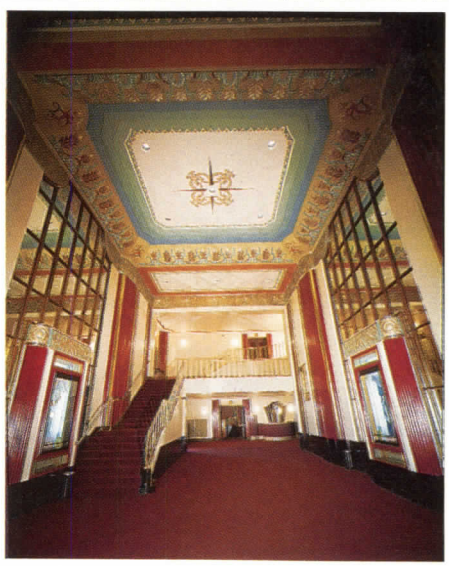
A wide slot for stage lighting was cut into the existing suspended ornamental plaster ceiling of the auditorium (see page 132) and new rigging was added over the thrust stage (section above). The acoustical consultants, Charles Boner Associates, recommended that







An enclosed pedestrian bridge (site plan, left) will connect the Paramount Arts Centre with other Civic Center facilities in downtown Aurora. The lobby (right and below) has been faithfully restored to the Art Deco style. As the section (top) indicates, it will have an experimental theater below.



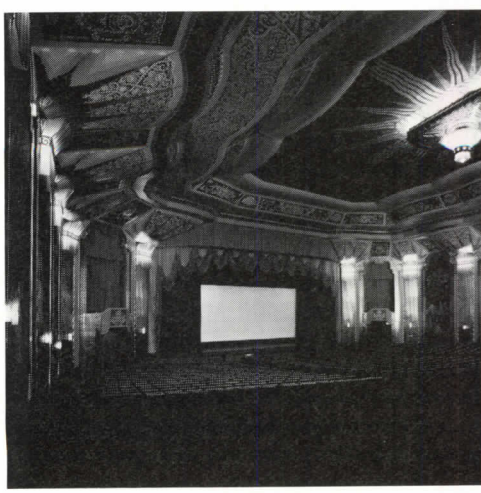
hard reflective panels be placed behind the formerly sound absorbent murals between the pilasters. Absorbent panels were placed at the rear wall of the house.

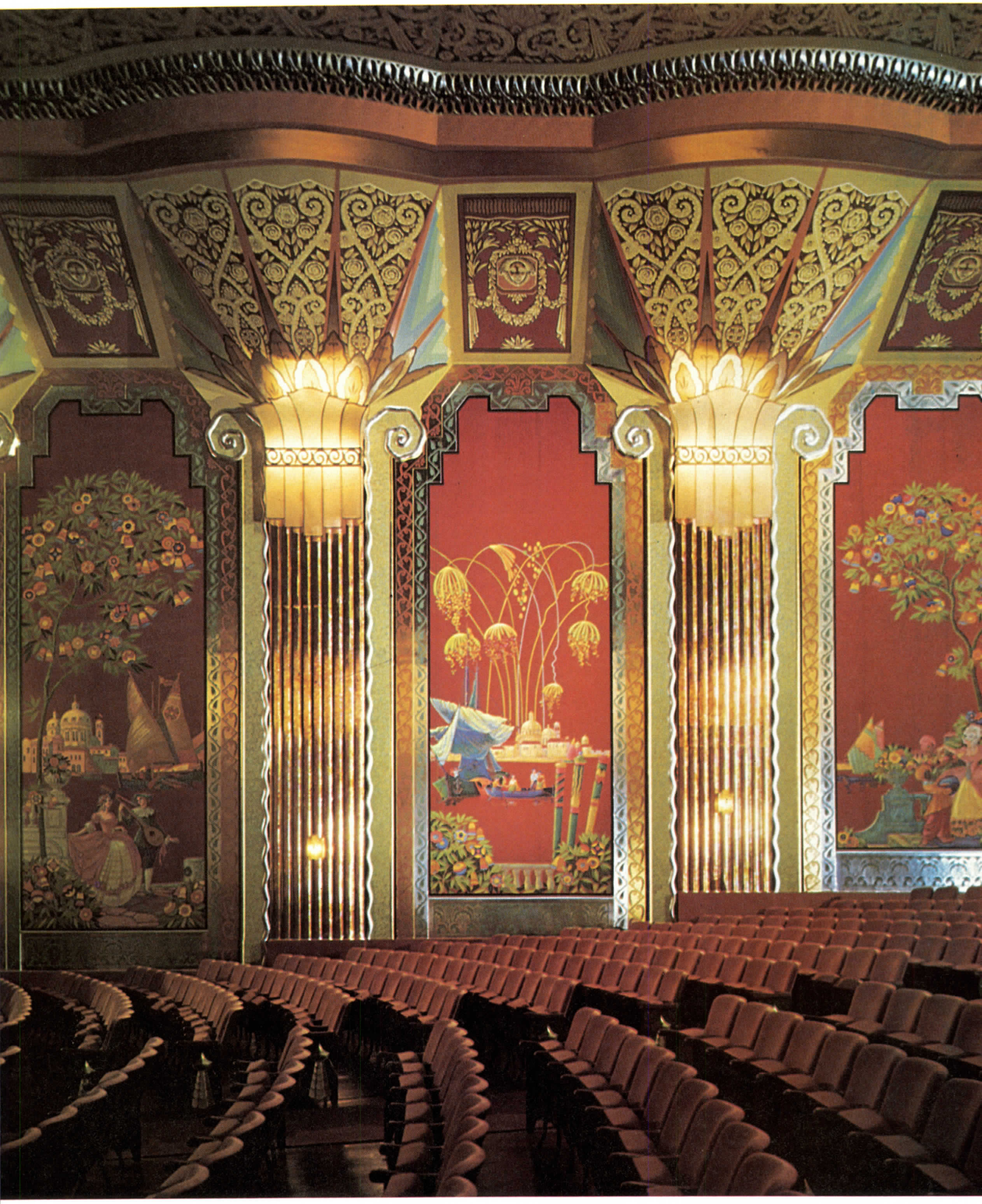
The architects improved the sight lines by altering the floor and balcony profiles. The original movie seating has been restored and realigned for a theater audience with provision for 36 handicapped wheelchair patrons in the center of the main floor of the house. There are no steps for the handicapped to climb on this floor and telephone booths and drinking fountains are low enough to be used by people in wheelchairs. Special washrooms are provided for them and main floor emergency exits are ramped. Parking stalls have been reserved for them and the curb near

the theater entrance is also ramped.

The ornament of the grand lobby and the auditorium has been meticulously restored in the palette of colors and materials of the Art Deco period. The exterior facades have been restored as well. These consist of patterned brick with inset terra cotta panels ornamenting the entrance and the side exits. The brick and terra cotta have been cleaned, repaired and restored. In addition, the marquee and sign have been rebuilt to the original designs. The badly deteriorated River Promenade, parallel to the long axis of the theater, has been rebuilt, cantilevered over the river, landscaped and lighted to tie it into the other streetscape work which is part of the ongoing downtown development in Aurora (RECORD December 1976, pages 82-87). The total cost of the remodeling was $2.9 million.

THE PARAMOUNT ARTS CENTRE, Aurora, Illinois. Owner: *Aurora Civic Center Authority*. Architects: *Elbasani Logan Severin Freeman—partner-in-charge: Geoffrey Freeman; project architect: Peter Aaron; designers: Lynn Ross Malloy, Leon Parham.* Architects for construction supervision only: *Frazier Orr Fairbank Quam*. Consultants: *The Office of Irving Cantor* (structural); *Segner & Dalton* (mechanical/electrical); *Charles Boner Associates* (acoustical); *Ralph Alswang-Theater Planning Associates* (lighting and theater); *Dean Abbott* (landscape); *Harold Miller* (costs). General contractor: *R.C. Wegman Construction Co.*





A Classic Revival former college chapel provides "found space" for a new theater, as does a once non-descript fifty-two-year-old auditorium: The Longstreet Theater, Columbia, South Carolina by W.S. Dowis and the Mayor Bob Carr Auditorium by Duer and Price. The following article is by theater design and acoustics consultant George C. Izenour who collaborated with the architectural firms on the recycling of both buildings.

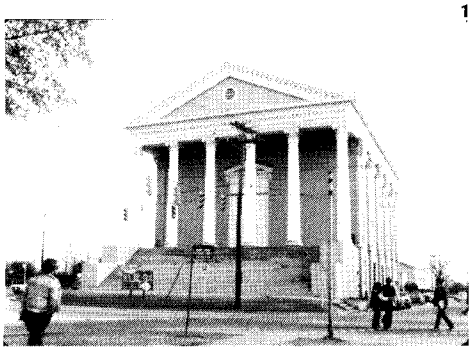
The Longstreet Theater (**1,2**) is a restored Corinthian hexastyle Roman temple that dates from 1854, a gem of Southern *ante bellum* neo-classical architecture. Except for Corinthian pilasters and windows on the side elevation, the building is a virtual copy of the Maison Carée in Nîmes, France. The Mayor Bob Carr Auditorium was, at the start of remodeling, a poorly designed theater building fifty-two years old (**4**). The recycling of the Longstreet Theater, the most recent in a series of interior remodelings of this building, is a theater adaptation within a so-called "found space." (The building was never intended to be a theater.) In contrast, the Mayor Bob Carr Auditorium had always been a theater of very indifferent quality. The two theaters which emerged from the recycling process exhibit entirely different orders of interior visual and acoustical environments, and each is intended for disparate styles of performance.

The Longstreet Theater, restored and remodeled by architect W.S. Dowis of Florence, South Carolina, is formally set at the end of a quiet tree-lined street on the campus of the University of South Carolina at Columbia. The Mayor Bob Carr Auditorium (**3**) remodeled by the firm of Duer and Price of Orlando, Florida, required drastic remodeling and occupies a downtown city block adjacent to a super-highway in Orlando.

Except for the masonry blocking up of windows in the exterior walls to exclude both daylight and extraneous outside noise, each of the buildings has undergone quite different treatment from their respective architects. The Longstreet Theater, because it was a fine piece of architecture to begin with, demanded the utmost in sensitivity from the architect commissioned to remodel it. The Mayor Bob Carr Auditorium, no architectural gem, required harsh measures entailing extensive demolition and remodeling both inside and out.

The programmed intent of the Longstreet Theater (actually two buildings) was twofold: 1) the exterior of the Roman temple, which was restored, had also to be joined to an athletics building to its rear; 2) because the interior volumes of both buildings were not in any way suited to fulfill the intent of their new programmed uses, quite different treatment was required in each case. The principal programmed function of the Classic Revival building was a 300 to 400-seat theater (actually a 357-seat auditorium resulted) that had also to incorporate the essential technical back-up spaces for operation of the stage, including off-stage storage and dressing rooms. In addition to the technical operation of the stage, adequately sized public lobbies were required. The leftover space was utilized as offices for the university drama

1



2

1. The Classic Revival chapel before restoration
2. The chapel transformed into the Longstreet Theater
3. The new Mayor Bob Carr Auditorium
4. The auditorium before restoration

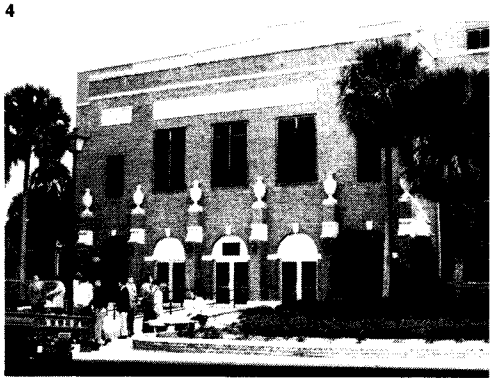
department. The athletics building to the rear (**5**) housed a swimming pool. This building was remodeled to house the separate fabrication shops and storage areas for scenery, properties, and costumes. To satisfy the design requirements of a theater auditorium the interior of the Classic Revival building had to be gutted, so that complete reordering of the interior space for both theatrical operations and audience use could be achieved.

By contrast, the programmed intent of the Mayor Bob Carr Auditorium was the remodeling of an obsolete flat-floored "U-shaped" balconied auditorium (**11,13**) into a successful contemporary 2500-seat, multiple-use, concert hall theater. In its original condition, this theater was an acoustical and sight-line disaster for the audience, and a horror for the performers. It is this kind of building that over the past century in the United States has given multiple-use theaters both a hard time and a bad name.

The essential problem here was to develop an entirely new auditorium from an old one, but not to do violence to the primary structure of the existing volume which—if the project were to be built within the budget—had to be preserved. Just as essential was the development of comfortable surrounding lobby spaces as well as visually pleasing and adequately sized retiring facilities for the audience. A new stage, both enlarged in volume and re-equipped for rigging and lighting, with essential technical back-up and rehearsal facilities was just as important. Both projects were programmed by their owners without outside assistance, but from the very beginning of the design process each was a full collaboration among the respective architectural firms, their structural, electrical and mechanical engineers, and myself.

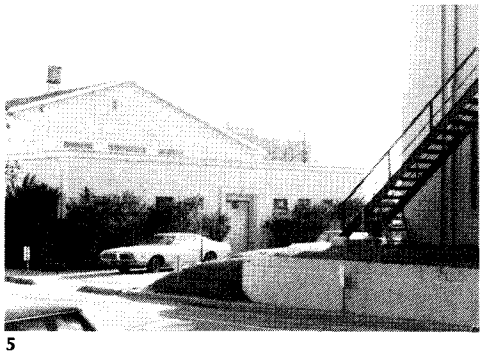
First, the Longstreet Theater:
Financed entirely by a succession of modest budget appropriations, the project was administered by Harold Brunton, vice-president for university development. Because of both the volume and the proportions peculiar to a Classic Revival building with a high porch, it was obvious from the first that preservation of the exterior precluded inclusion of a fully rigged proscenium stage, and ruled out any consideration whatever of that form of theater. The initial design given serious consideration was a convertible scheme where a theater-in-the-round could be changed into a three-quarter thrust stage configuration. Because of space limitations, however, this scheme was soon abandoned in favor of a fixed theater-in-the-round. But from the outset, the programmed intention was a room designed exclusively for intimate drama, set in an acoustical environment that satisfied the requirements for stage speech. The architect, W.S. Dowis, and myself were both retained by the University Development Office. The program developed in detail by the university drama department, and carried out under two chairmanships, required five years (1972-1977) from design to finished building. During the initial design stage Dowis's principal concern was to preserve the exterior of the Classic Revival building and devise both an esthetically satisfying and a practical working connection with the athletics building to the rear. This included: the design of a new main entrance at, or as close as practical to, street level to replace the original Classic Revival grand staircase leading to the high porch and the development of a covered connection with the athletics building that provided direct access to the technical back-up areas below stage level for easy movement of scenery, props, costumes and lighting equipment. (**6,7**) Dowis solved these problems by: extending the rectilinear apse that initially housed a choir loft and later a speaker's rostrum, thereby achieving space for vertical movement of the audience from the new main entrance up to the two upper lobby levels and constructing a single-story arcade of round arches that on one side provided a new main entrance a few steps above grade (**6**); building on the other side a truck loading dock for deliveries that is also integral with a straight through-connection to

4

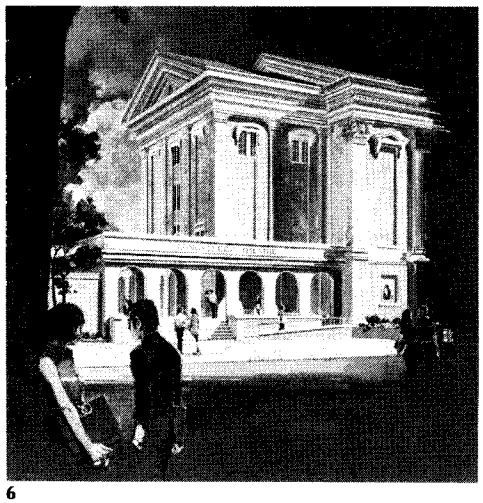


John L. Markham photos

3



5



6

7

the scene shops in the athletics building to the rear. During this time I was dealing with the interior problems of auditorium seating geometry, sight lines and acoustics, and design of the technical back-up facilities for the stage.

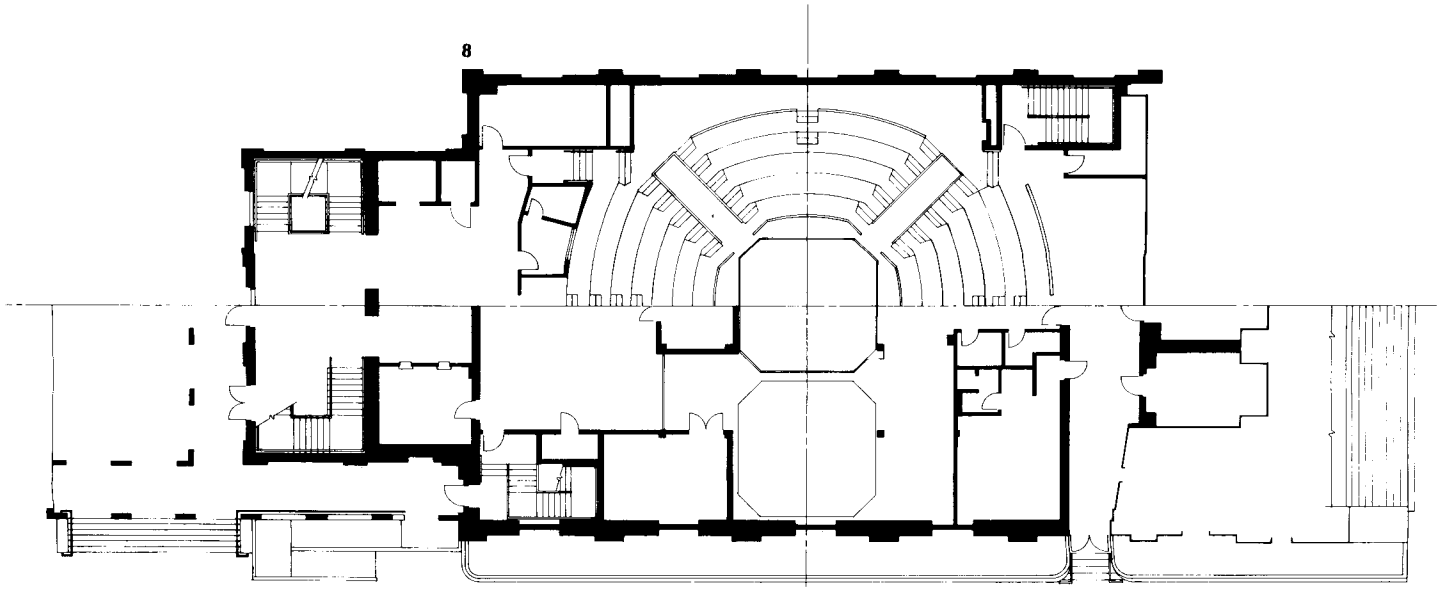
As theater design-engineering and acoustical consultant, I have over the past two decades participated in a series of both remodelings and recyclings of buildings for performance, and it is my observation that when a "found space" is turned to use as a performance facility, more often than not the acoustical result of the finished product is poor. Everyone concerned is preoccupied with how the end result will look architecturally and how it will function theatrically. Little time, less effort, and often no budget is expended to ensure that the end result will also work acoustically. One notable example of this phenomenon is the recently remodeled St. George's in London, where a desanctified church has been turned into a theater of most indifferent acoustical quality. Endemic to conversion of the "found space" into an auditorium for stage speech is the fact that while such spaces are visually grand, they are acoustically deficient on two counts: 1) there is usually an excess of volume; and 2) the remodeling process provides either none at all or, at best, insufficient properly placed and sized surfaces for redirecting and properly utilizing first acoustical reflections. This results in an over-reverberant room, and invariably the disenchanted user attempts his own measures of acoustical extreme unction. The expedient is almost always that of adding massive amounts of absorptive material to the walls and ceiling of the auditorium, thereby turning the space into the direct opposite: a dead room.

Unfortunately, these *in extremis* improvisations never work to the advantage of either the performers or the audience, whereas a purposeful predesigned scheme devised by an experienced theater design-engineering and/or acoustical consultant that sensibly reduces room volume by the interposition of correctly designed reflective surfaces can often increase the acoustical efficiency of the "found space" by as much as 50 per cent. It is a truism that a banking room, the nave of a church, or the waiting room of a railroad station might look just grand to the theater producer and his collaborating architect, but without proper acoustical treatment the inevitable result is either the barest of improvisation or an outright disaster. Fortunately for the Longstreet Theater, the owner's charge to the architect and theater design-engineering-acoustical consultant ensured that this auditorium would work acoustically as well as visually.

It has long been known that of all theater forms, "theater-in-the-round" poses the most severe acoustical restrictions for the actor as well as for the audience. It is also unfortunate that many surround auditoria are often too large. A high seating capacity (800-1600) places a large percentage of the audience too far away from the stage and the resulting three-dimensional geometric progression of a large seating capacity automatically yields an excess of volume that mitigates against a satisfactory acoustical result.

The acoustical problem of the enveloping auditorium that requires special attention is caused by the fact that half of the audience is always at the actor's back. As a result lip reading is denied to fifty per cent of the audience. This fact alone makes it mandatory that either a portion of the surrounding surfaces (sidewalls and/or ceiling) be so positioned as to interrupt and redirect a portion of direct sound energy, or that a multichannel sound reinforcement system be interposed to send sound energy in the opposite direction from that in which the actor is facing.

Another fact of auditorium design often militating against a satisfactory acoustical solution is the overhead positioning of lighting instrumentation. These two aspects of theater design, even in the best of conditions, have traditionally worked at cross-purposes, but achieving a satisfactory acoustical solu-



8

tion should be just as important as achieving a workable solution for the positioning of lighting. The usual, and almost always acoustically unfortunate system of overhead catwalks and the resulting open spaces between them allow too high a percentage of early first reflections of speech energy to escape into the upper space. If this space is not decoupled by absorptive means, it will serve only to aggravate an already difficult situation by coupling still more volume back into the auditorium, thereby increasing still further the reverberation time of an already overly large-volumed room. The method used here permitted satisfactory solution of both the lighting problem as well as the acoustical problem. A trans-sondent lighting grid, consisting of woven-tensioned ⅛-in. diameter airplane strand cable that can be walked on, was installed below a hard plaster-surfaced acoustical membrane, so sized, shaped and positioned that no matter in which direction the actor faces, the audience experiences a nearly uniform acoustical field of early first reflections (**10**). This system of overhead convex acoustical membranes for redirection of speech energy was first advocated by Knudsen, but as used here with the addition of the tensioned wire grid which I have devised, permits the lighting and acoustical problems to be solved independently of each other. Architecturally and structurally, however, they appear to be, and actually are, integrated. The convex acoustical membrane which also shuts off the unwanted upper volume of the room (in this instance about 40 per cent of the total volume) captures and redirects the first reflections, which when grounded in the audience yield an acoustically intimate room with a reverberation time of 0.9 seconds that is ideal for stage speech. The tensioned wire grid, together with steel compression ring and shallow stiffening coffers acts as a visual ceiling. It also provides a two-dimensional universal light bridge that in addition to being a contiguous walking surface is also 90 per cent trans-sondent to the acoustical membrane above, and which, because the acoustical membrane is painted black, is architecturally invisible.

The steeply stepped auditorium seating geometry provides comfortable every-row vision to the stage from every seat. The acting surface of the center stage is the platform of a hydraulic lift. The front porch of the Longstreet Theater connected to the intermediate lobby level, is now an overlook that can be used in the spring, summer and fall to provide a place for the audience to enjoy the act breaks out-of-doors. The actors have complete freedom of circulation from any one to any other vomitory by means of a separate corridor under the seat bank.

Architecturally, Dowis has achieved both a sensitive exterior restoration of a valuable and historic building and a functional theater interior that works (**10**). No violence was done to the primary structure of either building. The athletics building was connected at the new audience entrance-technical level of the Classic Revival building (below the stage) and the old pool was simply floored over, providing space for the shops on top and storage space underneath.

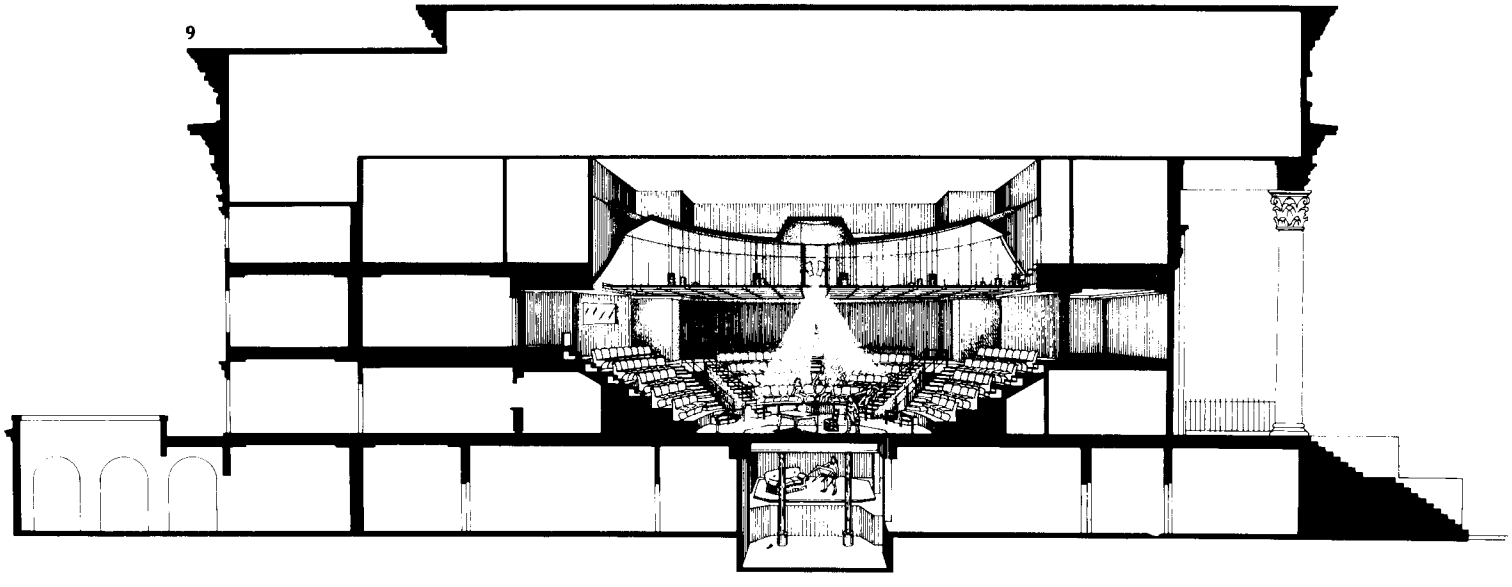
The Mayor Bob Carr Auditorium was larger and more complex.

Initial funding for the project was $2.5 million; a total of $3.1 million was finally spent, including building, remodeling, and site work. To begin with, it was unanimously agreed by the owner, architect, engineers and consultant that the only thing worth saving here—and which had to be saved if the project was to be a practical reality within the alloted funding—was the primary structure of the existing auditorium. At this time of inflated building costs, this volume represented an estimated $3 million. On the other hand, the existing stage house volume together with its technical equipment and back-up spaces were entirely inadequate, and had to be replaced. The existing lobby was also deemed virtually worthless as a useful and adequate space for the audience.

After studying the preliminary docu-

5. Athletics building at rear of chapel before restoration
6. New arched entrance to the Longstreet Theater
7. Side elevation
8. Composite plan of the Longstreet Theater, showing half plan at the stage level and half-plan at the technical level
9. Longitudinal section/perspective drawing
10. Interior of Longstreet Theater auditorium with house lights "on," showing tensioned wire lighting grid above, seat bank with vomitories and the stage with lift platform in raised (flush) position

10



9

ments and upon first viewing the *corpus dilecti,* my advice was both simple and unequivocal: I stated that in my judgment the following would have to be achieved if the project was to succeed:

1) A 2,500-seat (actually 2,531 seats were realized) sonically live auditorium with all seats oriented to the stage providing comfortable every-other-row vision for their occupants;

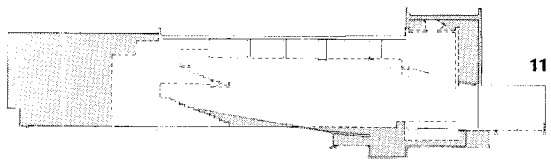
2) A new stage of adequate physical dimensions and technical capabilities with an acoustically massive sending end (acoustical shell) for the performance of symphonic music and a properly sized, rigged, and lighted theatrical stage and orchestra pit for the performance of opera and musical comedy. (I pointed out that because of its large size, spoken drama would always be a borderline case in this auditorium, and that under any circumstances stage speech would require sound reinforcement and a reduction of reverberation time by absorptive means. The main effort in this theater was therefore to be directed towards fulfilling the needs of the musical stage.)

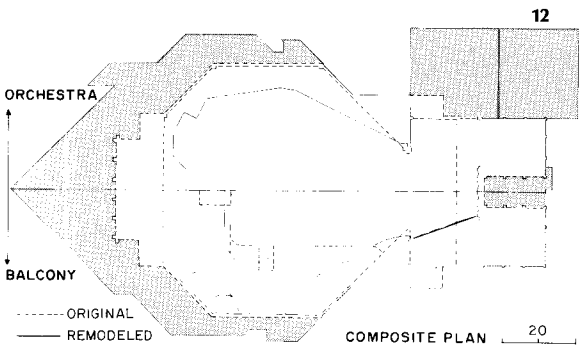
3) An adequately sized new lobby surrounding what at that time I knew would have to be a modified continental seating system on two levels.

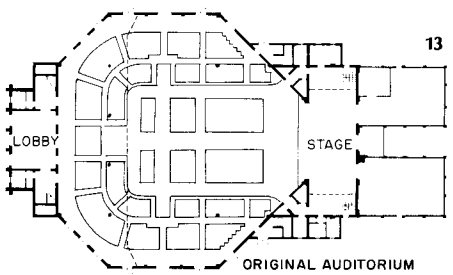
The overpowering acoustical problem in the Mayor Bob Carr Auditorium—the opposite of that for the Longstreet Theater—was to increase the volume over that of the existing auditorium in order to provide satisfactory concert-hall acoustics. This was, of course, intimately related to the basic problem of how best to preserve and utilize the existing auditorium volume, and, of course, its primary structure. This required that I derive a seating system within the existing auditorium volume that would increase the acoustical reverberation time from an existing low of 1.1 seconds to 1.6 or 1.7 seconds. I converted the existing flat-floored U-shaped auditorium seating system (**13**) to an every-other-row-vision, stage-oriented seating system of a new auditorium, thereby both raising and lowering the existing floor and lowering the stage. This required underpinning of the existing wall footings and removing the existing sound absorptive auditorium ceiling so that the roof truss space could be added to the auditorium volume. It was in this way that about 25 per cent was added to the total auditorium volume.

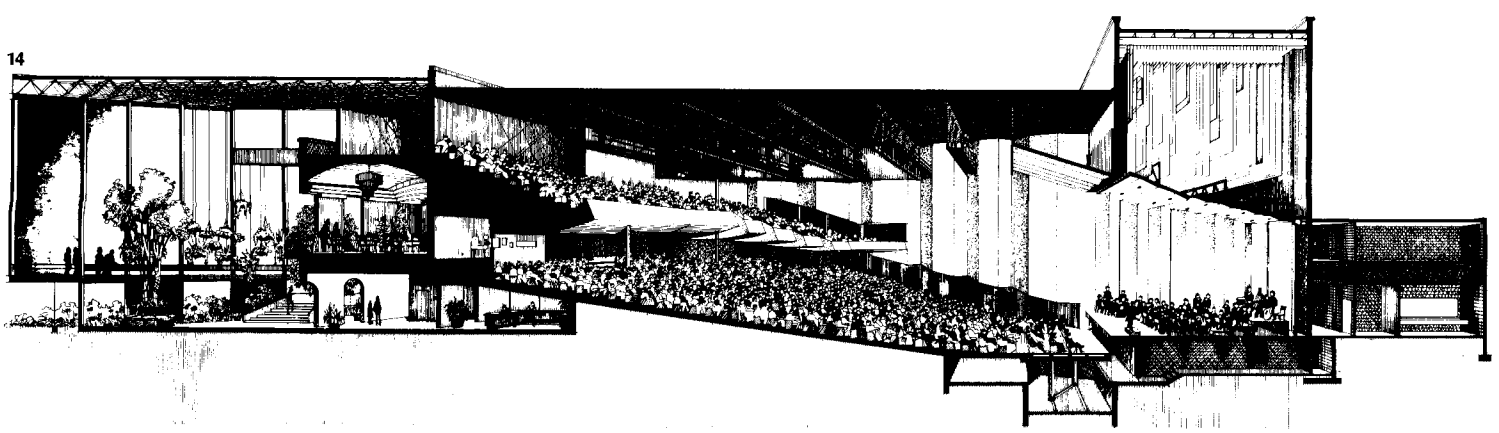
Adding a hard acoustical under-surface to the roof required some beefing up of the trusses spanning the auditorium. Particular attention had also to be paid to the truss spanning the proscenium opening, which, in order to achieve proper aspect ratio for concert hall use, had also to be both raised and widened. Preserving the center balcony and converting the old "U-shaped" side balconies to step-seated wing balconies posed a particularly difficult structural problem. This required that certain essential interior columns had at all costs to be retained, but in such a way as to be worked into the over-all seating geometry so as not to impede sight lines (**11,12**). Structural engineer Larry Allan of Allan and Conrad solved those structural problems.

A new deep stage house was both an architectural as well as a structural problem. This was further complicated by an addition (dressing rooms, prop room and storage rooms) of precast concrete and masonry curtain wall (**11**) at the rear of the shallow stage house. Since preserving this unfortunate construction prevented deepening of the stage, a portion of it simply had to go. For the handling of three-dimensional scenery the stage was extended to the right, creating thereby a large wing for a full-sized slipstage and/or modular wagons. A sound isolated rehearsal room designed especially for the Florida Symphony Orchestra was added behing this wing. The stage roof had to be raised and also restructured to accommodate both a new rigging system, 25-ton automated (power-operated) ceiling, a system of double hinged-cantilevered (manually operated) sidewalls (**11,12,13,14,15,17**) and a new adjustable acoustical shell.









Resolution of the mechanical and electrical engineering problems was the responsibility of engineer Lou Pecora of Tilden, Denson and Robnitz, who was also responsible for electro-acoustics and noise control of the existing air-handling/air-conditioning system. Under the tight budget this was a particularly difficult and sensitive problem. What to do about the lobby was exclusively an architectural problem, the solution to which I can only apply the appellation "brilliant." I remember the gist of an animated discussion between Tom Price and his partner Don Duer that went something like this:

Tom: "That lousy facade has simply got to go!" Don: "We can't afford to lose it, because it holds up the whole front of the building." Tom: "Well, what would you suggest? Put it in a glass case?" Don: "Well, why not? Got anything better to suggest?"

Thus came the metamorphosis of a mediocre facade into a garden lobby (**19,20**).

The old upper lobby was turned into a parlor; the existing lower lobby became a crossover corridor to the new side aisles of the orchestra floor continental seating system. The raked seating geometry gave enough leftover space to provide both a check room and a refreshment bar. Vertical circulation to the balcony in the now expanded garden lobby was provided by new construction. The old facade, sand-blasted and cleaned, is now the interior conversation piece of a new high steel-structured, space-frame-roofed, glass-box construction pulled forward like the prow of a ship (**3**).

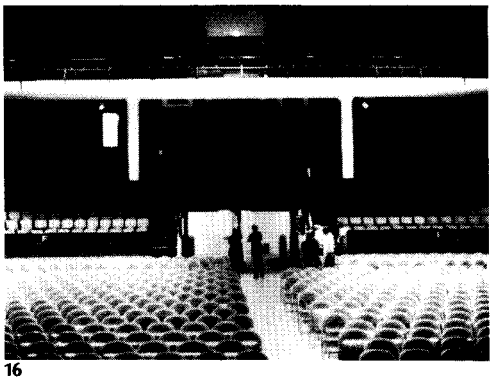
Within nine months after the beginning of design in late spring of 1975, we had a set of working documents and were out to bid—over the budget of course by $800,000. . . .And so back to the drawing board. Architect Price got most of what it took to get the job within the money by simplifying the building on behalf of the essential theatrical and/or concert hall functions. A quick rebid brought the project within the budget, but with no contingency fund. However, both Mayor Carl T. Langford and the City Council elected to bite the bullet, and a contract for demolition and construction was let. Meanwhile, use of the old auditorium ceased; the Florida Symphony Orchestra, the principal permanent user of the facility, moved temporarily to another nearby "acoustically dead" auditorium; and the project was underway.

First, we began demolition, which included underpinning the foundations and beefing up the existing auditorium roof structure. Then new construction slowly turned things around and a new auditorium, stage house, and lobby began to rise out of the shell (**18**). What has been achieved is a complete turnaround of an unworkable auditorium and stage and lobby into a successful contemporary multiple-use concert hall theater that works in exactly the way it was designed to work. The acoustical reverberation time was increased by 0.6 seconds to 1.7 seconds—and this acoustical field is phenomenally uniform for a remodeling. From the first rehearsal, the surprised musicians of the Florida Symphony were unanimous in praise of the result, because in addition to their now being heard to advantage by the audience, they also for the first time ever in this auditorium also heard themselves.

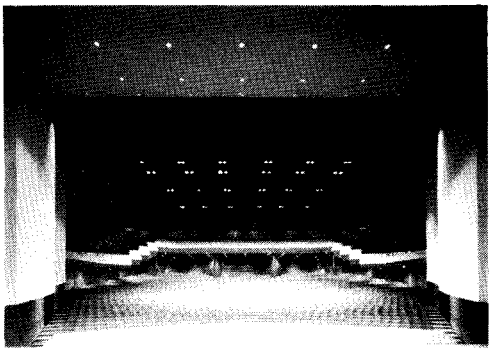
The initial funding for the remodeling is the residue of a bond issue voted fifteen years ago to build a new concert hall-theater elsewhere in the city on a lake in a suburban setting—a building project that even in that pre-inflation time came in so far over budget that it had to be abandoned. The remodeled building is now renamed for the Mayor who originated the idea for a new concert hall-theater—and who was, incidentally, of the opinion that its predecessor was unfixable. It is ironic that both the bond issue residue for the new building and the name of the man who was its advocate have come full circle back to the urban core, where a multiple-use concert hall-theater for Orlando belonged all the time.

In my experience the success of both

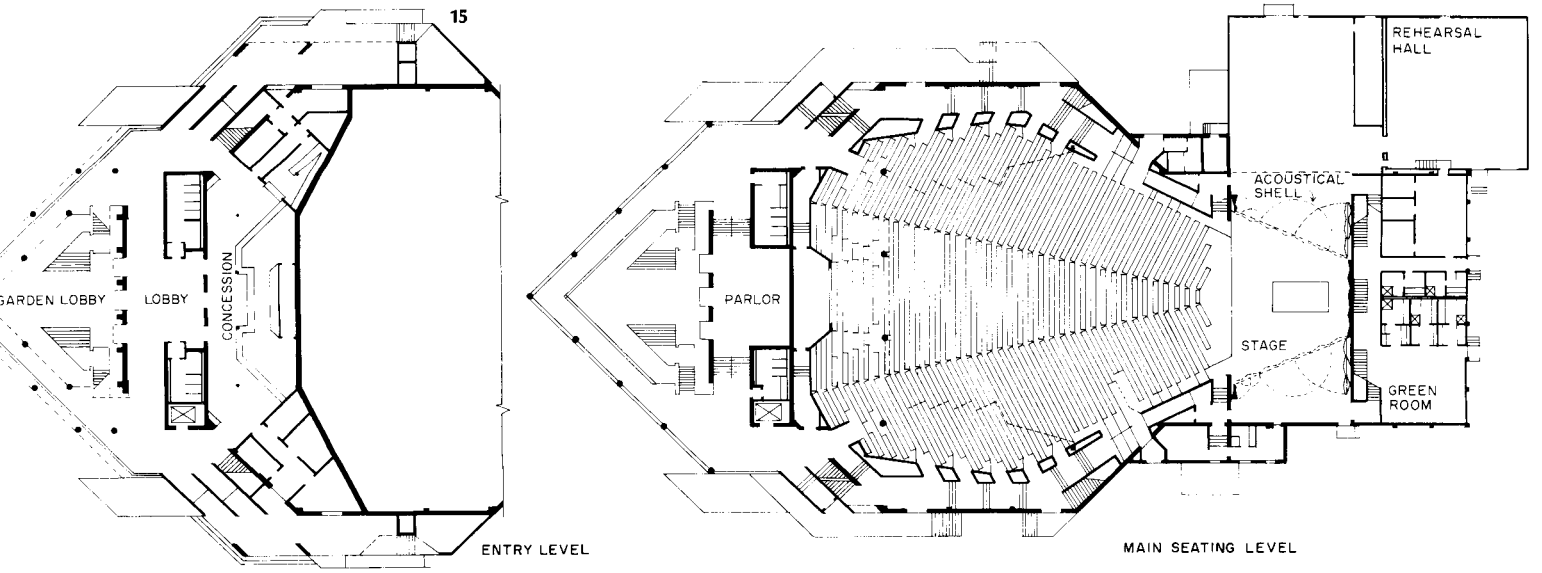
11. Section of Mayor Bob Carr Auditorium showing added spaces at rear of hall
12. Composite overlaid plan at orchestra and balcony levels showing original and remodeled auditoria
13. The auditorium in its earlier form
14. Longitudinal perspective section rendering adjusted to the concert mode
15. The Mayor Bob Carr Auditorium: composite plan at entry and understage orchestra pit levels
15. Composite plan at lobby, orchestra seating and stage levels
16. Interior of the auditorium prior to remodeling
17. View from the stage after remodeling



16



17

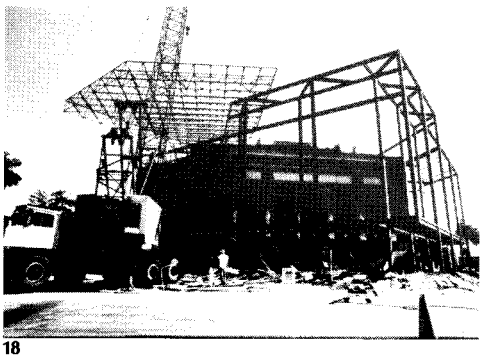


projects points to the necessity of involving the complete gamut of professional talent—architects, engineers and consultants—from the very beginning. Just as important as early collaboration among the professionals is frank and open discussion in matters of ultimate function and budget with responsible administrators both institutional (as with the University of South Carolina project) as well as in city government (the Orlando project). In each case frankness impelled the administrators to trust the professionals, and vice versa, demonstrating once again that ultimate success, as always, is a two-way street.

George C. Izenour is the author of "Theater Design," published in 1977 by McGraw-Hill, Inc. Now a full time consultant and author, he was for many years Professor of Theater Design and Technology and Director of the Electro-Mechanical Laboratory of the Yale University School of Drama.

MAYOR BOB CARR MUNICIPAL AUDITORIUM, Orlando, Florida. Owner: *City of Orlando.* Architects: *Tom Price & Don Duer (joint venture)—project architect: Tom Price.* Consultants: *Allan & Conrad Inc.* (structural); *Ardaman Associates Inc.* (foundations); *Tilden Denson & Lobnitz Inc.* (mechanical/electrical); *George C. Izenour* (acoustics); *Robert J. Laughlin* (lighting); *Dan Azito* (interiors); *Foster-Herbert* (landscape). General contractor: *Charter Builders Inc.*

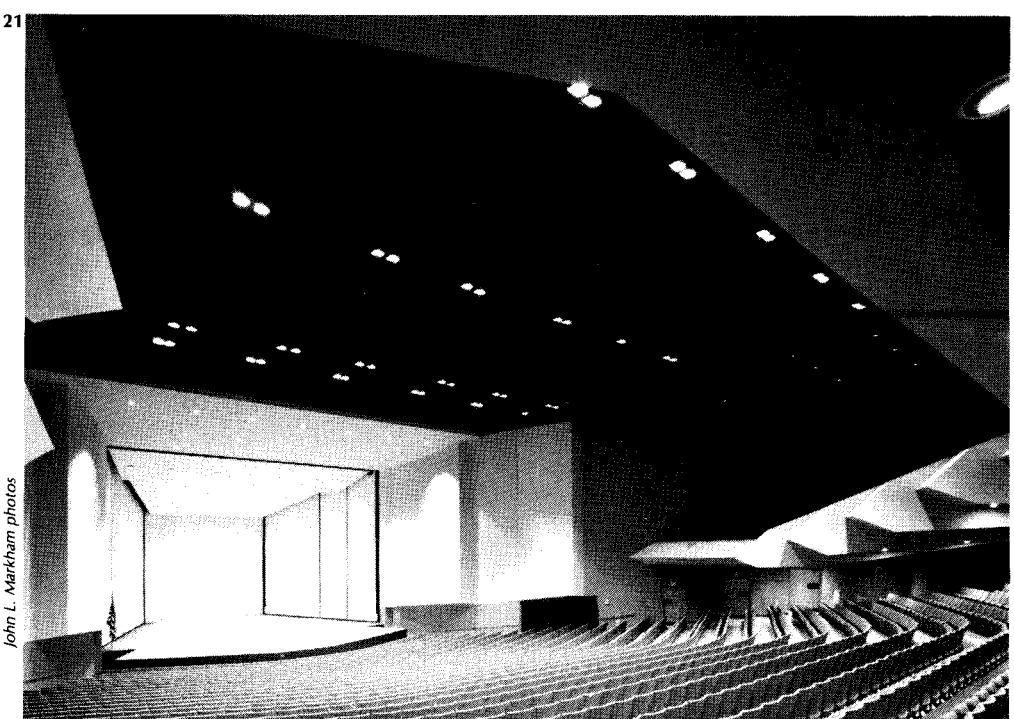
LONGSTREET THEATER, University of South Carolina, Columbia, South Carolina. Architect: *William S. Dowis—interiors: Joyce D. Dowis.* Consultants: *G.K. King & Associates* (structural); *Reed-Shealy & Associates* (mechanical); *Holladay, Coleman, Williams & Associates* (electrical); *George C. Izenour & Associates* (theater and acoustics). General contractor: *Wise Construction Company.*



18

19

20



21

18. Space frame of the Mayor Bob Carr Auditorium being raised into position
19-20. The garden lobby
21. View towards the stage showing the acoustical shell erected

John L. Markham photos

Prefabricated modules speed hospital construction

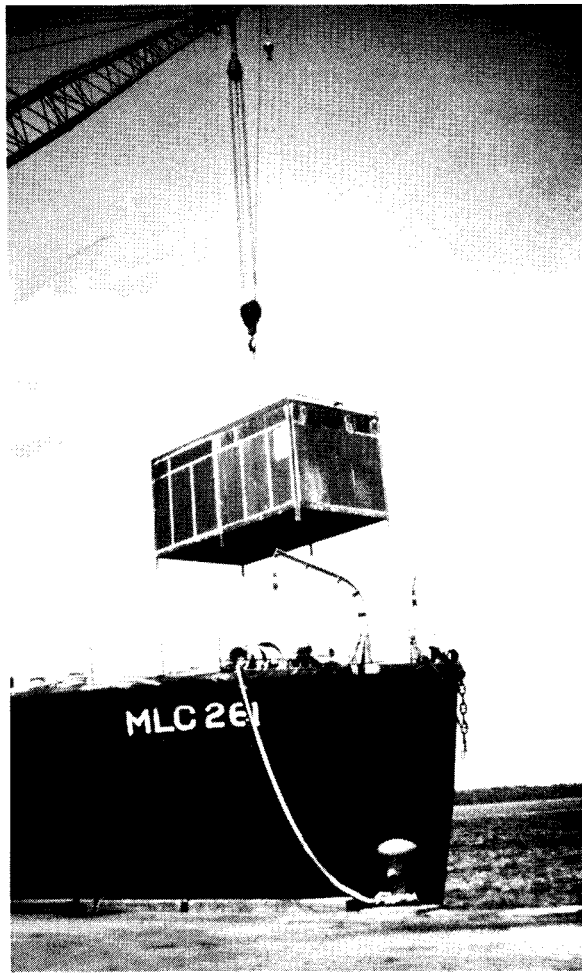
Built on a remote site in Guatemala, this hospital began life as 142 steel-framed modules shipped from Houston

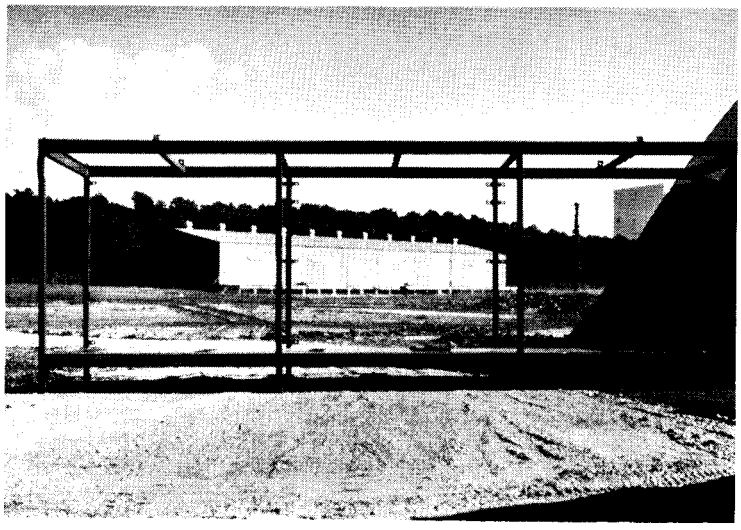
The hospital's name is lengthy, but the process of building it was not. It took only one year from the time of its conception by the architects for the prefabricated Hospital Nacional Kjell E. Laugerud Garcia to become operational.

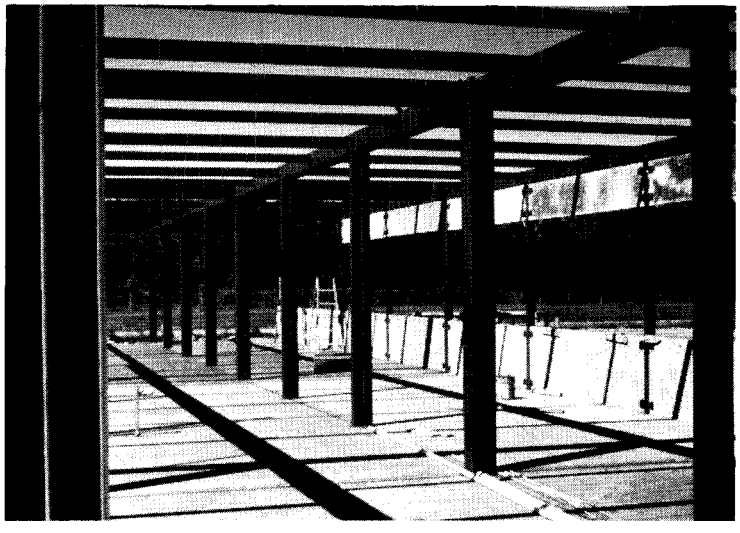
The remarkable speed in building this 56,500-square-foot, 200-bed hospital—a Government of Guatemala project—was made possible by the use of a construction technique unusual for this type of building. Since the project was to be situated on a remote, rural site, without access to sophisticated building equipment and facilities, the Government contracted with Mariana Construction International, Ltd. for 142 steel-framed modules prefabricated in Houston to be shipped to the site for assembly.

The architects, Mariani & Associates, of Washington, D. C., submitted this successful design during international bidding procedures. The firm has had experience designing other modular buildings, including clinics, hospitals and schools in Latin America. On hand for assistance with systems work was Robert Ziegelman of Ziegelman + Ziegelman, Birmingham, Michigan, an architect who patented the steel module in 1964. Ziegelman has used these prefabricated units in a variety of projects including a branch bank in Troy, Michigan, (RECORD, April, 1969, pages 86-87) that required completion within 90 days, and packaged computer centers to be sold by Westinghouse to various utilities (RECORD, Mid-August, 1976, page 115).

The modules made sense for this project because they are easily transported and can be adapted to suit different needs. Basically, they are cold-rolled structural steel tubes welded together to form a three-dimensional



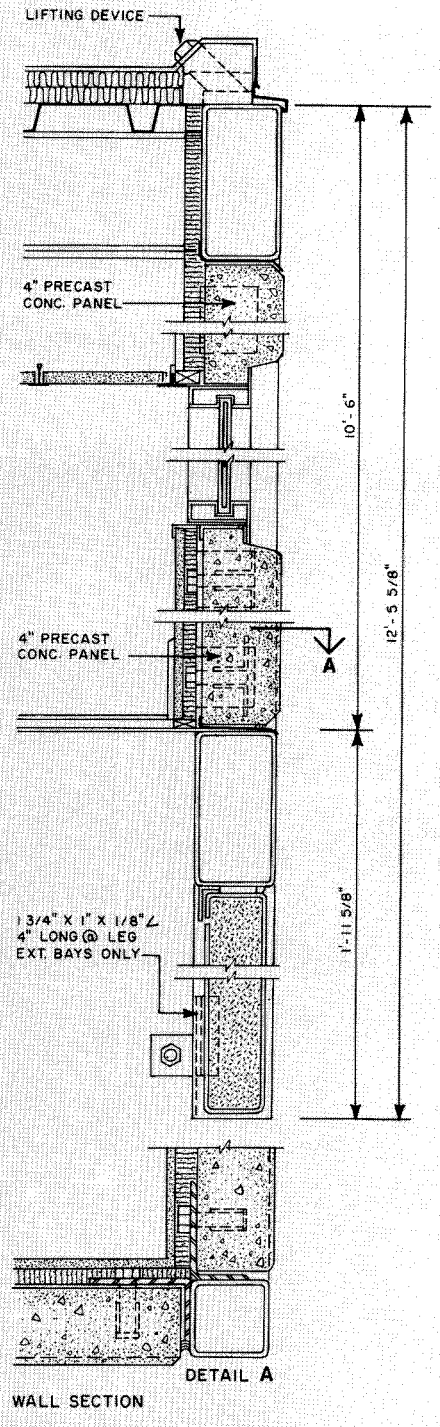




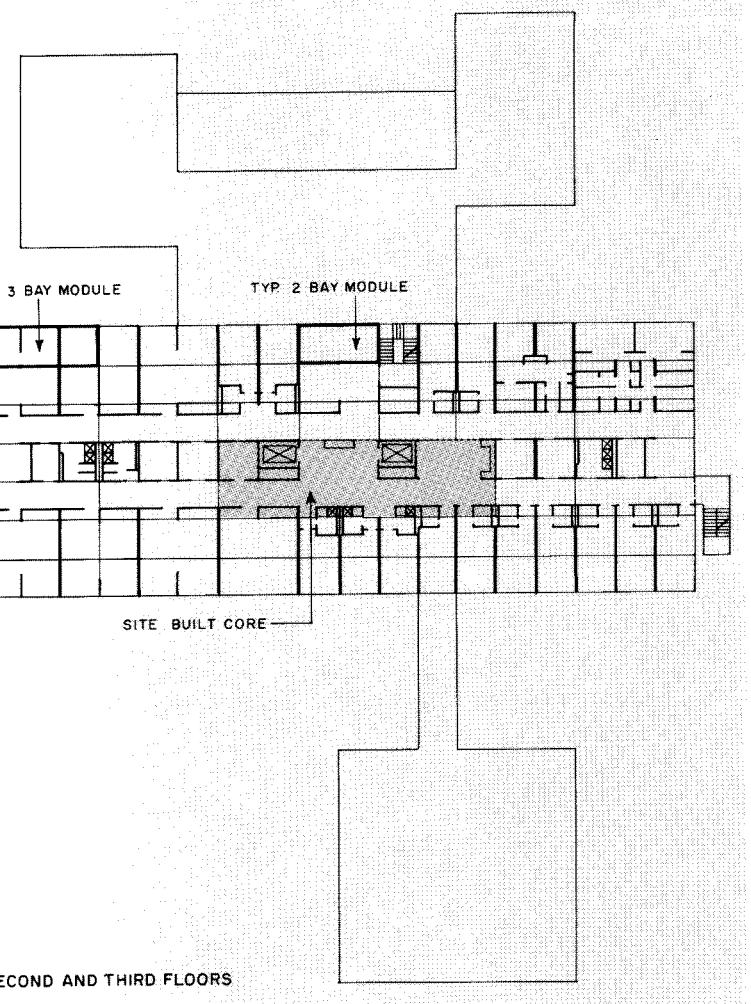
truss, combined with floor and ceiling beams and with cladding for exposed units. For this hospital construction, the same 3.6-meter grid was used for both the two- and three-bay units. The structural floor consisted of light steel beams and a steel plate diaphragm, while 4-in. precast concrete panels with an exposed aggregate finish were used for the exterior skin. Also included in each module were plumbing, hvac and electrical systems designed with special connections at the module joints.

Therefore, site activities involved only the construction of an elevator core, exterior stairs and foundation piers. This work was completed by local labor even as, in Houston, the 142 steel-framed modules were being fabricated by Mosher Steel Company with Zapata Warrior Constructor doing the interior and general construction. Production of the modules took approximately six months, after which shipping and erection was begun. Shipments were made by a shuttle system involving two barges and a tugboat; and a 90-ton truck crane was used at the site to stack modules three high. These were joined structurally using a combination of welded and bolted connections.

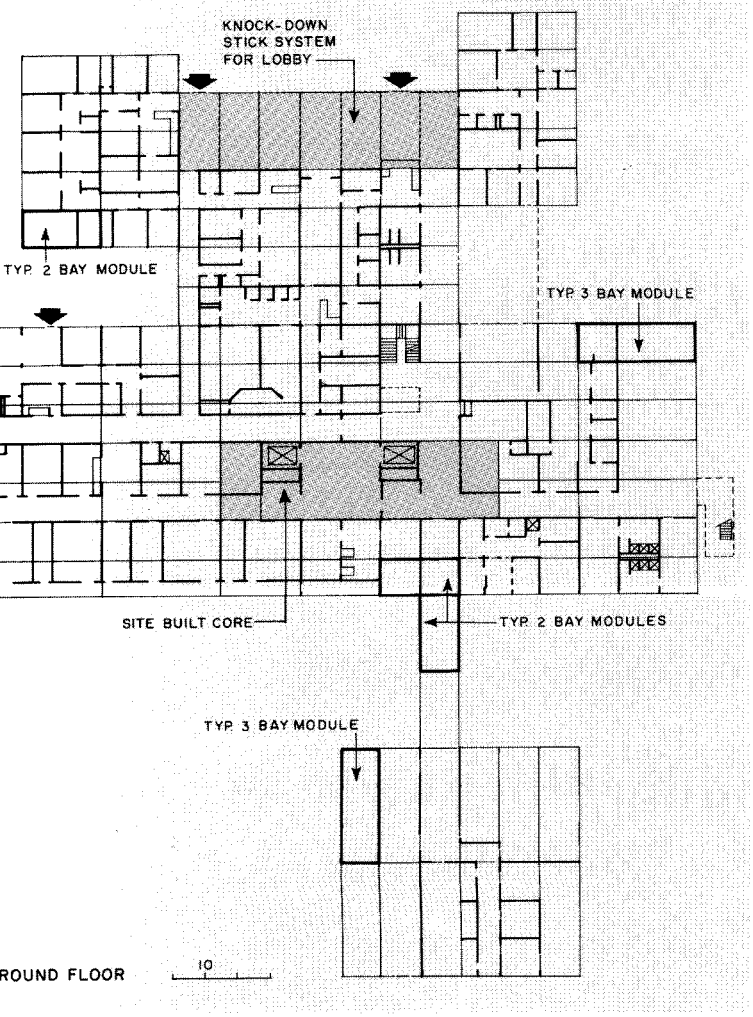
Work on the hospital was completed within a year rather than the five years estimated using conventional techniques. And the steel-framed module—generally relegated to housing construction—proved that it could be a valid answer to a variety of construction questions. — *Gauri Bhatia*



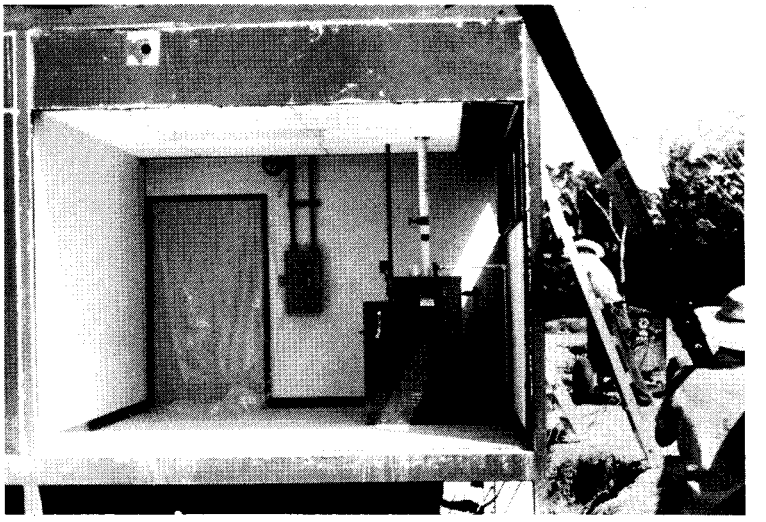
This hospital in Guatemala began a year earlier as a simple steel frame. At the fabrication shop in Houston, frames were prime-coated and precast concrete exterior panels attached (left, above). Installation of waste lines and electrical and hvac systems followed, all of which were designed with special connections at the module joints (right, top). Permanent roofs were added before shipping to Guatemala, as were temporary enclosure panels to protect those sections of the module which were not to have any exterior wall. A flatbed truck transported modules to the site which had already been prepared by the addition of pedestals as foundations and a cast-in-place elevator core.

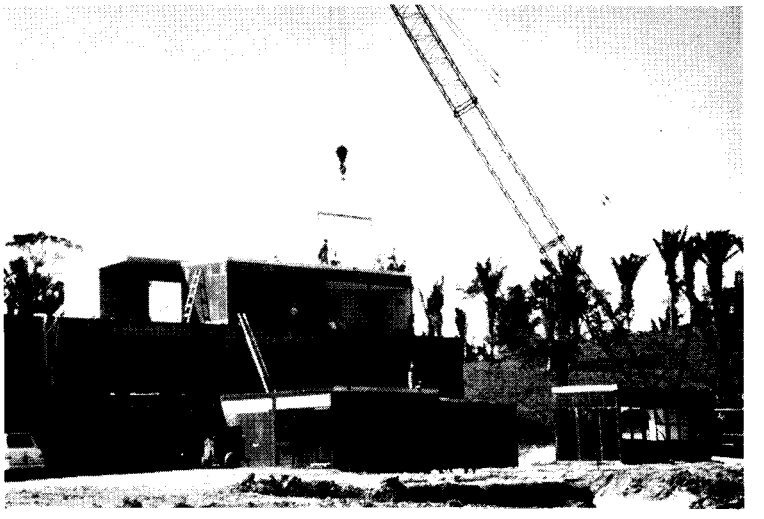


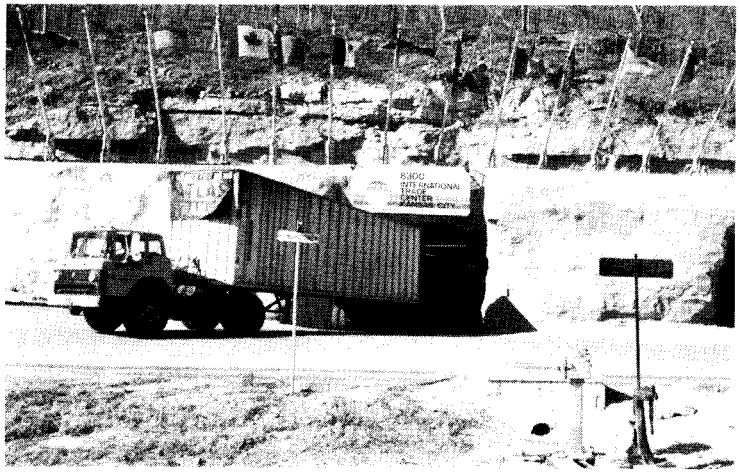
ECOND AND THIRD FLOORS

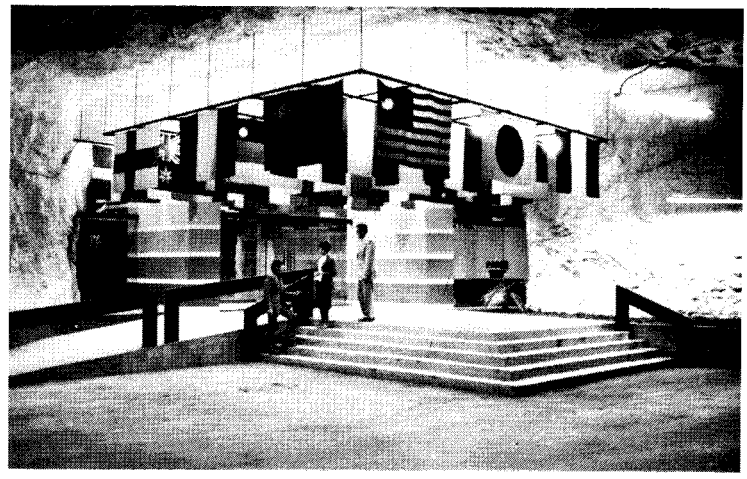


ROUND FLOOR









Mining the potential of underground space

The view could be better. In fact, it doesn't exist. But for those Kansas City businesses who've moved their offices underground, such setbacks are far outweighed by the benefits.

These businesses, numbering more than 100, have set up shop in limestone mines. Located at elevations from ground level to as much as 160 feet below ground and scattered in 15 different locations underneath Kansas City, Missouri, the mines offer large, low-cost areas for warehousing and manufacturing.

These areas, which have only begun to see active use in the past 25 years, are not the result of an active campaign by city officials to introduce businesses to subterranean life, but of one of nature's exploitable foibles. Limestone beds offering rock of excellent commercial quality covered 150 miles under Kansas City and its surrounding areas. This lucrative lode was mined by the room and pillar method whereby pillars of limestone were left standing for support, resulting in the formation of cavernous rooms as the area was being mined.

But why would businesses choose to give up the great outdoors for these subterranean accommodations?

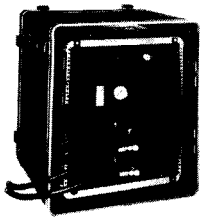
An optical tooling manufacturer appreciates the lack of noise and grime that used to disrupt the delicate instrumentation of his products in more conventional surroundings. Food storage firms like the constant 56-60F temperature which drastically cuts down on their refrigeration costs. And importers of foreign goods enjoy that part of the underground designated as an international trade zone which enables them to buy foreign materials and not pay customs duty until their products are sold on the U. S. market.

Besides these unique benefits, there are myriad others that all inhabitants of these mines can enjoy. There are, of course, no costs for building shell, which when coupled with drastic energy savings and painless maintenance, makes underground office space an excellent value.

But besides economy, these spaces offer: safety, in the form of simplified security systems and fireproofing; versatility, for the floors can support enormous weights while the ceiling accommodates new finishes and lighting construction; and steady states of humidity (typically, very low).

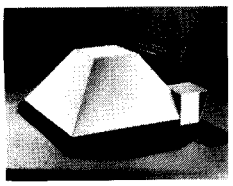
The photos shown here are of spaces and facilities developed by Great Midwest Corporation of Kansas City (located on Underground Drive). The great space below is like that to be used for McGraw-Hill Information Systems Company's annual party at this year's AIA convention. Bernard H. Merems, director of public affairs, and responsible for selecting the sites for these McGraw-Hill parties, said that though he checked into a number of traditional-type sites before seeing the caves, he literally was overcome by the sheer space of these underground sites. Also, he felt that the caves—"man's original architecture"—would be reflective of the convention's theme on celebration of design.

STRUCTURAL TEST EQUIPMENT / Testing with controlled force excitation can be done where there is a 110V outlet, using the "XCITE 1001P" portable hydraulic power supply. The 150-lb unit will power *Zonic* controlled force exciter heads or other actuators requiring an average flow of 1.0 GPM or less. Field testing may be done to determine such characteristics as resonant frequencies, mode shapes and apparent stiffness and mass. All components are shock-mounted in a fiberglass instrument enclosure 25-in. wide by 25-in. high by 27-in. deep. The system holds three gallons of hydraulic fluid and has gauges indicating oil level, temperature, and pressure. It is also available as a 220V system. ▪ Zonic Technical Laboratories, Inc., Cincinnati.



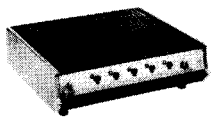
circle 307 on inquiry card

HID LIGHTING FIXTURE / Designed primarily for institutional and commercial applications such as schools, offices and stores, this series of 2- by 2-ft recessed square high-intensity discharge lighting fixtures offers 108 different units. Three basic styles of lenses are available: surface prismatic, regressed prismatic and aluminum louver. The fixtures install in lay-in ceilings with 2- by 2-ft tiles. The white enameled reflector provides excellent light reflectance; one side panel of the fixture is removable for easy access to the ballast box. ▪ Halo Lighting Div., McGraw-Edison Co., Elk Grove Village, Ill.



circle 308 on inquiry card

INTERCOM SYSTEM / The multi-use "Model K-ML-5WA" intercom can intermix communication between as many as five sub-stations with music, announcements and commercials. The Master Unit can call, listen and talk with the sub-stations individually, selectively or simultaneously, and can receive calls from subs by buzz or voice. The sub-station may be desk or wall mounted, as well as out-of-doors, with no connection to an electrical outlet. All sub-stations can be answered hands-free at a distance without use of any controls. ▪ Talk-A-Phone Co., Chicago.

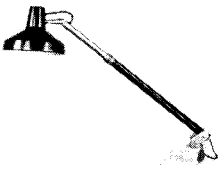


circle 309 on inquiry card

LAY-IN PANELS / Said to provide the cost benefits of 2- by 4-ft lay-in ceiling panels with the handsome appearance of individual tiles, "Travertine" is a subtly fissured panel that installs quickly with exposed grid. The panel design minimizes the appearance of the grid system: recessed regular board edges put the board and grid in the same plane, making the T-bars less conspicuous. One-in.-wide embossments on the panel surface match the supporting grid in color and width, visually uniting board and grid and making it part of the ceiling design. ▪ Armstrong Cork Co., Lancaster, Pa.

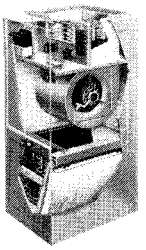
circle 310 on inquiry card

MULTI-USE LIGHTING FIXTURE / A telescoping combination fluorescent/incandescent fixture, the *Vemcolite* "VL-4" light is intended primarily for attachment to track-type drafting machines, and also to clamp-onto tables, desks, machines and work benches. Illumination is provided by both 22-Watt circline fluorescent lamp and a 60-Watt incandescent bulb. The "VL-4" extends from 26- to 46-in., and pivots 90 deg vertically and 350 deg horizontally at its base. The lamp swivels 350 deg and lamp support arm pivots 180 deg; a locking collar secures the upper arm at any extended position. ▪ Vemco Corp., Pasadena, Calif.



circle 311 on inquiry card

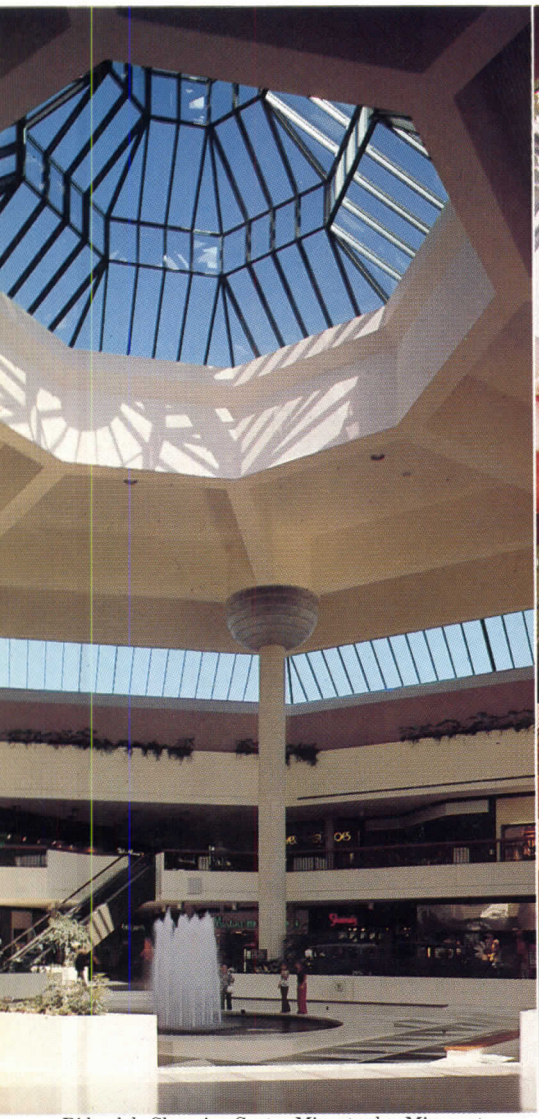
ELECTRIC FURNACE / The "EC12" is a residential electric furnace and indoor coil combination said to offer comfort and convenience at low operating cost. Standard features include all-copper tubing; a direct drive blower with multi-tap, permanent split capacitor-type motor; and installation flexibility to permit use in either up-flow or down-flow position. The "EC12" is comprised of two main components: the flameless "E12" electric furnace and the "C12" indoor "slide-in" coil are both contained on one cabinet. ▪ Lennox Industries Inc., Dallas.



circle 312 on inquiry card

more products on page 159

Laminated architectural glass. Safety is part of the beauty.



Ridgedale Shopping Center Minnetonka, Minnesota

Tower Restaurant Skokie, Illinois

Sun Oil Co./Corp. Office Building Radnor, Pa.

Skylights are more than a beautiful way to illuminate an interior. They're also energy efficient. The use of natural daylight reduces demand for artificial light. And skylights perform as passive solar collectors, reducing heating loads.

Are they safe?

The concern for safety is most effectively satisfied by laminated architectural glass with the Saflex interlayer from Monsanto.

Laminated glass resists penetration by falling or windblown objects. It can be fabricated with heat-strengthened or tempered glass for greater strength and increased wind and static load performance.

Should the glass break, strong adherence of the broken glass to the Saflex interlayer reduces the risk of dangerous splinters or falling fragments. And the broken unit tends to stay in the frame, continuing to function as a weather barrier.

Laminated architectural glass is also available in a variety of architectural colors for heat and light control. It can be fabricated into insulating units, or with reflective glass, for added energy efficiency. And special grades of interlayers can screen out UV radiation.

For a list of leading laminated glass manufacturers' names, write: Monsanto Plastics and Resins Company, an operating unit of Monsanto Company, Dept. 804, 800 N. Lindbergh Blvd., St. Louis, Missouri 63166.

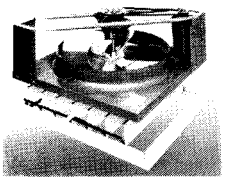
SAFLEX®

PLASTIC INTERLAYER BY Monsanto

Monsanto

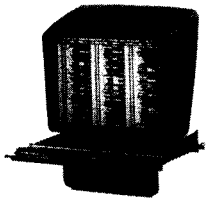
Circle 73 on inquiry card

HOUSE VENTILATOR / Installed in the ceiling of a central hallway, this ventilator provides economical cooling for homes as it exhausts hot air. Integral frame and louvers, offered in white enamel or aluminum finish, cover the ceiling opening. The felt-sealed louvers operate automatically; the belt-driven one- or two-speed fan unit has thermal overload protection. The UL-listed ventilator is offered in three HVI-rated models with cfm's from 4350 to 7000. ▪ Nutone Div., Scovill, Cincinnati.



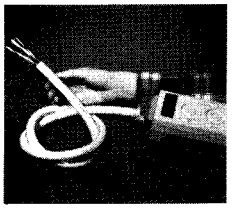
circle 313 on inquiry card

MICROGRAPHIC EQUIPMENT / This dual fiche carrier can be retrofitted to any existing *Comette* microfiche reader, allowing the master or index fiche to remain in the carrier at all times. Automatic-opening upper glasses speed fiche changing. The 4- by 6-in. carrier enables the user to operate both sides of the carrier simultaneously, or as two individual fiche carriers by removing a holding clip. ▪ Micro Design, Div. Bell & Howell Co., Harford, Wisc.

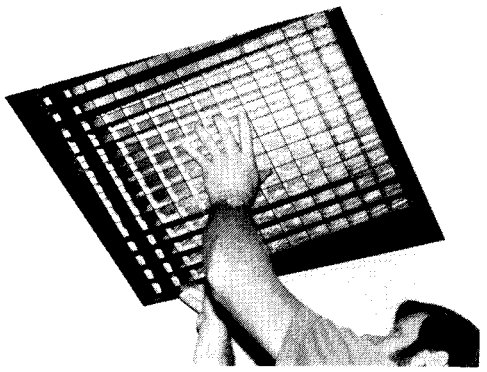


circle 314 on inquiry card

ELECTRIC CABLE / This line of "Round Flexible Control Cables" is said to be ideal for pendant push-button control stations, festooning systems, and other moving electrical equipment where cables are subject to continuous flexing. The cable design has a nylon extruded over PVC jacket, assuring uniform bending and maximum flexibility. Four standard sizes of cable are UL-listed for 600 volt, 105C service; optional cord grips are available. ▪ Duct-O-Wire Co., Waukesha, Wis.



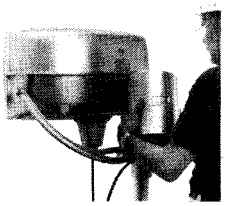
circle 315 on inquiry card



LOUVER FRAME / A "universal" louver frame is one of several options now offered for this manufacturer's 2- by 2-ft HID indoor luminaires. The frame, suitable for 3- or 5-in. regression, accommodates virtually any kind of louver to meet specific glare-control or style requirements. Flanges permit a louver to be pushed into place from below without tools. The HID luminaires provide symmetrical, asymmetrical, and bisymmetrical beam patterns; *Teflon* lenses can be specified in lieu of standard tempered prism-type glass. ▪ Wide-Lite Corp., San Marcos, Tex.

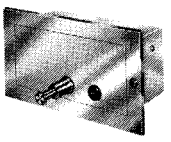
circle 316 on inquiry card

FLOODLIGHT CONVERSION KIT / A retrofit kit, consisting of a replacement ballast and socket extender, is available to convert type "F" floodlights from 1000-Watt mercury vapor lamps to 400-Watt high-pressure sodium lamps, said to provide the same light level with only 40 per cent of the power. Only three screws are loosened to remove the old ballast and install the new unit, which is covered by a three-year warranty. Photometric response of the converted floodlights provides a slightly "wider" pattern, even more suitable for most area lighting applications. ▪ Wide-Lite Corp., San Marcos, Tex.



circle 317 on inquiry card

WASHROOM ACCESSORY / The "R3" is a recessed lather-type soap dispenser with a 48-oz capacity, serving hundreds of users with one filling. Made of 18-8 stainless steel, with exposed surfaces satin finished, the dispenser is equipped with a view level indicator and a heavy-duty lock. Over-all frame dimensions are 10-in. wide by 5 ⅞-in.-high. The valve, face plate and reservoir form one integral unit, removable from the mounting box for filling. ▪ American Dispenser Co., Inc., Carlstadt, N.J.



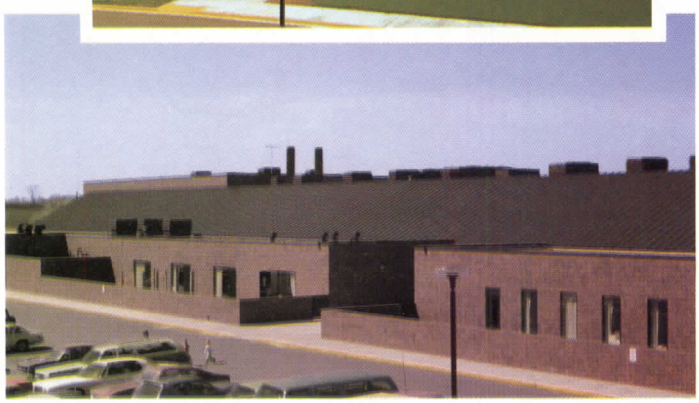
circle 318 on inquiry card

more products on page 163

FROM ANY ANGLE... ColorKlad LOOKS BEAUTIFUL!

From any angle... attractiveness, durability, ease of installation, cost, availability, warranty:

- 9 specially formulated colors, textured or smooth, blend in with the architect's design, other materials, and the building environment.
- Sheet metal contractors find ColorKlad easy to form and install.
- ColorKlad is highly economical. **Just compare!**
- Availability is excellent. We'll ship ColorKlad immediately in one sheet or a thousand to fit the size of your project.



But the best angle from which to view ColorKlad is our warranty. In recent years, ColorKlad's success has inspired a host of competitive products whose quality varies widely. Our WRITTEN 20 year warranty – **unique in the industry** – is an exceptionally strong statement of confidence: If a problem arises under terms of the warranty, Vincent Brass & Aluminum Company **will not only replace the material but will cover all labor involved.**

Of course, our customers seldom find it necessary to look up our warranty – because ColorKlad, from **every** other angle, has proven itself a real beauty!

Building Products Division • 724 24th Avenue S.E.
Minneapolis, MN 55414

DIAL DIRECT WITHOUT CHARGE:
MINN. ONLY 800-552-1202
NATIONWIDE 800-328-7772

Vincent
BRASS & ALUMINUM CO.

SEND FOR OUR NEW **COLORKLAD** BROCHURE AND SAMPLES!

Name_____

Title_____

Company_____

Address_____

City_____ State_____ Zip____

Circle 75 on inquiry card

STORAGE PLANNER / Said to be especially helpful for new facilities or addition to existing storage areas, the "Buyers Guide to Storage and Work Area Equipment Systems" offers ideas on how to layout factory, warehouse, store and office supplies and equipment. Shown are various types of shelving, pallet racking, storage-retrieval and mezzanine systems, lockers, gondolas, benching and shop equipment; many space-saving ideas are illustrated. ▪ Bernard Franklin Co., Philadelphia.

circle 418 on inquiry card

ELEVATOR GUIDE / A "Planner and Budget Estimator" has been written to aid in the selection of elevators and escalators. The 16-page brochure features a selection chart of various models, for low-, medium-, and high-rise buildings, and an application price estimator chart. Specifications for space planning layouts, and available options for ceiling and wall systems in elevator cabs, are also covered. ▪ Haughton Elevator, Div. Reliance Electric Co., Toledo, Ohio.

circle 419 on inquiry card

OPEN-SHELF FILING / High-density filing and storage systems are described in an 8-page brochure. The catalog features the "Compacta-Stak," a system of individual shelf tiers which are stacked to make open shelving sections of any height. Said to be economical to buy and install, the "Compacta-Stak" system offers many types of files for letter, legal and medical records, X-rays, catalog binders, computer printouts, hanging tape reels, library books, etc. ▪ Dolin Industries, Inc., Brooklyn, N.Y.

circle 420 on inquiry card

TASK LIGHTING / Lamps and magnifiers for a variety of office and industrial uses are shown in a 16-page lighting catalog. Fluorescent, incandescent, combination and halogen lamps are included, many with fully adjustable floating arms. Lights for medical and dental applications are also covered. ▪ Dazor Mfg. Corp., St. Louis.

circle 421 on inquiry card

ALUMINIZED STEEL / A product with the surface characteristics of aluminum and the mechanical properties of steel, "Aluminized Steel Type 2" is described in a 16-page catalog. Said to have excellent corrosion resistance, even in industrial atmospheres, "Type 2" is particularly suitable for roofing applications. The catalog gives details on available sizes, forms, and fabricating and finishing, including storing, forming, fastening, welding and brazing. ▪ Armco Inc., Middletown, Ohio.

circle 422 on inquiry card

MODULAR CEILING COFFERS / Non-combustible "Zarite" ceilings are now available in "Futura" pattern, a contemporary suspended ceiling coffer. Product data sheet describes the series, offered in an open-top configuration with lens, and a closed top in white or a variety of colors for special effects. Other standard "Zarite" Ceilings are illustrated. ▪ A & B Architectural Materials Inc., North Hollywood. Calif.

circle 423 on inquiry card

ENERGY EFFICIENT GRIDDLE / The stainless steel *Dyna-Griddle* uses vapor transfer principles to produce a uniform temperature across the entire cooking surface, and provides extremely fast temperature recovery with no energy- and food-wasteful "hot" or "cold" spots. An illustrated brochure describes the 30- by 36- or 48-in. griddle for commercial or institutional kitchens, explaining its energy saving and worker comfort features. ▪ Dyna International, Boston.

circle 424 on inquiry card

RUGS / "Custom Crafted" rugs from two individually styled collections are shown in a 38-page color catalog. Room settings and double-page close-ups of carpet textures illustrate the single needle florals and stripes of the "Collector's Group" and the looser, free-form rugs in the "Town House" series. ▪ Cabin Crafts Rugs, West Point Pepperell, Dalton, Ga.

circle 425 on inquiry card

TIMBER CONNECTORS / A redesigned and expanded catalog, the handbook of "Structural Design and Load Values" for *Strong-Tie* timber connectors includes added product developments and code approvals. Extensive design details for architects, designers, engineers and building contractors are shown. New products include holdowns, jack piers, floor beam jacks, compression wall bracing, truss plates and ornamental black plated strap ties, joist hangers, column caps and column bases. ▪ Simpson Co., San Leandro, Calif.

circle 426 on inquiry card

SLOTTED DRAINS / Slotted corrugated steel pipe is used to remove surface water in such applications as ground level floors with drainage requirements, parking lots, pedestrian thoroughfares, malls and bicycle paths, as well as on roads, according to a product catalog. Booklet gives hydraulic and installation data, and provides on-site photos of the slotted drains in place. ▪ Armco, Metal Products Div., Middletown, Ohio.

circle 427 on inquiry card

The disabled need not be handicapped... if buildings are properly designed.

Barrier-free design is often the lowest cost answer—as well as the most sensible one. At Bradley, we've listened to the experts and created Bradley products that will accommodate everyone—including the disabled. We've also incorporated washroom product designs that address vandalism and water conservation.

Send for your free copy of our new barrier-free products catalog that contains basic washroom design criteria plus specifications on our new products. A 30-minute film, "Barrier-Free Washroom Design" is also available for viewing. Contact your Bradley representative or write: Bradley Corporation, 9101 Fountain Blvd., Menomonee Falls, Wisconsin 53051.

Bradpack® Wash Center

Barrier-Free Washfountain

Modesty Module® Shower

Another right idea from BRADLEY Bradley

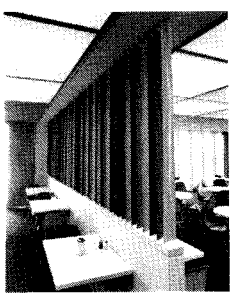
STEEL DOOR FRAME / Said to provide added security against break-ins, the factory weatherstripped, prehung "Perma-Frame" is offered as a residential or apartment exterior entrance with an insulated steel door. The steel frame needs no brick mold finishing; traditional or rustic overlays can be applied in the usual manner. The door and frame units are available in all standard single and double sizes. ▪ Steelcraft Mfg. Co., Cincinnati.

circle 319 on inquiry card

KITCHEN CASEWORK / Pictured here installed in *House & Garden* magazine's "Super Kitchen '79," custom-made *Zeilodesign DW* cabinetry provides storage for everything from a drop-leaf ironing board to cooking essentials. Wire-rack spin shelves and pull-out baskets fit into the flip-up base cabinets and floor-to-ceiling pantry units. ▪ Allmilmo Corp., Fairfield, N. J.

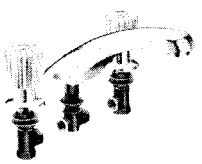
circle 320 on inquiry card

FABRIC VERTICALS / Woven of flame-retardant-*Cordelan* fabric, *Fretric* 4¾-in.-wide strips form a free-hanging window treatment or room divider. The fabric strips slide in a special aluminum track, or may be substituted for vinyl or metal vertical blinds in existing track installations. Metal weights heat-sealed into the bottom hems hold the strips taut and prevent excessive movement. Woven in Switzerland, *Fretric* verticals are offered in a total of 47 opaque or translucent colors; the fabric meets the requirements of NFPA Test 701, and may be dry cleaned as necessary. Material is also available woven 54 in. wide and laminated to paper for use as a matching wallcovering. ▪ Carnegie Fabrics, Rockville Centre, N.Y.



circle 321 on inquiry card

TUB SPOUT / A large-scale fixture, the Roman tub spout measures 12-in. long; the base is 3 ¾ by 3-in. The spout is available in either chrome or "Autumn Gold Antique" finish with acrylic handles in clear, amber or charcoal. ▪ Central Brass Mfg. Co., Cleveland.



circle 322 on inquiry card

An ARCHITECTURAL RECORD seminar...

DESIGN/BUILD AND THE LAW

FOR ARCHITECTS, ENGINEERS & OWNERS

May 22, 1979	New York
June 29, 1979	Chicago
July 27, 1979	Los Angeles

Attendees successfully completing this seminar will be awarded .7 Continuing Education Units and a certificate of completion.

A one-day seminar on design/build projects and the law, covering specific contracts, liability exposures, and insurance problems...

ESSENTIAL INFORMATION TO HELP YOU MINIMIZE THE RISKS OF DESIGN/BUILD, WHILE MAXIMIZING THE BENEFITS.

McGraw Hill

Design/build projects involve many unknowns. Your team, and contracts, must be in order.
Starting off right in design/build ventures depends on the owner, the design/build entity or team, and the design/build contracts. This one-day clinic, conducted by noted attorney and architect Arthur T. Kornblut, can help you put together the right team for your project, and help you evaluate your liability exposures and insurance problems.

If you are considering design/build for your projects...
This clinic will give you solid information to evaluate whether the design/build approach to project delivery is for you: when and where is it suitable, when it may prove unworkable, and what the risks and rewards are for the architect or engineer, contractor and owner.

How do professional ethics codes affect design/build projects...
What do the new AIA ethics require? Engineers' ethics related to design/build. Effect of ethics on contracts and procedures.

What the liability risks are, and how to minimize them...
Common law liability for major parties. Statutory, and contract liabilities. Strict liability and implied warranties.

How are design/build projects affected by specific legal issues...
Statute of limitations. Lien laws. Workmen's compensation laws. Indemnification/hold harmless. Tax implications. Compliance with Federal and state regulations.

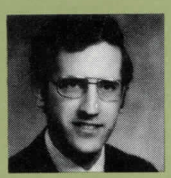
Bonds and insurance coverage for design/build projects...
Performance and labor/material payment bonds. Property and casualty insurance. Other coverages.

The law and design/build ventures in terms of...
Project site. Design parameters. Construction roles. Owner's role, rights, responsibilities and risks. Cost and construction time limitations.

Organizing to engage in design/build projects...
Whether a design professional, contractor or joint venture serves as prime contractor, the organization affects: design and construction responsibility; liability and insurance considerations; the business entity; contract provisions, and more.

And, the design/build contract itself...
Negotiated or competitive selection of the design/build entity. Scope, quality, cost, time, design, and workmanship of the project. Design and construction objectives. Ethical requirements. Owner's use of consultants. Guarantees, indemnification, payments, subcontracts, and more.

Your instructor is a noted attorney



Arthur T. Kornblut is a principal in the Washington, D.C. law firm of Ford, Farquhar, Kornblut & O'Neill. A member of the Bar in the District of Columbia and Ohio, he also holds an architect's license from the State of Ohio and an NCARB Certificate. He is a member of the American Bar Association, the District of Columbia and Ohio Bar Associations, and the American Institute of Architects. He currently serves on the panel of arbitrators for the American Arbitration Association. Mr. Kornblut is a frequent speaker and author on architectural practice, professional liability, and related legal aspects.

Here's what your colleagues said about a similar seminar by Mr. Kornblut

"Course well presented, and provides a good overview of current status of design/built process."
—Harry M. Stitle, Vice President,
Manager of Construction
Seattle First National Bank, Seattle, Wash.

"Extremely well informed, clear, concise presentation. Mr. Kornblut and Architectural Record are to be commended on this informative, up-to-date and enjoyable seminar. Look forward to more experiences like this."
—David A. Roth, Vice President
Bobrow/Fieldman, Montreal, Canada

"A concise, well-organized treatment of an extremely complex, increasingly used concept. Points up areas in which much is yet to be done, i.e., insurance, ethics, etc."
—James D. Cowan, FAIA, Manager,
Planning & Design Dept.
Seattle First National Bank, Seattle, Wash.

"Clearly and concisely presented. Art Kornblut is very able, knowledgeable and articulate. The material was comprehensive and thoroughly covered. His background—legal and architectural—made him an ideal spokesman."
—Harry Anderson, President
Perkins and Will, Chicago, Ill.

"A much needed program to help the A/E decide if design/build is for him. This program was very complete."
—James J. Schenkel, Architect
Schenkel & Schultz Inc., Ft. Wayne, Ind.

"Very informative."
—John R. Paukune, Vice President
CM, Inc., Houston, Texas

Return to:
ARCHITECTURAL RECORD SEMINARS
McGraw-Hill, Inc., 1221 Avenue of the Americas
New York, N.Y. 10020 Phone (212) 997-3088

Register me in the ARCHITECTURAL RECORD seminar checked below.

DESIGN/BUILD & THE LAW (FOR ARCHITECTS, ENGINEERS & OWNERS)
☐ May 22, 1979 New York The Halloran House
☐ June 29, 1979 Chicago Water Tower Hyatt House
☐ July 27, 1979 Los Angeles Bonaventure
☐ Check enclosed, payable to ARCHITECTURAL RECORD **($295)**
☐ Bill me

Name _____

Title _____

Firm _____

Street _____

City _____ State _____ Zip _____

Phone ( ) _____

Signature _____

Please check if: ☐ Architect ☐ Engineer ☐ Other _____
☐ Send me information on ARCHITECTURAL RECORD's Fall 1979 seminars.

BoltaWall™

vinyl wall covering

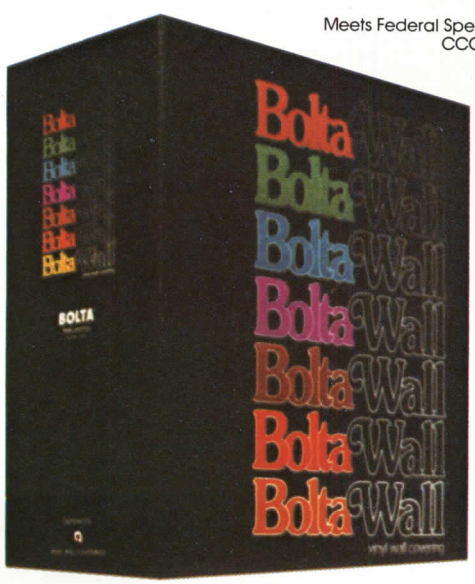
makes you fluent in the language of Inner Space.

BoltaWall lets you speak a breathtaking language of bold vistas and crisply defined interior spaces. In a brilliant collection of commercial and contract vinyl fabric wall coverings that gives you more than thirty dazzling patterns, and more than 600 pattern and color combinations.

BoltaWall speaks dramatically and functionally in commercial buildings, health-care facilities, educational institutions, hotels, motels, churches and residences. With shimmering Mylars® and glossy wet-looks that expand and brighten spaces. With the tooled metal look of hammermark and the natural elegance of travertine marble, cork and woodgrain patterns. With bold, embossed geometrics. And with an exceptional selection of fabric designs, including silk, burlap, linen, brushed suede, grass cloth, shadowstripe, herringbone and faded corduroy. All easy to install, scrubbable and strippable for easy, economical maintenance.

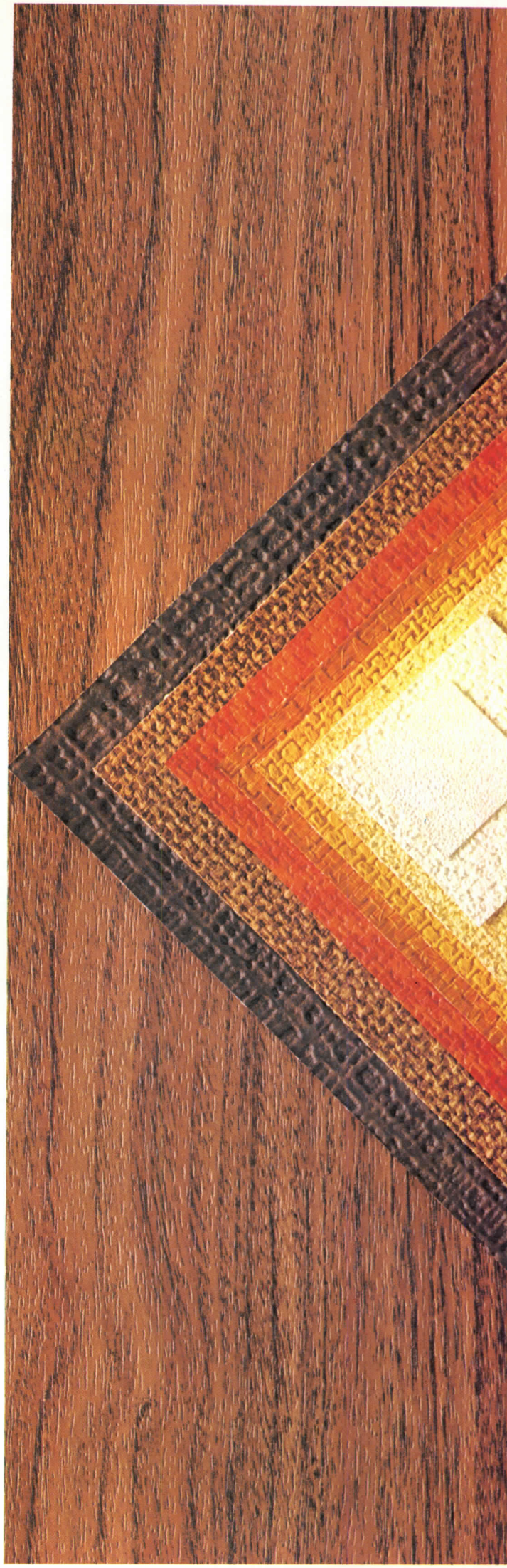
When you want to be heard, speak BoltaWall...the language of environment...the language of drama... the language of function...the new language of inner space!

Meets Federal Specification CCC-W-408A.



For additional information write:

BOLTA®
Wallcoverings
Reading, Massachusetts 01867



Circle 79 on inquiry card

Saving, Low-Maintenance Window

There's More CARclad® Value Outside!

Both frame and sash are clad with tough, weather-resistant, low-maintenance aluminum in your choice of chestnut bronze or brilliant white. Environmental-tinted insulating glass cuts out 20% of the BTU's and harmful ultraviolet rays without limiting visibility. A Caradco standard feature. Leak-proof, weather-tight vinyl gasket glazing cushions the insulating glass within the sash. (Optional self-storing combination unit lowers "U" factors to .28.)*

Ask your Caradco distributor about the wide choice of accessories and styles and sizes available, plus the full-line of smartly styled CARclad casement/awning windows and patio doors.

The Class "A" Rated Window
From Caradco...THE WOOD WINDOW Company

Caradco
Scovill
Window and Door Division
Rantoul, IL 61866

Circle 80 on inquiry card

*Ref: ASHRAE

An ARCHITECTURAL RECORD seminar...

PREPARING FOR THE SOLAR ERA IN BUILDING DESIGN

A two-day seminar to help you develop a *basic* understanding of architectural and engineering considerations—and costs—of both active and passive solar energy systems....

ESSENTIAL INFORMATION TO HELP YOU RESPOND PROFESSIONALLY TO THE CLIENT INTERESTED IN SOLAR ENERGY.

New York	Chicago
April 23-24, 1979	May 9-10, 1979
The Halloran House	The Drake

SIGNIFICANT GAINS IN SOLAR ENERGY TECHNOLOGY ARE PREDICTED IN THE NEXT FEW YEARS. YOU CAN PREPARE FOR THIS NEW OPPORTUNITY NOW.

In applications where it is appropriate, solar energy is becoming a feasible and competitive source of heating and hot water. So far, solar cooling is not economically viable, but as technology advances and costs of solar installations come down, you will see significant gains in the next few years.* Even the northeastern United States is now considered a fertile area for development of solar technology. This seminar will help you as a design professional prepare for your new responsibility in a solar era.

YOU'LL LEARN BASIC ARCHITECTURAL PRINCIPLES OF BOTH ACTIVE AND PASSIVE SOLAR ENERGY DESIGN, INCLUDING:

- Technical limitations of active systems
- Balancing active and passive systems for maximum efficiency
- Designing today's buildings for tomorrow's solar energy

YOU'LL LEARN HOW TO WEIGH THE ECONOMICS OF SOLAR ENERGY FOR YOUR CLIENT:

- Life cycle costing techniques
- Maintenance considerations

YOU'LL LEARN HOW TO AVOID COMMON DESIGN AND CONSTRUCTION PROBLEMS ASSOCIATED WITH ACTIVE SOLAR INSTALLATIONS, INCLUDING:

- Collector support structures & hardware
- Piping insulation, waterproofing, movement and fatigue
- Maintenance potential
- Drainage
- Snow control

YOU'LL LEARN HOW TO AVOID COMMON DESIGN AND CONSTRUCTION PROBLEMS ASSOCIATED WITH PASSIVE SOLAR INSTALLATIONS, INCLUDING:

- Heat storage
- Heat rejection
- Estimating fuel savings
- Temperature control

YOU'LL LEARN HOW TO DIVIDE DESIGN REPONSIBLITY BETWEEN THE ARCHITECT AND THE MECHANICAL ENGINEER FOR:

- Evaluating collectors
- Designing storage systems
- Evaluating and designing controls

* As evidenced by these recent news items:
On September 8, 1978 President Carter signed into law a military construction bill that is expected to generate $50 million in solar architect-engineering funds in 1979, and $100 million in solar design and construction funds for several years thereafter. The law requires that all new military housing use solar energy equipment if cost effective, and that at least 25 per cent of all the other military construction do the same, on structures started after December 8.
—*Business Week, September 25, 1978*

Energy Secretary James R. Schlesinger declares that solar "may soon be the fastest growing part of our energy supply." He shortly will ask the Office of Management & Budget to nearly double for fiscal 1980 the $500 million that his agency will spend on solar research and development in fiscal 1979.
—*Business Week, October 9, 1978*

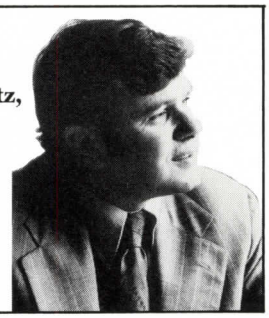
FOR REGISTRATION INFORMATION, SEE PAGE 172.

YOUR INSTRUCTORS ARE PRINCIPALS OF THE EHRENKRANTZ GROUP

Energy conservation has been one of the key objectives of The Ehrenkrantz Group since the firm was founded in 1964. In recent years, the firm has been involved in the design of solar heated buildings, including housing, office buildings, schools, hospitals, shopping centers, and industrial plants. Clients for whom the firm has provided energy-related services include: AIA Research Corporation, Exxon Enterprises, Department of the Air Force, Department of Defense, HUD, Department of the Navy, and Department of Energy.

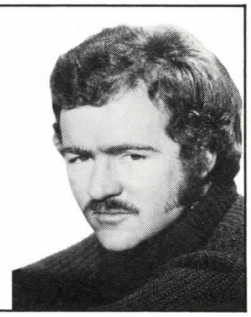
Of special importance is the firm's current work—with mechanical engineers Syska and Hennessy—to provide baseline data on the energy performance of recent buildings as part of HUD's development of energy consumption/performance standards for residential and non-residential buildings.

Ezra D. Ehrenkrantz, FAIA



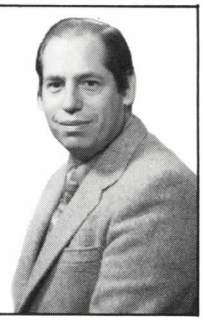
Mr. Ehrenkrantz is president of The Ehrenkrantz Group in New York City. In private practice since 1959, Mr. Ehrenkrantz has considerable experience in passive heating and cooling systems. For two years during the mid-fifties, he worked with the British Building Research Station developing low-technology techniques for accommodating the climate requirements for building construction. These principles and techniques have been applied in the design of many buildings here and overseas. In 1965, Mr. Ehrenkrantz led in the organization of Building Systems Development (BSD) and pioneered the first United States building systems program, School Construction Systems Development (SCSD) in California. He is an author, and lecturer at Yale University and MIT. Mr. Ehrenkrantz was *Engineering News Record's* "Construction Man of the Year" in 1968. He is registered in nine states. In 1977, The Building Research Advisory Board of the National Research Council gave Mr. Ehrenkrantz its Quarter Century Citation for his "significant and lasting contribution to the state of the art and construction technology" during the period between 1950 and 1975. Mr. Ehrenkrantz is one of only seven architects to be so honored, among whom are Walter Gropius, Eero Saarinen and R. Buckminster Fuller.

William T. Meyer, AIA



Mr. Meyer, vice president, joined The Ehrenkrantz Group in 1968, and heads all research undertaken by the firm, including work in energy conservation and solar heating of buildings. Mr. Meyer's skills focus on building technology, design and economics. His professional experience includes the management of a solar heating demonstration program for the Department of Defense; the analysis of solar energy for housing uses for the AIA Research Corporation; and design and cost-benefit analysis of energy conscious model houses for Exxon Enterprises, Inc. Mr. Meyer teaches at Pratt Institute and Columbia University, and is the author of numerous articles, including the building system section of the *Fifth Edition of Timesaver Standards*. He has been a speaker at many conferences and seminars on the subject of energy conservation. He is registered in New York and California.

Stephen D. Weinstein, AIA



Mr. Weinstein is a vice president of The Ehrenkrantz Group, and serves as Director of Technical and Production Services. He is currently providing technical consultation to the Department of Energy in the management of the grant program for the placement of solar systems. He is reviewing and making recommendations on the plans and specifications of all non-residential facilities applying for DOE Demonstration Program funding. Under the auspices of the Department of Energy, Mr. Weinstein and The Ehrenkrantz Group have been preparing a comprehensive design guide for active solar heated buildings.

Return to:
ARCHITECTURAL RECORD SEMINARS
McGraw-Hill, Inc., 1221 Avenue of the Americas
New York, N.Y. 10020 Phone (212) 997-3088

Register me in the ARCHITECTURAL RECORD seminar checked below:

PREPARING FOR THE SOLAR ERA IN BUILDING DESIGN ($395)

☐ April 23-24, 1979	New York	The Halloran House
☐ May 9-10, 1979	Chicago	The Drake

☐ Check enclosed, payable to ARCHITECTURAL RECORD
☐ Bill me

Name_____

Title_____

Firm_____

Street_____

City_____ State_____ Zip____

Phone ( )_____

Signature_____

Please check if: ☐ Architect ☐ Engineer ☐ Other_____

Return to:
ARCHITECTURAL RECORD SEMINARS
McGraw-Hill, Inc., 1221 Avenue of the Americas
New York, N.Y. 10020 Phone (212) 997-3088

Register me in the ARCHITECTURAL RECORD seminar checked below:

PREPARING FOR THE SOLAR ERA IN BUILDING DESIGN ($395)

☐ April 23-24, 1979	New York	The Halloran House
☐ May 9-10, 1979	Chicago	The Drake

☐ Check enclosed, payable to ARCHITECTURAL RECORD
☐ Bill me

Name_____

Title_____

Firm_____

Street_____

City_____ State_____ Zip____

Phone ( )_____

Signature_____

Please check if: ☐ Architect ☐ Engineer ☐ Other_____

REGISTER NOW FOR THIS ARCHITECTURAL RECORD SEMINAR

Return one of the coupons at left to ARCHITECTURAL RECORD SEMINARS, 1221 Avenue of the Americas, New York, New York 10020. Or you may register by calling (212) 997-3088. Registration must be made in advance of the seminar.

Seminar fee
PREPARING FOR THE SOLAR ERA IN BUILDING DESIGN $395
Registration fee must be paid in advance of seminar. Fee includes cost of luncheons and seminar workbook.

Seminar hours
Daily sessions are from 9 a.m. to 5 p.m.
Registration is from 8:30 to 9:00 a.m. prior to the start of program.

Hotel reservations
While ARCHITECTURAL RECORD does not make hotel reservations for seminar participants, we have arranged to hold a limited block of rooms for the use of attendees. When you register, we supply you with a room reservation card to return to the hotel. The hotel will confirm your room by mail.

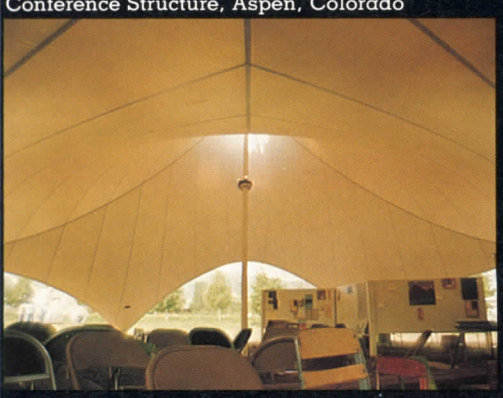
Continuing Education Units
A Certificate of Completion and Continuing Education Units (CEU's) will be awarded by ARCHITECTURAL RECORD to attendees successfully completing seminars. The CEU was established in 1974 as a uniform unit of measurement for noncredit continuing education.

Tax deduction of expenses
An income tax deduction is allowed for expenses of education (includes registration fees, travel, meals and lodging) undertaken to maintain and improve professional skill. See Treasury Regulation 1.162-5 (Coughlin vs. Commissioner 203 F.2d 307).

EDUCATIONAL

A Spectacular Rain/Sun Shelter By Helios.

Conference Structure, Aspen, Colorado



The logic of this tensioned membrane structure is as exciting as its appearance. A canopy over a school yard play area, it provides shelter for outdoor activities in almost any weather. The attractive "upside-down" design allows rain water run-off through the support columns.

The shelter is fabricated of vinyl-coated polyester material held in tension on a steel framework. The result is a lightweight, rigid structure engineered to withstand heavy wind loading. Though it is in a higher priced class than a tent, a tensioned membrane structure offers far greater strength and durability. Compared to alternate structures of wood, steel or masonry, it typically results in important cost savings.

When your imagination calls up great roofed-over spaces or rhythmic curvilinear shapes, Helios Tension Products are the people to try your ideas on. We specialize in helping architects translate their innovative designs into practical reality. Our expertise includes design, engineering, fabrication and erection—a total comprehensive service unmatched in the U.S.

For more information, or help with a specific project, call or write: Dept. P3, Helios Tension Products, Inc. 1602 Tacoma Way, Redwood City, CA 94063 Telephone: (415) 364-1770, Telex 345590

HELIOS TENSION PRODUCTS, INC.
Soft Shell Structures Division

Circle 114 on inquiry card

Save up to 30% in energy costs.

Free booklet explains how to manage energy to save money.

The big challenge facing every American company today is how to make the most of the energy we have.

The big trick is how to find out exactly how much energy you're using and how much you are spending for it. In short, a complete analysis of your energy use.

The Alliance to Save Energy offers an energy accounting and analysis system developed by The Carborundum Company which spells it out simply and powerfully. It helps you determine how and where your company consumes energy, shows how to measure it against previous consumption, and recommends ways to conserve energy and save money. Using this system, many companies have found ways to save thousands of dollars with little or no capital outlay.

The Alliance to Save Energy will happily send you one or more of these booklets. We want to do all we can to help you help America preserve its precious resources.

Saving energy has its management rewards—not only in the warm feeling you get from contributing to the nation's welfare, but in cold, hard cash.

For example, one car manufacturing company discovered that by changing its type of primer paint (with no loss in quality) it could reduce the bake temperature and drastically cut energy consumption. Cost: $1,800 a year. *Savings: $13,000 a year.*

Real estate management people found that by switching from standard bulbs to low-energy bulbs they lit the way to a savings windfall. Ten year maintenance cost: $10,304. *Ten year pre-tax savings: $50,026.*

The remarkable feature of this energy accounting system is that it can be applied successfully to almost any kind of structure—office building, hospital, hotel, store, factory, refinery. The Department of Commerce has voiced its enthusiasm for this energy-saving system in the halls of Congress.

No matter what business you're in, you're sure to save energy and energy costs through the application of this system.

Send for this booklet today. Fill in the coupon below.

ALLIANCE TO SAVE ENERGY
1925 K Street, N.W., Suite 506, Washington, D.C. 20006

Please send me ____ copy (copies) of The Carborundum System of Energy Accounting and Analysis booklet.

Name

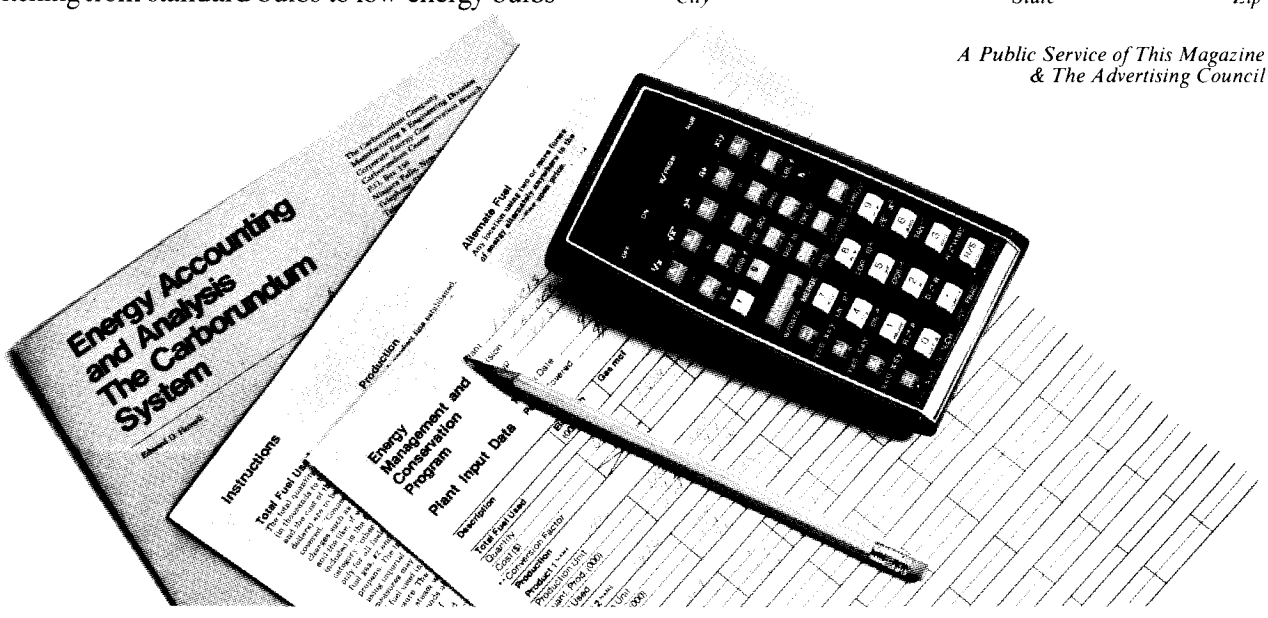
Company Name

Company Address

Type of business

City *State* *Zip*

A Public Service of This Magazine & The Advertising Council Ad Council



OFFICE NOTES

Offices opened

R. Dale Beland, AIA, AIP, announces the formation of Beland/Associates, Inc. in Los Angeles.

Russell L. Champlin, Jr. and Robert K. Haupt are pleased to announce the formation of Champlin/Haupt, Inc., Architects and Planners. New offices are located at 424 East Fourth Street, Cincinnati, Ohio.

Collaborative Resources International, Inc. is pleased to announce the establishment of its North American headquarters located at 129 Abercorn Street, Box 10062, Savannah, Georgia.

W. Stanly Gordon announces the opening of his offices for the practice of architecture located at 2614 Independent Square, Jacksonville, Florida.

Carroll Cline, James Nuckolls, Carlos Bulnes and Leontine Linton have opened the main offices of INC Consultants Ltd. located at 175 Fifth Avenue, New York, New York.

The architectural firm of Irwin & Associates AIA has announced the opening of their northern California office, located at #31 Embarcadero Cove, Oakland, California.

Frank J. Lucchese and Chris J. Nicholson are pleased to announce the formation of their architectural practice to be known as Lucchese/Nicholson Architects Ltd., located at 118 Park Avenue, Elmhurst, Illinois.

Perry, Dean, Stahl & Rogers, Inc. is pleased to announce that Peter L. Hornbeck, ASLA has been elected to the board of directors and vice president for landscape architecture.

John C. Reynolds, AIA is proud to announce the opening of his office for the practice of architecture. While awaiting the completion of new quarters, his office will be in Suite 515, 2223 West Loop South, Houston, Texas.

Shuirman-Rogoway & Associates, headquartered in Los Angeles, and Richard E. Borkovetz and Associates, located in Orange County, have merged to form Rogoway/Borkovetz Associates. The Los Angeles office of Rogoway/Borkovetz Associates will remain at 5657 Wilshire Boulevard, while the Orange County office will be located at new facilities at 446 North Newport Boulevard, Newport Beach, California. The firm also has a liaison in Doha.

The individual architectural firms of Timbes, Clark & Wilund, Inc. and Stephen A. Usry, Architect, Inc., wish to announce the merger of the two firms and will hereafter practice as Timbes/Wilund/Usry/Architects, Inc. They are located at 5001 North Kings Highway, Suite 206, Rainbow Harbor, Myrtle Beach, South Carolina.

Firm changes

Robert Allen Reed, AIA has been promoted to senior vice president and named assistant director in the Los Angeles office of Welton Becket Associates. Vice president Nabih F. G. Youssef, SE, has been appointed assistant director of structural engineering.

Masao J. Itabashi, AIA has been named president of Benham-Blair & Affiliates, Inc. headquartered in Oklahoma City, Oklahoma.

Bovay Engineers, Inc. announces the appointment of James O. Adams, PE as senior consultant.

Brown and Caldwell Consulting Engineers today announced the addition of Alan Vause to its staff as chief electrical engineer.

Dalton Dalton Newport recently elected two architects to the position of associate. They are Richard E. Brown, architect; and Terry G. Hoffman, director of health facilities.

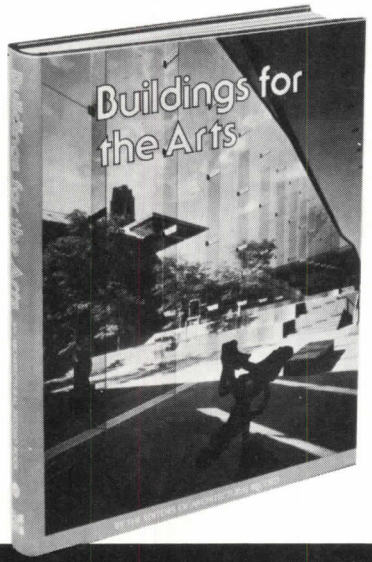
continued on page 219

The world's leading architects reveal their most exciting, innovative design concepts for . . .

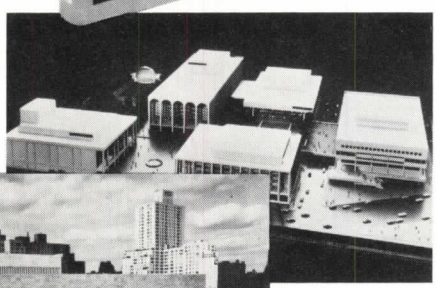
BOOK MART

BUILDINGS FOR THE ARTS

by the editors of **Architectural Record**
224 pages, 697 illus., $26.50



Libraries . . . art museums . . . regional and historical museums . . . theaters and cultural centers—the design market for cultural facilities is booming as never before. Now you can see more than 60 masterful and fascinating designs . . . all selected for their successful, imaginative solutions to frequently-encountered problems.



A rich storehouse of design ideas—plus a pictorial review of today's most important solutions

- Provides guidance on specific design problems
- Focuses on latest trends and innovations
- Provides examples of new approaches and ideas
- Shows how to avoid costly mistakes

Take a close-up look at some breakthrough designs, including:

LIBRARIES
Includes the latest designs from small town libraries to large university libraries.

Farmington Public Library
Brighton Branch Library
Skidmore College Library
Brown Sciences Library
Greenburgh Public Library

ART MUSEUMS
Presents several examples from abroad, including effective additions to existing museums that preserve the character of the originals.

Scaife Museum
Tochigi Museum
Brooks Memorial Gallery
Winchester/Norwick Cathedral

HISTORICAL AND REGIONAL MUSEUMS
Shows how the history and culture of a specific locality can be preserved and illuminated through imaginative museum planning.

Flint Ridge Museum
Oregon Historical Society
Peabody Museum

THEATERS AND CULTURAL CENTERS
Demonstrates how to house the performing arts in a variety of buildings—from the economical to the extravagant.

Julliard School
Opera Factory
Heinz Hall
Iowa Prairie Auditorium

McGraw Hill

Spotlights the most important design breakthroughs of the 70s

Breathtaking photographs, floor plans, and technical data provide you with guidelines for innovative approaches to:

- ✔ Reuse and renovation
- ✔ Specific problems and unique conditions
- ✔ Most-wanted visual effects
- ✔ And much, much more!

15 DAYS' FREE EXAMINATION

Architectural Record Books AR 4-79
1221 Avenue of the Americas
New York, N.Y. 10020

Send me *Buildings for the Arts* (002325-5) for 15 days' free examination. At the end of that time, I will either remit $26.50, plus local tax, postage, and handling charges, or return the book without further obligation.

Name _____

Address _____

City _____ State _____ Zip _____

SAVE MONEY! Remit in full with this order, plus any tax, and McGraw-Hill pays all regular postage and handling charges. Full return privileges still apply.
Order subject to acceptance by McGraw-Hill. Good only in the U.S.

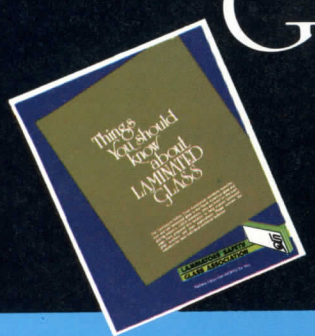
03K-648-4005-3

Turn down the "Volume" with Laminated Glass...

—sh—sh—sh—make it whisper-quiet with LAMINATED sound control glass. It's the economical way to MINIMIZE unwanted noise — and still have your desired visibility and easy maintenance. No costly framing devices are required.

Laminated sound control glass is a safety glazing material that is also available in Solar Control assemblies.

Make it quieter! Make it LAMINATED glass!



Send for FREE Booklet

Get All the facts about Laminated Glass—just send a postcard to:
LAMINATORS SAFETY GLASS ASSOCIATION
3310 Harrison
Topeka, Kansas 66611

LAMINATORS SAFETY GLASS ASSOCIATION

Making Glass that WORKS for You

CLASSIFIED SECTION

DEAN, SCHOOL OF ARCHITECTURE—UNIVERSITY OF SOUTHERN CALIFORNIA

The University of Southern California is seeking to fill the position of Dean of the School of Architecture. The School has 37 faculty in addition to a number of visiting professional persons. Total enrollment is approximately 350 undergraduate and graduate students.

Candidates should have demonstrated academic, administrative and/or equivalent professional experience. A successful candidate should be prepared to assume leadership of the School and continue its international reputation for excellence.

Resumes or nominations of qualified persons should be sent before May 1, 1979 to Professor Emmet L. Wemple, Chairman, Search Committee, Dean, School of Architecture, Watt Hall #204, University Park, Los Angeles, California 90007. The University of Southern California is an Equal Opportunity/Affirmative Action Employer.

Project Designers—An expanding medium size A/E firm has a position open for an experienced project designer. Registration is preferred, but openings are also available for architects in training with three to five years experience. Recent hospital experience is preferred, although not essential. We are a multi-disciplined design-oriented firm with a wide variety of project types. We are located in a Big Ten university community with outstanding opportunities for cultural and athletic activities. Iowa City provides an excellent environment for family-oriented activities as well as personal growth potential. We offer a full benefit package and a salary commensurate with experience. Call Duane Roggow at 319/354-4700 for further information or send resume, in confidence, to Hansen Lind Meyer, P.C. Drawer 310, Plaza Centre One, Iowa City, Iowa 52240. An equal opportunity-affirmative action employer. M/F.

Architect—Engineering Department of Major Firm in Rail Transportation seeks Graduate Architect with NCARB or a State registration with a minimum of 2 years experience in design and preparation of specifications of commercial and industrial projects. Salary range $22,000—$25,000 per year plus liberal benefits. Please forward resumes and references to: Mr. L. D. Smith, A.I.A. Engineer of Buildings Chessie System—801 Madison Ave., PO Box 1800, Huntington, West Virginia 25718. An Equal Opportunity Employer.

Building Construction—Marketing and Business Development. Design and construction firm in New Jersey desires experienced person to manage this firm's sales efforts. Our firm is medium sized with a long history of design and construction with Fortune 500 type clientele. Applicant should have a minimum of 5 years experience in selling construction services; technical experience and/or professional degree preferred. Please indicate discussible compensation range; Send resume to P-9230, Architectural Record.

Project Architect—Position open along with positions for Job Captains with prominent growth oriented consulting architect located in beautiful Pacific NW. Project Architect candidate should possess 3-5+ yrs. exp. within professional firm environment; ability to direct projects from inception, provide design input and effectively communicate with clients. Degree and registration preferred. Job Captain candidates should have degree and 1-3 yrs. exp. within professional firm directing project production phases; coordinating schematics and engrg., etc. Medium sized firm offers competitive compensation, desirable location and excellent professional growth oppor. For prompt consideration, contact our representatives in confidence at: G. Marshall Assoc.—P.O. Box 66083—Chicago, Il. 60666.

Design Architect—Position available with leading Mid-South architectural firm. Qualified person should have 3-5+ yrs. comprehensive professional exp. with emphasis upon conceptual design and schematics dev. relating to major office, medical, commercial and/or educational projects. Individual should be capable of providing key design input while working directly with principals and clients. Degree and prof. registration preferred. Firm is medium sized consulting architect with stable history and growth pattern. Competitive salary based upon past exp. and/or ability. Contact our representatives in confidence at: G. Marshall Assoc.—P.O. Box 66083—Chicago, Il. 60666.

Progressive Sunbelt Architectural and Planning Firm has openings available for the following positions: 1. Talented Architectural Designer with a minimum of five years experience for responsible position in the design and presentation of major projects, shopping centers and related commercial development. 2. Experienced Building Contract Administrator capable of directing supervision of several projects. 3. Project Manager with experience in management of projects through all phases of work and capable of handling several projects simultaneously. 4. Architectural Draftsmen with minimum of three years in working drawing phase. Commercial projects specifically. Top salary plus profit sharing, trust fund group insurance, paid vacation, advancement opportunity. Resume requested for a prompt reply. P-9113, Architectural Record.

Specification Writer—Required by medium sized consulting architectural firm located in the South. Qualified person should have 4-8+ yrs. comprehensive exp. in preparation of specifications for major institutional, office and commercial bldg. design projects with professional firm. Arch. degree helpful but not required while exp. in developing computer based specifications systems would be preferred. Individual should be capable of functioning independently and coordinating/producing specifications for all projects while working directly with firm's principals. Attractive compensation, good location along with excellent and stable future are offered. All qualified individuals are encouraged to reply in confidence for prompt consideration to our representatives at: G. Marshall Assoc.—P.O. Box 66083—Chicago, Il. 60666.

Architecture—Position available Fall 1979. Primary responsibility will be working with 5th year students in design studio and teaching environmental systems (HVAC, etc.) courses. Masters or equivalent, registered architect desirable. Send resume to: Kenneth E. Caprenter, Chairman, Department of Architecture, Ball State University, Muncie, IN 47306. Application deadline April 30, 1979. Ball State University practices Equal Opportunity in Education and Employment.

Architectural

Deere & Company, a leader in the Agricultural Equipment industry, has career opportunities in the following areas:

Sr. Architectural Engineer

The ideal candidate will have experience in project programming, design, working drawings, specification writing and field liaison with contractors for electrical, mechanical and service elements.

Structural Engineer

The requirements for this position include a degree in Structural Engineering and experience with the design and engineering of steel and concrete buildings and structures. Field liaison experience is desirable along with the electrical, mechanical and service elements.

These opportunities offer career growth, a competitive salary and fringe benefit package including paid relocation. Please send resume or letters of inquiry to:

JOHN DEERE

R.H. Like
Deere & Company
Moline, Ill. 61255

An Equal Opportunity Employer m/f

Full and part-Time positions available for faculty to teach graduate and undergraduate students in architecture and construction. Candidates should have terminal degree in their field plus experience in teaching, research, and/or practice. Please send resume to: John T. Regan, Assistant Dean, College of Architecture and Urban Studies, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

The College of Architecture, University of Florida, seeks applicants for the position of Assistant Director in the Bureau of Research. Duties include administration, research and teaching. Administrative duties consist of working with College faculty in development of research proposals, budgeting and grand administration; prior administrative experience required. Teaching and research duties relate to broad "built-environment" issues with particular emphasis in Public Policy, Building Regulatory Processes and Urban Information System Design. Rank is at Assistant Professor level, salary commensurate with qualifications; Ph.D. preferred. Position available September, 1979. Contact Search Committee, Bureau of Research, 102A, AFA Complex, University of Florida, Gainesville, FL 32611 not later than May 10, 1979.

The Department of Architecture, University of Florida, Gainesville, Florida 32611, seeks candidates for two or more design faculty positions at Assistant Professor levels. The responsibilities: teach one design studio course and one other required architectural course in technology. Five years practical experience required. Capability in computer-assisted design techniques especially desirable. Send resumes to Professor Edward Crain, Chairman of Faculty Search Committee. UF is an equal opportunity employer.

Young but experienced firm looking for architect with design orientation to round out staff. Send resume and work examples to: Dolven, Larson, Daniels, Architects, 1005 Terminal Way, Suite 165, Reno, Nevada 89502.

FACULTY POSITIONS VACANT

Univ. of Ill. @ Urbana-Champaign, Dept. of Arch. has 5 fac. pos. open August 1979. 1) Assoc. or full prof. to guide grad design thesis studio + opportun. to develop interest in theory, methods or area of research. Distinguished credentials sought, M. Arch. or equiv. + 10 yrs. exp. minimum. 2) Asst. prof. for introduct. design studio + opportun. to develop basic theory sequence. M. Arch. + 5 yrs. exp. expected. 3) Asst. prof. for intermed. design studio, problems in urban settings focusing on experimental approaches & innovative technology + opportun. to develop introduct. urban design theory course. M.Arch. or equiv. + 5 yrs. exp. expected. 4) Assoc. prof. to teach undergrad. & grad. structural design courses, conduct research. M.Arch., M.S.CE., or equiv., knowledge of computer applications, 5 yrs. structural design exp. Teaching exp. desirable. 5) Asst. prof. to teach undergrad. structural design & theory courses. M.Arch., M.S.CE., or equiv. expected. Practice or teaching exp. desirable. Appropriate registr. expected for senior pos. & preferred for others. Rank & salary commensurate with qualif. For full consideration submit vita & 3 references by 5/5/79 to G. Day Ding, Dept. of Arch. Univ of Ill. Urbana, IL 61801. The Dept. presently enrolls 650 undergrads. & 180 grads. in a wide range of profess. options (Design, History, Structures, Management, Research). The Univ. of Ill. is an EO/AA employer.

POSITIONS WANTED

Architect/Manager with nationally recognized leadership in the development of project management and production techniques. Currently managing 30 person architectural department at large A/E firm. Seeking similar position with architectural, A/E or design-build firm which offers increased financial and professional growth. Reply to PW-9030, Architectural Record.

Architect, registrations, N.C.A.R.B., 14 years architectural experience. Strong in long range planning. Broad experience includes business, consulting, all phases of practice. Seeking position of responsibility. West Coast preferred. PW-8715, Architectural Record.

MATERIALS WANTED

Wanted-House Plans-Nationally distributed quarterly wants photographic(s) of houses available for Plans Sales Section of houses available for Plans Sales Section of magazine. Country Living Houses P.O. Box 622 Princeton, NJ 08540 (609) 452-8860.

SELLING OPPORTUNITIES

Skylight rep wanted by leading mfg. of standard and custom skylights, formed windows and fascia panels. Custom capabilities include all special shapes, sizes and solar tints. Complete design and tech. assistance—including computerized energy conservation studies—for qualified leads. All reps are listed with Sweet's "hotline"referral system. Call or write: Jim Davis, Gen. Mgr., Dawn Products Co., (303) 761-2861, 3953 S. Lipan St., Box 1555, Englewood, Colorado 80150.

FOR SALE

Suburban Philadelphia—Montgomery County—Three building lots, approx. 5 acres each, for single family dwellings located Lower Gwynedd Township, 25 miles northwest center city. Quiet, secluded settings—lots presently used as pasture. Minutes from commuter trains, schools, shopping. Lot #1 has small stream crossing the lower portion; lots #2 and #3 are set far back from road. Ideal settings for dream home you're designing for that special client. For Sale By Owner: $82,500 each. Contact Nancy Kuhn at Montgomery Land Partners, P.O. Box 550, Blue Bell, Pa. 19422 (215) 542-8027.

SPECIAL SERVICES

16,000 Small Businesses Use Our Accountants. Let us show you why!

Comprehensive® provides complete monthly bookkeeping, accounting and tax services exclusively for small and medium-sized businesses through a nationwide network of independent accountants. Send this ad on your letterhead or call B. Haller...

Call toll free (800) 323-9000

COMPREHENSIVE® business services

2111 Comprehensive Dr. • Aurora, IL 60507
In Illinois, call collect (312) 898-6868

Official Tabulators for the National Easter Seal Telethon

PROFESSIONAL SERVICE

INFRA-RED
Scanning Services
P.O. Box 343 Beaver, PA 15009

- ★ Remote Temperature Measurement
- ★ Electrical Inspections
- ★ Insulation Performance
- ★ Furnace Inspections
- ★ Refractory Failure
- ★ Energy Conservation

EDWARD R. SCHAUFLER, P.E.
AGA Thermovision Surveys
(412) 775-3735

BOOKS

Europe: Architectural Guide 1860-Today by Jerryll Habegger. 13 countries-500 Bldgs. with address, architect + date. 150 illus. $4.50. Order from: Architectural Guidebook, 421 West Belden, Chicago, Illinois 60614.

STUDY AID

Current N.C.A.R.B. Qualifying Tests, Professional Exam & Oral Exam, books & study aids now available. Free brochure. Archinform, P.O. Box 27732, L.A., CA 90027, (213) 662-0216.

BUSINESS OPPORTUNITIES

No. coast Calif. Contract/Design Firm! Specialized in restaurant layout thru installation. No. of natl. accts. (incl. well known fast food chain) w/heavy current workload. Owner asks $300K. VAG17B, Box 1010 Woodland Hills CA 91365.

EQUIPMENT FOR SALE

WILLIAMSBURG SLATE ROOF AVAILABLE

New 7400 sq. ft. customized complete Williamsburg roof in colonial "earth grey", hand roughed, manufactured by Ludowici-Celadon. On pallets at plant in Southeast Ohio; Inspection available. Factory invoice was $17,900; price is negotiable. For full details contact:

Larry Katz (513) 866-8333

TOURS

Architectural Tour of Japan—15 days in May, visit major new and historic architectural sites, attend a Japan/American architects conference, exchange design and practice ideas with leading Japanese architects and American architects from across the U.S. Enjoy all the wonders of Japan that will make this an unforgettable experience. For particulars write The Tokaido Traveler, 10225 S.W. 130 Lane, Miami, Fl 33176.

Dames & Moore, engineering and environmental consultants, announce that Fred H. Taka has been named managing principal-in-charge of the firm's Jakarta office.

The architectural-engineering firm of Ewing Cole Rizzio Cherry Parsky has expanded its current engineering department by bringing to its staff Michael Garber and his 15-member firm of M. Michael Garber and Associates. They will move to 400 Market Street, Philadelphia, Pennsylvania.

Flood, Meyer & Associates Incorporated, announces with pleasure the appointment of Robert L. Timmerman as vice president and the election of James R. Stewart and Vaughn C. Babcock as associates of the firm.

Gensler and Associates/Architects in Los Angeles has appointed Leonard Scott, as a new associate. Joining the firm as new members are Bruce E. Campbell, Jr., Edward K. Connors, Jr., and James Hill.

Gilbert/Commonwealth, engineers has announced the following changes of several of its major operating divisions as follows: Thomas M. Demers, vice president, has been named general manager of the power division of Reading, Pennsylvania. William B. Shields, vice president and director, has been named general manager of the power division in Jackson, Michigan. Wayne H. Traffas, vice president, has been selected to head a newly created industrial and energy research division. Norman R. Barker has been promoted to general manager of the quality assurance division.

The firm of John Tilton Associates, Inc. takes pleasure in announcing the following change of firm name to Tilton & Lewis Associates, Inc. They also have made new officer appointments: Terry D. Lewis as senior vice president, Mary E. Tilton as vice president-finance, H. Michael Youngman as vice president, Cary D. Johnson as vice president. They have also expanded their offices located at 333 North Michigan Avenue, Chicago, Illinois.

Whisler Patri are pleased to announce that Peter H. Hasselman, AIA, has joined the firm as a principal.

New addresses

Gensler and Associates/Architects have moved to new and expanded facilities in downtown Houston's Well-Tech Building, 700 Rusk Street, Houston, Texas.

Donald R. Goldman & Associates, Architects, AIA, announces the relocation of their offices to 3604 4th Avenue, San Diego, California.

Haller & Larson, Ltd. Architects announces the new location of their offices at 1725 Blake Street, Denver, Colorado.

Kennedy/Montgomery Associates, Architects is pleased to announce relocation of its new offices to 88 Broad Street, Suite 904, Boston, Massachusetts.

Muchow & Partners Inc. announce the relocation of their offices to 1725 Blake Street, Denver, Colorado.

Nakano-Rosenfeld Associates has established new and larger offices located at 123 South Spring Street, Claremont, California.

Robinson and Mills Architecture and Planning has moved to 153 Kearny Street, San Francisco California.

S & T Western, Inc., architects and engineers, have moved to new offices at 1400 North Bristol, Newport Beach, California.

Schuman Lichtenstein Claman Efron/Architects announce the relocation of their offices to 227 East 45th Street, New York, New York.

ADVERTISING INDEX

For detailed data, prefiled catalogs of the manufacturers listed below are available in your 1979 Sweet's Catalog File as follows:

G General Building (green)
E Engineering (brown)
I Industrial Construction and Renovation (blue)
L Light Residential Construction (yellow)
D Interiors (white)

The new Technal® Railing System cuts your construction costs.

Secural®*—ultimate in design...everlasting...maintenance free.

The distinctly beautiful designs of Secural panel railing can be adapted to almost any architectural style.

You save money because snap-together patented Secural railing systems allow quick assembly by non-specialized workers. 24' top and bottom rail lengths are pre-notched. All parts ready-to-install, no special tools.

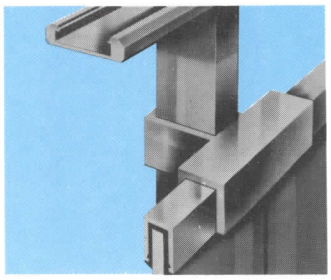
Posts can be imbedded or simply slipped into adaptable shoes, which quickly adjust for height and perpendicularity.

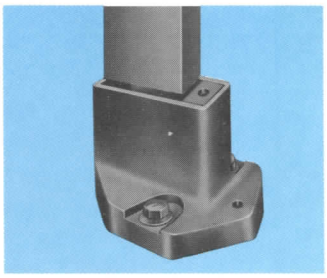
Another beauty is the corrosion-resistant anodized aluminum satin surface in bronze or silver colors. Free of maintenance, even on oceanfronts.

New to the U.S., Secural has been tested across the world and standards are above BOCA, OSHA and SBC requirements. Baluster style railings also available.

If you'd like to know more, see us in 1979 Sweet's General Building File 5.11.

Call our Richmond office 804/798-9268, or write Technal of America, P.O. Box127, Ashland, VA23005.





RICHMOND Hanover Industrial Air Park, 607 Lickinghole Rd., P.O. Box 127, Ashland,VA 23005. (804) 798-9268, Telex 82-7447 **ATLANTA** Atlanta Equitable Building, Suite 416, 100 Peachtree St., N.W. Atlanta GA 30303. (404) 688-7755 **CHICAGO** O'Hare Office Building, Suite 109, 10400 West Higgins Rd., Rosemont, IL 60018, (312)299-2294

TECHNAL OF AMERICA INC.

*Secural is the trade name for the patented railing system of Technal.

Circle 128 on inquiry card

☐Send me FREE color catalog with specs.

Name _____ Title _____

Firm _____

Address _____

City, State, Zip _____

Phone _____

SPACE

"If the Open Plan System is to effectively solve the problem of creating a highly productive office environment in the face of constantly changing conditions, it must respond in design and application to the essential components of interior space; the space itself, the people who occupy the space, the activities that take place, the changes that occur and the energy used to bring the space to life."

The GF Open Plan System addresses itself to the productive use of space... and does it beautifully. It helps you manage your client's office environment with a comprehensive array of engineered components designed to control acoustics and lighting, improve communications, and create highly specialized working conditions.

If you'd like to see how the GF Open Plan System can make SPACE work more productively for you call your GF Dealer or visit our showroom.

Office Furniture Systems
GF Business Equipment

Circle 129 on inquiry card