

ARCHITECTURAL
RECORD

Business Design Engineering
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August 1982



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The new graphic design of ARCHITECTURAL RECORD by Massimo Vignelli is fabulous. The hierarchy and order of the layout are extremely appropriate to this time, when chaos and disorder are so prevalent. It lifts the spirit, giving the magazine an exciting and renewed image.

*Richard Meier
Richard Meier & Partners
New York City*

Congratulations on the new format for RECORD. It's great!

I have only one complaint. Now that I'm on the up side toward 60 and my eyesight is diminishing, why do you have smaller print? Couldn't you increase the size of the print so that people like me can enjoy the written word?

*Philip J. Meathe, FAIA
Smith, Hinchman & Grylls
Associates, Inc.
Detroit*

Just a note to make you aware of my enthusiasm for the new design of the magazine. It has a fresh yet timeless quality which I applaud.

*Congratulations.
Herbert S. Newman, FAIA
Herbert S. Newman Associates
New Haven, Connecticut*

Congratulations to you and your staff for the results of your magazine redesign. Of course this message is also meant for Massimo Vignelli, a superb choice as your design consultant. What a visual relief to see all that "white/black space" around the pictures and copy.

*Kenneth E. Johnson, President
ISD Incorporated
Chicago*

The type is too damn small.
*Octavia Parker Randolph
Randolph & Milroy
Boston*

The new Vignelli format is very effective. It seems to strike an excellent balance between the familiar RECORD and a new "look."
*Robert A. M. Stern
Robert A. M. Stern Architects
New York City*

The June issue just arrived and I must say the new graphics are superb. Clear, readable, and very fresh
*Harold Roth, FAIA
Roth and Moore Architects
New Haven, Connecticut*

I find your new cover extremely depressing. Are you ashamed of the word "Architectural"? How long will it be before you remove that word? It should be simple just to let it gradually slide off the top of the page.

If I knew of a better magazine, I would cancel my subscription.

*Robert H. Mears, Architect
Galesburg, Illinois*

I thoroughly enjoyed your revamped June issue—with one exception. The two-page centerfold photos fail to deliver. It was very disturbing to have both the Botta and Stern projects distorted and partly hidden by the center seam.

*Richard Butz
Lorenz & Williams Incorporated
Dayton, Ohio*

I am overwhelmed by the excellent, original and sensible new graphic design in your June issue. It equals the very best of publications, where the visual presentation parallels and enhances the content. The designer's respect for drawings, placement of related parts, sensitive blocks of text and good white space make this issue a museum piece.

*Great job!
William Kessler, FAIA
William Kessler and Associates
Detroit*

When the newly designed RECORD arrived on my desk, it nearly got pitched into the adjacent trash can as just another slab of junk mail. Clothing a design magazine in that brassy style, full of heavy type and italics and boxes, is like putting billboards on the interstate. Why let go of the understated, elegant (and successful) design you had?

There is something highly neurotic about change for change's sake. To change because it "felt" right, as your editorial put it, is hardly convincing.

RECORD has long been a rational voice. Please don't let the magazine follow the architectural profession into its present self-created labyrinth, where it chases style and form down one blind alley after another.

*Reid A. Dunn
Reid A. Dunn & Partners,
Architects
Washington, D.C.*

I think that the new layout is fabulous and that the content of the new issue is as provocative and enjoyable as the graphics.
*Herb McLaughlin
Kaplan/McLaughlin/Diaz
Architects/Planners
San Francisco*

I am compelled to write to you about your new graphic design as introduced in your June issue and as praised in your editorial.

As a busy principal in a small firm, I have to snatch the time to read the news pages, which are generally quite worthwhile, but
(Continued on page 13)

July 24 through October 12

"The Architecture of Richard Neutra: From International Style to California Modern," at the Museum of Modern Art, 11 W. 53rd St., New York City.

August 2-6

"The Finite Element Method: Basic Concepts, Modeling Methods and the CAD Interface," sponsored by the Rensselaer Polytechnic Institute. Contact: Seminar Coordinator, Office of Continuing Studies, Rensselaer Polytechnic Institute, Troy, N. Y. 12181.

September 1-10

"Interior Design: The New Freedom," a series of videotaped conversations with distinguished American designers conducted by Barbaralee Diamonstein; at the Cooper-Hewitt Museum, 2 E. 91st St., New York City; repeated October 16-23 at the Leo Castelli Gallery, 142 Greene St., New York City.

September 22-24

"Design 82: Rehabilitation for the Professional," a conference aimed at architects, contractors, local officials, preservationists and others; in Macon, Ga. Contact: Lyn W. Menne, Georgia Main Street Center, Department of Community Affairs, 8th floor, 40 Marietta St., N. W., Atlanta, Ga. 30303 (404/656-3898).

September 22-25

Architectural Woodwork Institute, 30th Annual Convention, Dearborn, Mich. Contact: Architectural Woodwork Institute, 2310 S. Walter Reed Dr., Arlington, Va. 22206.

September 29 through October 1

"City Recon '82," International Congress and Exhibition, considering the rebuilding of cities, sponsored by 10 professional organizations, including the American Institute of Architects, and four publications; at Chicago Epo Center. Contact: Brian J. Quirk, Quirk Co., 330 S. Wells St., Chicago, Ill. 60606 (312/786-9022).

September 30 through October 3

"The Unconstitutional Jail," a conference on prisons and jails considering the rights and needs of inmates, jailers and society; sponsored by the American Institute of Architects Committee on Architecture for Justice; at Galleria Plaza Hotel, Houston. Contact: Michael Cohn, AIA Design Dept., 1735 New York Ave., Washington, D. C. 20006 (202/626-7366).

October 4-6

First North American Conference on Industrial Architecture, sponsored by the American Institute of Architects; in Detroit. Contact: AIA Professional Interest Programs, 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7364).

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Circle 6 on inquiry card

Direction '80s: the AIA reshapes its role, and places some tough new responsibilities

It all began, as so many things do, in California. The California Council of the AIA, at the 1980 convention, submitted and successfully campaigned for Resolution A-1, "A Re-evaluation of Institute Purpose." Omitting the "Whereases," it directed that the "Board of Directors of the AIA give priority to the question of the future principles and purposes of the AIA, and the appropriate roles of the local and regional components, and the national organization. . . ." The method prescribed was a "broadly based dialogue among all levels of membership and the components" intended to "define the appropriate roles of the national, regional, state and local components." The intent, as we wrote in our July 1980 news story on the convention, "was clear. The local, state and regional chapters want a stronger voice in establishing the national AIA's programs and priorities."

As directed, an AIA task force, headed by Ray K. Parker of Arkansas, delivered a final report for review and action (it was accepted with some considerable debate over amendments) at the recent convention in Honolulu. The report seems to me a most important document, for surely it is "the most comprehensive analysis of the purposes, goals and responsibilities of the AIA at all levels that has ever been compiled."

It adds up, as the Task Force report and our news story on page 71 makes clear, to no less than a "fundamental change in direction for the AIA, from a primary concern for *architects* to a primary concern for *architecture*." That is indeed "nothing less than a basic change in philosophy," and in this editor's opinion a critically important and probably overdue change. Except for the time some years ago when Ehrman Mitchell focused the thrust of the AIA on "A Celebration of Architecture," it seems to me (and I've said so on this page before) that too much energy has been focused on codes of ethics and design-build and fee structures and other "business-related" concerns. The new emphasis on *architecture* recognizes, as the report points out, that "public support will fail if our real priorities are of a self-interest nature," while public support (and a new emphasis on a public membership category in the AIA) will have "great potential if the AIA makes its highest priority that of advancing the art and science of architecture—for both public and professional benefit."

Under the Direction '80s program, the role of the state and local components is greatly increased, tightening the role of the national AIA to "emphasis toward the substance of design excellence, and of continuing programs in the areas of architectural research and education. . . . The result," the report makes clear, "will be a more active relationship between individual members and local chapters, as chapters become the source of professional development programs, practice aids, and information exchange. There will be greater opportunity for local initiatives, and services will be provided to members as needed. . . ."

The question now is, are the local chapters up to the new responsibilities that the delegates voted to them? For while it is true that local needs vary, surely local involvement, local enthusiasm, local capabilities in manpower and money also vary. For example: under the new program, primary responsibility for developing "the profession's minimum subject matter and practice skills necessary for the practice of architecture and communicating these to the schools of architecture and the licensing bodies" now rests with the local chapters. Should it? Surely the proper education of young people is a subject of the broadest possible concern—unless the intent is to assure a good local supply of working-drawing hotshots that can earn their keep from day 1. There are other responsibilities that would worry me if I were the head of a local chapter—but that is nit-picking, I guess. The direction of Direction '80s seems essentially just right to me. Now is the time to give this bold and broadly supported change all the chance (and effort) it needs to succeed. *Walter Wagner*



that new small print makes rapid reading nearly impossible.

There are often articles that we like to make copies of for our staff, clients, consultants, etc., and *blue* does not reproduce on any small-office copier. Light blue on white is very difficult to read.

Massimo Vignelli might be the most raved-about graphic artist in your ethereal world of "top designers," but he lacks basic knowledge of practical graphics that can be read or reproduced.

I hope you change these graphics in future issues.

Charles A. King, AIA
Avon, Connecticut

Though I wonder a bit at the new format and its seeming step towards hard-line stodginess (a conscious articulation of values?), I am very excited by your liberal use of technical drawings in project presentation. After years of trying to see past the pretty miniaturizations of so many axonometric permutations, it is nice once again to be able to tell what is going on. Your plans, sections and elevations lend credence to a mission I would hope you choose to claim—serious coverage of good design. Thank you.
David G. Strombon
David Strombon & Associates
Design Consultants
Seattle

Wow!

Just put down your new package. You're smart not to pussy-foot about change but to jump in with both feet.

The result to my eye is at least two-fold. On the one hand, the book looks and feels more meaty. On the other, it's young and sprightly.

Two mild reservations, for what they're worth. The smallest typeface is really small. I'm not nearsighted, but this might give some readers pause. Also, when the typeface is small and comes in light blue, that could be a bit of a chore.

Enough of the carping. On balance, you have for me come up with something that's formidable.
Ray Rhinehart

Director, Media Relations
The American Institute of
Architects
Washington, D.C.

During the last few months I've had special reasons to be particularly pleased with *RECORD*. Both the Paul Rudolph interview and the Lewis Mumford review will sustain themselves as major pieces in the literature of architecture.

My reason for this letter, however, is to congratulate the *RECORD* staff for the clarity and beauty of the new typographic format of the magazine; the presentation of the printed word is enormously enhanced by this new framework.

It is, indeed, a major step forward.

Arthur Rosenblatt, FAIA
Vice President,
Architecture and Planning
The Metropolitan Museum of Art
New York City

I like your new magazine layout very much. Not much else to say but congratulations . . . on a much more fluid presentation.

Jeremiah Eck
Cutler/Eck Inc. Architects
Boston

I hope you will accept this letter as honest criticism from a person who has been reading *ARCHITECTURAL RECORD* for 22 years. All through architectural school and beyond, I always regarded *ARCHITECTURAL RECORD* as the "class" magazine. Ultimately I selected it as the vehicle to advertise my company's products for that reason alone. Sure, the type face was a little out of style, but the magazine had a class and charm that was instantly recognizable. If what you have done is called good graphic design, then everything I know about architecture and graphics has just been thrown out the window.

Your new typeface is slightly more readable, but is ten years behind the times. The use of process blue type and blue duotone photographs (pages 118-119) has a cheapness reminiscent of parking lot handouts. Screened blue type (pages 116-117) is practically unreadable. The use of process blue and red together (pages 132-133) is almost comical. As for the cover, the old charm and class have been totally destroyed.

What you have done is paint Falling Water red and blue. You have applied Scotchint to the Seagram Building. You have wallpapered Dulles Airport.
Wayne Compton
Vice President—Design
Kim Lighting
City of Industry, California

Until about two years ago, *RECORD* was the only magazine to do its readers the favor of starting articles on odd-numbered, right-hand pages. Thus we could pull them for future reference without disturbing the rest of the issue. Unfortunately, this policy was changed so that now we must either duplicate the lead page (in black and white) or lose the last page of the previous article.

A small thing, perhaps, but your recent high-minded prattle about new formats and "service to your readers" prompted me to let you know that somebody notices these things.

Thomas Tolletson, AIA
Sonoma, California

The new *RECORD* design is quite a step up. Letter, typeface, photography, content, cover—all sing.

This is a long awaited change.
Thomas Baldwin
Charles Herbert and Associates,
Architects
Des Moines, Iowa

The new *RECORD* format is smashing. I know you must be very pleased with it.

Talbott Wilson, FAIA
Talbott Wilson/Associates/Inc.
Houston

Upon picking up my *RECORD* today, I was shocked!

Your cover graphics have lost all their class. Why didn't the designer reverse the word "Architectural" since he reversed the word "Record"?

The editorial page, which used to be a very readable two-column, fully justified (right and left) page, set in classic Optima type, has now been set across three columns on a four-column base. And the business news is very difficult to read as the material is technical. Technical language should *never* be set in narrow columns—especially when it is filled with numbers and statistics, such as Harry Mileaf's article. And no justification at the right adds to the injury.

Further, the light blue color seems to be a challenge to the reader's eyesight, above and beyond the already unreadable black next to it. And then, to add insult, a black strip is added at the right edge of the sheet and bled as if to announce to the reader that he is now able to *find* something in *RECORD*, as if previously he was too illiterate to do so.

All the white space around the pictures in the feature section makes for *good* graphics. However, we architects are looking to see what we can see *in* the picture, not just at the design of the page. That sort of format works fine in a magazine such as *Communications Arts*, where the graphics are the thing. Give us a little larger image, please!

I'm sure you have your reasons for some things. But I am much more saddened by the loss of quality of the *RECORD* than I have ever been by even the sharpest of price rises for subscription.

As many other architects do, I am sure, I use my *ARCHITECTURAL RECORD* to show clients, to show them examples of what fine quality architecture really is. If the magazine I show them is reminiscent of *Good Housekeeping* graphically, I'll be at a loss in educating the client.

Please! Give us our old *RECORD* back!

Richard Edwin Springstead,
Architect
Architects International
Los Angeles

The new *RECORD* looks splendid! Congratulations to the staff, and many good wishes for continued success.

Randle Pollock
Director of Communications
Caudill Rowlett Scott
Houston

A million congratulations on the redesign of *RECORD*: Massimo Vignelli has accomplished a format that is both outstanding and exemplary of today's design. I enjoyed Walter Wagner's editorial, too.

I also enjoyed Robert Venturi's essay: a coup for *RECORD*.

Christian K. Laine
The Merchandise Mart
Chicago

The newly designed June 1982 issue came in the mail today. While the initial impact is still fresh, I thought I would write a pint-sized critique from an outsider's point of view.

The over-all visual and organizational impact is a favorable one. You get the feeling of thoughtful, high-level magazine design. The grid, or modular system, works, particularly when treating engineering articles; I see "Today's space frame" as one of the most successful articles in the book. An A++.

Another successful handling is the Mario Botta article: excellent counterpoint of line against color photographs.

The main stumbling block, from my viewpoint, is that the text type is too small. ("Old eyes"?) I read Robert Venturi's article, which is first-rate on the post-modern philosophy of architecture by one of its masters. I could not do it in one sitting. The captions are even harder to read, being italic and smaller than the text. Perhaps a solution might be to use a larger type and have the editors tighten up the text through more conscious editing.

Everett Hoffman
New York City

Your redesign of *ARCHITECTURAL RECORD*—whether evolutionary or revolutionary—has produced an even more beautiful magazine. Congratulations to you and designer Massimo Vignelli!
Connie Neuman, Director
Information and Communications
American Consulting Engineers
Council
Washington, D. C.

Correction

Astle/Ericson & Associates, not Neil Astle Associates, designed the DeSoto Wildlife Visitor Center in Iowa and Nebraska (*RECORD*, May 1982, pages 102-105). The color photograph on page 102 was taken by Warren Taylor of the *Des Moines Register*.



Systems '82 proves the computer revolution is on



The Third International Conference on Automation and Reprographics in Design Firms, known as Systems '82, and held in Chicago on June 10 and 11, drew an astonishing number of engineers and architects to this annual combination of computer seminars and manufacturers' demonstrations—even though many of the architects had to fly straight from the AIA convention in Hawaii, where computer seminars were also packed. And these were not idle onlookers.

Of the more than 3,900 design professionals who came, almost 80 per cent were registered architects or engineers, with architects in predominance, and almost 60 per cent were chief executive officers, according to organizer Michael Hough. "The results greatly exceeded even our enthusiastic projections," he says. The number of booths and conference goers has almost doubled in each of the three annual sessions.

Seminars ranged from those on low-cost applications for small computers to those on producing three-dimensional, color presentation drawings. One of the speakers, Harry Mileaf, is the author of this month's article in RECORD on computers, as well as June's "The evolution is over; the revolution is on."

Interest in Systems '82—as well as statements by attendees on the extent of their recent involvement—reinforce Mileaf's point in June, and indicate that his carefully researched projections may even be conservative. Most notable was the architects' and engineers' keen interest in displays and seminars on computer-aided drafting, which the projections show should only be used by some 12 per cent of architects and engineers during this year.

In the 210 booths were representatives of hardware and software companies—as well as time-sharing services, service bureaus, computer-related furniture and other involved companies including the RECORD. Next year's big show will be in Dallas on June 8, 9 and 10, and Hough expects next year's attendance to double once again this year's record. C.K.H.

Convention makes shift in AIA priorities official

Delegates to the AIA's annual convention in Honolulu approved resolutions that call for a shift of architects' day-to-day services—such as professional development programs and practice information—to local chapters (see Design news, page 71). This will enable the national organization to deal with the development of the profession in broader areas such as new construction techniques, education standards, public awareness and legislation.

At the heart of this shift are not only changes in function, but how the AIA is currently perceived as a self-interest group. Reorganization of the Institute at the beginning of the year set the stage for the shift (see February, News, page 28).

A resolution that would have provided a graduated-dues structure was defeated. Another that would have required the

election of a minority member to the board of directors failed to be considered. Among other resolutions that passed was one calling for "a leadership role in achieving total nuclear disarmament."

The emphasis at the convention was on technology—and, appropriately, computers. Seminars on computers were so packed that additional ones had to be scheduled. Seminar speaker Douglas Stoker of Skidmore, Owings & Merrill said: "We are seeing the beginning of the capital-intensive design firm." President Robert Lawrence announced a membership expansion program that would create 12,000 new members by 1984. C.K.H.

Performance tests eased for plastics used in glazing

The Consumer Product Safety Commission is easing back standards for certain architectural glazing materials, by dropping requirements for three tests that are, in the commission's parlance, "not reasonably necessary." The materials in question are so-called plastic glazing materials for indoor use. But standards and tests remain in effect for any other type of glazing material covered by the original standards.

The original safety standards for architectural glazing materials, issued by the commission in 1977, specified three tests—a modulus of elasticity test, a hardness test and an indoor aging test—designed to minimize injury risks.

The idea behind the tests was to make sure that those materials will not break under a specific impact or, alternatively, that they display a certain flexibility. The indoor

aging test was designed to make sure that the materials can pass the other two tests after prolonged exposure to temperature and humidity.

A fourth test covering outdoor exposure of these materials was revoked by the commission in the fall of 1980. The commission's latest change of mind followed pretty much the same reasoning, namely, that the test requirements "are not reasonably necessary to reduce or eliminate any" unreasonable risk of injury associated with the use of plastic glazing materials. Peter Hoffman, *World News, Washington*

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Computers: How do you jump in?

In the first article in this series in June, Sweet's computer expert, Harry Mileaf, traced the growth of computer use. This month: advice on the smart ways to get started using computers.

By Harry Mileaf

As reported in the June article, between now and 1986 about 10,000 more architectural and engineering firms report that they plan to become involved with computers in their work. Since 12,500 design firms already use computers in at least some parts of their practice (and most plan to become more deeply involved), by 1986 over 22,000 design firms will be computer users.

But, do not misinterpret the meaning of this. The construction design process will not be automated. Although computer use will become commonplace, much will be minor applications, usually in rote procedures. But there is no doubt that the push is on.

These projections, based on Sweet's research, are reinforced by the successes of such conferences as Systems '82 in Chicago last June (see RECORD May 1982, page 55) and a conference in Washington, D.C. last March, jointly sponsored by the Advisory Board of the Built Environment of the National Academy of Sciences and the World Computer Graphics Association. Both of these conferences can be used as barometers of the interest in the use of computers in the construction process. About 800 design practitioners took five days out of their billable time to attend the ABBE/WCGA seminars, and about 2,500 visited the exhibits. Systems '82 was much bigger (see News). Many were clearly trying to figure out how to take the crucial first step.

And that first step is crucial. Unless it is preceded by a well thought-out investigation, there is a good likelihood that computer involvement could bring about more expense than profit.

Successful involvement should start with sound reasoning

Design professionals in the construction industry are, of course, noted for their individuality. Their experiences and growth in the design profession have led them along varying paths of conducting their practices. And this individuality reflects itself in their differing reasons for using computers. These range from decreasing production costs; to "impressing clients"; to reducing liability; to the belief that since "everybody is doing it, we must survive." What are the sound reasons?

Getting started means asking the right questions in the right order

And the right first questions have nothing to do with computers themselves. Instead, decisions should center around your professional practice. The question

of whether you should use computers should come last.

The right general steps are:

1. Consider in what parts of your practice computers can be used to best advantage.
2. See what systems or software options are available for those applications.
3. Determine the financial implications of becoming involved with computers.
4. See how computers might affect your practice.
5. Think about future expansion.
6. Then decide if, when, and how to use computers.

Different experiences, degrees of specialization, developed work habits, and acquired techniques make some design practices difficult to fit into a mold. They often have distinct professional variances imprinted on them by their principals, and by their clients as well. As a result, there are no pat answers on where and how to use computers—especially when there are limited funds.

You must look at the various activities in your practice with an eye to the broad, general functions that computers perform well: 1) text development and production; 2) data storage and retrieval; 3) number manipulation and crunching and 4) graphic development and production.

The office's activities might be broken down into: marketing, design, production, management, accounting and general office work.

Evaluate what goes on in each activity to get the work done, linking each of the four broad computer applications with the tasks they might perform. Try to look at each activity to see where you would like: greater productivity, increased accuracy, quicker reaction, better project control, improved management control and reduced design problems.

Try to pinpoint the high-cost work and/or the "bottlenecks" that computers resolve well—like outstanding bills or balancing payroll with income on a job. Make a general work flow chart to show the interdependence of each activity, and to try to identify where improved performance in one activity could benefit others.

Probably the best example of this interdependence is word processing, which could produce texts used in marketing, production, management, and general office work for client proposals, contracts, specifications and management and client reports. Word processing becomes most beneficial where relatively standard text material can be retrieved and modified, or reorganized for each new use.

The evaluation of your practice, if it is small with limited funds, likely will have to be done in two stages: what you want and what is feasible. The first evaluation will help to organize your research into what computer systems are available. Then, you must temper your desires to be practical, and perhaps develop a long-range plan. The tables on the following pages list potential computer applications that can be considered.

How do you learn about which computers are available?

Making a decision about getting involved with computers takes time, and should be based on the knowledge of what is available, where it is available, and how. Once you have taken an introspective view of your practice and its needs, the research is on.

Attend seminars. Attend the conventions and conferences, paying particular attention to technology-oriented discussions and exhibits. Subscribe to technology newsletters, and read the technology articles in your journals (these articles are beginning to proliferate). Call service bureaus and suppliers to ask for brochures and demonstrations (for a round-up, see Product Literature this issue.) *But most of all* seek out your fellow professionals and find out what they know, what they have done or plan to do and why, and what their experiences have been—good and/or bad.

And if you want to use computers, you must spend time learning about them in detail. There are three ways to begin: 1) service bureaus, 2) on-line systems, 3) your own systems.

How do you find out which computer system to use?

Sweet's has determined that most design firms started with a service bureau, and—after some experience—experimented with on-line systems, and then ultimately acquired their own system to have better control. The fact that each has its own distinct advantages is exemplified by the fact that almost 50 per cent of the designers who are involved with computers use combinations of service bureaus, on-line computers, and in-house computers.

To compare the three options:

Service bureaus do the work for you

You generally transmit the data to them. They put the data in the computer at their office, manipulate the data, and send the output back to you. They generally charge you by the job. Getting involved with computers by using a

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TABLE 1:**Text development and production**

Specifications writing

Client proposals

Project reports

Feasibility reports

Construction documents

Résumés of personnel

Mailing lists

Repetitive correspondence

Contract agreements

Change orders

Government and other form preparation

Table 1 lists possible uses for computers in text development and production—and especially uses for word processors. As seen in RECORD's June article by Mileaf, over 50 per cent of design offices owning computers currently own word processors. And offices using computers currently use them frequently for specifications and cost estimates.

service bureau requires the least capital investment on your part, and you can gain access to a powerful computer and highly-developed programs.

The disadvantages of using service bureaus are:

1. You might have to modify your internal procedures to suit the service bureau's mode of operation.

2. You have very little control over the work being done.

3. Continued operating costs could be high, depending on what you get done. The average user spends over \$1,000 per month with a service bureau.

Service bureaus provide a good way to get started, sometimes with sophisticated systems, and allow you to build some experience in data processing. More important, you have the option of changing your mind. You can use different service bureaus for different applications. You can limit your costs by limiting the work.

On-line systems provide off-site computers and software which you can use from your office via a terminal and telephone lines

An on-line system is similar to a service bureau in that it provides the computer and programs, but it differs in that you control the computer. You do the input, manipulations, and receive the output. Some on-line systems, called time-share systems, allow you to use your programs on their computer. On-line systems generally charge an initial fee, and an hourly run-time charge.

Like the service bureaus, these systems allow computer involvement with little capital investment, and provide access to a powerful computer and advanced programs. Once you have a terminal, you can hook up to different on-line systems. While users tend to drift away from service bureaus, when they gain experience, they tend to stick with on-line systems, and expand use.

However, although subscription fees might be reasonable, the hourly charges for continued use could become significant. Having an on-line system available is still a good way to have special programs accessible to you for only those special jobs that require them. The principal disadvantage of on-line systems is the limited number of services and programs available with each system.

Your own system becomes a definite possibility as you become more deeply involved

Other designers buy their own equipment because they realize that, unless they have their own equipment, they cannot fully use the computer the way they want.

Too many designers view the computer as a *cost* item, whereas in reality it is an *investment*, which can give tax benefits and profit gains. There are many options in acquiring your own computer system, depending on long-range plans and financial resources.

The functions you use computers for, which systems you acquire, and the acquisition method you use, all depend on trade-offs. The most common advice given is to make sure that you acquire a system for which programs are available for future expansion.

This is good advice—within limits—since one of the problems that currently exists in the computer industry is the lack of standardization, software transportability, and applications availability. Keep in mind that the wider your future application plans, the more comprehensive, powerful and expensive your system will have to be. The important thing is that the system you do acquire gives you the benefits you desire within a reasonable period—and they should be measurable to some extent.

From a good business viewpoint, if it is only increased profits you want, the payback period for the system should be a short one—not only for the hardware, but for each software package. This is not always easy to do. If you want to increase your business, calculate the amount of new business you will need. Whatever the system should do for you should be evaluated in terms of counterbalancing the cash outlay. This kind of analysis generally tempers long-range plans.

Microcomputers represent the least expensive way of buying your own in-house computer. A simple, total system generally runs from \$5,000 to \$15,000, but—with some graphics capability—could go beyond \$25,000. Microcomputer systems are inexpensive, but limited for long-range planning.

Minicomputers are more powerful machines which can provide a broader range of applications. But the hardware, together with other parts of the system, requires a greater investment—from \$15,000 to the mid-to-low six figures.

Mainframes are of course the biggest and most powerful computers, which not only allow broader ranges of applications with quick response times, but also permit a greater integrated approach to using a computer in your practice. Count on a half-million dollars and more for such a system.

Combinations of these systems are used by many large firms which have been involved with

computers for an extended period. Many have a mainframe, a mini or two, a micro or two, and use a couple of on-line systems, and perhaps use a service bureau. They have found that no one system can fill all their needs efficiently.

How do you introduce your staff to the computer?

To get started most efficiently, you should have involved your staff in the initial planning, investigation, and final decision—with one person responsible, and with management's commitment. Before delivery establish a staff training plan, and complete all electrical, structural, mechanical and facilities construction.

Also, before delivery: make sure that all furniture and furnishings needed to operate the system are delivered; acquire all the necessary supplies; make sure the software you need will be available; make the vendor commit to delivery of all parts of the system by a given time; establish a redundant operating procedure (to continue your present manual methods until you feel confident with the system); establish a backup method to prevent loss of data (many systems have this built in); establish a backup operating procedure (to conduct business-as-usual when the system fails).

Remember, the more complex the system you get started with, the more difficult the preparation.

How do you calculate real costs and payback?

The important thing to remember is that each piece of equipment or system should pay itself off within a reasonable period. The shorter the payback period, the better the investment.

Some people are suggesting a 2- to 3-year payback, while others look for a 5- to 6-year payback. The smaller payback period might be possible with the smaller, inexpensive systems, but is not likely with the more expensive systems. Much of it depends on how quickly your firm integrates the system into your practice.

As soon as the system is ordered, it is the time to start making this happen. For the offices that already have a system, and some experienced staff, this is not difficult to do with good planning.

But for the office that is acquiring its first system, and that has little or no experience, it is not easy. It sometimes takes many months to integrate it into your practice. The more complex the system, the longer it will take. There have been cases where the computer has sat idle, and not started to earn its keep for three to six months.

TABLE 2**Data storage and retrieval**

Firm accounting reports

Project accounting reports

Project cost estimating

Project budgeting

Project cost control and analysis

Facilities and equipment inventories

Demographic data

Site analysis

Traffic flow analysis

Building codes

Personnel project planning

Quantity take-offs

Post-construction analysis

Special analysis

Facilities management

Site designs

Structural designs

Civil engineering designs

Mechanical designs

Electrical designs

Lighting designs

Interior designs

Optional space analysis

Energy analysis

Optimization models

Life cycle analysis


Economic analysis

Table 2 lists the many possible uses of computers for data storage and retrieval. The June article showed that accounting is currently the most frequent use of all for computers in design offices which use computers. Cost estimating is not far behind.



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Table 3 lists the possible uses of computers for graphics development and production. While the June article showed automatic drawing currently lagging behind other computer uses, design analysis—especially by engineers—is one of the most frequent uses.

TABLE 3**Graphics development and production**

Architectural design
Interiors design
Civil design
Structural design
Mechanical layout design
Electrical layout design
Facilities design
Traffic-flow diagrams
Chart generation
Sales charts
Animated simulations
Business graphics
Site mapping and topography
Landscape design
Census and demographic mapping
Automated drawing
Automated detailing
Perspective renderings

As derived from Murphy's Law, the less you know about computers, the further the true cash outlay for a system will be from the expected outlay. The expected investment for acquiring a computer system must take into account much more than the system itself:

1. Optional extras to hardware;
2. Expected additions to software;
3. Interest expenses;
4. Maintenance charges;
5. Space rent;
6. Remodeling for environmental control (computers are noisy and demand air-conditioning);
7. Remodeling for operator efficiency and convenience;
8. Installation charges;
9. Initial system testing time;
10. Start-up and on-going training;
11. Back-up costs during breakdown;
12. Start-up inefficiency (decreased production).

These items should be discussed with the computer supplier; and the manufacturer should be prepared to commit in writing to any claim made.

Of course, the true cost of a system should be treated as an investment and spread over a period of time, to achieve the investment benefits:

1. Equipment depreciation;
2. Software depreciation;
3. Furniture and office remodeling depreciation;
4. Investment tax credits;
5. Long-term productivity gains;
6. Additional client billings (for computer use); and
7. Business expansion (if any).

If you acquired the system to increase your profits, then the cost of the system should be evaluated with the cash outlays *and* returns to determine how long it will take for the system over-all to pay for itself. You should go over this with your accountant before making the final decision

How do you get the best advice and results from the manufacturers and services?

Once you have evaluated your practice, have made some initial decisions as to how you want to use computers in your operation, and have studied some material in the journals and newsletters (or perhaps have attended some seminars), you should be ready to discuss your involvement with the manufacturers' representatives. Just remember that salespeople in the computer field are like all others: they want to sell their products and services, and stress the positive, tending to gloss over and even neglect the negatives. Use the following guide in collecting information to help you make a decision:

1. For the applications you want,

make sure the software is available for the system (or service). Demand a demonstration.

2. Determine the availability of software for your near-term plans. Do not count on promises of what might be available soon. Ask the representative about other sources, and then check those other sources.
3. Check on the financial stability of the company.
4. Find out which of your peers has the same system, and talk to them about whether they are satisfied with the system, the service, and the company.

5. Get the details about what maintenance is provided for the hardware and the software, and at what costs.

6. Determine what backup services are available, and where, when the system is down, and what the costs are. See that the procedure is not cumbersome.

7. For equipment, find out where the company's maintenance depot or service office is located. Find out how many service personnel they have in your area. Determine where and how many replacement parts are stored. Get a commitment on the maximum waiting time for an emergency service call. Check about loan equipment for extended down time.

8. Check the programs of interest to you to see how quick or how slowly the system works. A system can make a calculation in a billionth of a second, yet the over-all program can run too slowly. Get a demonstration.

9. Find out how many operations can be performed simultaneously, and especially how this affects the speed. Again, get a demonstration.
10. Determine how many work stations the system can support. You do not want to outgrow the system too quickly.

11. Find out what percentage of the system's memory capacity will be used for your applications when you are up and running. Make sure there is enough remaining memory storage for your growth plans.

12. Determine communications capabilities, if you intend to use your system between offices.

13. Determine the manufacturer's plans to upgrade the system, and what the upgrade costs are.

14. Ask about trade-in allowances for larger systems.

15. Determine *all* of the installation, electrical, and environmental requirements for the system to function properly.

16. Identify all the formal and informal training provided by the manufacturer and where, as well as at what costs.

17. Determine the immediate backup data storage provisions of the system in case of system trouble. It is important that you do

not lose some or all of a project's input due to a temporary failure.

18. Ask about delivery schedules for *every* piece of the system.

19. Provide for a stringent acceptance test of the delivered and installed system.

20. Get everything in writing.

21. Investigate more than one company.

22. Provide the time to do a thorough job.

23. For an on-line or time-share system, insist that you be allowed to test the operation at different times of the day to get response time, and to get realistic charges.

24. For a service bureau, determine the procedural requirements and hours for transmitting and receiving material. Get maximum service commitments. Determine special service charges, such as overtime and weekend work. Make provisions for your stored data not being lost to you if the bureau goes out of business.

25. If you lease or license software, provide for the retention or continued use of the software, if the software company fails.

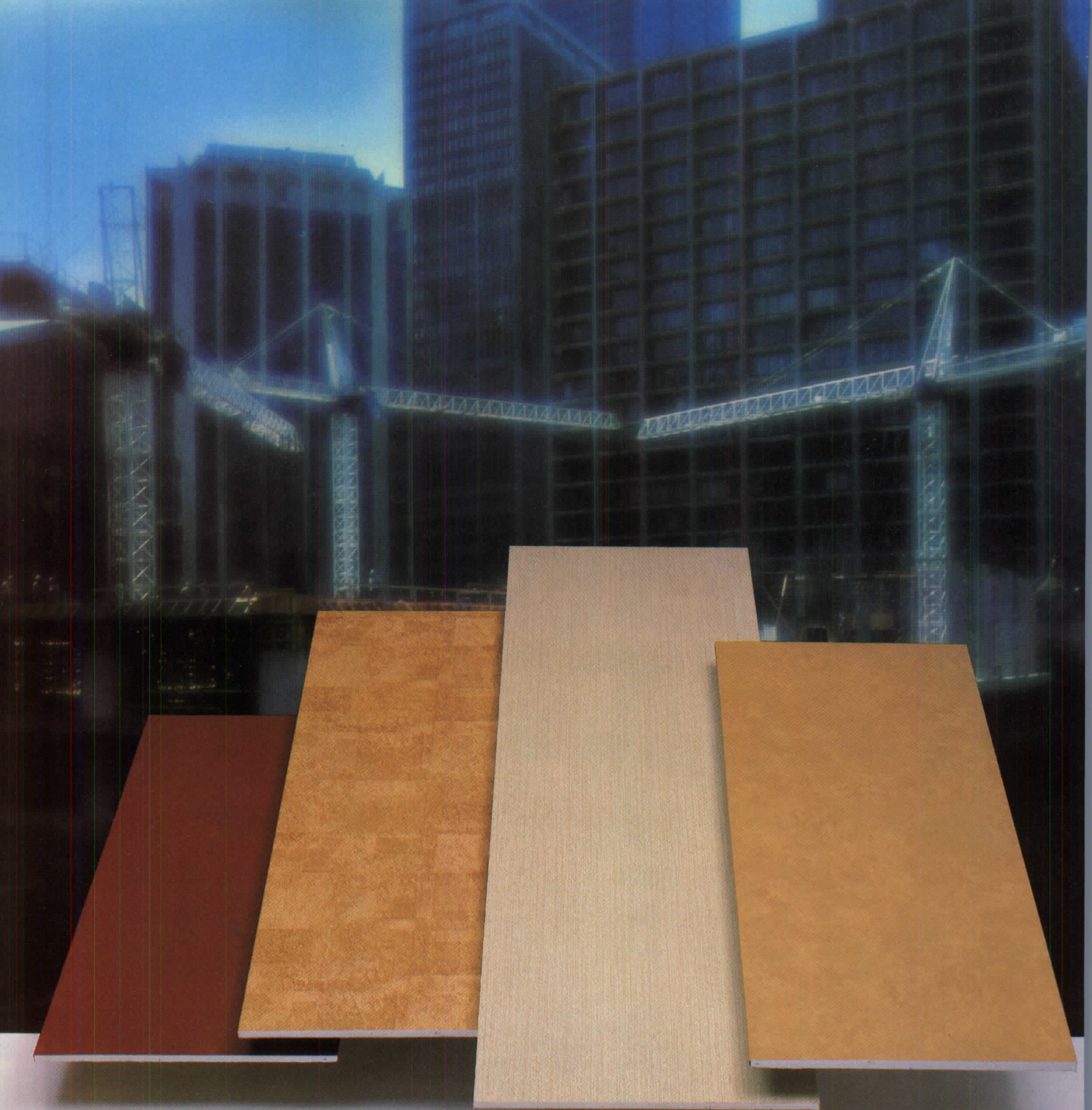
26. Investigate the ability to transfer your stored project data to other systems or programs.

27. If your investment is significant, and interest payments are considerable, use penalty clauses for missed delivery schedules on those parts of the systems that cause the whole system to sit idle.

28. If your investment is significant (and it will be), have your accountant check the financial options. Have your lawyer check the contract.

If you cover these points in the conversations you have with the computer-company representatives, you will find your search for the right system, service or software an education in and of itself. Do not despair and do not make hasty decisions. Just remember there are practitioners just like you who have gained enough knowledge to make the computer a working tool. If you still feel queasy, hire a consultant.

Mr. Mileaf is Director, Technology and Product Planning for Sweet's Division, McGraw-Hill Information Systems Company. His achievements for Sweet's include Mechanical, Electrical and Civil Engineering Catalog Files, technological planning over the past 15 years and 11 research studies over the past 3 years on influences in the construction industry. Mr. Mileaf is the author of 16 books on technical subjects.



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Management:

How to run a ten-person firm... advice from two giants who used to

Philip Meathe and George Heery run two of the largest and most profitable architectural firms (indeed, design conglomerates) in the country. Both are exceedingly skillful managers—with polished and sophisticated management systems standing behind their design and production. What can the reader in the typical ten-person firm learn from them?

Phil Meathe has a favorite story on this point: "In 1967 I agreed to do a series of lectures for the AIA on the problems facing the profession. The introductions were (of course) of Philip Meathe from Meathe, Kessler—then a 30-person firm—and I was well accepted and everything went well.

"The last lecture in that series I gave was in Madison, Wisconsin in 1969, after I had joined Smith, Hinchman & Grylls. Of course, someone stood up after the new introduction, and asked why the AIA was always sending around big-shots to tell us what to do."

Not surprisingly, both Heery and Meathe argue strongly that the ten-person firm should grow. Still, each has definite ideas about running such firms while they are small.

Rule 1: Plan well for financial survival

Healthy cash flow may be even more critical for the ten-person firm than for the big one. If income fails to meet expenses, the likelihood is that a modest firm size means a modest cash reserve to fall back on. And in any case, small businesses are having a tough time getting bank credit these days.

Says Meathe: "Managing a healthy cash flow is no different for a firm with ten people or 1,000 people. Either way, you need an operating budget that covers expenses, and you have to balance those expenses against your income stream.

"The concept is so simple. But the biggest tragedy in small offices without seasoned business experience is not following that rule or following it badly. When they follow it badly, it's because they kid themselves. For instance, on budget, don't ignore historical figures. Don't say the heat bill will be X, when you only have to look up last year's figures to see it will be Y.

"In predicting income, you have to have an accurate probability factor. Don't figure that because there are a lot of office-building commissions floating around, you can expect more work—especially if you have never done an office building."

On scheduling cash-flow

projections, George Heery says: "Budget income and expenses, by months, for upcoming quarters, reassessing the year's financial plan as the year develops. As each year comes to a close, the firm should review the past year's activities, complete a business plan for the coming year, and update a five-year plan."

Meathe: "Another big mistake frequently made in smaller firms is to over project income on commissions in hand. For instance, when design is complete, all of the money allotted to design in the contract should not have been used up in the firm's budget.

"Costs at the end of the job are always higher than inexperienced architects expect. Final punch lists and owners' inquiries are all very time-consuming. We call a job only 90 per cent complete when most would call it 100. Even worse is the common failing of young firms to spend more than the contract amount on design, because they aren't using or controlling a budget.

"In any event, the small firm should bill for time directly, just like almost every big firm does." (For other suggestions on the cash-flow problem, see Barry LePatner's article, "The Profitable Professional" in last month's RECORD pages 29 and 31.)

Where do you get help in management?

Heery recommends: "Establish a good banking relationship, and get a good lawyer and accountant. But don't expect them, or allow them, to run the business. The best decisions are based on complete and correct information. Keep another banker or two warm with regular information about the firm's activities—and with your main banking connection, demand an account executive who will learn about and understand the firm's business."

And, of course, involving a bank in your operations may help establish that elusive ability to borrow. Credit will be useful even if the firm does maintain a balanced cash flow, and needs money to expand in size or into new markets or computers.

Which ten people do you look for?

While many successful smaller firms have been built on partners that specialize—some handling design, others business—Heery does not recommend such a stratification: "I would discourage the idea that one principal bring in the work and the other sees that the work goes out. Everyone needs to sell—sell ideas, sell the firm, sell himself/herself. Separating

marketing responsibilities among principals or even between principals and staff can create serious problems of divisiveness."

Meathe: "I didn't start out to handle the business side. God gave me the ability to do balance sheets, and I read a lot about business.

"The first question to ask about a staff is whether its talents match the work you are after (and the income stream). Does the experience match the commissions?"

"The ideal ratio of professionals (with billable time) to clerical and administration personnel is pretty constant for any office: about 75 per cent to 25. Go after good people in both categories. But, don't lock yourself into a high wage scale to get them. One way is to offer bonuses, if you do make money through their efforts.

"If you run an office profitably, use the profits to get the best people. This includes young people, as well as seasoned. They are just as important. They look for new ideas, and don't just say that they don't do things this way or that.

"A too high ratio of registered personnel throws the wage scale out of whack. Still, about 50 per cent of our architects are registered."

RECORD's survey on survival tactics (Business, June, pages 29-33) showed that the smaller firms tended to have a larger percentage of registered personnel than the big ones. But SH&G's is unusually high in any case.

Are there advantages to managing ten people, instead of a thousand?

According to Meathe: "Personnel problems are much easier in the small firm. You know the people personally, and can evaluate them directly. The process is (or should be) rapid and efficient.

"Still, you have to size up candidates for new posts carefully—especially when the skill required is new to the firm—for instance, the first engineer or the first interior designer. Here, you get help from the outside. Ask your consultants to talk with the candidate. Ultimately, you have to 'try out' the person for a while—and see how you both get along."

Meathe continues on personnel: "In the small firm, you should make decisions faster about cutting staff. There just is not the cushion to carry people in a small firm when there's no work."

Should you get into computers?

Heery: "I cannot emphasize enough the necessity of positioning and preparing the practice for the age of electronics. The age of the microprocessor, electronic storage, sorting and instantaneous delivery

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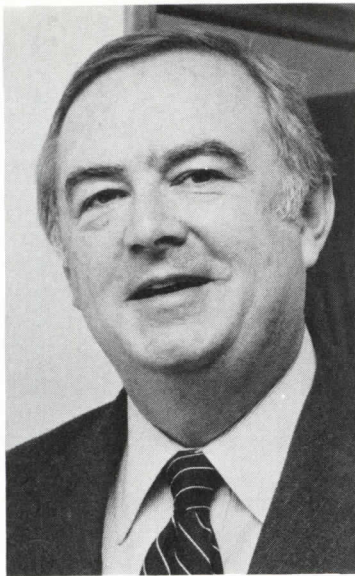
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of information of every kind, computer-aided design and drafting, and word-processor specification writing are *here*. It is not about to happen; it *is* happening. The future becomes confusing, exciting, awesome, treacherous, and full of opportunities."

"The potential," Heery argues, "is for greater creativity, not less. There are opportunities for fewer errors, better construction detailing, lower costs, shorter design/construction times, and higher remuneration—eventually—for the talented and competent professionals and technicians who survive the transition."

"Many have said that the computer development of the '80s will be the death of the small architectural firm. Perhaps—but I suspect that we will see the healthy survival of many small practices who will find ways to use the electronic miracles of our times to their benefit and profit. Many small firms are already doing just that."

"The ten-person firm, as well as the larger firm, must develop its information-resources strategy and choose its hardware carefully. Hardware comes in all sizes, types, and costs, but generally speaking, the trend is towards falling hardware prices, which is encouraging to every firm. Software, though, is going to be the big issue and the great potential pitfall."

What kind of work do you look for?

Heery offers, as his first rule of survival for the small firm, specialization. Meathe disagrees.

Heery: "Specialization is rarely taught in school. In fact, the popular wisdom (blindness, I think) is that 'a really good architect can do any kind of project.' The fact is that the clients don't believe this and, while the premise may be true, it is also true that a really good architect with extensive experience in a particular building or client type can do an even better building, be more efficient, make a better profit, and market more successfully."

"Even after our ten-person firm grows to 50, I would specialize. But by then I would have two or more specialties, ones that might be counter-cyclical to one another."

"A major reason to specialize—and to highly specialize—with a ten-person firm is that with the small firm as a specialist, one can become involved in relatively large projects, and develop a more satisfying practice. Once the firm has established itself as a leading specialist, the clients are more likely to come to them, thus

holding down business-development expenses and building a backlog of work. Of course, exceptional design work would be analogous, in business terms, to a specialty, as would a special design approach or style."

"As head of Heery, I think I did practice what I preach. In the late '50s, after having been in practice about five years, I moved to specialize in industrial work. Within a few years we felt we were not only providing a very good service for general light manufacturing and distribution facilities for companies moving into the Southeast, but we could show that we were out-performing—in terms of time and cost—the dreaded enemy, design/build contractors."

"After establishing ourselves regionally in this field of practice, developing methods for out-performing our main competition, we promoted our time/cost control system of managing projects as a specialty. From there we were able to develop specialized architectural and engineering practice groups in stadium and recreation facilities, airports, and later hospitals. Time/cost control also led us into the practice of construction-management and activities in building systems in the mid '60s."

Meathe is not so sure about specialization: "It weakens the ability to survive, if the particular market dries up. I would be as diverse as resources and talent would allow."

How do you get the work?

Meathe does not recommend that a ten-person firm go after the really big jobs. "You are probably wasting your time," he says. "Stick to the medium and smaller work." On the big jobs, most clients—whether it makes sense or not—seem most comfortable with big firms.

Heery: "Marketing is a necessary part of the firm's growth and reputation. Marketing means deciding what services are to be provided, what clients are most accessible and desirable to the practice, knowing what those clients need and want, and how those services will be delivered, as well as how commissions will be obtained and what will be done about promotional efforts."

"Everything the firm prints and publishes should convey a clear, consistent image, one that will appeal to clients and third-party references. It is not necessary to print an expensive brochure. A firm may, instead, consider several other means of marketing: the production of a handsome four-to-eight page folder or periodic publications, possibly a design-oriented newsletter."

"The firm should keep complete project data sheets, especially good photographs and a well-organized slide storage and slide presentation preparation facility. I also advise a good public relations counselor, not a fast-talking publicist, but one who understands the firm and who has or can develop credibility."

Sum-up: The ten-person firm takes the same kind—if not the same amount—of good management as the really big firm to succeed. *Charles King Hoyt*



Philip J. Meathe
President and Chief Executive Officer:
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Johnson, Johnson & Roy, Inc.; Metz, Train & Youngren, Inc.; Murry Jones Murry Inc.; Terra Development Corp.; Terra Investments, Inc.; Comprehensive Management Services, Inc.; Moyer Associates, Inc.; Ryan, Cooke & Zuern Assoc.
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Circle 29 on inquiry card

Marketing: Winning proposals for government work

By David L. Balsmeyer, Philip J. Joehnk and Ralph O. Butler

Despite the new Federalism, there are still many government design commissions being handed out. While many architects and engineers are all too familiar with the procedures for getting government work, many more will wade in without an understanding of the highly detailed route from their identification of such projects to their actually being selected for them.

One important thing to understand is that there is no one public client, and that each level of government can have as many heads as a Hydra. In fact, one may not even deal with the government directly. The following article represents the experiences and practices in a typical situation for government research installations in which a private corporation, Monsanto, operates the Mound Facility in Ohio for the Department of Energy. Beyond day-to-day operations, the corporation secures architectural and engineering services for new construction, and must follow Federal guidelines in doing so.

Are all government procedures for acquiring such services alike? Except in the few "showcase" projects for which competitions are now often held, the answer is yes. And the emphasis is on experience and technical proficiency—not design ability. Ever wonder what happened to your proposal heavy on the latter? Read on. C.K.H.

Architectural and engineering firms spend much time and expense responding to advertised requests for design services for government projects at every level. When these responses fail to result in new work there is a painful awareness that a lot of effort has been wasted. What are architects and engineers doing wrong, and what steps can they take to improve their submittals and, therefore, chances?

As project engineers for a government-owned facility, we are frequently required to secure architectural and engineering firms to perform design services for on-site construction projects. In this capacity, we have reviewed hundreds of submittals.

We have a vested interest in selecting the best qualified firms for our projects, but at the same time we work within the confines of formalized procurement regulations. Frequently, we must discount responses by reputable firms, because they have not adequately responded to the notice we have issued.

Government work is advertised; read carefully

Public clients *must* advertise requirements in various trade publications or specialized journals. Many, including the Federal government, publish their requirements in the *Commerce Business Daily*. This document lists Federal procurements, including those for architects' and engineers' services. If the requirements are that the architect or engineer be near the construction site, there may be advertisements in appropriate local newspapers.

First, the design professionals must decide if their firm is qualified. Our selection is based upon several factors, but the main evaluation criterion is expertise and experience applicable to our needs.

Public clients must be extremely careful in preparing advertisements, and architects and engineers should be equally careful in reading them. Advertisements state exactly who the client is, who the contact person is, the type of response requested, the deadline for responding, a concise statement of the scope of work for design services, the types of architectural and engineering expertise requested, and any firm-size or location limitations.

The scope of work defines building and process efforts, demolition or renovation, and who is responsible for what, and quantifies the effort—particularly the dollar value of construction. The various architectural and engineering needs are also defined, and priorities listed.

Clients have usually defined their needs much more completely than the brevity of the advertisement allows them to describe. If something in the ad seems puzzling or unusual, no one should hesitate to call and ask about it.

We are not disturbed by such requests for clarification of unclear items. As long as the calls do not appear to be sales gimmicks, fishing expeditions, or ploys to obtain an unfair advantage, we appreciate the interest architects and engineers indicate.

Unlike common practice, we do not generally welcome architects' and engineers' visits to sites. The rationale is an unfair competitive advantage. Generally, architects' and engineers' calls *should* indicate the architects' and engineers' competence and interest in the client's needs. Formal response deadlines are generally a few weeks from advertisement publication, and must be addressed quickly.

Respond accordingly; be thorough and precise

An appropriate response can range from a submittal of credentials and an expression of interest in the project to a proposal complete with schedules and costs. The Federal Government Standard Forms 254 and 255 (Architectural-Engineering and Related Services Questionnaire and Architectural-Engineering Related Services for Specific Project, respectively) provide a good uniform response format.

Of course, there should be a cover letter stating the desire to do the requested work, emphasizing high-quality work on prior projects, adherence to client schedules, and ability to perform the work. A proposed design-team organization chart, which includes relationships with the client, key design-team personnel, backups to the design team, and management involvement, will demonstrate to the client how the architect or engineer plans to perform.

Some supporting additional information may help. However, extraneous material is detrimental. There may be 20 or 30 proposals to review, and superfluous information impedes the evaluation. For example, for an industrial project, brochures describing housing units or institutional projects have no bearing on the project.

Only resumes for the proposed design-team technical people should be included in the proposal. The client is interested in who will do the work, and the emphasis on much government work is technical. The education and registration of the design team along with the dates and years of

experience with current and past firms should be listed. Brief statements of experience appropriate to the client's needs should also be included—especially the project manager's.

A list of similar projects to that being solicited, with dates, is also necessary. A brief description of the similarities for a few of the jobs is most helpful. References, including telephone numbers, should be provided for at least three similar projects.

List the titles correctly, and make sure that references know the work accomplished for them. If a referenced project is a few years old, the design professional should verify that the reference is still available.

When listing similar projects, the design professional should avoid misstating or overstating the firm's involvement in the project. The professional should state whether the firm was the prime contractor, a subcontractor, or consultant and whether the firm worked for the owner or the contractor.

Public clients want to know everything

An honest and straightforward statement of current work load and the firm's ability to fit the project into schedules should be made. This must be realistic.

A positive but candid statement about the ability to do the work within existing work loads has seldom deterred us from choosing architects and/or engineers. Conversely, inability to perform as proposed has cost firms repeat business many times larger than the original job.

Other key ideas to incorporate in the proposal include how quality assurance and crosschecking are accomplished during design. Cost estimating and cost-control methods and their reliability should be addressed. Design scheduling and reporting should also be briefly described.

The firm's management style, methods of operation (teams, consultants, etc.) and interrelationships with other architectural and engineering firms should be stated. The project manager's role, authority and relationship to principals in the firm should also be described.

An important point on qualifications: if an architectural or an engineering firm wishes to submit a proposal for a project that exceeds their scope of expertise, they may affiliate with others who will expand their expertise. This relationship should be accurately and completely described.

Again, unlike many private clients, we prefer joint ventures to

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Circle 30 on inquiry card

The evaluation of an architect's and/or engineer's proposal at Mound is done on the basis of possible points in the categories listed. A check of similar government-client evaluation sheets produces about the same weightings. Architects especially will notice that there is little room for esthetic-design skill, and the emphasis is on the technical.

Evaluation criteria/possible points	
Experience and qualifications of the proposed design-team personnel, including technical skills and ability in planning, organizing, executing, controlling and working:	
Project manager	8
Architect	4
Structural—general	3
Structural—tilt-up	3
Civil	5
Electrical	3
Hvac	5
Industrial layout	4
Experience as a team	5
Possible total	40
Number and size of comparable installations designed and built: SF 254 PROFILE Codes 101,113,089,043,097,201,202 SF 255 projects	10 15
Possible total	25
Reputation, experience and technical competence of firm, proposed consultants and subcontractors in comparable work:	
Quality of drawings	4
Quality of work	4
Meeting schedules	4
Cost control (estimates)	3
Handling of changes	2
Use again	3
Possible total	20
Proposed project organization:	
Project organization and set-up	3
Matching disciplines to project	3
Backup personnel	2
Management involvement	2
Possible total	10
Current workload as related to size of firm and size and complexity of project:	5
Possible total	5
Possible overall total	100
Possible grades:	
Excellent/10	
Above average/7-9	
Average/4-6	
Below average/1-3	

subcontracting with consultants to cover better the project responsibilities. The quality of the team and the definition of their relationship can override this preference, however. For the joint-venture team, it is important that the project management be completely described, as well as the employer-subordinate relationships.

Generally, the firm supplying the majority of the design effort should be the lead firm, and should also supply the project management. Previous team experience should be addressed in the proposal to remove doubts that the client may have on their ability to work together.

Architects and engineers should double-check their proposals to verify that they are professional, complete, and concise—that they address the announcement, present the firm's best view to the client for the project, and contain the requested number of copies.

Obvious faults and omissions on these requirements are what quickly eliminate a firm from further evaluation before the true selection process even begins. And the proposal *must* be on time.

And, here is how the designers' proposal will be evaluated

After the proposal is in, the selection process is in the client's hands. While it is perfectly proper for designers to request information about the selection process and schedule, they should avoid repeated, unsolicited calls and allow for the stated review time—at least a week—to digest all the proposals.

Response time may even be longer since many selections require formal management approval before any announcement can be made. Appearing over-anxious will *not* aid in being selected.

The public client has an objective evaluation method that will yield numerical scores or a ranking for each of the responses. Government agencies exert considerable effort to avoid legal challenges that can be prompted by a nebulous selection process.

In public contracting the selection method must be based on the published priorities. That is, the evaluation criteria are listed in order of importance, with the most important listed first. Numerical weighting and ultimate scoring are not published. Possible weightings are usually assigned to each item and sub-item (see sample evaluation left).

Three to five staff personnel independently rate each proposal, the results are tabulated, and statistical averages are determined.

The ranked list generally breaks into definite groupings. The top group should contain at least three firms, and up to five. One or two firms that, with some further investigation have the potential for the top group, may be added.

Follow-up calls and client-reference calls are made for each of the finalists. Random calls to some of the top firms that were eliminated or to their references could also be made to verify the data in a finalist's proposal.

A very positive client-reference call is not unusual, and it is always a positive influence. However, a call that uncovers a contradiction or half-truth can be very detrimental and may exclude future commissions.

For the lucky few, there are finalist interviews

After the client has completed all his telephone interviews, the finalists' scores are re-evaluated. This may yield one firm which appears to be head and shoulders above the rest. Our experience has shown this to be unlikely.

Regardless of whether one or more firms are equal, or almost equal, we have found interviews at more than one finalist's office to be beneficial. This is particularly true for larger projects.

At this time, unsuccessful firms should be informed. Interviews explaining deficiencies may be arranged, if requested, and the client consents.

We inform the finalists that an interview is desirable and set a schedule for visits. We provide the design criteria and any supplemental information to each of the finalists. Key written questions are also likely to be prepared and forwarded to the finalists prior to the interview.

We control the finalist interview to the degree that each firm must answer the same questions and address the same information. The interview time is the same.

Architects and engineers should present several points. First and most important, the interview should support the original response. Contradictions hardly ever add to the client's opinion of the firm. On the other hand, if changes in the proposed method of performance, resulting from a better definition of the project, can be shown to result in an improved team, they are well received.

The firm should organize a presentation that addresses the project and supplementary questions. The project schedule should be addressed. Written answers to the interview questions should be made. Points that we should consider further are raised. Samples of the firm's work on

similar projects should be available for review. The proposed design team should be present, and key members should address the project. The project manager should lead the presentation.

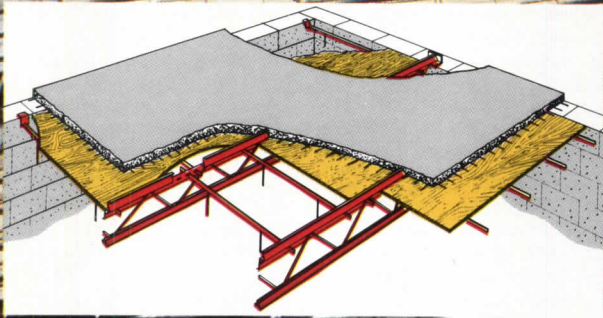
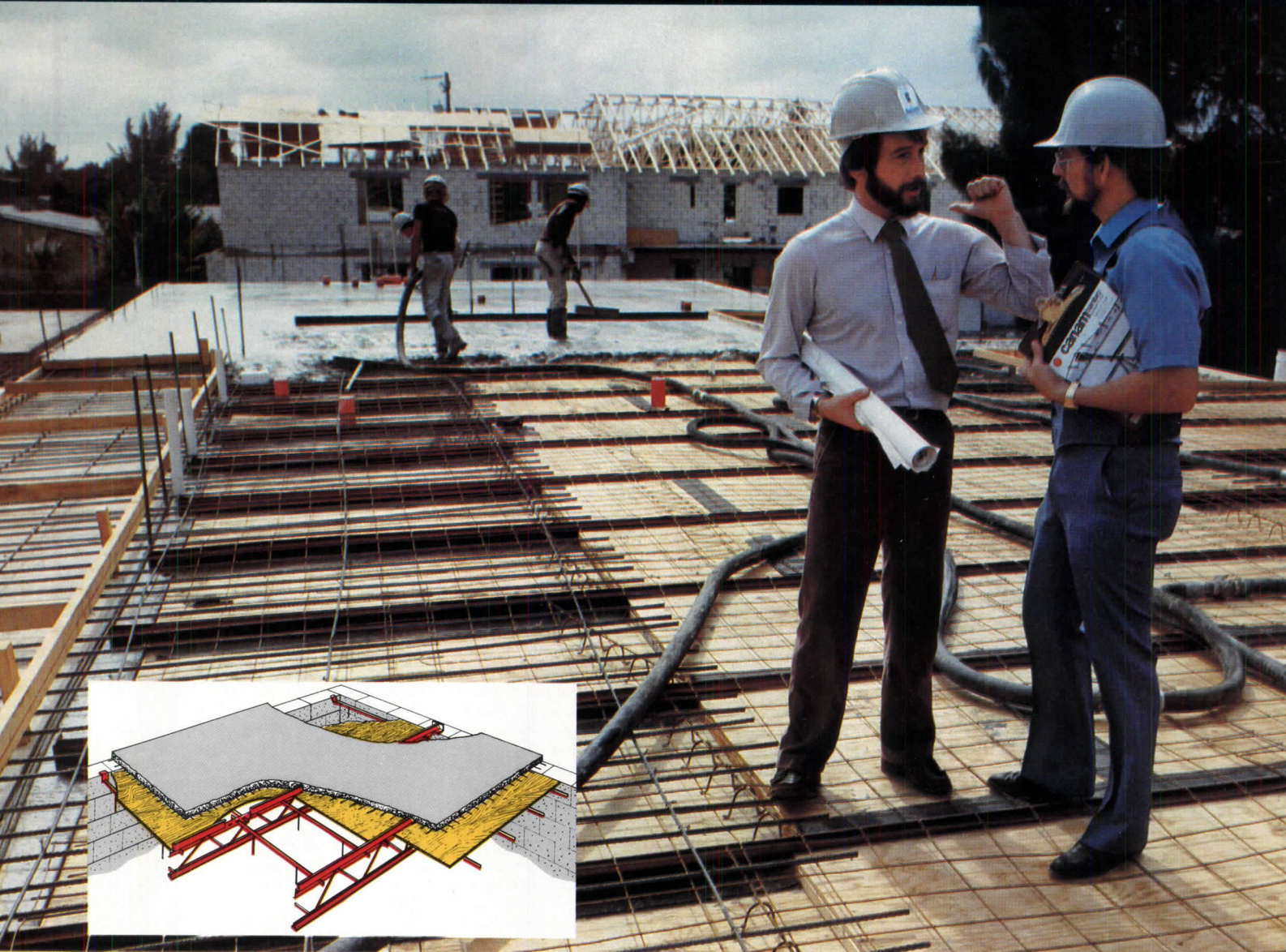
Nothing destroys a firm's chances as fast as a project manager who sits quietly by, while the sales manager or firm principals do all the talking. The content of the response should be reinforced. Any checklists, checking methods, computer programs, or other technical or engineering aids should be presented to display the firm's technological approach.

Mr. Balsmeyer is a project manager in the Construction Engineering group at Mound Facility, a U.S. Department of Energy facility in Miamisburg, Ohio, operated by Monsanto Research Corporation. His education includes a M.S. in nuclear engineering. Since 1976 he has been involved with major construction projects as a project manager. He is a member of the Project Management Institute, a registered professional engineer and a Certified Safety Professional.

Mr. Butler serves in the same capacity at Mound Facility. He is a registered engineer. He has managed architectural-engineering design and construction contracts since 1973, and will soon transfer to the Corps of Engineers Mid-East Division as a supervisory civil engineer in Saudi Arabia.

Mr. Joehnk is senior engineer for architecture at Mound Facility, and a registered architect. He has served in the U.S. Army Corps of Engineers and with several architectural and engineering consulting firms. Since coming to Monsanto Research Corporation in 1980, he has provided architectural/civil engineering support for numerous Mound projects, including those for other groups such as Construction, Advanced Devices, Nuclear, Maintenance, Safety and Environmental Engineers.

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Circle 31 on inquiry card

1982 AIA convention takes a look at future technology

At its 1982 convention, held June 6-9 in Honolulu, the American Institute of Architects decided on its 125th anniversary to take a look at the future. Under the rubric "A Quest in Time," three theme speakers on successive mornings viewed the implications for human life of explorations in outer space and under the sea: aerospace engineer B. Gentry Lee, underwater explorer Joseph B. MacInnis and physicist Gerard O'Neill.

Unfortunately, all three scientists are accustomed to work in areas so remote from architecture that, despite gracious if irrelevant references to the art, the architect listeners got little more than adventure stories and an insight into exotic thought processes. While O'Neill saw the future as a "friendly frontier," Gentry's slides showed a catalog of appallingly hostile environments in our solar system. And though Gentry saw manufacturing companies operating in space by 1990, it seemed, given his visions of computers and automated labor, a long way yet to the prediction that "restaurants will develop." O'Neill's plea that we develop technologies we already have, particularly in earthbound high-speed transportation, seemed more likely to have realizable near-term impact on architecture and urban planning.

Most to the point for architects, perhaps, was the observation of architect Elmer Botsai, FAIA, at a seminar on "Near Future Impact of Rapid Technological Change" that concluded the theme events: "A more technological society will demand humanity—and that's our specialty."

Meanwhile, the convening architects, between mai tais and trips to the beach, showed an overwhelming interest in that part of the technological future already upon us: computers in their various forms and functions. Two Professional Development Seminars on the subject—"Computers for the Small Firm" and "Computer-Aided Design and Practice"—were packed to the point of requiring extra sessions. And in the products exhibition area, visitors gathered especially around working displays of computer graphics. *Grace Anderson*

"Architecture is hard work," Gold Medalist Giurgola reminds convention



The high point of any AIA convention is the occasional award of the Institute's Gold Medal for "most distinguished service to the architectural profession or the Institute," an award virtually always given for distinguished design. The 1982 convention culminated in the presentation of the medal to Romaldo Giurgola, FAIA, partner in the firm Mitchell/Giurgola Architects of Philadelphia and New York City. Giurgola's eminent career as scholar, teacher and designer was crowned recently by his competition-winning project for Australia's Parliament House in Canberra, about which planner Edmund Bacon commented, "[Giurgola] has pointed out a direction that could keep architecture busy for the next 50 years."

As Giurgola's buildings make clear his esthetic commitment to architecture, his Gold Medal address made clear his moral commitment: "... architecture should and can make human accommodations not as an imposition on nature, but as an actual extension of the natural environment. Seen in this way, architecture becomes a most sublime extension of nature, and a building becomes an harmonious explication of daily tasks in life or of human industry, and represents a generous offering to people of the comfort and beauty of a natural site."

Of the late 20th-century fascination with architectural form, Giurgola said, "Form obviously cannot be based only upon the explication of a content or, for that matter, of a function. For the making of form is not such a simple matter in architecture, as unfortunately has been so

graphically demonstrated by the chaotic state of the present attempts at form-making. . . . The subjective character of the way we view ourselves today leads architects to step from abstraction to abstraction [and] these abstractions become complex systems themselves, divorced from the reality they seek to explain."

Then, "in denial of that view," Giurgola acknowledged the inspiration he took from Thomas Jefferson's design for the University of Virginia: "I cannot sense in Jefferson's design the arresting presence of a single monumental gesture, but rather a flowering continuity of architectural elements merging from their own balanced symmetry into the shape of the natural landscape. It is architecture bent to humanize the natural space, architecture functioning as a natural activity, conceived by a man who at the same time was shaping the culture that made available the means for such architecture."

Giurgola invoked such architecture as Grecian temples and the works of Brunelleschi, Aalto and Kahn as "intimately linked with intentions and people's aspirations, with principles, if you wish, which make those buildings architectural images of lasting value. By contrast, our models too often seem to be second-rate work, curiosities, stucco castles or hot dog stands. All that may be amusing for some, but, if nothing else, it is utterly unproductive. The models for Brunelleschi, Aalto or Kahn were ethical, fundamental, scholarly, principled and thoughtfully scrutinized, because it was clear to them that architecture was not merely a product but was also a producing moment. . . .

"After all," he concluded, "architecture is hard work. . . . It is hard work precisely because, like an intellectual pursuit, it is dedicated to the balancing of opposite forces, to the resolution of contradictions rather than the statement of them. Merely to state contradictions or to accept complexities passively is to manifest certain aspects of what we are, but in a way it is also to exclude *a priori* what we can possibly be. Hard work in architecture implies a risk and expectation. It is a risk touching upon hope, since it is not built on the realization that something has already occurred, but upon a decision that something will." *G.A.*



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Institute honors buildings, architects, sculptors, books...

Among the honors conferred by the Institute at this year's convention:

The Twenty-Five Year Award, which recognizes architectural design of enduring significance, went to the Commonwealth Building in Portland, Oregon, designed by Pietro Belluschi, FAIA, and formerly known as the Equitable Savings and Loan Association Office Building. The award commended the building as an "esthetic, technical and engineering masterpiece [that] has stood the test of time..."

The Architectural Firm Award was presented to Gwathmey Siegel & Associates Architects of New York City, a relatively young firm founded only in 1969. The citation praised the firm for "reaffirming in its work and in its work process a commitment to the highest standards that we, as a profession, have to offer."

The Institute awarded six medals to individuals, publications and organizations: to Sir John Summerson, Hon. FAIA, of London, for "the value and lucidity of his writings on architecture and his effective work as curator of Sir John Soane's Museum (London)"; to Jean Dubuffet, French artist, in recognition of his work as fulfillment of "the conventional role of sculptures as decoration, i.e., they provide scale, focus, color and texture"; to the MIT Press, publisher of architectural books and journals, for "the consistent high quality of editing in all its publishing work, the variety and excellence of the wide array of authors... and the excellence of graphic design..."; to *Oppositions* magazine, sponsored by New York City's Institute for Architecture and Urban Studies, for coming to terms with complex and abstract architectural issues; to Ernest Born, FAIA, and Walter Horn, art historian, for their three-volume book *The Plan of St. Gall*, "one of the great books of this century"; and to Historic New Harmony Inc., a nonprofit organization for the preservation of New Harmony, Indiana, honoring "the interpretation of several disciplines related to architecture."



In surroundings of Hawaiian informality John S. Chase, FAIA, talks with Pietro Belluschi, FAIA.

Members support a basic change in Institute direction and responsibility

The Task Force presenting the report "Direction '80s" for the acceptance of the membership perceived the recommendations therein as "a fundamental change in direction from a primary concern for architects to a primary concern for architecture." That is to say, it saw the essential responsibility of the organization moving from an occupational service for its professional membership to "a knowledge-based national organization" serving the advancement of architecture and the advocacy of design excellence.

The Task Force discerned and defined five areas of institutional purpose, each with several component elements and each with a list of hoped-for results:

- Body of knowledge, which should include a centralized national system of access to information, information sharing among practicing architects and new links with architectural schools and nonarchitectural groups.
- Education, which should lead to, among other things, increased component activities and responsibilities in career counseling and professional development, as well as greater public understanding of architecture.
- Public policy, with increased participation by architects in policy and legislative activities affecting professional practice and public interest, as well as increased activity at legislative and executive branches of Federal, state and local governments.
- Communications, which, in addition to increasing emphasis on design excellence, would include a new clearinghouse concept for the exchange of information between architects and which would improve informational links with the public, clients, business leaders, government and the media.
- Organization, which has as a major goal the increased participation of members in decision-making.

Further, in thoughtful analysis by the Task Force and similar participation from members on the floor, responsibility—primary, secondary or minimal—was assigned to various levels of the Institute—individual, local component, state/regional and national—so that, for instance, primary responsibility for developing subject matter for architectural education and practice skills would go to local components, while individuals and national would take secondary responsibility and state/regional components would have minimal responsibility.

The California Council, AIA, whose efforts in 1980 prompted this year's Task Force report, offered a

couple of resolutions to restrict the Institute's national component to legislative and regulatory advocacy, public awareness, membership communications, information clearinghouse activities, and contract documents, while making the local components "the primary resource for member programs and activities related to the practice of architecture..." Both resolutions, as a kind of architectural New Federalism, aimed to restore power to local groups and to reduce funds (supplemental dues) for national activities. Both resolutions were withdrawn pending the implementation of the Direction '80s Task Force Report.

Members of the Task Force included Ray K. Parker, FAIA, as chairman; Robert Burley, FAIA; Virgil Carter, AIA; Betty Lou Custer, FAIA; and James A. Schuping, staff executive.

The delegates also considered five other resolutions:

- Multilevel Dues Structures, submitted by the California Council, AIA, for a study of "variable, graduated or categorized dues structure"; defeated.
- NCARB Task Force, submitted by the California Council, AIA, "to review the issues of education, training requirements, internship, examinations and reciprocal registration facing the profession, NCARB [the National Council of Architectural Registration Boards], and its member boards"; passed.
- Preservation of the Columbia River Gorge, submitted by the Portland Chapter, to support "prompt enactment of a National Scenic Area designation" for the gorge; passed.
- Minority Board Member, submitted by Minority Caucus 1982, to appoint "an ethnic minority architect representative to sit with the Board"; defeated.
- Nuclear Disarmament, submitted by the California Council, AIA, urging "the United States government to take a leadership role in achieving total nuclear disarmament"; passed. G.A.

In a brief ceremony preceding the convention's Monday morning session, McGraw-Hill Information Systems Company gave the AIA \$5,000 to underwrite a workshop of the Institute's Public Education Committee. John G. Wrede, president of MHIS, said the money was intended to "sensitize students and teachers to the importance of the built environment in all of our lives." He particularly emphasized the AIA's new environmental guide *The Sourcebook*, calling it "the first tangible tool to build a bridge between the profession and the schoolroom."

Members name George Notter president-elect



AIA members elected George M. Notter, FAIA, of Boston as first vice president/president elect. He will assume office in December 1982, to become president of the Institute a year later. Robert Broshar, FAIA, of Waterloo, Iowa, will succeed Robert M. Lawrence, FAIA, as president this December.

Notter is president and director of design of Anderson Notter Finegold Inc., a firm that has won three AIA honor awards for extended use. He is presently chairman of the AIA Life Safety Design Task Force, and has served as vice president of the Institute and as chairman of the Institute's recent conference "Designing for Energy" in Denver. Closer to home, Notter has served as president of the Boston Society of Architects/AIA and of the Massachusetts State Association of Architects/AIA. He has also sat on many national committees, commissions and juries.

The Institute also elected three new vice presidents: Leroy E. Bean, AIA, president and chairman of the Sioux Falls, South Dakota, firm Architecture Inc.; John A. Busby, Jr., FAIA, of Jova/Daniels/Busby in Atlanta; and R. Bruce Patty, FAIA, of Patty Berkebile Nelson Associates in Kansas City, Missouri. Harry W. Harmon, FAIA, of Long Beach, California, the executive vice chancellor of the California State University system, was reelected secretary without opposition. Henry W. Schirmer, FAIA, of Topeka, Kansas, continues in a two-year term as treasurer.

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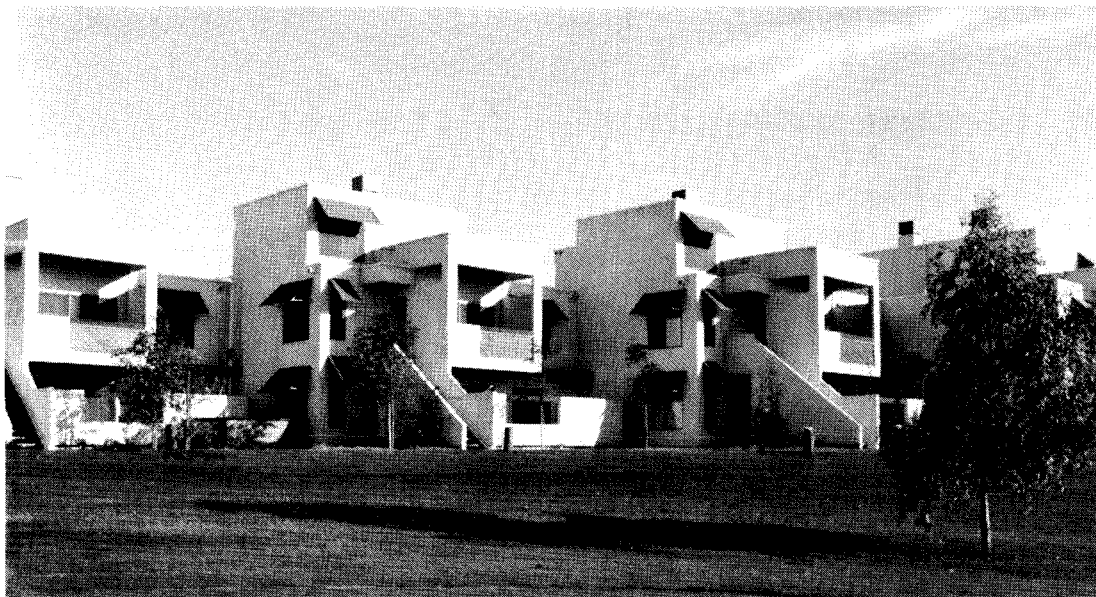
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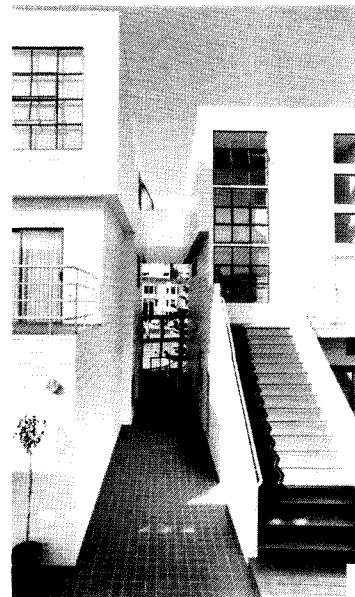
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Design awards/competitions: Homes for Better Living Awards



1

Joshua Freirevald



2

Tim Street Porter



3

©Steve Rosenthal

1. Sunscape, Scottsdale, Arizona; Fisher-Friedman Associates, architects (First Honor Award, Multifamily). Creating the effect of an oasis in the arid Arizona climate, this 442-unit apartment complex is oriented toward the grassy slopes of an adjoining golf course and a series of palm-arbor courtyards. Blue and yellow awnings contrast with white stucco walls. The jury cited the "almost Mediterranean" character of the villagelike cluster.

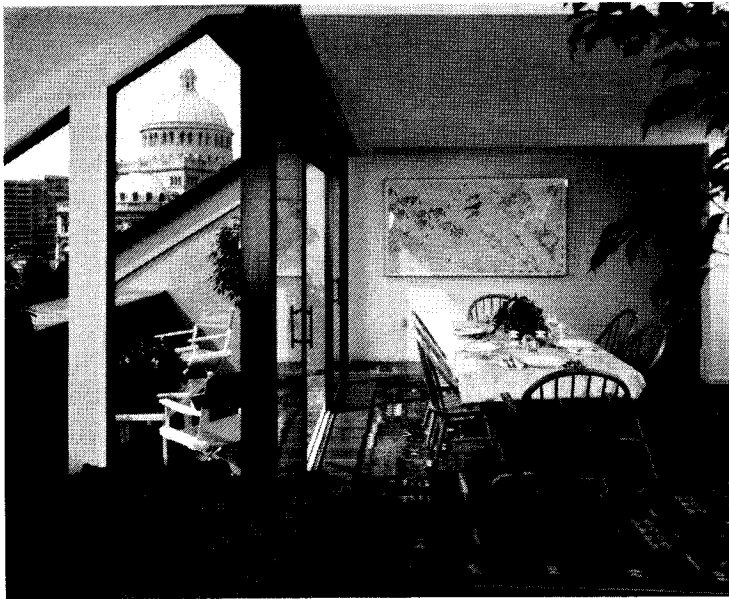
2. Castro Common, San Francisco, California; Daniel Solomon, Paulett Taggart, architects (First Honor Award, Multifamily). Security, re-creation of the low-rise courtyard plans of nearby buildings, and vehicular access on an awkward downtown site were major considerations in the design of this 12-unit condominium. The architects explain that layouts were "conceived principally for gay people who are the predominant population in the neighborhood surrounding the site." To ensure that the apartments will be attractive in a market where two single persons often combine financial resources while maintaining independent lives, each of the larger units comprises two master bedrooms and two baths.

3. Captain Eldridge House, Hyannis, Massachusetts; Donham & Sweeney, architects of record; Korobkin Jahan Associates, design architects; Zeisel Research, design and research coordination (First Honor Award, Multifamily Rehabilitation). While extending an old frame structure to house 20 elderly persons, the architects took pains to preserve time-honored domestic patterns in the massing, detailing, and layout of the addition. The result impressed the jury as "a tremendous marriage of an existing building with a new one. The social interaction of the facility—encouraged by a front porch and side veranda—is reminiscent of the life-style the residents are used to. . . ."

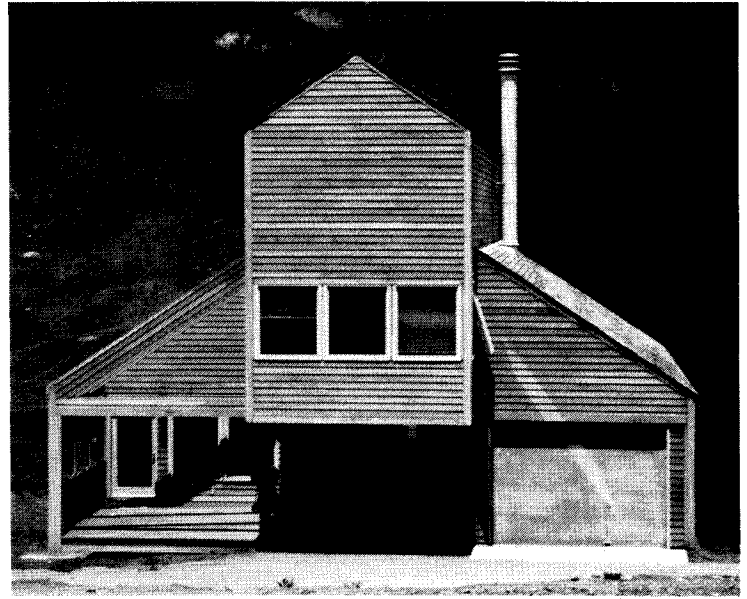
4. The School-House, Boston, Massachusetts; Graham Gund Associates, Inc., architects (First Honor Award, Multifamily Rehabilitation; see RECORD, mid-February, 1981, pages 70-73). The Charles C. Perkins School has been recycled into 21 condominiums, offered for sale in the range of \$50,000-160,000. Color and decorative wall shapes transform the elevator lobby into a "metaphorical garden." Corner living rooms take advantage of double exposure through large classroom windows.

Seventeen projects received Homes for Better Living Awards at this year's AIA convention. Sponsored by the AIA in cooperation with Housing, a McGraw-Hill sister publication, this is the nation's oldest design awards program devoted solely to domestic architecture. Premiated buildings (illustrated below and on the following two pages) were selected from a total of 431 entries by two juries. The jury reviewing production houses consisted of Donald Sandy, Jr., FAIA, jury chairman; Burton Bines, builder;

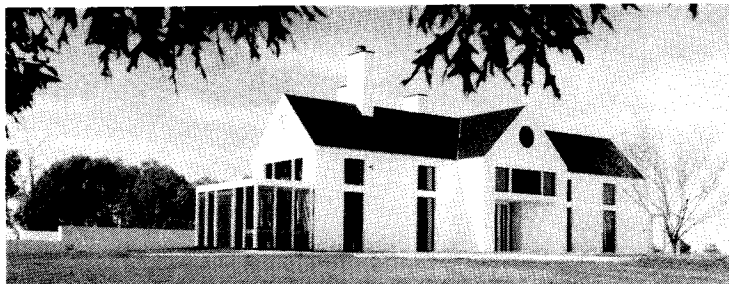
Do H. Chung, AIA; James P. Cornwell, associate member AIA; Stephen A. Schwartz, architecture student; June Vollman, managing editor of Housing; and Cynthia Weese, AIA. Jurors for custom houses were Charles Dagit, Jr., AIA, jury chairman; Arne Bystrom, AIA; James Childress, associate member AIA; Dwight Holmes, AIA; Robert D. McKerrow, architecture student; Ingeborg B. Rose, AIA; Walter F. Wagner, Jr., editor of ARCHITECTURAL RECORD.



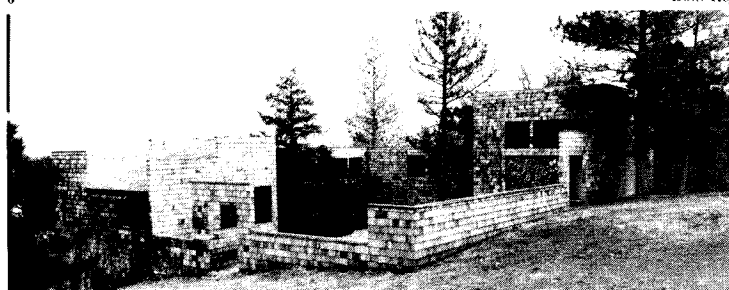
4 ©Steve Rosenthal



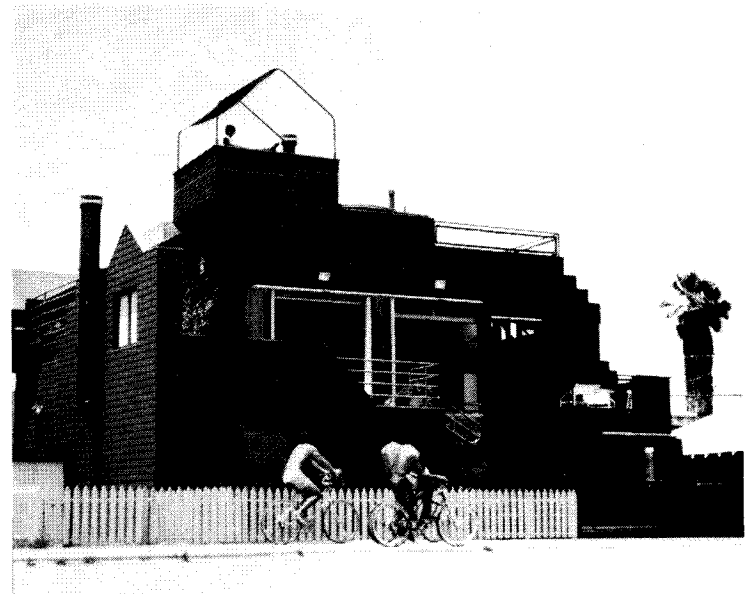
5 Hedrich-Blessing



6 Bent Rej



7 Marc Hefty



8

5. Residence, Crested Butte, Colorado; Nagle Hartray & Associates, Ltd., architects (First Honor Award, Custom Houses). The clients, a couple with four children, wanted a low-maintenance second home for skiing and summer activities. Almost windowless on its north front, the house presents extensive glazing to the south. The symmetrical composition of a high pitched-roof bay flanked by low sheds follows a traditional mountain mining town form, the "tipple building." Besides family bedrooms and a focal gathering place, the house includes an apartment for year-round tenants.

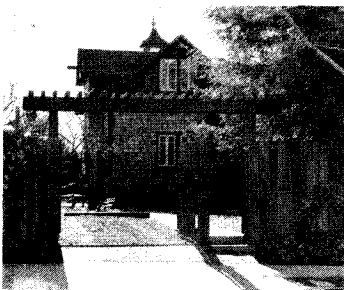
6. Residence, Eastern Shore, Maryland; Hugh Newell Jacobsen, FAIA, architect (First Honor Award, Custom Houses; see RECORD, mid-May 1982, pages 58-63). The jury lauded the 3,250 square-foot dwelling as "the symbol of house. It is a wonderfully dignified place to live." Conceived as an abstraction of local Gothic Revival vernacular, the clapboard-sided house stands at the head of an 800-yard allée framing a vista of river and bay.

7. Hefty Residence, Missoula, Montana; Eric Hefty & Associates, P.C., architects (First Honor Award, Custom Houses). Orientation was essential to the design of this 3,250-square-foot shingled house. Located on a bluff above the Clark Fork River, the house overlooks a panorama of wilderness, open fields, and the city of Missoula. Triple-glazed windows allow splendid views with minimal heat loss. The panel remarked that the site plan evinces "a very specific sense of place, while still caring about the land."

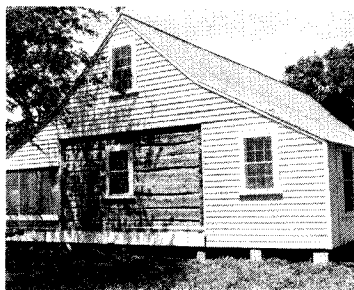
8. Sayer Residence, San Diego, California; Rob Wellington Quigley, AIA, architect (First Honor Award, Custom Houses). "The house has a lot of spirit about it," one juror observed, "and it seems to be a terrific, free place to live." The architect juxtaposed contrasting colors and an eclectic choice of materials and forms to express the motley charm of a beachfront community. A fiberglass patio-cover stairway subdivides the cottage into two "houses": one has redwood siding and volleyball-net safety barriers; the other, green asphalt shingles and pipe rails. Multiple decks offer plenty of room for outdoor living, while shielding indoor spaces from the view of passersby.



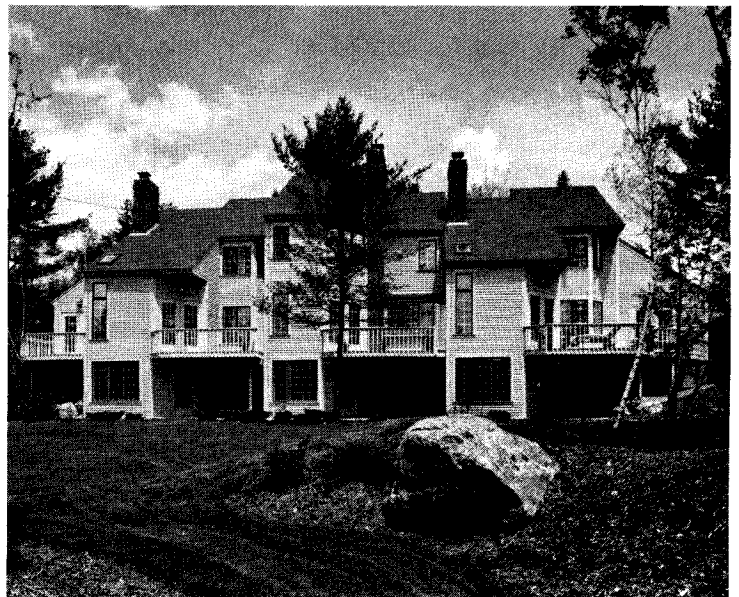
9 Peter Harholdt



10 Richard Gordon/Fretwald Gordon



11



12 ©Sam Sivezy



13 Daniel Bartush

9. Residence, Washington, D.C.; Kerns Group Architects, P.C. (First Honor Award, Custom Remodelings). Kerns Group added a third story to the shell of a Federal-style town house to give the client views of Georgetown, the Watergate, and the Potomac. Zoning complications posed by Washington's F.A.R. and lot-coverage standards inspired a series of ingenious design solutions, including construction of a removable bridge above a hollow pocket for car parking. Brick screen walls maintain the plane of the street facade in front of irregularly set-back upper stories. In conjunction with a lead pan over the roof sheathing, triple-insulated glass forms an acoustic barrier to jet noise from National Airport.

10. Poirier Barn Rehabilitation, Oakland, California; Agora Architects & Planners, architects (First Honor Award, Custom Remodelings). In the interest of economy, the owner asked for a rehabilitation design that he could construct himself. The plan divides the 1,400-square-foot Victorian barn into a conventional layout of living and sleeping rooms. A Franklin-stove inglenook opening off the living room serves as a den. The "great restraint" of the project was noted favorably by the jury.

11. Brooks Residence, Fayetteville, Texas; Clovis Heimsath, FAIA, architect (First Honor Award, Custom Remodelings). A century-old farmhouse now provides a weekend retreat for an urban couple, their two children, and overnight guests. Working within a \$20,000 budget, Clovis Heimsath raised the roof profile to create children's sleeping lofts and demolished interior partitions below, opening up one large space for informal family use (guest quarters were installed in the former kitchen). Materials and details preserve local German-Czech building traditions. Removal of clapboards and interior wood siding exposed a log structure.

12. Wildwood Village, Laconia, New Hampshire; Claude Miquelle Associates, architects (Award of Merit, Multifamily). A total of 156 units is projected for this luxury condominium development in the New Hampshire lakes region. Clustering of duplexes, three-unit buildings, and four-unit garden apartment houses on a 40-acre wooded site responds to the community's environmental concerns. Location of small duplex clusters at the edge of the development establishes a visual transition from nearby single-family houses. Siding and fenestration recall familiar New England prototypes.



14 ©Otto Baitz



15 ©Henry Borles



16 Jim Mazzuchi



17

13. William Bell Townhouses, Birmingham, Michigan; Carl Luckenbach/Robert L. Ziegelman, Inc., architects (Award of Merit, Multifamily; see RECORD, July 1982, pages 86-87). The addition of three condominium townhouses to an historic 100-year-old white clapboard house links old and new through continuity of materials and proportions. One juror remarked: "The winning aspect of this project is that the problem was so complicated and yet the solution is so simple. There are only a few signs that the addition is not original." Each condominium has a private rear courtyard, garage, and entry, leading to a two-story living area overlooked by a master bedroom balcony.

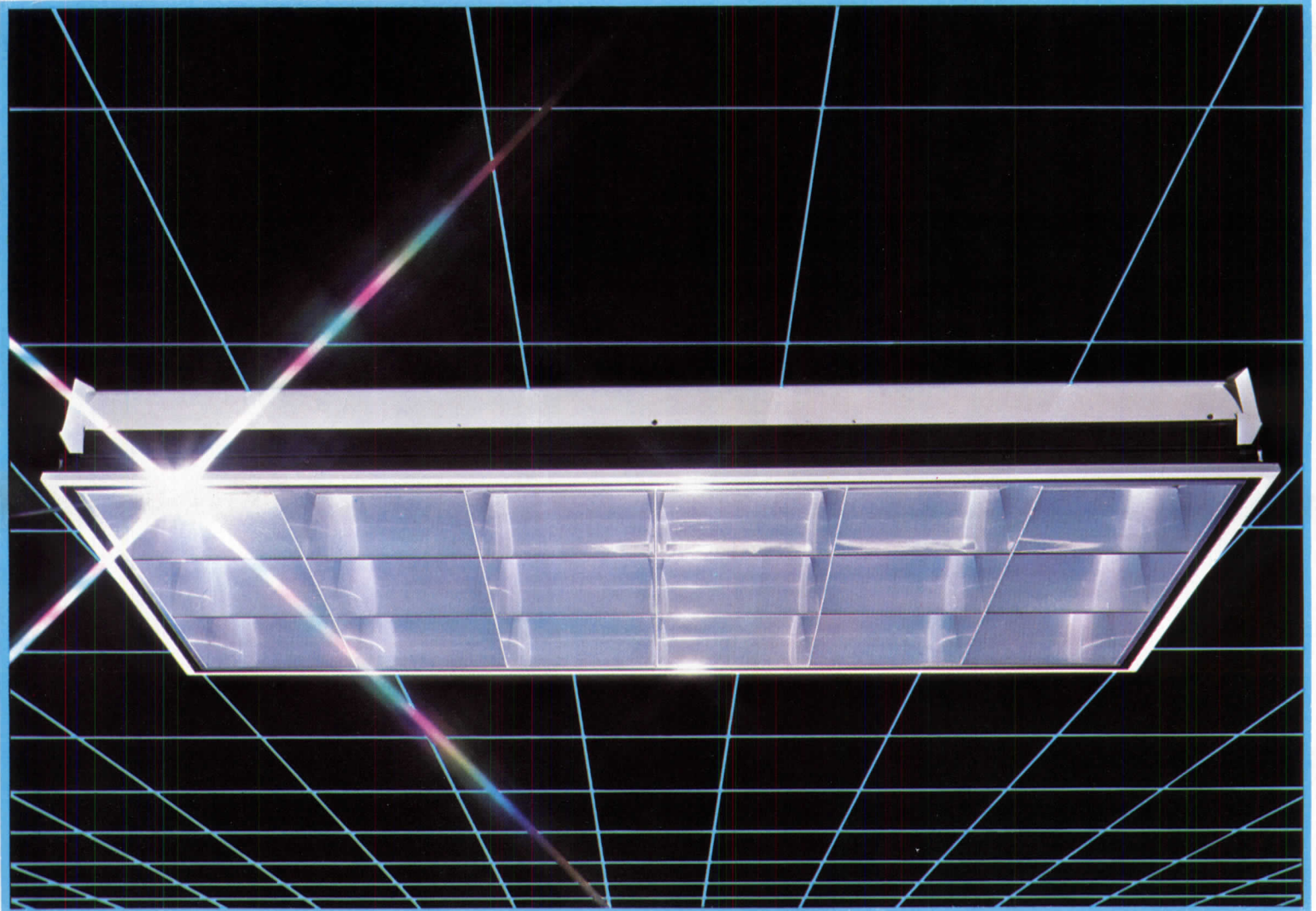
14. 222 Columbia Heights, Brooklyn, New York; Alfredo De Vido, AIA, architect (Award of Merit, Multifamily, see RECORD, July 1982, pages 82-85). Cornices, belt courses, and fenestration echo the scale of adjoining 19th-century brownstones in the Brooklyn Heights Historic District. The panel concluded that the condominium "reads marvelously to the streetscape."
15. Washington House, San Francisco, California; Daniel Solomon and Associates, architects (Award of Merit, Multifamily Rentals). Described by the architects as "a hybrid of row house and apartment house," the

13-unit infill complex has elevations that harmonize with those of its older neighbors. Four of the lower units are walk-ups with private street entrances. Bay windows, a characteristic San Francisco motif, face south to act as heat-collecting solarium (and acoustic insulation from street noise for inner rooms).
16. Las Victorianas Elderly Housing, Sacramento, California; Dreyfuss & Blackford Architectural Group, architects (Award of Merit, Multifamily Rentals). The scale and details of the 40-unit subsidized apartment complex have been gauged to blend with renovated Victorian workmen's cottages or nearby streets. The five courtyard buildings that compose the project frame seating areas in the shade of mature elm trees.

17. Glenbrook Inn Townhouses, Glenbrook, Nevada; Backen Arrigoni & Ross, Inc., architects (Award of Merit, Multifamily Rentals). Four dwellings now occupy a turn-of-the-century hostelry in one of the oldest communities on Lake Tahoe. New interiors suggest the workmanship of a bygone era with narrow-groove paneling, baseboard and ceiling moldings, and fireplaces modeled on those of the original inn. Building code standards required replacement of old redwood foundations and insertion of new structural beams, columns, and acoustical party walls.

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Back to the basics in school design

In the face of declining enrollment and major government spending cuts, it is retrenchment rather than innovation that preoccupies many schoolmasters. A boon to the architects engaged to adapt obsolete facilities for consolidated or reorganized schools, this educational stock-taking has also impelled a thoughtful reassessment of basic needs in new construction. Fortunately, over the past decade nearly everyone's list of basics has come to include energy efficiency, flexible planning for community use, and barrier-free design for the handicapped. The widespread recycling of surplus schools for non-academic functions has received much attention of late, but the reverse phenomenon also bears watching, as several of the projects examined in this study reveal. Architects Pierce, Pierce & Kramer, for example, have converted a Boston warehouse and garage into a high school (page 88); Norman Rosenfeld has adroitly fitted multi-use spaces for New York's Friends Seminary behind the facade of a landmark town house (page 92).

As the purview of educational institutions expands to include a variety of social and recreational programs, the school assumes growing importance as a focus for neighborhood life. The Virginia elementary school designed by The Vickery Partnership, and Larsen Lagerquist Morris's island school off the coast of Washington (pages 90 and 100) fulfill this mandate with admirable economy and sensitivity to their rural settings. None of the schools shown here exploits site conditions more effectively than Woodbridge High School (page 94), where the California sun enabled Perkins & Will to route circulation through outdoor walkways.

The *indoor* "learning street" has long since become a design cliché. It is rare, though, to find interior thoroughfares where scale and color form spatial sequences as lively as those in Woollen Associates' Indianapolis kindergarten/middle school (page 96). The special requirements of wheelchair traffic helped shape the "main street" of Rothe-Johnson Associates' New Jersey school for the multiple-handicapped (page 98). Every detail of this pioneering facility was calculated to produce warm, non-institutional surroundings for disabled youngsters. "Above all else they are children," says Leon Butchko, the school's director, "and they should be given an environment where they can feel free to *be* children." It is a goal that any school architect can take to heart. *Douglas Brenner*

Jamaica Plain High School and Community School
Jamaica Plain, Massachusetts
Pierce, Pierce & Kramer, Inc., Architects

The pursuit of knowledge in warehouse lofts

©Steve Rosenthal



Original plans for the converted garage and warehouse called for white-painted exterior walls, with entrances and mechanical elements picked out in color. In the end, community preference for a traditional red-brick school prevailed, resulting in less tempting surfaces for graffiti.



Hutchins Photography

Tough on the outside, flexible and bright within, Boston's Jamaica Plain High School is an object lesson in urban survival. Only a few years ago, the 218,000-square-foot school, which now serves 1,200 city youngsters, was a vacant gas company warehouse and garage. Pierce, Pierce & Kramer's 10.4-million recycling and expansion of the half-century-old brick structures (photo left) is the first and largest project to be completed under an amendment to the Massachusetts School Building Assistance Act that allocates funds to convert non-academic facilities into schools. The reinforced concrete structural bays of the five-story warehouse proved to be ideally scaled for classroom use, while the 100-foot clear spans of the two-story steel-frame garage afforded ample space for assembly rooms, a cafeteria, and a gym. Pierce, Pierce & Kramer replaced factory sash with an infill of insulated metal panels and glass, for energy efficiency and light control. New construction included stair towers and an auditorium—curved forms with a sympathetic dash of streamlined 1930s Moderne—and two tiers of glass-enclosed classrooms above the former garage. Demolition of run-down industrial sheds and junk shops on the rest of the two-block site cleared precious land for athletic fields and parking.

*Jamaica Plain High School and Community School
Jamaica Plain, Massachusetts*

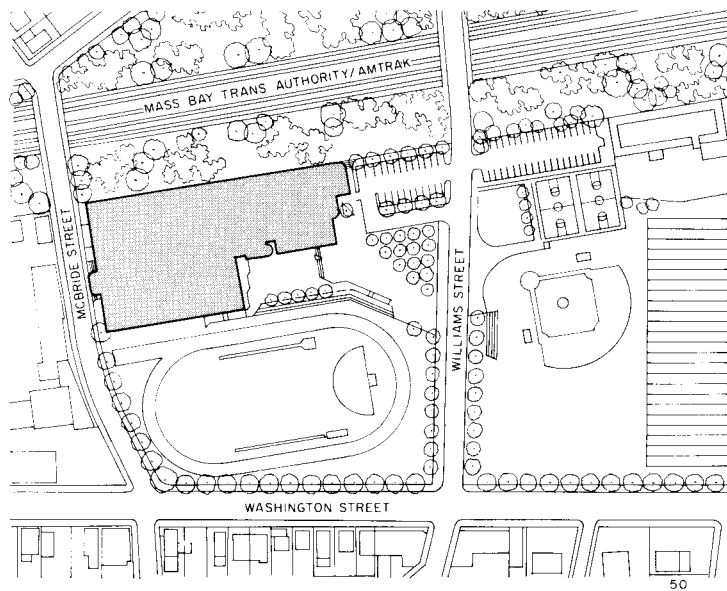
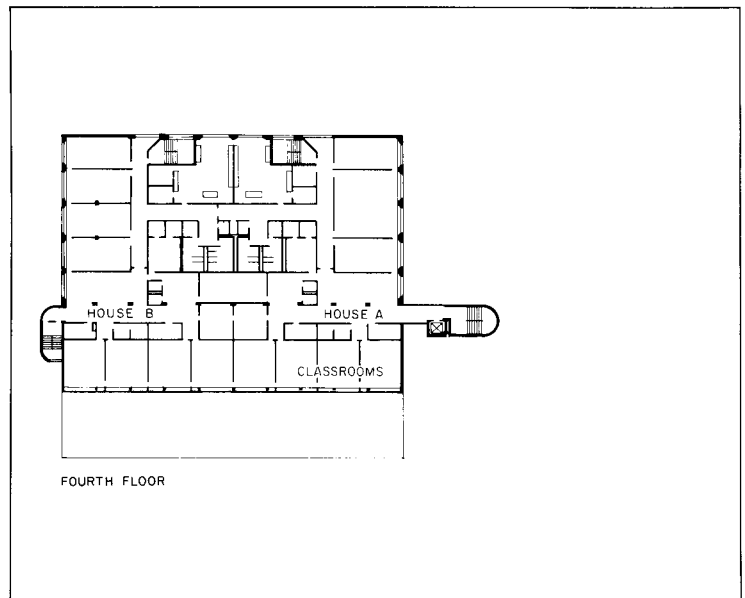
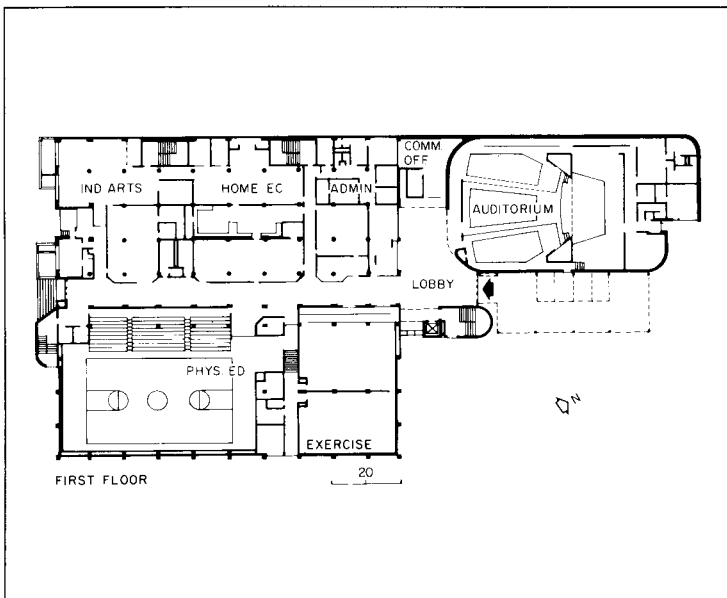
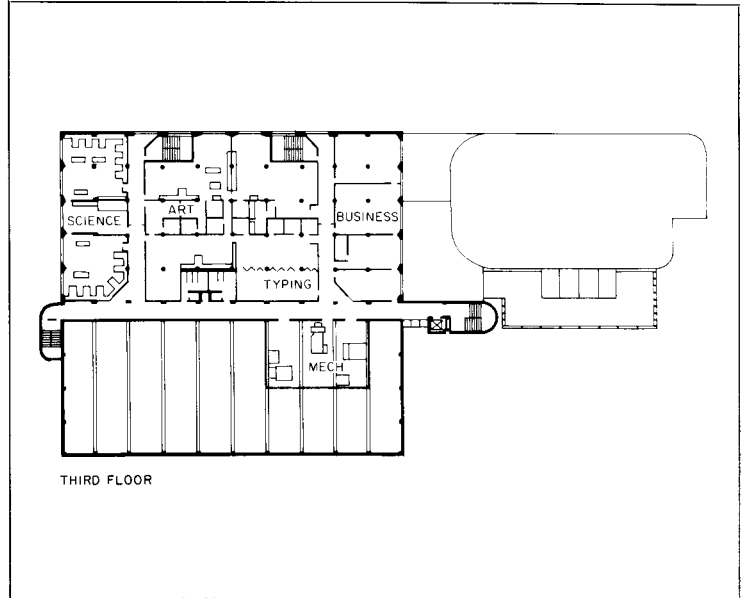
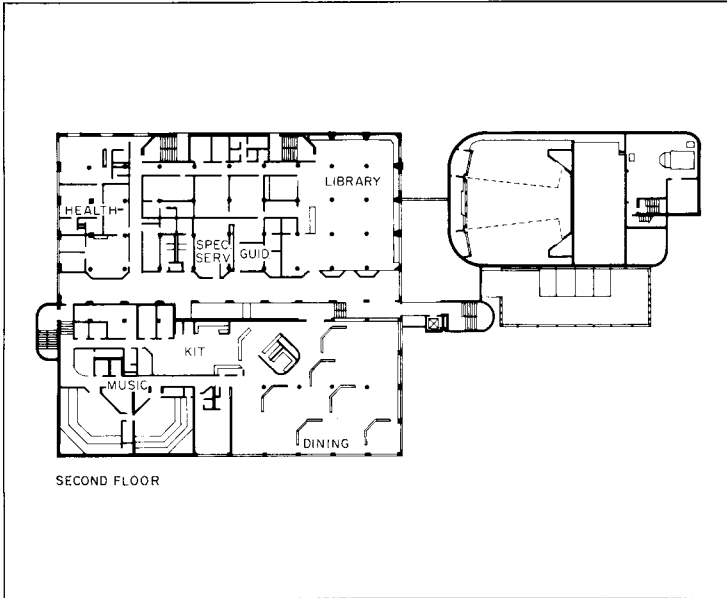
Owner:
City of Boston, Public Facilities Department

Architects:
Pierce, Pierce & Kramer, Inc. — Walter S. Pierce, principal-in-charge; Robert McNair, project architect

Engineers:
Scorziello Associates, Inc. (hvac/plumbing); Engineers Design Group, Inc. (structural); Lottero & Mason Associates, Inc. (electrical); Geotechnical Consultants, Inc. (geotechnical)

Consultants:
Malcolm Gear Designers, Inc. (graphics and murals)

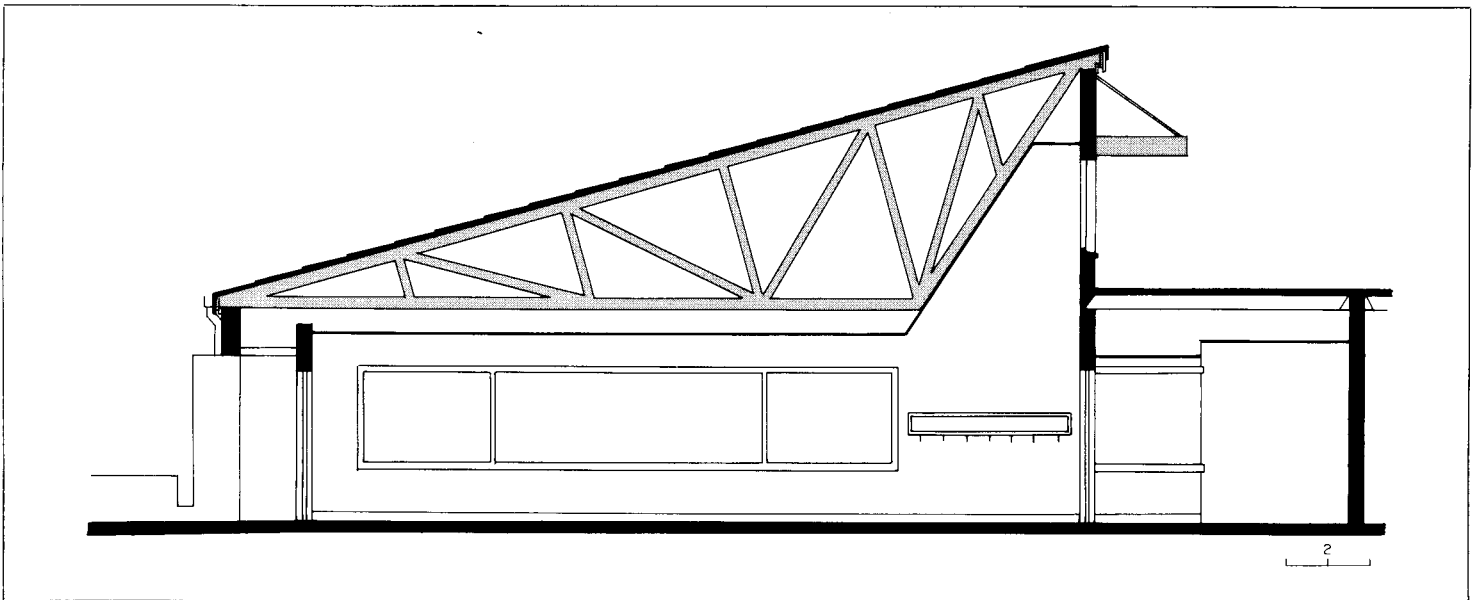
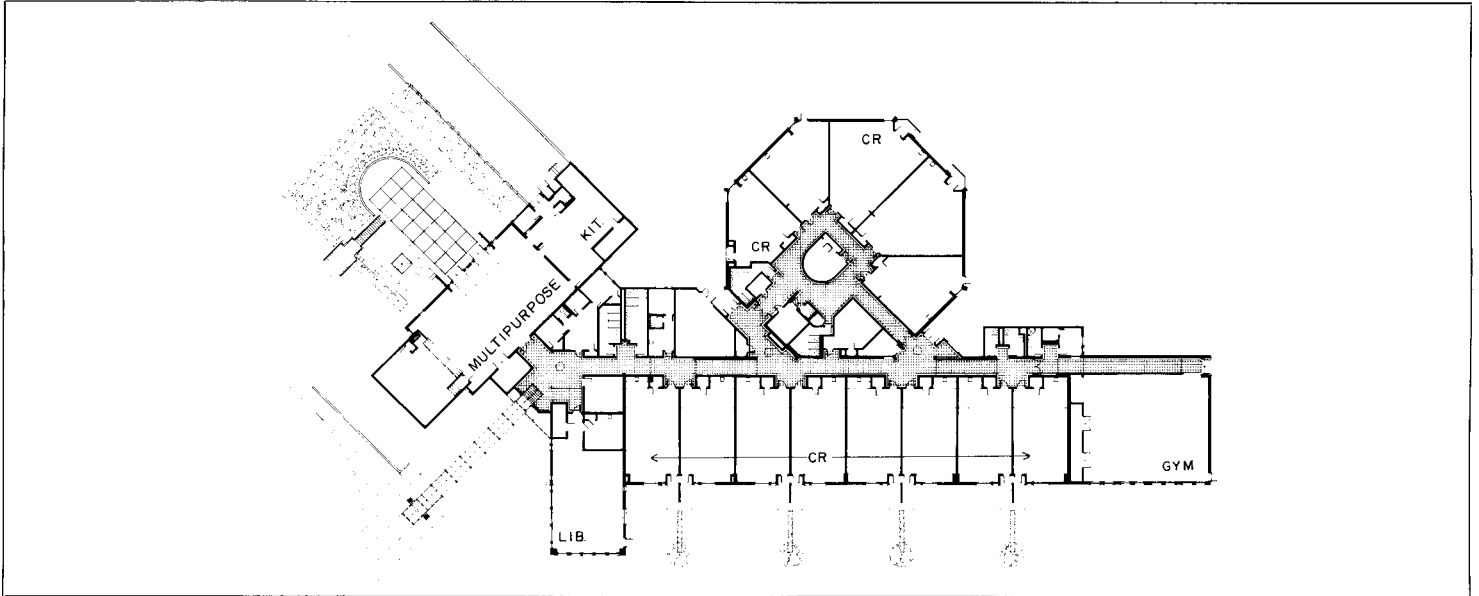
General contractor:
Wexler Construction Company, Inc.



As part of Boston's major Southwest Corridor development plan, elevated MBTA tracks that now flank the campus along Washington Street, to the east, will be combined with a sunken AMTRAK line to the west. A projected public plaza above the railroad would reinforce the school's connection with surrounding neighborhoods. Playing fields are available to the community, as are a kindergarten, programs for the aged, and adult evening classes. The fourth and

fifth stories of the warehouse have been reorganized into four academic houses, each with its own housemaster's office and commons. Shared lab and training areas occupy the third floor. Murals enliven daylighted corridors and a two-story lobby between the warehouse and a new auditorium. The garage floor was lowered eight feet to accommodate a regulation-height gym, with bleachers made from an old loading dock.

A schoolyard history, newly revised and expanded



A simple structure of concrete block with a painted acrylic coating and fabricated stamped wood trusses held building costs down to \$46 per square foot. The combination of sloped trusses and clerestories draws high southern light into classrooms, all of which face north owing to site conditions. The angled eil at the eastern end of the plan incorporates remnants of a turn-of-the-century schoolhouse.

The program for the Red Hill Elementary School contained a built-in dilemma posed by two earlier structures on the site. The first, a little red schoolhouse that had been the only community center in rural North Garden for nearly 70 years, was beloved but hazardous and cramped; the second, a 1960s octagonal "pod" was decried by teachers and parents for its unworkable open plan, which in any case failed to provide sufficient space for the present student body of 300. After budgetary restrictions ruled out every option for adapting the old brick school to meet safety and energy standards, The Vickery Partnership reluctantly decided to demolish most of the structure, salvaging whatever fragments they could integrate into their own project, such as a columnar portal emblazoned with the school's name and the stepped walls that now frame a garden court (opposite). Movable partitions subdivided the octagon into more manageable instruction areas, and new classrooms paired for team teaching were constructed on the opposite side of a "learning street" that slopes downhill toward the gym. At the eastern end of this corridor, the cafeteria/assembly hall opens directly onto the courtyard, enabling indoor and outdoor spaces to be combined for school or community functions.

Red Hill Elementary School
North Garden, Virginia

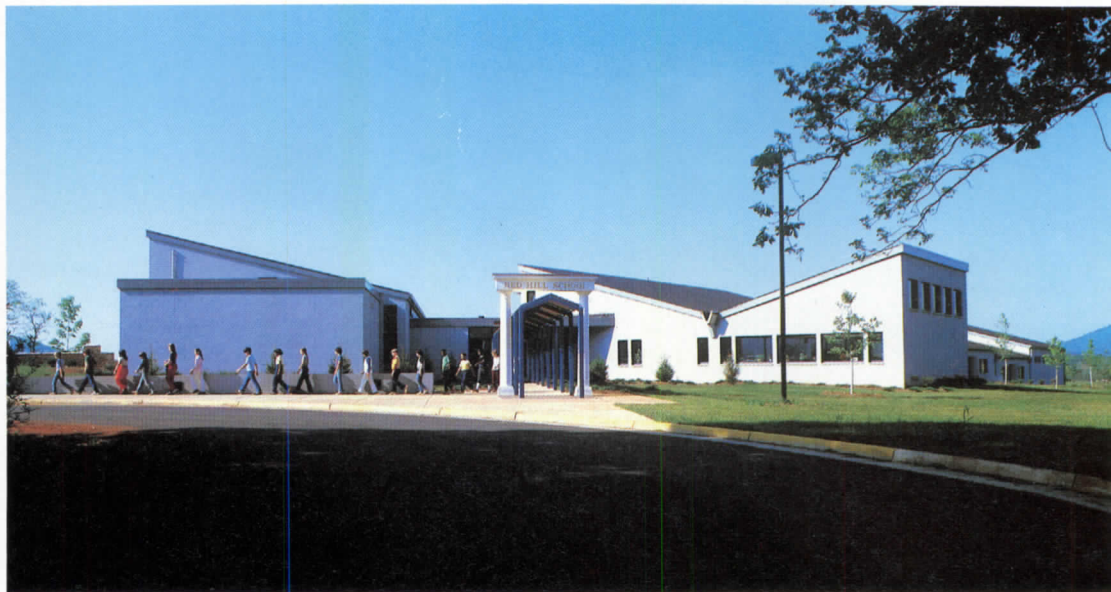
Owner:
Albemarle County School Board

Architects:
The Vickery Partnership,
Architects—Robert Vickery,
Lawson Drinkard, Robert Moje,
Olle Lundberg, Bruce Donnally,
project team

Engineers:
Harris, Norman and Giles
(structural, hvac, electrical);
Gloeckner, Lincoln and Osborne,
Inc. (civil)

General contractor:
J.E. Jamerson and Sons, Inc.

Robert Lautman photos

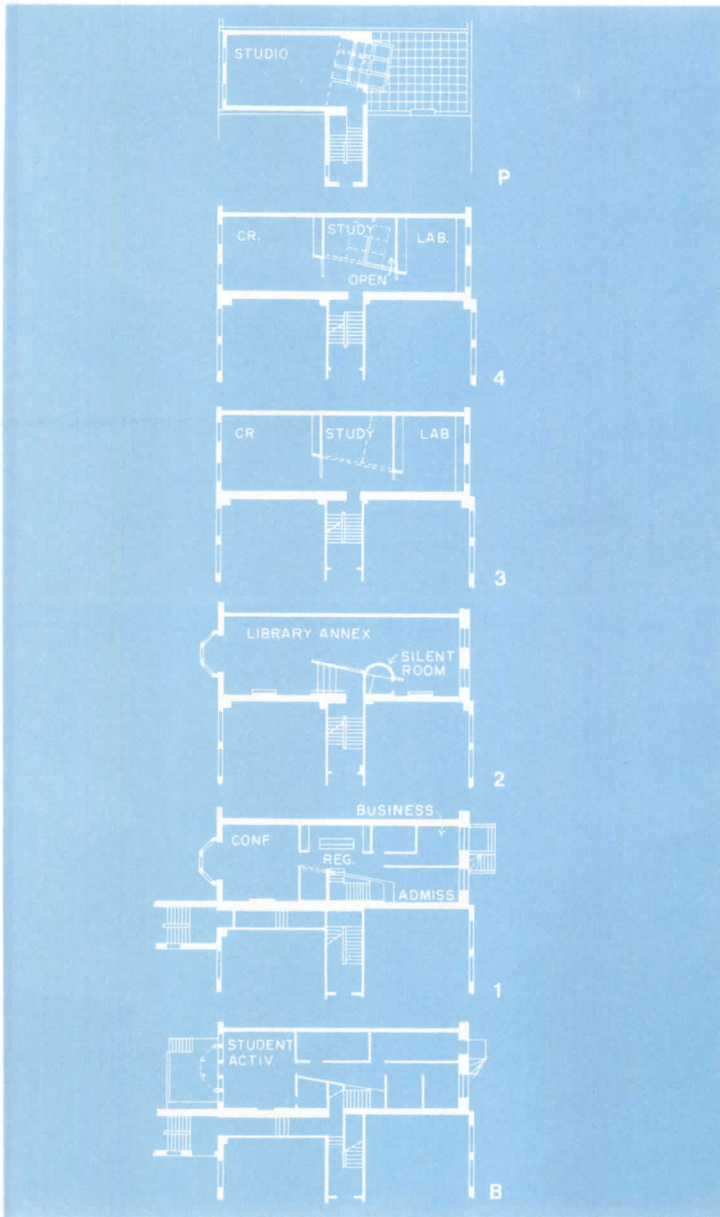


The Vickery Partnership designed plain, shedlike masses that accord with the school's bucolic setting among the foothills of the Blue Ridge. Yet the building also possesses a modicum of formality, as seemed appropriate in North Garden's only public gathering place. This air of civic dignity derives in part from axial planning, which encompasses relics from the demolished schoolhouse. A transplanted Tuscan portal outside

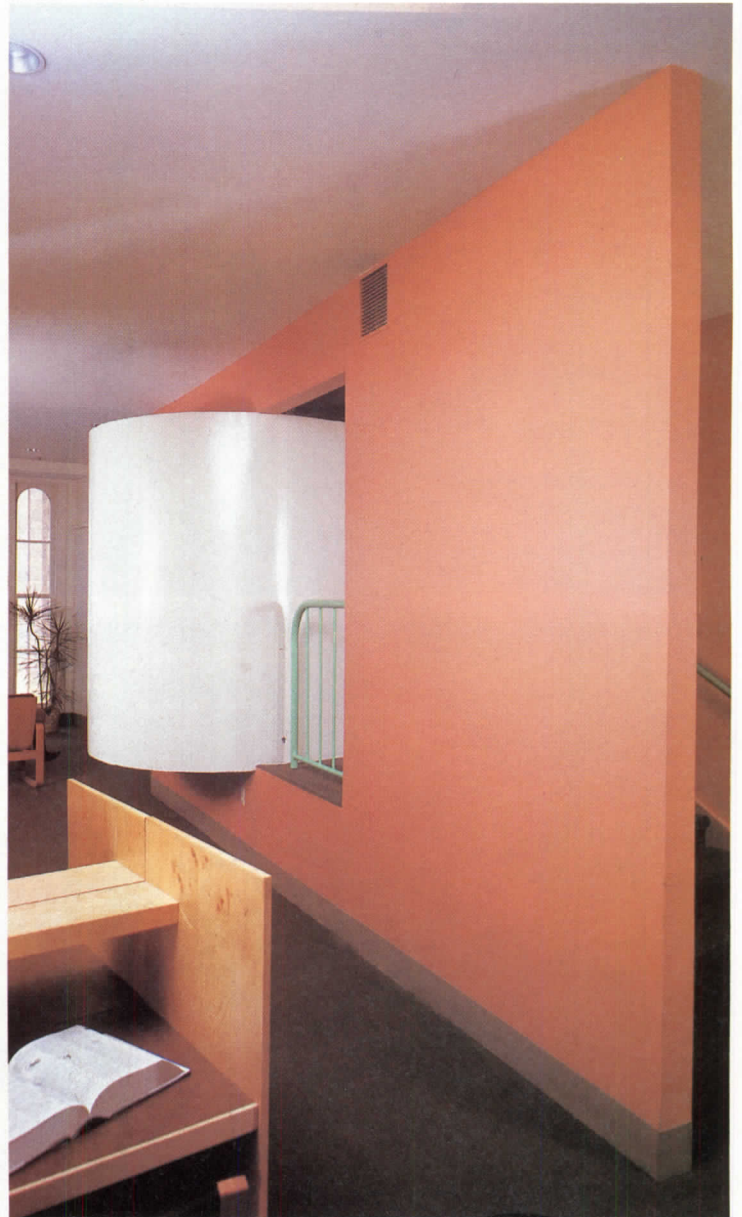
the entrance canopy (photo above) is one of the most conspicuous hand-me-downs. The architects relied primarily on color and light to modulate the building's surface texture. Chromatic effects are especially telling in the main corridor (photo left), where blue and yellow bands emphasize the stepped ceiling, oversize numerals signal classroom entrances, and domed skylights brighten major intersections. Robert Vickery

believes that the design of corridors should enhance their central role in the life of the schoolchild, who is nearly always led from place to place in a line.) Hallways can be sealed off at various points to partition the school selectively for off-hours community use. Inside the classrooms, clerestories, quarry tile floors, and coat racks differentiate heavy duty "wet areas" from carpeted "quiet areas" (upper left).

Attending to the inner light in a Manhattan brownstone



Norman McGrath photos



The brownstone remodeled as an extension to the Friends Seminary immediately adjoins the school's 1964 main building (photo right). Using exterior restoration techniques approved by the New York City Landmarks Preservation Commission, the architects replaced crumbling cast-iron window hoods with exact replicas, painted cornice and trim in historically accurate colors, and repaired the front fence.



The round windowless bay that juts into the second-story library annex of New York's Friends Seminary (photo above) is the Silent Room, a place where students can retreat to meditate in solitude. This tiny chamber is the most explicit link to the Friends' religious heritage in a 5,500-square-foot addition to the school. Tucked behind the brick facade of an 1850s town house next door to the Seminary's main building off Stuyvesant Square (photo left), the six-story project meets the changing needs of 550 pupils enrolled from kindergarten through grade 12. Although building codes and the Seminary's multi-use program necessitated that the house be gutted and reconstructed with a steel frame, the architects took pains to preserve the Anglo-Italianate front and fine period details inside. The key to efficient distribution of narrow spaces was the client's decision to seal the original entrance (for security), enabling circulation to pass through an existing stairwell next door. A new interior facade composed of diagonal partitions channels traffic from the stairway and emphasizes the interlocking of old and modern enclosures. Lowered ceilings permitted vertical expansion into a new 500-square-foot penthouse studio. A light well and interior glazing open luminous vistas from room to room.

*Friends Seminary Expansion
New York, New York*

Owner:

*New York Quarterly Meeting of the
Religious Society of Friends*

Architects:

*Norman Rosenfeld, AIA
Architects—Norman Rosenfeld,
AIA, partner-in-charge; Peter J.
Blaufeux, AIA, project principal;*

*Robin Guenther, R.A., design
associate; Robert Iamello,
construction supervisor*

Engineers:

*Harwood & Gould (structural);
Meyers & Locker (mechanical/
electrical)*

Consultant:

Howard Brandston (lighting)

General contractor:

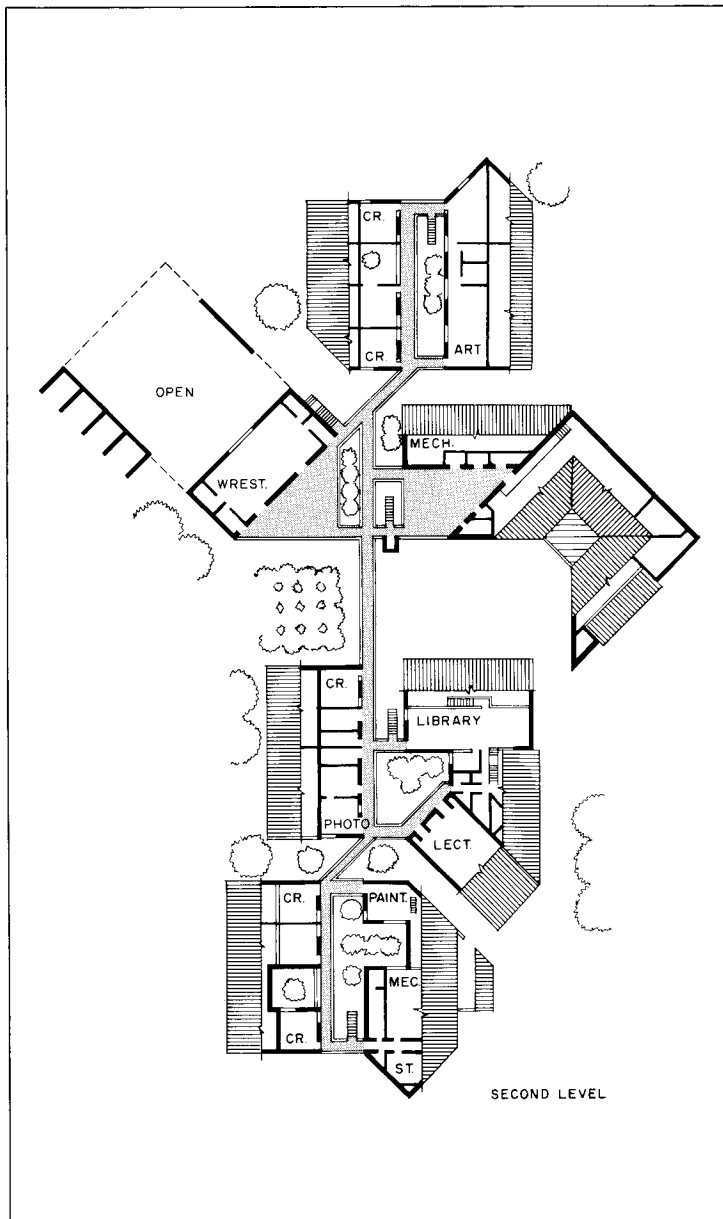
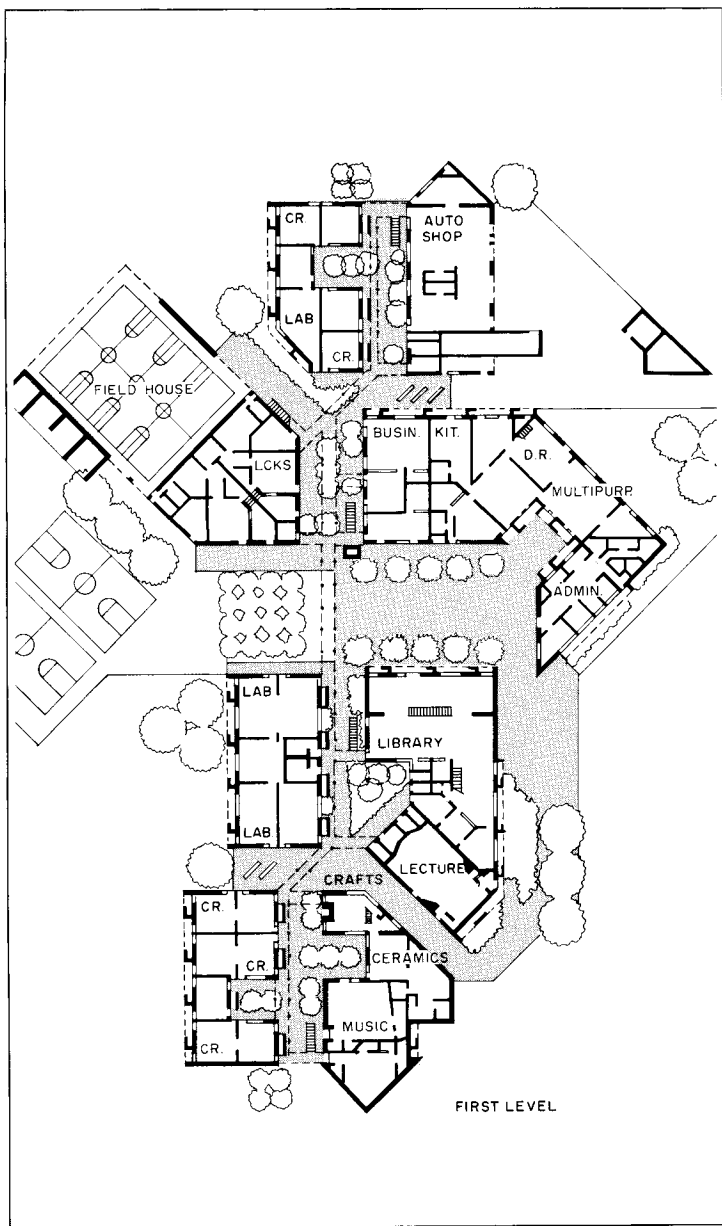
Koren-DiResta



One enters the new extension from an existing stairwell next door, mounting a short flight of steps that recalls a brownstone stoop (photo above). At the client's request, pastel colors in the main school building were carried over into the addition. In windowless study areas at the center of the narrow row house layout, a combination of direct and indirect lighting supplements natural illumination from a skylight (above left). The

interweaving of antique and modern is most pronounced in the library annex, where Norman Rosenfeld has juxtaposed the sculptural abstraction of a diagonal wall and the curved Silent Room (opposite above) with delicate Victorian ornament and a refurbished polygonal oriel. The mantelpiece, moldings, corbels, and sconces were all removed for restoration before interior construction began.

A high school takes to the open air



Loosely connected program spaces allow for future conversion to three academic houses of 400 students each. To this end, Perkins & Will distributed classrooms equally among the three principal sectors of the plan. Laboratories and specialized training areas would continue in common use.

If the good life, California style, can be achieved by careful planning, Woodbridge High School is an excellent place to begin learning how. Woodbridge is a four-year-old village within the City of Irvine, south of Los Angeles, and the 1,200-student high school is only one component of a master plan for educational and recreational centers formulated jointly by architects Perkins & Will, the school district, the city, and the Irvine Company, developers. In addition to a 96,000-square-foot cluster of buildings, the high school's amenities include 20 acres of athletic fields, parks, trails, and gardens designated for shared community use. Should Woodbridge continue to grow to its maximum projected population of 27,000, the high school would expand to other locations along the village's central Activity Corridor bordering San Diego Creek. Built in the Spanish-derived vernacular that dominates local development housing, the school could be described as a *hacienda* for learning. A tree-lined *alameda*, or promenade, and a network of wooden bridges and balconies link one- and two-story stucco pavilions. Owing to the mild Southern California climate, an open plaza serves as an assembly hall and dining area, with tables placed in the shade of a south-facing eucalyptus arbor.

Woodbridge High School
Irvine, California

Owner:
Irvine United School District

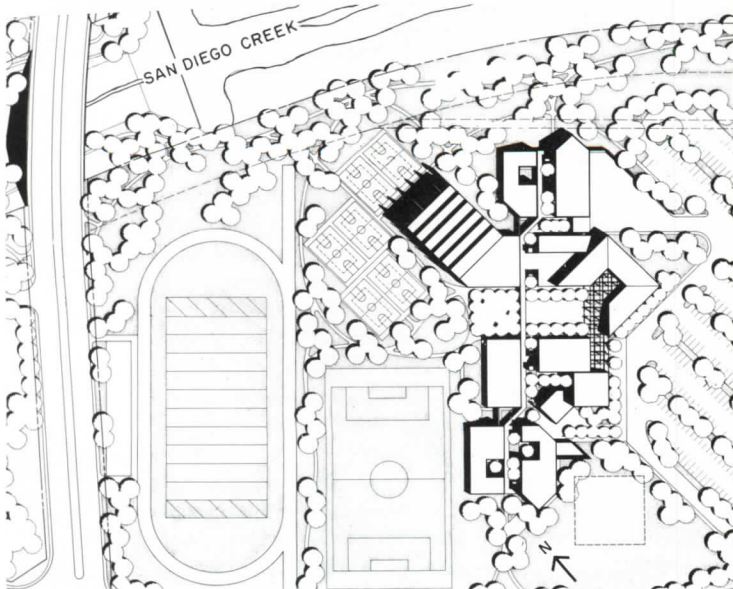
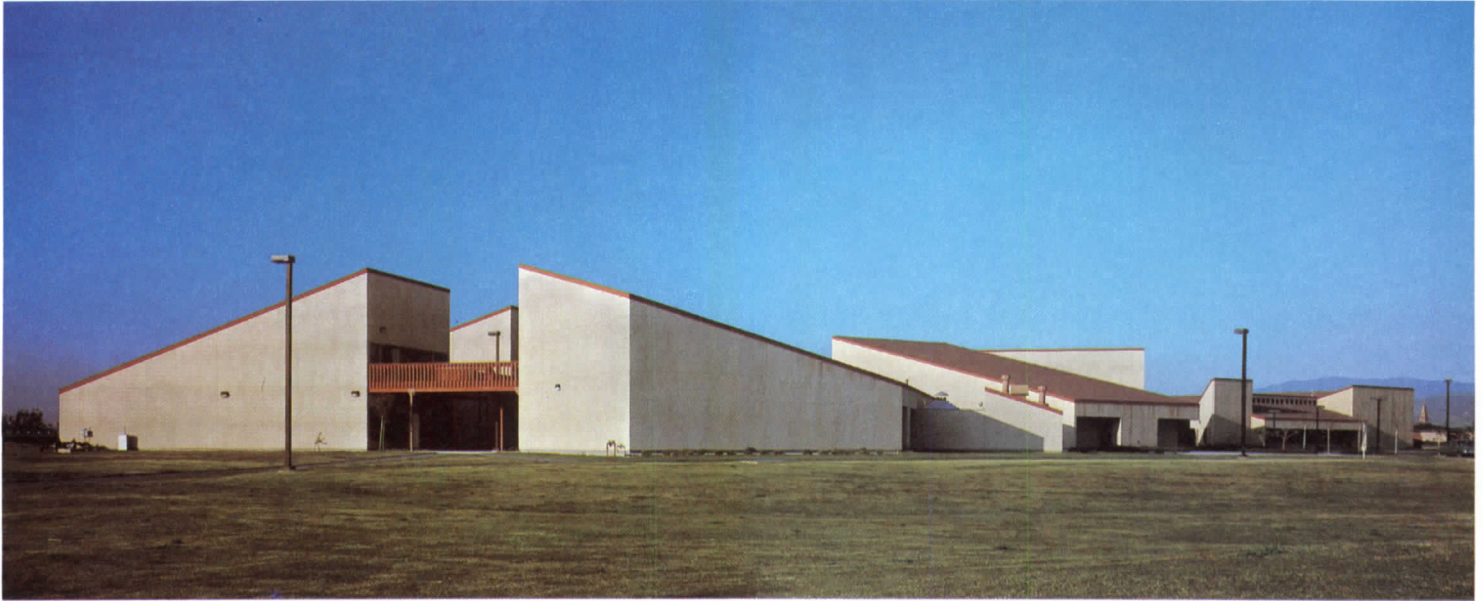
Architects:
The Perkins & Will Group, Inc.—
C. William Brubaker, officer-in-charge; James Allen, vice president;
Louis Garapolo, project manager

Engineers:
Martin & Tranbarger (structural);
Nac & Sunderland (mechanical);
Frederick Brown Associates
(electrical)

Consultants:
Harrison/Lorenzini Architects
(local field observation services)

General contractor:
Fisher/CM

Hedrich-Blessing photos



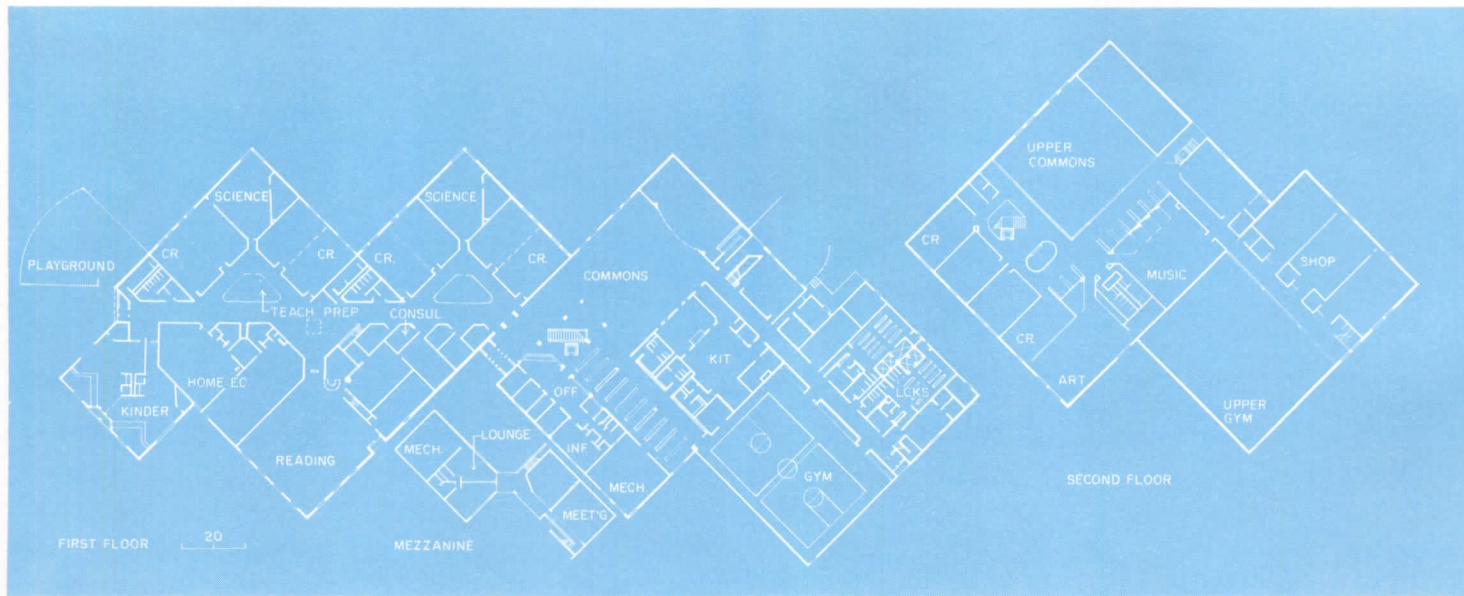
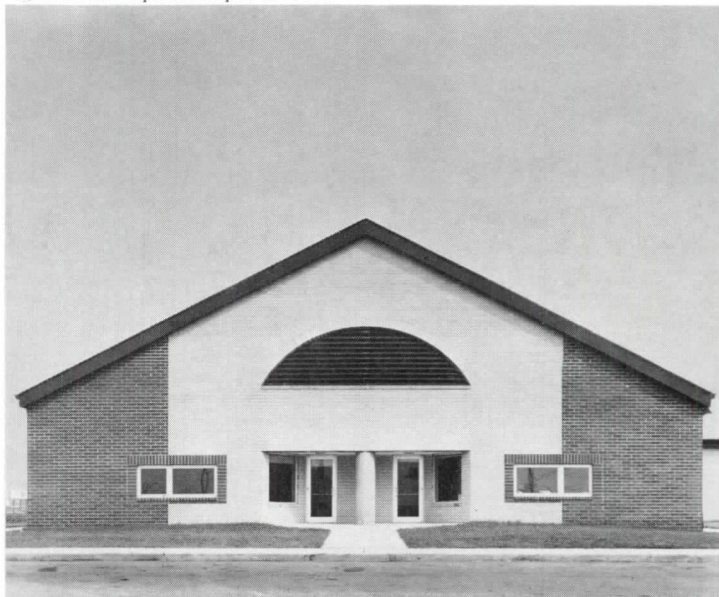
In keeping with local domestic architecture, predominant finishes are light-colored stucco and dark wood. An exposed timber structure—specified for earthquake resistance—articulates interior spaces. Exterior walkways and patios permit informal indoor/outdoor instruction, minimizing air conditioning needs. Many windows are operable, and deep eaves and setbacks cast generous shade.

Classrooms on Main Street

Wilbur Montgomery



©Balthazar Korab photos except where noted



The steel-frame structure has reinforced-cavity masonry walls and pitched bar joists. Peaked roofs enabled Evans Woollen to add second-story spaces where multi-level use seemed appropriate. The op art effect of striped roofs is especially striking when seen from bridges over the White River or from the elevated interstate beyond the athletic field.

From the bus line in front of the Thomas A. Edison School, children survey a panorama of West Indianapolis landmarks: the graceful arches of bridges spanning the White River, the flat-roofed box of a Chevrolet plant, and the modest houses of blue-collar workers. Even though the logistics of accommodating 700 students (in an unusual though necessary conjunction of kindergarten and seventh and eighth grades) meant that the project would come closer in size to the car factory than to the houses, architect Evans Woollen strove to evoke a sense of domestic scale. To that end, he massed the school as a series of pitch-roofed pavilions whose gabled facades recall childrens' drawings of home or the stylized villas of Robert Venturi. Contrasting panels of dark and light jumbo bricks further reduce the building's apparent dimensions, as do boldly striped carpets inside. Repeated arches echo the silhouette of the neighboring bridges, and orientation to river views accounts for the staggered layout of classrooms and assembly areas along the zigzag "main street." The linear plan also successfully isolates the kindergarten (photo above) and its playground from the adolescent realm down the hall. The project was completed last year at a cost of \$63 per square foot.

Thomas A. Edison School 47
Indianapolis, Indiana

Owner:
Indianapolis Public Schools

Architects:
Woollen Associates—Evans
Woollen, design; Thomas J. Weigel,
associate-in-charge; Carlyle C.
Schroeder, job captain

Engineers:
Fink, Roberts & Petrie, Inc.
(structural); Rotz Engineers Inc.
(mechanical/electrical)

Consultant:
Sherman Robinson, Inc. (food
facilities)

General contractor:
Glenroy Construction
Company, Inc.

Wilbur Montgomery



Energy considerations and the client's desire to minimize vandalism account for limited areas of glazing. Woollen grouped small aluminum-framed windows into larger aggregates to compose strong elevations. The unifying motif of arched openings appears on the kindergarten facade (opposite right), the main entrance front (top left), and the gymnasium gable (top right). The same form recurs in the proscenium of the cafeteria/assembly hall (lower

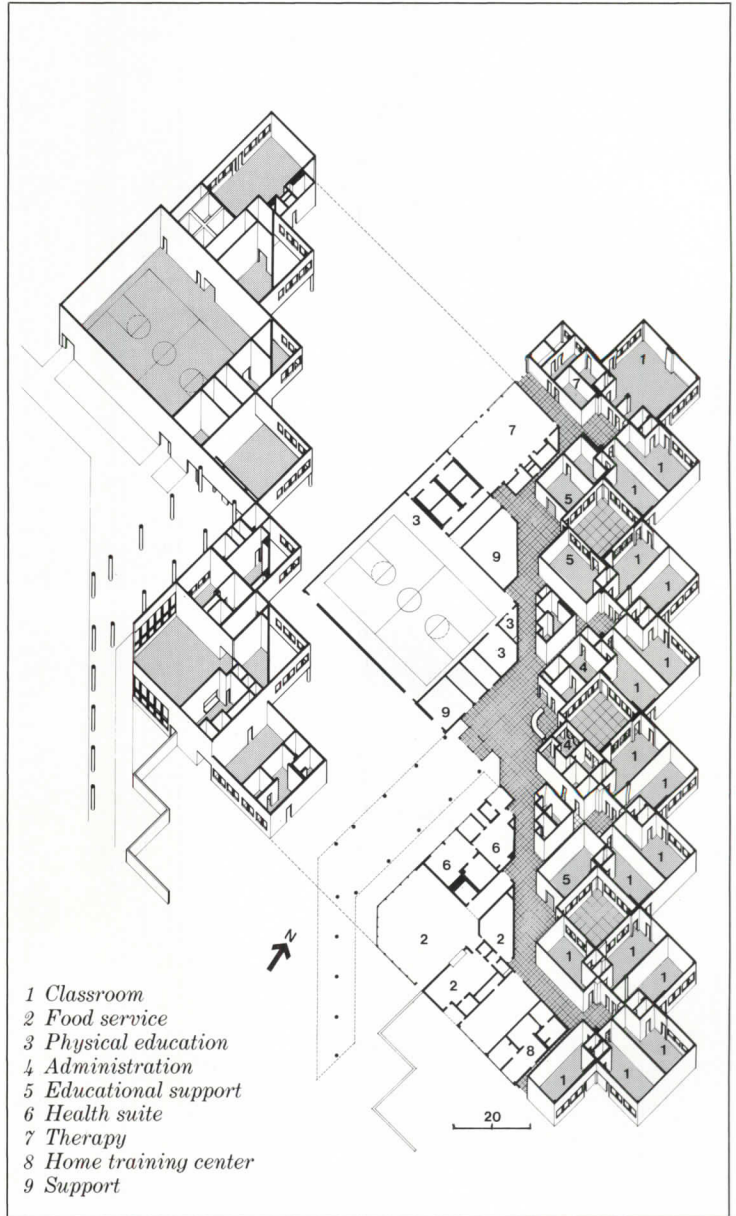
right), where it playfully suggests a band shell or a cartoon mouse hole. An adjacent terrace for outdoor dining overlooks the arches of two bridges and the site of the proposed White River Park. There is already a festive touch of the midway in the striped carpets and multicolored ductwork of school corridors (above). Triangular glass-block kiosks in the hall are teachers' preparation rooms.

Hands-on design for the handicapped

© Otto Baitz photos



The Bleshman School is one of the first ever designed specifically for the multiple-handicapped rather than adapted from conventional facilities. Public bond issues funded the \$3-million project, a concrete block structure with an insulating layer of rigid styrene and a synthetic plaster finish. The entry porch (above), open courtyards, and nature paths extend school activities outdoors.



Before starting to design a regional day school for multiple-handicapped children, architect Edward Rothe and his project team set off in wheelchairs to explore the everyday world of their ultimate clients. This pragmatic child's-eye approach to detail is apparent throughout the school, as is a sensitive understanding of the needs of concerned parents. The sawtooth plan of the 45,000-square-foot building—four cruciform clusters joined along a diagonal circulation spine—opens teaching areas to daylight and views, and creates a series of triangular alcoves where adult visitors can discreetly observe classes in session. Since the 144 children enrolled here range in age from two to 20, therapeutic, academic, and vocational-training facilities must be extremely flexible. Staff requested, however, that the dining room and gym not be combined in one multi-use space, to acknowledge the special importance of instruction in eating skills. The school's Home Training Center is a full-scale barrier-free apartment where students learn to care for themselves. (By installing only commercially available appliances, Rothe-Johnson designed a prototype that parents can duplicate at home.) "Ice cream" colors reflect a studious avoidance of finishes that handicapped youngsters associate with institutions.

Norman A. Bleshman
Regional Day School
Paramus, New Jersey

Owner:
State of New Jersey, Department of
Education

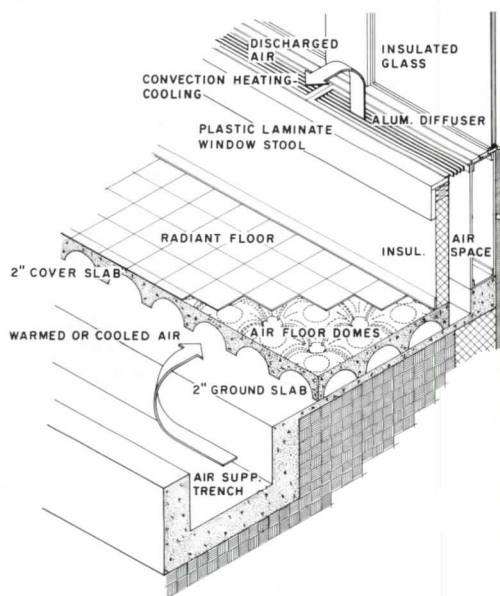
Architects:
Rothe-Johnson Associates—Edward
N. Rothe, partner-in-charge; Joseph
M. Sterba, project associate;
Thomas A. Fantacone, project
designer; J. Michael King, Donald

E. Giambastiani, Joseph Stern,
project team

Engineers:
Herbert A. Wiener, P.A.
(structural); Leslie S. Sterling, P.A.
(mechanical/electrical)

Consultants:
Lighting Design Collaborative
(lighting)

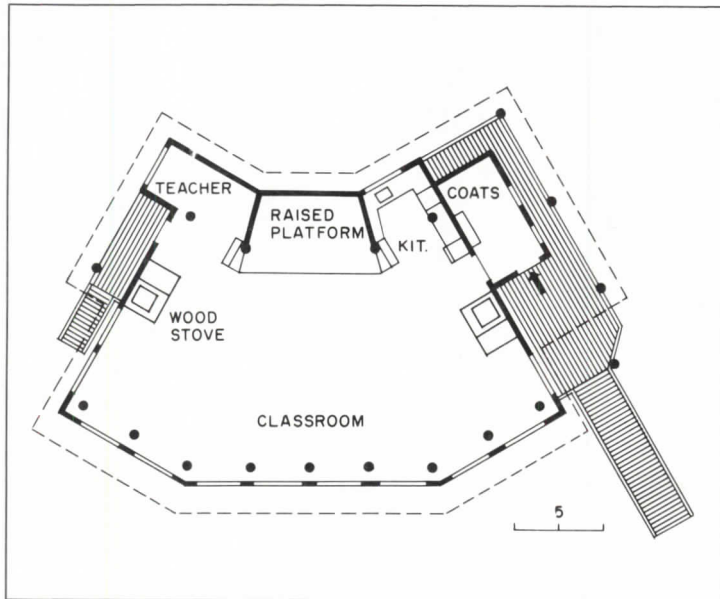
General contractor:
Mahieu Construction Co.



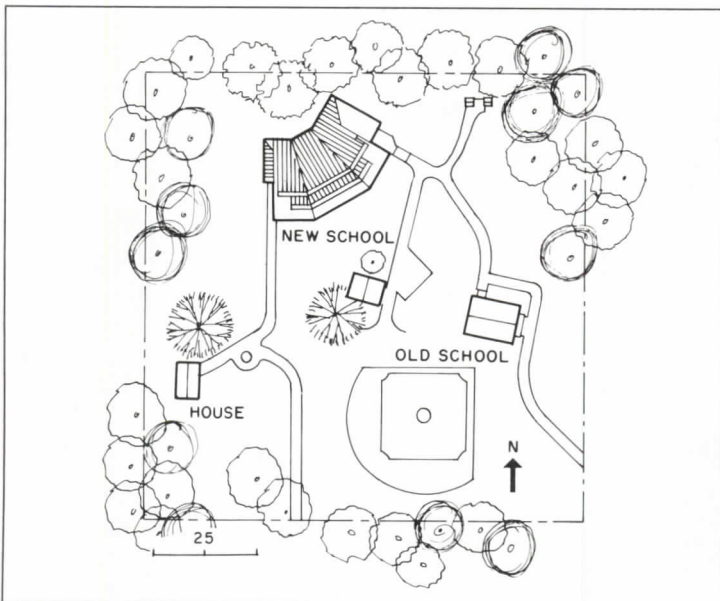
Every classroom has a radiant floor, since this is where handicapped children spend much of their time. Roof-top electric heat pumps supply warm air into cavities below a sanitary vinyl surface. In the 244-foot-long main corridor (above left), diagonal intersections minimize risky 90-degree turns in motorized wheelchairs. Color coding helps students find their way. Kickplate-fitted doors are 36 inches wide to

handle wheelchair passage, and open with only two pounds of pressure (rather than the usual five). Minimum-pressure light switches are 48 inches from the floor, counters are four inches below standard height, and mirrors (a basic aid for speech therapy and lessons in eating) tilt down to face wheelchair riders. The skylighted lobby (above right) is a comfortable place for staff to orient visiting parents.

The durable charm of the one-room schoolhouse



©Gary Vannest photos



Northernmost of the American San Juans, a group of islands off the coast of Washington, Stuart Island has no ferry service, power lines, or telephones, and the children of the 60 year-round residents walk to school along forest paths. When the total population of young scholars swelled to 12 in the late '70s, it became clear that the existing public school, a white clapboard structure built in 1901, was no longer adequate. Residents petitioned successfully for state funds to erect a 1,000-square-foot classroom facility, but balked when the regional school district proposed barging in trailer modules for that purpose. Unswayed by appeals to economic expediency, the islanders insisted that the new school must harmonize with its woodland setting. Architects Larsen Lagerquist Morris, a young Seattle firm, resolved the controversy with their design for a shingled building of wood posts, light timber trusses and painted metal roof—suitably rustic and well within the budget at a cost of \$45 per square foot. The fan-shaped plan lends itself to alternate use as classroom, theater, or meeting hall, while maximizing solar gain through south-facing windows and a double clerestory. This daylighting won special praise from Stuart Islanders, who consider the noise of power generators a public nuisance.

Stuart Island School
 Stuart Island, Washington
Owner:
 San Juan Island School District
Architects:
 Larsen Lagerquist Morris, AIA—
 Gordon Lagerquist, partner-in-charge
Engineer:
 John Klima
General contractor:
 Oleson Construction Company



Some of the older families on Stuart Island have been there nearly a hundred years, and they and their neighbors scorn needless change. Larsen Lagerquist Morris gave them a new school that immediately looked as though it too had been on the island for a long time. The decorative band of red cedar shingles (opposite below) recalls 19th-century motifs, but is in fact a pattern invented by the architects (Gordon Lagerquist and his wife

Audrey donated hours of their time to cut the ornamental shingles on a band saw). Iron-frame desks come from the old white schoolhouse (photo left—now used for extra activity space), and sash were salvaged from another school in the San Juans. Interior paneling is pine, floors are oak. The raised platform provides a stage, a rostrum for town meetings, and a bandstand for hoedowns.

The Currier Gallery of Art Expansion
Manchester, New Hampshire
Hardy Holzman Pfeiffer Associates, Architects

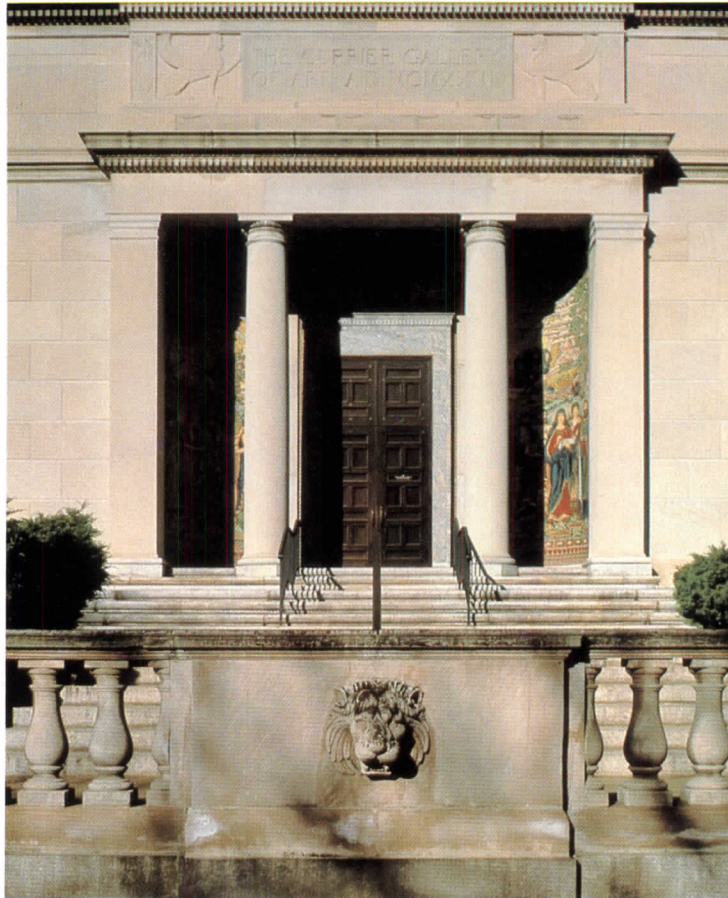


Inventing a sixth order to honor a Beaux Arts building



The entrance (opposite) was formerly the single point of public access to the Currier Gallery of Art. This elegant Beaux Arts loggia can be reached only by foot through a lovely Renaissance garden with terraces and a reflecting pool. HHPA's addition consists of two new wings and a second principal entrance, this one facing a courtyard accommodating automobile and handicapped access (photo preceding page). The proportions of other openings (below) and the new entrance relate harmoniously to the older entrance. HHPA's use of classical language, however, is not merely deferential to the Beaux Arts style of the original building. The architects have gone directly to a richer source, back to the grammar of the Renaissance and have used the so-called Venetian window motif for their new doorway (preceding page and cover)—the narrow-wide-narrow intercolumniation trabeated on either side with an arch in the middle.

©Nick Wheeler



Cervin Robinson photos except as noted

Expanding an eclectic art gallery for a new era of use

The Currier Gallery of Art in Manchester, New Hampshire, opened to the public in 1929 in a Beaux Arts building designed by the New York firm of Tilton and Githins. The principal designer was Edward L. Tilton, who created a delicate and pretty classical structure described as a "little gallery on a grand scale." Its collection of European and American painting, sculpture, furniture and crafts spans from the 13th to the 20th centuries and is noted for quality rather than size. Fortunately for Tilton's Beaux Arts building, the Currier chose to expand in today's climate of architectural pluralism and selected a firm of skilled eclectics, Hardy Holzman Pfeiffer Associates, to design their addition. The classical language of architecture, censored for so long, is once again in fashion and is indeed the very latest source of architectural inspiration. Hugh Hardy, Malcolm Holzman and Norman Pfeiffer, knowing that they could now add classically to a classic building without risking ridicule, have made the most of their opportunity. They have exercised admirable restraint, however, by choosing canonic over free-style classicism. In other words, they decided not to break the rules of classical order by extreme distortions of scale, by use of classical forms as positive or negative cutouts, by the construction of the forms in nonclassical high-tech materials, or other means. Admittedly the canon the architects are respecting for the Currier is one of their own invention. They turned backward to the 16th century and the work of Bramante, Palladio, Raphael and Vasari, studied the arched and trabeated three-part intercolumnations of the classical orders of that period and then designed their own order in modest brick to serve the practical needs of the addition and the esthetic of Tilton's building. In the text which follows, Hugh Hardy has chosen to tell how the firm met these requirements, rather than to discuss why they chose their own version of canonical classicism over free-style. I think the answer to that question is manifest in the result. Paradoxically this beautiful little museum addition which is neither an academically correct exercise in revivalism, nor a deliberate avant-garde production, seems to be something really new. Mildred F. Schmertz

By Hugh Hardy, FAIA

The Currier Gallery of Art project extends an eclectic building into a new era of use. This small museum represents a microcosm of the problems encountered in museum expansion and renovation. In the new addition, key elements of circulation, natural light, and the masonry tradition have been addressed in ways which attempt to complement the existing architecture. But because contemporary considerations required creation of a new "front door" to another architect's building, it also presented a challenge beyond that of adding a "wing."

The present building is the third designed for the Currier. The first, by Ralph Adams Cram, was prepared in Spanish style and rejected in 1922 by the trustees as inappropriate for New Hampshire. A second was proposed by R. Clipston Sturgis and rejected in 1924. Because Edward L. Tilton's Manchester Library, done in the Beaux-Arts style, pleased everyone in town as soon as it was completed, he was given the commission to design the Currier. By comparison with Tilton's library, the exterior of the Currier is almost chaste—with the exception of a resplendent mosaic at the front door.

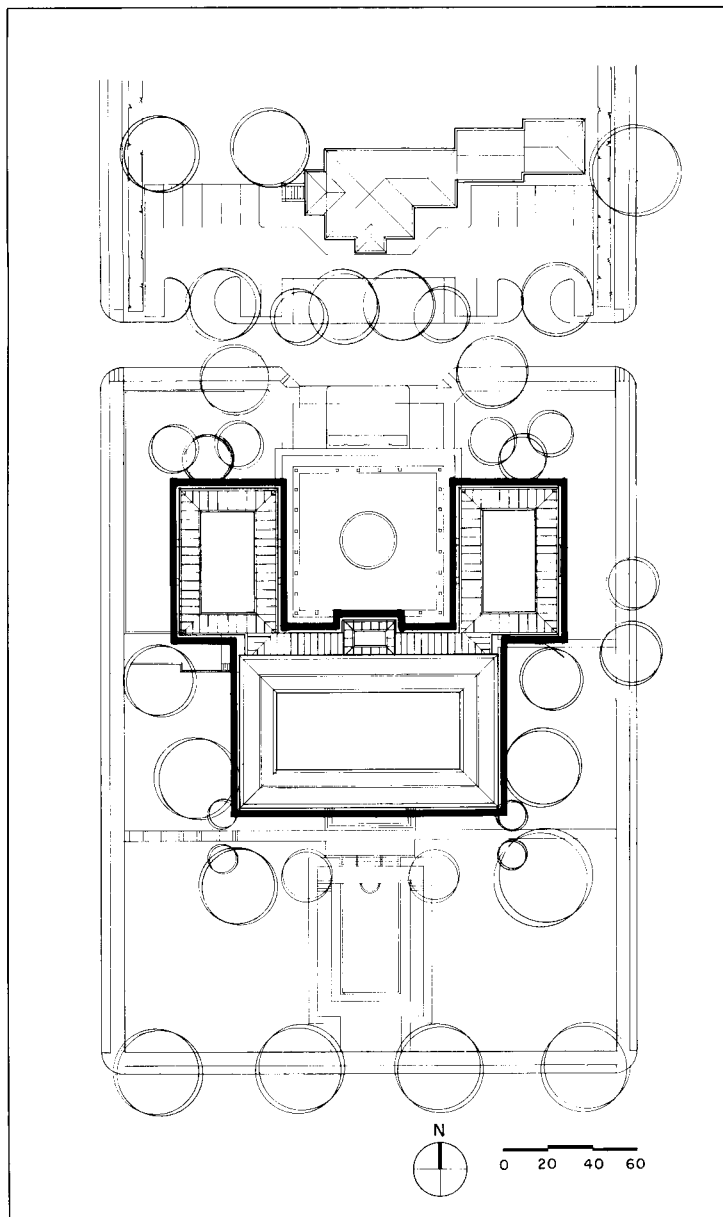
At the same time it cannot be said that Tilton's building is great or distinguished. His architecture is both too tentative and too obvious to offer a sense of discovery or wonder. Nonetheless, the Currier has a particularly American straightforward eclecticism. Besides, it is *there*, and has been "The Currier" for two generations. The need to provide new gallery space and a new entranceway for the handicapped to bypass the original monumental stairs might have dictated abandonment of the original entrance. But such an evisceration would deprive the public of a fine landscape, a special spatial sequence, and the cultural memory of over 50 years' use.

While the Currier's basic community and purpose remain essentially the same, this new building program was generated by three contemporary needs: new gallery space for special exhibitions to permit existing galleries to be used for permanent collections; expanded administration and storage space; wheeled access to all levels of the building. The residential neighborhood of the Currier establishes each building in its setting. The gallery is situated amid a formal composition of symmetrical planting, reflecting pool and lawns. It is clearly not a house, but its two-story volume and generous fenestration make it a comfortable neighbor to planted streets set with houses. The requirement to expand gallery and support space, as well as the need to offer wheeled access to the center of the museum, produced an extension which follows Italian precedent but freely interprets—as does the original building—this cultural legacy.

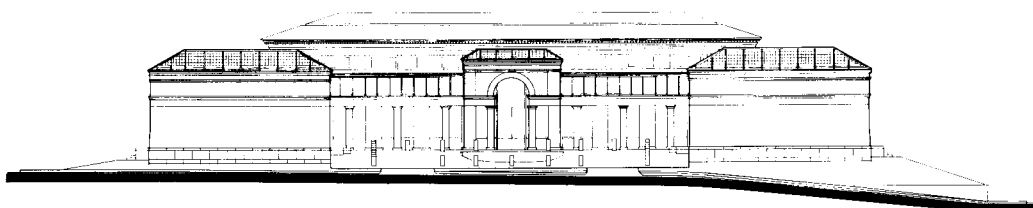
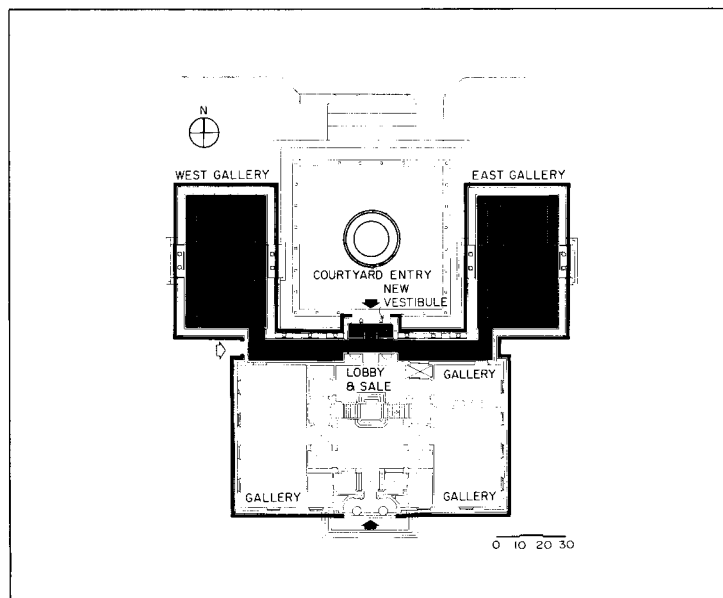
Although the sloping site could have been used to generate a more dynamic result, such an approach would cause conflicts in architectural style not justified by the Currier's need. Any asymmetrical plan seemed even more inappropriate to Tilton's classical building. We therefore found no call for rejection of the past—instead we sought to extend and enhance existing activities for the future in a classical manner.

The use of masonry as load-bearing structure runs counter to modern architecture's "freedom." Yet for a building which needs large wall surfaces for display, why not take advantage of masonry's ability to bear its own weight? The original building is limestone detailed in the flat linear style of the late twenties (a manner too costly for the present). Rather than introduce a new vocabulary in so small an addition, we elected to continue the masonry tradition of the original building. In Manchester all major public buildings are built or clad with masonry and, however diverse architecturally, speak with a certain

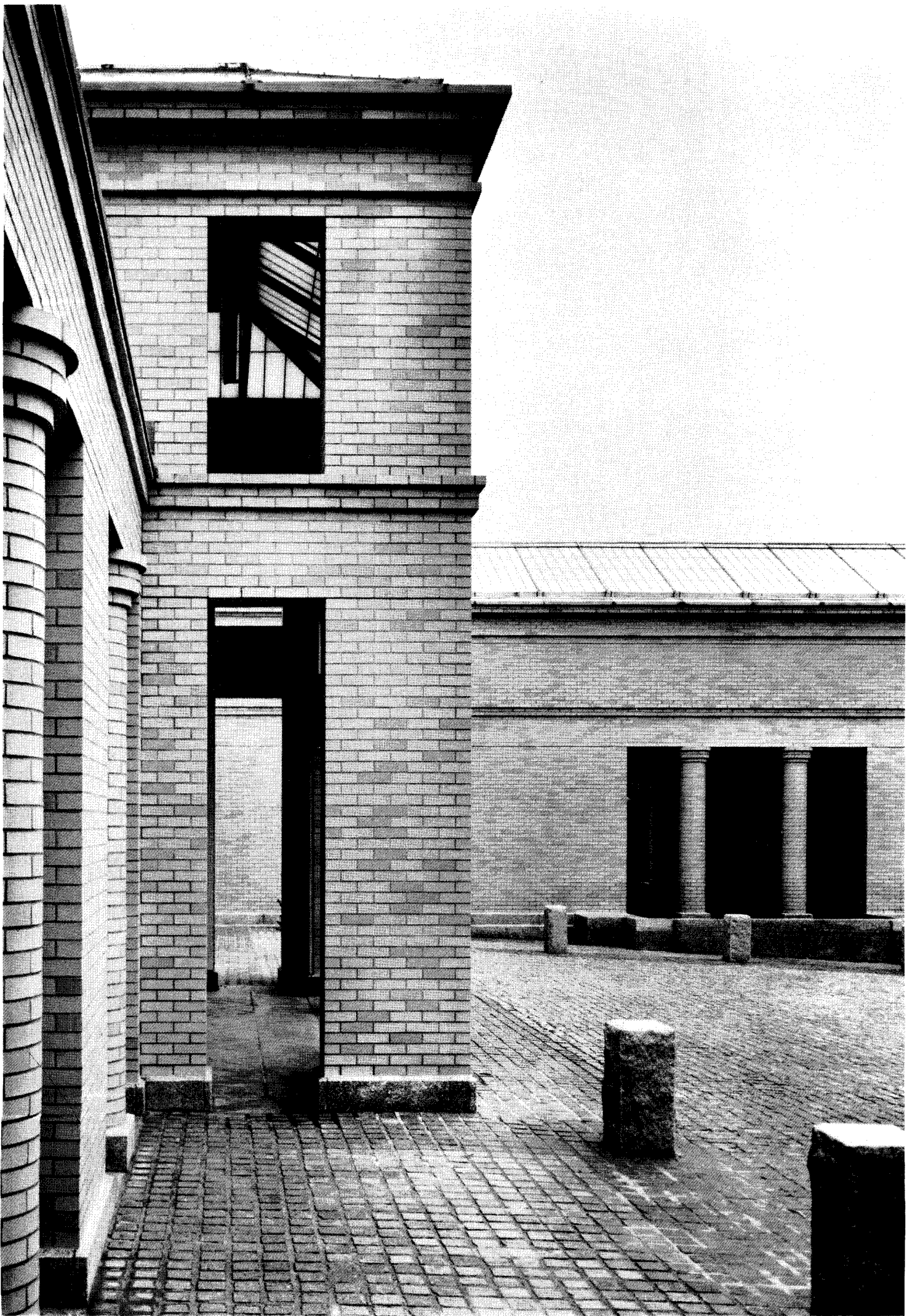
Continued on page 110



HHPA strongly advocates the use of natural light in art galleries. Kalwall skylights (below) on opposite sides of the long axis of each gallery provide ultraviolet filtered, sumptuous daylight. The length of each new gallery wing matches the width of the original building. Their over-all proportions meet the desire of the Currier's director Robert Doty to be able to display large works of art. The height of the galleries is controlled by cornice and roof peak alignments between the older building and the addition. The curved soffit and edge molding in the galleries is similar to those found in turn-of-the-century art galleries and partially conceal the skylights from direct view. The soffit also reduces the perceived height of the room, giving it an elegant proportion. The deep-slotted fins below the truss level allow display panels to be attached at any point along their length. The paintings are by Neil Welliver.









Classical buildings in the past were usually constructed of stone or wood and were often stuccoed. The addition to the Carrier (opposite page) is surfaced in light beige brick, columns and their capitals match, and the whole is set upon a granite base similar to the granite foundation of the original building. The granite plaza surface is made up of gray setts banded by wide strips in a subtly contrasting rose color. HHPA's facades suggest a vestigial Doric Order (maybe Tuscan?), thought through in brick. The new addition seems to hold in

balance a reverence for the antique with a passion to create something new. Within the canons of classicism, Tuscan and Doric are the two most primitive orders. As reinvented by HHPA in brick they appear to belong to the dawn of classicism, sturdy beginnings, long predating Tilton's Beaux Arts elaborations. The paired consoles (above) and their window heads are all that are now visible of the windows on the north face of the original building. The openings have become doorways to basement facilities. These handsome limestone carvings can be examined up close from the basement corridor.

appropriateness to the Granite State. Granite would therefore seem a natural choice for the Currier's expansion. Its strength, bulk and mass, however, would be far too assertive a neighbor for Tilton's gentle structure—unless sliced and polished to imitate glass. We decided upon brick, an economical and flexible choice. With the exception of the brick used in columns and cornice blocks, we chose to avoid the manufacture of specially molded shapes. All other profiles recall classical architecture but use rectilinear abstractions. The building clearly remembers Italy—but not at the expense of asserting its own place in time.

Unlike some contemporary museum projects which add only gallery or support space, the Currier also required a new front door. Contemporary architecture has been remarkably reticent about identifying where to enter. By contrast with the rich and ceremonial celebrations of the past, many modern buildings present either a confusion of multiple entries identified by graphics, or an endless colonnade, or fancy custom hardware. There is generous precedent in Italian architecture for wheeled access to the front door. The solution for the Currier is intended to be a composition as clear about the process of arrival and entry on the north as is Tilton's entrance on the south. The Currier can now rejoice in two major approaches, one for vehicles across a paved courtyard, the other through the monumental stairs of a formal landscaped setting. The new entrance courtyard offers a deliberately austere approach, owing to its northern orientation and the need to accept automobiles. Thus a major new access point is formally announced as a complement to the landscaped axis of the original. Both will continue in use as "front doors," each offering different access to the same central hall.

The motifs used in the Currier addition are Palladian. Because the Palladian arch motif has been a favorite of American architects since the 18th century, the use of these forms has become as much an American as an Italian device. In its adopted form it has been used in masonry and wood with a diversity of proportions and details Palladio could not possibly have imagined. The use of masonry in profiles which create changing patterns of light and shade enlivens the otherwise simple mass of the pavilions.

The key to untangling the Currier's circulation problem lies in respect for its original plan. The best feature of Tilton's building is a skylit two-story central court. This unexpected richness enlivens the structure and forms a central orientation point for all vertical and horizontal circulation.

Fortunately Tilton's building is also well endowed with skylights and windows. Since natural light with its constantly changing intensity, color and direction ensures visual variety, it was therefore obvious that this quality should be retained in the older building and added to the new pavilions. Perhaps most startling in relation to current museum dogma is this generous use of natural light. Although liberal intensities of daylight were not uncommon to 19th-century museums, current conservatorial knowledge indicates that high footcandles and the ultraviolet spectrum are especially harmful to fabric and paper. Intensities greater than five footcandles are damaging.

The new pavilions admit light in two ways. Generous windows are used, but in rooms of such size these alone would produce glare. To have continued fenestration patterns from the original building would have created awkward hanging space for traveling exhibitions. To make conventional skylights and laylights thermally efficient in the New Hampshire climate was *prohibitively* expensive. We chose to make the sloping roofs of each pavilion of Kalwall so that these translucent surfaces would both diffuse light and reflect it off the ceiling throughout the galleries. All the windows and skylights have been designed to filter out ultraviolet light. The resultant balanced illumination creates an extraordinarily inviting ambiance in which there are no dark corners. In addition we relit and restored Tilton's central court.

Although we believe our new addition and restoration to be a clear expression of contemporary sensibility, Tilton's work remains central to its operation and imagery. This New England institution celebrates continuity and is an achievement which all can understand and share.

The two-story central court of the original building (right) has been relit and carefully repainted in a neo-classical palette selected by HHPA. The sculpture on permanent display is a weathervane, circa 1855, consisting of a copper and brass ram whose maker is unknown.

*The Currier Gallery of Art
Expansion
Manchester, New Hampshire*

Owner:

The Currier Gallery of Art

Architects:

Hardy Holzman Pfeiffer Associates—Hugh Hardy, partner-in-charge; Kurt Kucsma, associate; Maurice Farinas, Sergio Zori, project architects; Robert Reno, Eric Anderson, Don Lasker, Anthony Disimone, Jaime Fournier, Vincent James, team; Leah Madrid, Stephen Saitas, interiors; Theron Grinage, Alfred Katz, construction; Alvin B. Corzilius, Jr., architectural field representative

Engineers:

Stanley H. Goldstein (structural); R.G. Vanderweil Engineers, Inc. (mechanical/electrical)

Consultants:

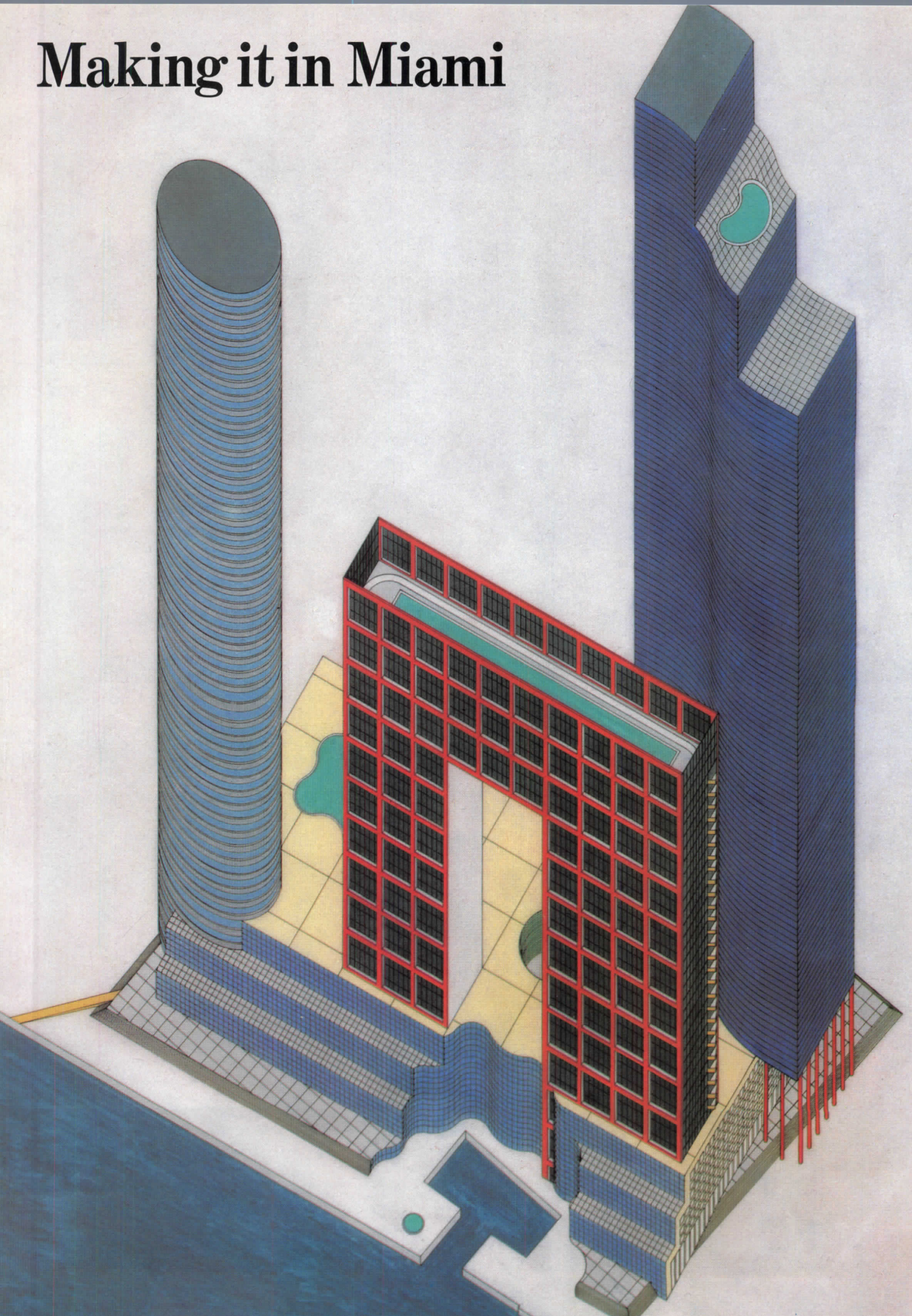
Jules Fisher & Paul Marantz, Inc. (lighting); Peter George Associates, Inc. (acoustics)

General contractor:

Harvey Construction Company, Inc.



Making it in Miami



“Last year our construction volume was \$68 million, with \$166 million on the boards; this year those figures will double,” reports 30-year-old Bernardo Fort-Brescia, one of three partners in the five-year-old firm Arquitectonica. Some explanation is in order.

Nobody bothered to tell Laurinda Spear, Bernardo Fort-Brescia, and Hervin Romney that “architecture is an old man’s profession.” And now, of course, it’s too late. The venerable axiom has been unceremoniously buried beneath millions of dollars worth of new construction. But you can’t really fault the three young architects, pallbearers to tradition though they are: it’s hard to sit still at the “back room” drafting board, hunched over someone else’s designs—especially if vaunting ambition, boundless energy, sheer moxie, and a surfeit of talent open other avenues . . . Miami’s fashionable Brickell Avenue, for instance, where the \$30-million Palace, the \$18-million Imperial, the \$11-million Atlantis, and the \$1-million Babylon are preparing to open their collective doors to the eager rich and super rich who snapped up the condominiums like so many \$100 tickets to a Frank Sinatra concert. And for those who arrived too late to pay upwards of \$400,000 for late ’82/early ’83 occupancy (in one case “too late” was 48 hours), construction is scheduled to begin next spring on the \$130-million 2.1-million-square-foot Helmsley Center (axonometric left), which will be followed by the relatively modest(!) \$24-million 500,000-square-foot Riverbay (figure 11, overleaf). “All well and good,” you say, “but aren’t Spear, Fort-Brescia, and Romney limiting themselves to one building type; worse yet, to one building type on one street?” Never underestimate the vigor—and aspirations—of youth: the four residential projects, and the two mixed-use projects along Brickell Avenue represent but a fraction of their work, albeit a fraction which translates into \$214 million worth of construction. A more respectable, and diverse, fraction is included herewith (following pages): though there wasn’t space to include the amusement park in Nigeria, the townhouses in Houston, the theater in Key West, the art gallery in Philadelphia, the bank headquarters in Peru. . . the 11 projects and three buildings compiled for this portfolio should suffice to persuade skeptics that Spear, Fort-Brescia, and Romney are quite serious about their firm name—“Arquitectonica International Corporation.” While those with a low threshold for professional arrogance will balk at the unabashed immodesty of the “international” designation, success, somehow, renders us all more tolerant. The \$64,000 question—or in this case, the near half billion dollar question—is how. It started innocently enough.

In 1977, 27-year-old Andres Duany, 25-year-old Bernardo Fort-Brescia, 26-year-old Elizabeth Plater-Zyberk, 36-year-old Hervin Romney, and 26-year-old Laurinda Spear picked up in Florida where they had left off back East. “The Miami Five,” as they should have been dubbed, were all friends from architecture school—Harvard, Yale, Princeton, and Columbia: Duany and Plater-Zyberk were (and are) married; Fort-Brescia and Spear were (and are) married. Drawn south by the warm weather, family, and teaching posts at the University of Miami School of Architecture, the group officially congealed when Romney, the then only licensed architect among them, received a commission to design an apartment building in Quito, Ecuador, and, naturally, solicited a little help from his friends. It was then that “Arquitectonica,” Spanish for “architectural,” was born. Considering Miami’s sizeable Cuban and South American population, the firm name is not unreasonable; besides, it’s catchy. During their first year, the neophyte architects did what neophyte architects do—teach, cultivate clients, and work on modest-scale projects. And like a host of young architects before them, Spear and Fort-Brescia made a contribution to the “houses architects design for their parents” genre. Though credit for the much-publicized Miami house has frequently been mis-attributed to Dutch architect Rem Koolhaas *with* Laurinda

Spear (an alliance and early design dating back to Spear’s graduate schooling at Columbia), the Koolhaas-Spear scheme was rejected, and according to Spear, it was “back to square one” with Fort-Brescia. (Well, perhaps back to square two; there are similarities.) Arquitectonica made its debut with the Spear House, and what a debut it was: the surreal waterside residence is a dazzling essay in abstract planes drenched in various intensities of hot to sizzling pink. It received worldwide attention, and Arquitectonica was dramatically launched into the galaxy of “rising stars.” Like Taft in Houston, and Batey and Mack in San Francisco, it appeared that the Miamians would follow the logical and incremental upward spiral of bright young firms—promising, but pending. They didn’t. They rose meteorically. The question, of course, is still how. The answer. . .

In 1978, while acting as interpreter for his father at a Miami business meeting, Bernardo Fort-Brescia overheard that one Harry Helmsley from New York was planning a high-rise condominium for Brickell Avenue. The then 26-year-old architect left the meeting, dialed Manhattan information, requested a listing for “Helmsley, Harry,” and simply gave the man who owns the Empire State Building a call. After offering Arquitectonica’s design services, and being duly informed that five “experienced” architectural firms were already competing for the job, Fort-Brescia flew to New York and checked into the Park Lane Hotel: Harry Helmsley owns the Park Lane Hotel; Harry Helmsley lives in the Park Lane Hotel. Fort-Brescia redialed the “Helmsley, Harry” number, persuaded the septuagenarian real estate mogul that an interview was in order, and on the appointed day, in something less than an hour, walked away with a written invitation to enter the condominium “competition.” It’s almost anticlimactic to report that Fort-Brescia snared the commission for the \$30-million project. And that’s how Arquitectonica gets work. (Contrary to popular misconception, Laurinda Spear is *not* related to the Spear of Helmsley’s mega-company Helmsley-Spear, Inc.) Over the last four years, Fort-Brescia has made a lot of telephone calls, and snared a staggering number of multimillion dollar projects. Though he is quick to add that many projects never make it beyond the conceptual axonometric stage, among the 11 projects shown here, two are under construction, two are scheduled to begin this year, and three are scheduled to begin next year; the remaining four are progressing in design development. (They will progress without Duany and Plater-Zyberk, who left Arquitectonica to start their own “more modest” firm.)

But what happens when the adrenalin from Arquitectonica’s phenomenal professional ascent subsides? What are we to make of these buildings that Fort-Brescia characterizes as “happy,” perched up on their podiums, brazenly showing off their fins and their flourishes, their razzle and their dazzle? “We find no glory in ambiguity,” ventures the young architect, and indeed the buildings are articulate, if not outspoken: their forms may, as Spear suggests, be “inspired by the primitive architecture of Karnak and the radical modernism of Rio de Janeiro,” but if it’s Egypt and Brazil, it’s Egypt and Brazil electrified by shrill color and shrill juxtapositions. “We are playing to a 55 mph audience. . . we want our buildings to hold their place on the skyline,” adds Spear. They at least do that.

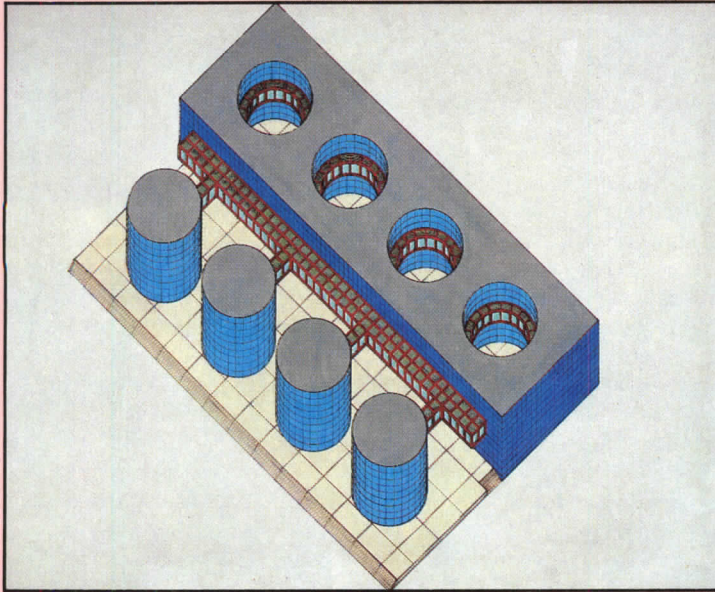
Thirty years ago, another young architect named Morris Lapidus startled his colleagues with the Sans Souci Hotel in Miami Beach. Reflecting on the now legendary hostelry, Lapidus wrote: “All of this might be called artificial and flamboyant by the purists, but who cared? It was colorful and exciting—it was fun.” One has only to change the tense. *Charles K. Gandee*

If Alice (as in Wonderland) went to school at the Bauhaus, her drawings might look something like *Arquitectonica's*—a seductive and surreal admixture of geometry and fantasy, as seen from above. But construction, not animation, awaits the 11 polychromed pleasures included in this portfolio, though one could almost be persuaded that the reverse is true. However misleading the *Prismacolor*

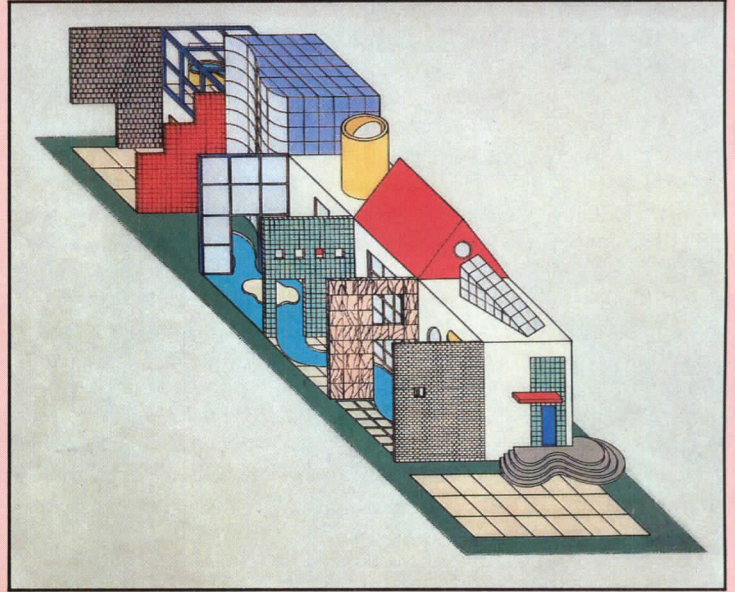
panache, the bird's-eye view, the firm's preferred axonometric is especially appropriate to their work (just as the overwrought elevation is especially appropriate to surface-embellishing post-modernists), for Laurinda Spear, Bernardo Fort-Brescia, and Hervin Romney "decorate" in three dimensions, not two, in a modern idiom, not historicist. What these cartoon-like images reveal is that, according to

Arquitectonica, form first follows form, and then quickly follows fancy: begin with the basic box, or the basic rectangle, or the basic slab (because it's economical and buildable); then add, subtract, distort, or otherwise manipulate to wrench the practical and the programmatic from the prosaic. Though some may shudder to see facades simply shake hands and go their separate ways (figure 4), or a

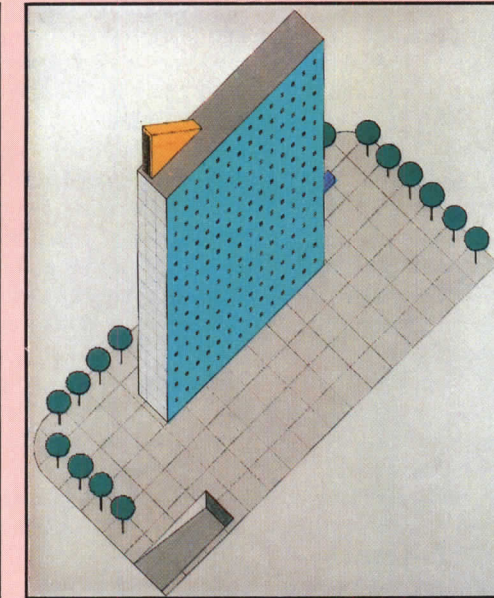
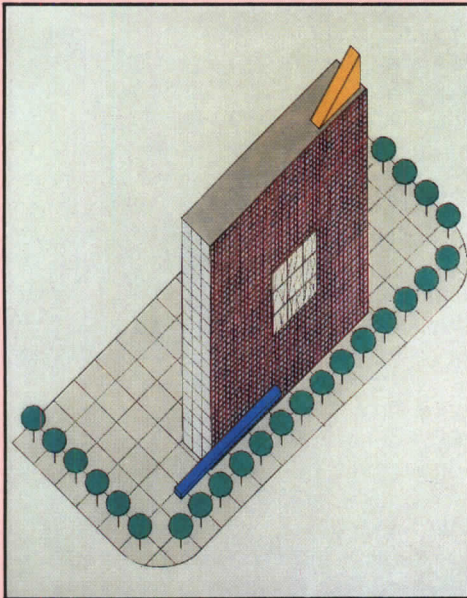
monumental red wall that appears not to have noticed that it passed the roof some time ago (figure 6), or four oil-drum-alluding cylinders bored out of their boring box and set roadside (figure 2), partner Bernardo Fort-Brescia calmly explains: "We try to be inventive." "Inventive," they are. Consider a giant yellow triangle perched atop a 14-story office building (figure 4), or a giant yellow wave beached



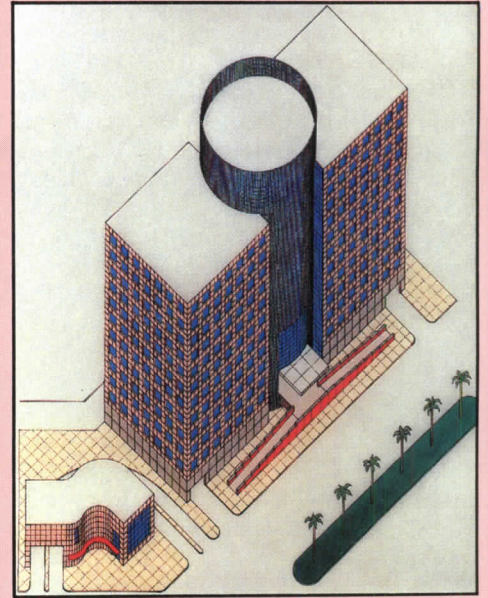
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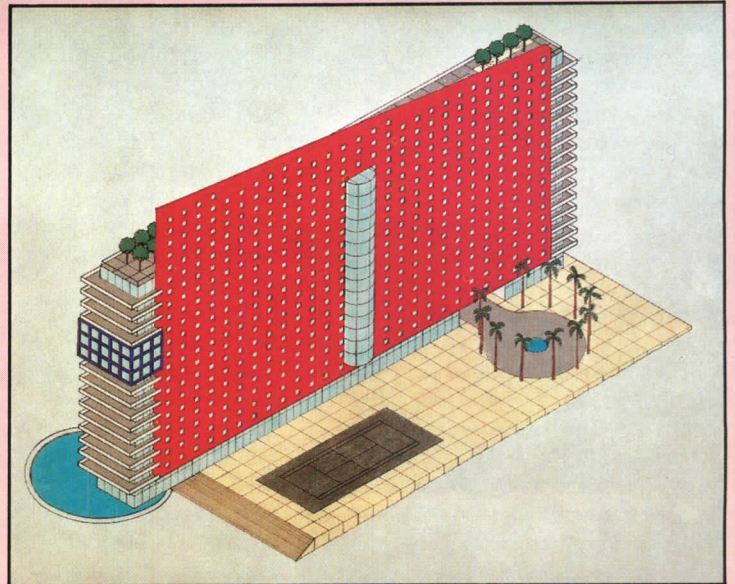
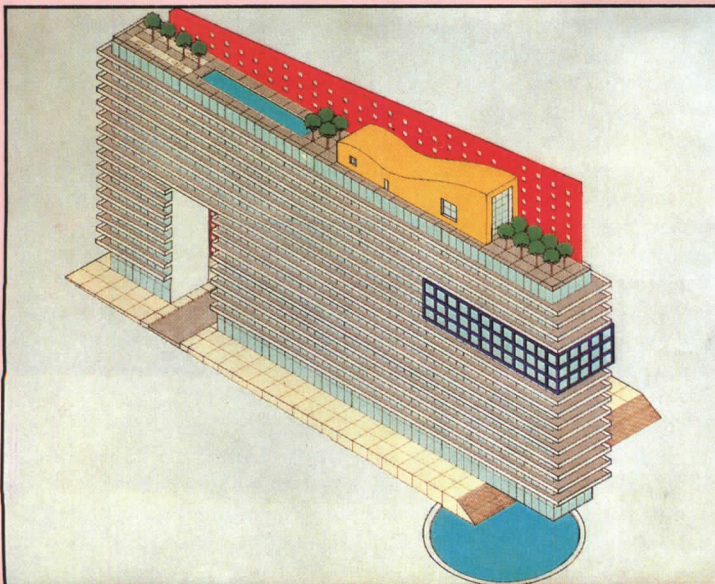
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4



5



6

atop a 30-story condominium (figure 6); now consider the buildings without them.

To avoid the inevitable confusion about "real" vs. "paper" architecture . . .

1. Helmsley Center (page 112), Miami; Helmsley Enterprises, Inc.; \$130 million; 2.1 million sq ft, mixed-use (hotel, office, residential, retail, parking).

2. Sage Road Shops, Houston;

Oxford/RMH, joint venture; \$10 million; 200,000 sq ft, specialty shopping center.

3. Maba House, Houston; Gerald Maba; \$200,000; 2,500 sq ft, single-family house.

4. Creditbank Building, Miami; O.J.A. Development Corp.; \$3.8 million; 90,000 sq ft, offices and parking.

5. 150 Alhambra Plaza, Miami; Mariemont, N.V. Developers;

\$7 million; 200,000 sq ft, offices and parking.

6. Imperial at Brickell, Miami; Harlon Group; \$18 million; 380,000 sq ft, luxury condominiums (161).

7. Tradewinds, Miami; Leon Matsil and David Magaziner; \$800,000; 12,000 sq ft, offices and retail.

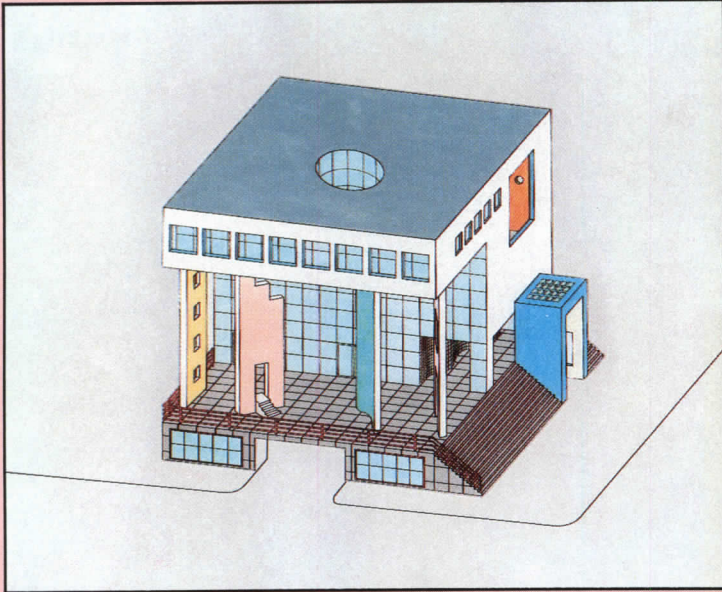
8. Magaziner house, Miami; David Magaziner; \$300,000; 4,500 sq ft, single-family house.

9. International Diagnostic Center,

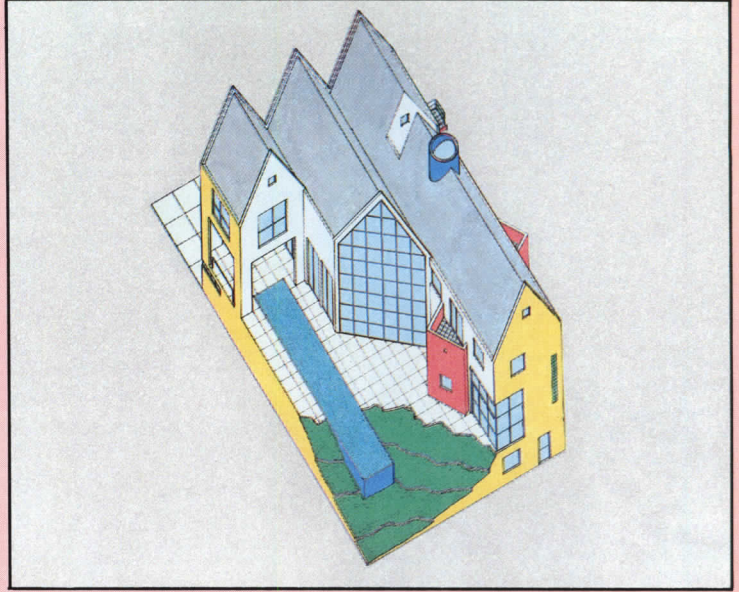
Miami; International Diagnostic Center, Inc.; \$4.2 million; 80,000 sq ft, medical offices, retail, residential, parking.

10. Horizon Hill Center, San Antonio; Orah Wall Investments, Inc.; \$120 million; 2.1 million sq ft, mixed-use (hotel, office, retail, parking).

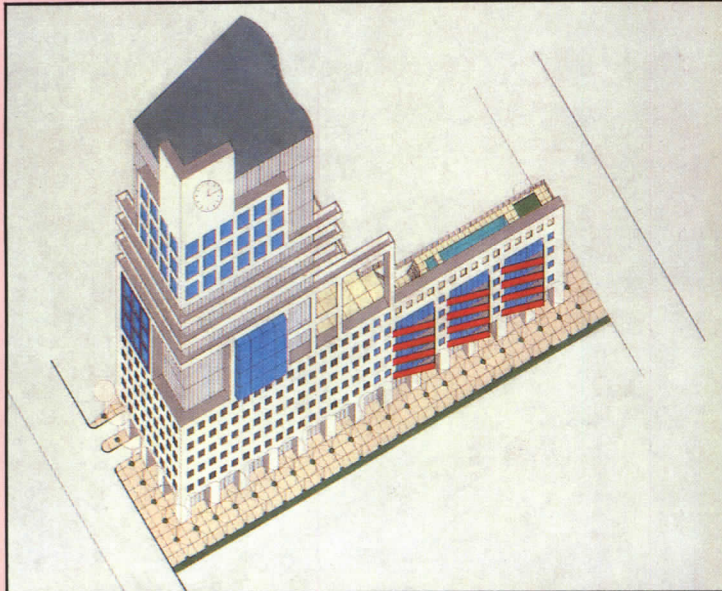
11. Riverbay, Miami; Sol Luger, Sam Greenberg; \$24 million; 500,000 sq ft, offices, residential, parking.



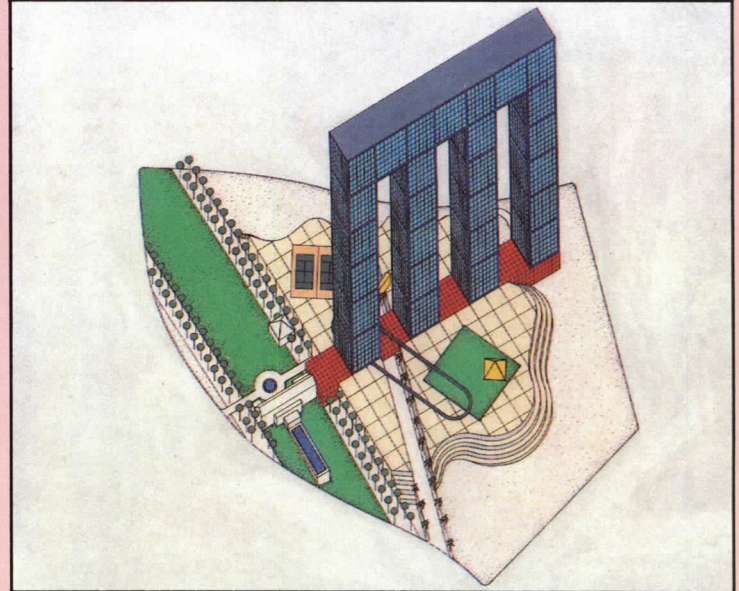
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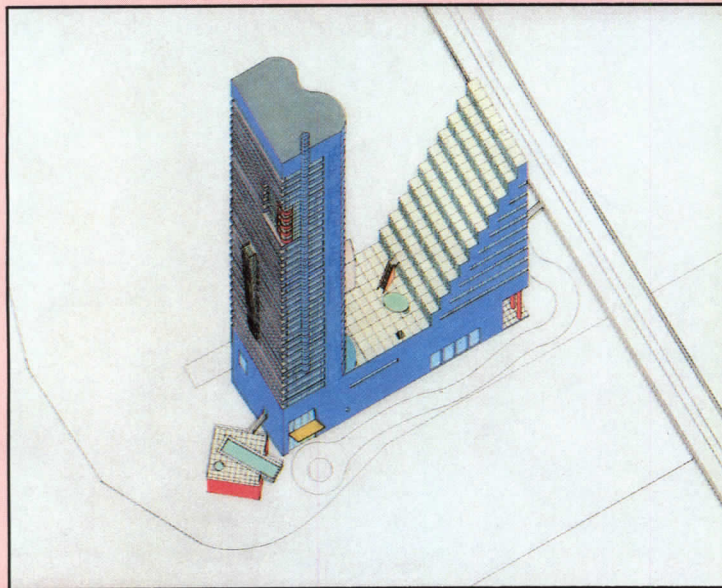
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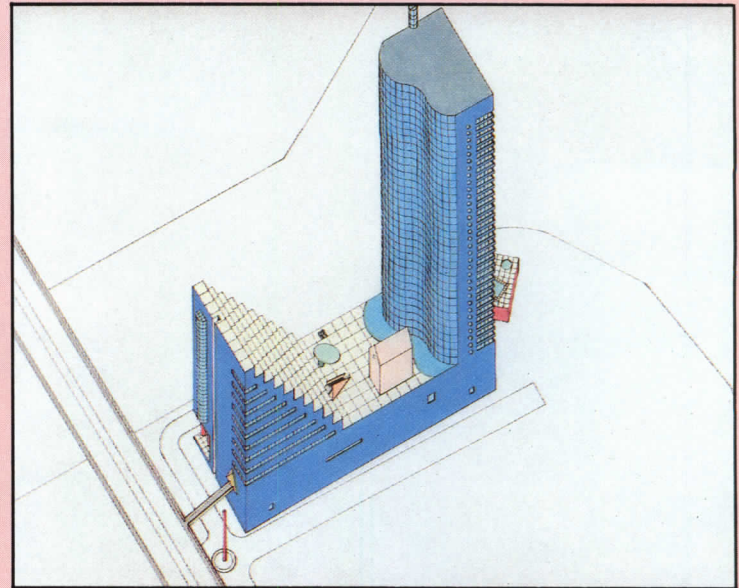
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11



A plane on the horizon

Like a giant drive-in movie screen after the last picture show has closed, The Overseas Tower stands taut, blank, abstract. Or at least that's the impression from a car traveling 55 mph through the bleak industrial park near Miami International Airport. And then one notices that things are not as two-dimensional as they initially appear; that a mammoth hemicycle (six floors of speculative office

space) and triangular prism (lobby to the ground floor bank) have been attached—in geometric counterpoint—to the 12-foot-thin wall. Precise incisions into the wall allow for a drive-in teller, views to the peninsula beyond, a two-story terrace, and vertical rhythm. An overscaled reflective-glass doorway serves as entrance to the offices; its bright red canopy extends to greet visitors.

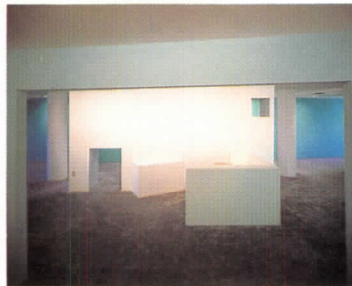
*The Overseas Tower
Miami, Florida*

Owner:
The Overseas Finance Corporation

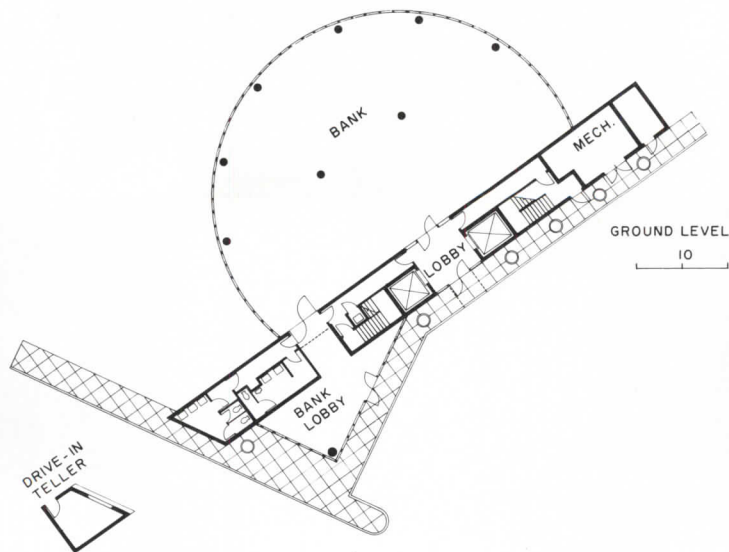
Architect:
*Arquitectonica—
Bernardo Fort-Brescia, Hervin
A.R. Romney, Laurinda Spear,
principals; Carl Young, project
manager*

Engineers:
*John Ross Associates, Inc.
(structural/mechanical/electrical/
plumbing)*

General contractor:
Edward J. Gerrits



Timothy Hursley, Hursley/Lark/Hursley photos







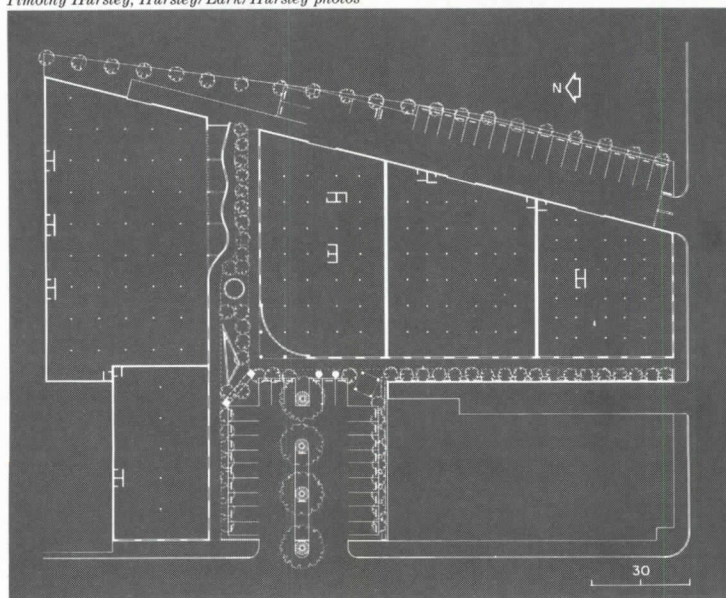
The decorators' shed

The billboards along the Las Vegas strip have a kindred—if abstract—spirit in Coral Gables, Florida. And though the canary yellow pyramid, the fire engine red pylons, and the Hockney green gateway adorning the parking lot of the Decorative Arts Plaza look more like gaily-colored toys left out in the yard by a Brobdingnagian baby than signage for The Sands, they serve the same function: "Look at me!"

But what else do you do with a less than glamorous 52,000-square-foot warehouse, programmed for "to the trade" furniture showrooms, given a \$22-per-square-foot budget and a four-month construction schedule? And how better to jockey a background building—set away from the street—into a foreground position, to better compete with the neighboring showrooms, than vivid and unabashed decoration?



Timothy Hursley, Hursley/Lark/Hursley photos



*Decorative Arts Plaza
Miami, Florida*

Owner:
Decorative Arts Plaza, Inc.

Architect:
*Arquitectonica—
Bernardo Fort-Brescia, Hervin
A.R. Romney, Laurinda Spear,
principals*

Engineers:
*Escribano & Associates (structural);
Franyie Engineers, Inc.
(mechanical/electrical/plumbing)*

Consultant:
*Jerry Peters & Associates
(landscape)*

General contractor:
*Construction Resources of
America, Inc.*

Tropical decorum

"Our work is not about quiet good taste," confesses Arquitectonica partner Laurinda Spear. And we agree. "The Square," however, is an elegant exception. The 51,000-square-foot specialty shopping center, located along the main thoroughfare of Miami's Key Biscayne island, employs a U-shaped (vs. the more common L-shaped) plan; consequently, this modern-day agora appears self-

contained and enclosed, rather than ill-defined and exposed. The \$45-per-square-foot budget was spent wisely: blue-glass visors shield the individual retail shops from Florida's relentless sun; a pair of hot pink pavilions anchor the far corners of the building; two plashing fountains cool things off. A detached colonnade sweeps the parking court—a non-utilitarian, but welcome, tie that binds.

*The Square at Key Biscayne
Key Biscayne, Florida*

Owner:

Malvolio, N.V.

Architect:

*Arquitectonica—
Bernardo Fort-Brescia, Herwin
A.R. Romney, Laurinda Spear,
principals*

Engineers:

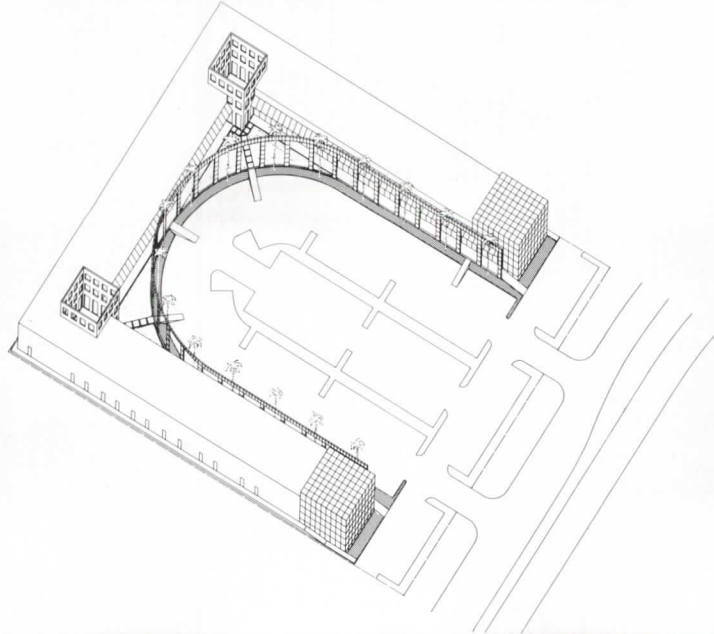
*Escribano & Associates (structural);
Magarolas & Associates
(mechanical/electrical)*

General contractor:

*International Contractors of
Miami, Inc.*



Timothy Hursley, Hursley/Lark/Hursley photos





Planning for a better world: The lasting legacy of Clarence Stein

By Martin Filler

The year 1982 is something of an *annus mirabilis* for the centennials of four men who made some of the most admirable contributions to mankind during this troubled century. On January 30 was celebrated the 100th anniversary of the birth of Franklin Delano Roosevelt, who helped move this country closer toward the fulfillment of its founding principles of social equality and economic opportunity for all. February 2 marked the centenary of the outstanding literary figure of our time, James Joyce, whose works revolutionized the expressive potential of the English novel. On June 17 the 100th anniversary of the 20th century's greatest musical genius, Igor Stravinsky, was observed around the world with commemorative concerts and broadcasts of his epoch-making compositions.

Two days later, on June 19, another centennial was celebrated, albeit with considerably less fanfare than the aforementioned events. Yet to those with a true appreciation of the most important human values, the 100th anniversary of the birth of Clarence Stein should be no less meaningful.

Stein came closer than any of his three fellow-centennarians to actually reaching his century mark, and the seven years since his death have seen his posthumous reputation grow to the point that he is now assured a permanent place in the history of American architecture and planning. But unlike those more famous contemporaries, and unlike many of his co-professionals as well, Stein was quite content to make his mark in ways that did not invite attention to himself. His achievements were as quiet as the man was, but like him they have also been uncommonly long-lived, with extraordinary staying power. As Clarence Stein never craved recognition for anything but the ideas and ideals he believed in, so have his accomplishments stood on their own self-evident merits, a foundation that cannot be easily altered by the passage of time or the shifts in fashion that affect attitudes toward architecture and planning no less than other realms of human endeavor.

Stein is now most often characterized as the father of new towns in America. It is a designation tinged with a certain irony, given the fact that new town planning in this country, aside from the work of Stein and his immediate circle, has never progressed much beyond its infancy, as opposed to its more mature evolution elsewhere, most notably in Northern Europe. But despite the thwarted growth of the new town movement in the United States, the basic motivating principles behind it—the creation of places that improve the quality of their inhabitants' lives both physically and psychologically, and the abolition of exploitative land development schemes that cause the contrary effect—remain of timely importance. Thus the central role Stein played in creating some of the most enduringly successful housing of this century recommends a closer look at his career.

Clarence Samuel Stein was born in Rochester, New York, on June 19, 1882, the son of a prosperous business executive. When Clarence was still a young boy, his family moved to New York City. There his early education was interrupted sporadically by the bouts of ill health that began to plague the small, frail child early on and continued throughout his long life. A frequent convalescent, Clarence took an interest in painting and drawing, which he would keep up throughout adulthood, but academic subjects for the most part failed to ignite his imagination. He eventually entered Columbia University, but after only a year he dropped out.

His nebulous career interests came into focus on a trip he

made to Europe with his family, when he decided that he wanted to study at the Ecole des Beaux-Arts in Paris. This was a considerable ambition for the previously undirected young man, as the prestigious Ecole limited the number of foreign students accepted each year. But Stein was determined and gave the first demonstration of the persistence that was to emerge as one of his most dominant personality traits as an adult. For a year and a half he tried to gain admittance to the Ecole, taking (but failing) the exacting entrance exam at six-month intervals.

He finally succeeded on his third try and in 1908 entered the Ecole's Atelier Laloux—the most sought-after studio among American students—under the direction of the legendary teacher Victor Laloux, architect of the Gare d'Orsay in Paris. At first Stein thought about ultimately becoming an interior decorator, which under the Beaux-Arts system was quite a different pursuit than it is understood to be today. In those days, the great high-style decorators, such as the firm of Alavoine, were more architects of interior space than surface cosmeticians, and were regarded as the professional equals of the architects with whom they collaborated on the total design of buildings. Perhaps that initial interest in the insides, rather than the exteriors, of buildings was predictive of Stein's later specialization in housing. In any case, he was not unduly inhibited by the Ecole des Beaux-Arts' emphasis on classical models and rigid professional planning, and was thus open to the unexpected change in architectural direction that lay ahead for him. But Stein always retained the Beaux-Arts belief in the plan as the prime generator of architectural form.

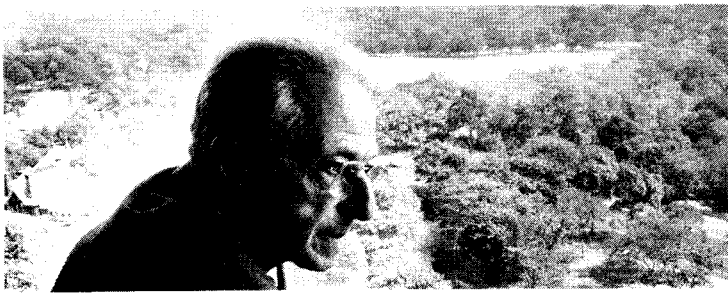
After he received his diploma from the Ecole in 1911, Stein returned to New York and accepted a job in the office of Bertram Goodhue, the historical-revivalist architect whose designs nonetheless often had a pronounced proto-modern undertone. In time Stein rose to become Goodhue's chief designer.

In 1917 the entry of the United States into the First World War interrupted Stein's rapidly advancing architectural career. But to a much greater extent than he could have realized upon leaving the Goodhue office to become a first lieutenant in the U.S. Army Corps of Engineers, it also was to bring about his total transformation from a rising young establishment designer into a passionate reformer of the very premises of orthodox architectural planning. Groups concerned with the eradication of slum housing had been active in New York since the last decades of the 19th century, but the world cataclysm gave a special urgency to the need for new ways of thinking about architecture and planning. As it did for so many other members of his generation in all the arts, the Great War opened Stein's eyes to a wider experience and values other than those to which he had been previously exposed in his relatively sheltered and highly privileged life.

In the Corps of Engineers Stein came into contact with the brilliant, socially aware group of architects associated with the Division of Transportation and Housing, which had been set up by the Emergency Fleet Corporation of the United States Shipping Board for the purpose of designing and building emergency housing for war workers. Among the 120 architects and planners assembled for that formidable task were the three men who were eventually to become Clarence Stein's closest professional collaborators: Robert D. Kohn, Frederick Lee Ackerman, and Henry Wright.

On leaving the Army in 1919, Stein and many of his colleagues resolved not to lose the momentum of their war-time experiences and sought to transfer those new concerns to post-war planning

Martin Filler, editor of *House & Garden*, frequently writes on architecture and design. His review of *Sketches from Life: The Autobiography of Lewis Mumford*, *The Early Years* appeared in the April issue of RECORD.



Olmsted's separation of vehicles and people in the design for Central Park, visible to Stein from his apartment balcony, was among the concepts underlying Stein's planned communities.

at large. A return to the Goodhue office was clearly out of the question for Stein. Instead, he became secretary of the Housing Committee of the New York State Reconstruction Commission and secretary of the Committee on Community Planning of the American Institute of Architects. In due course Stein became an integral part of a small group of like-minded thinkers in several disciplines who had gravitated together to discuss housing and land reform issues.

In 1923 they decided to organize themselves formally as the Regional Planning Association of America; Stein was elected its president, and Lewis Mumford its executive secretary. The association lasted only a decade, numbered no more than 20 active participants, and never achieved in concrete terms as much as its members had hoped it would. But the RPAA was one of the proudest chapters in the history of American architecture and planning, and it exerted an influence far greater than its relatively brief duration and small membership might seem to imply. It boasted some of the best minds of their generation—Frederick Lee Ackerman, Tracy Augur, Catherine Bauer, Frederick Bigger, Russell Black, John Bright, Robert Bruère, Stuart Chase, Nils Hammarstrand, Joseph K. Hart, William T. Johnson, Sullivan Jones, Eugene Klaber, Robert D. Kohn, Benton Mackaye, Charles Harris Whitaker, and Edith Elmer Wood, among others. But always at the center was Clarence Stein.

As Carl Sussman wrote in his account of the RPAA in his book *Planning the Fourth Migration*, “[Stein] was much more than just another participant in the group’s affairs. He was a gifted organizer, capable of getting the best from the people around him. He was a good judge of character and a skilled administrator. Unlike almost everyone else in the RPAA, Stein knew how to operate politically. Stein’s brilliant stewardship of the RPAA rarely appears amid lists of its distinguished achievements. In fact, it can only be inferred from organizational documents. But his colleagues universally recognized the importance of his leadership to the group’s success.”

The men and women of the RPAA gave eloquent and energetic voice to a wide range of urgent issues—especially housing reform, the lessening of urban congestion, governmental reorganization for more effective regional development, and the growing impact of the automobile on American life. They were not alone during the 1920s. But what they had and many others lacked was a penetrating social insight. The members of the RPAA shared the belief that the only truly effective program for solving the major social ills of the day required a complete restructuring and reintegration of the fragmented components of modern society. Architecture, planning, transportation, economics, education, agriculture and industry must all be brought into the big picture, they felt, and they aimed to do so with an unprecedented boldness. But despite their idealistic goals, the members of the RPAA were not impractical dreamers when it came to the realities of reform. Just as they knew that a broad-based approach was the only guarantee of lasting results in any of the component areas of their agenda, so they also tried to enlist the support of members of the economic establishment who knew how things really worked under the prevailing system.

The Regional Planning Association of America was fortunate to have among its founding members the remarkable Alexander M. Bing, the New York tycoon who was one half of the Bing & Bing real estate development and management corporation. Clarence Stein, by 1923 past the age of 40 and more worldly and socially adept than some of his RPAA colleagues, was able to talk to Bing (who had made his fortune in the construction of

apartment houses along the newly developed Park Avenue) as an equal. Bing had been in effect shopping around for a good cause to support, and Stein persuaded him to put his money and influence behind the RPAA’s plan to build demonstration housing that would give proof positive of the validity of their planning theories.

Bing thereupon established the City Housing Corporation—a limited dividend company much the same as those that had sponsored model tenements in New York City earlier in the century—as the vehicle of sponsorship for the RPAA’s projects. They decided to begin modestly, feeling that a firm first step was more important than a broad one. As Bing had enumerated the CHC’s aims, the idea was “to produce good homes at as low a price as possible; to make the company’s investment safe; . . . to use the work of building and selling houses as a laboratory in which to work out better house and block plans and better methods of construction and financing.”

Those goals were superbly fulfilled at Sunnyside Gardens, the first CHC project, which was begun in 1924. Clarence Stein and Henry Wright, in their first collaboration, developed the plan of the 77-acre site in Long Island City, Queens, while Frederick Lee Ackerman designed the buildings and Marjorie Sewell Cautley the landscaping. On its completion in 1928, Sunnyside Gardens comprised just over 1,200 units of housing. The essentially unappealing site—an undeveloped yard bought from the Long Island Railroad—was chosen precisely to demonstrate what could be done through intelligent planning (even within the confining grid of the city’s existing platting) and to contrast didactically with highly conventional nearby housing.

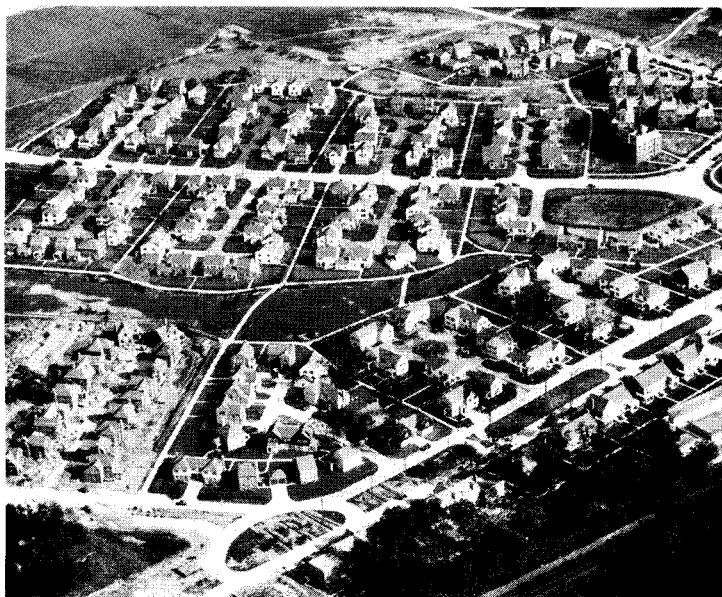
Before commencing their design development for Sunnyside Gardens, Stein and Wright went to England in 1923 to consult with Sir Ebenezer Howard, the *doyen* of the garden city planning philosophy, and with Sir Raymond Unwin, who (along with Barry Parker) had designed the first garden city, Letchworth. Those two great English “planning knights” had a great influence on Stein’s and Wright’s scheme for Sunnyside Gardens. To maximize the potential of open space—a key factor in garden city planning—Stein and Wright decided to place the buildings at Sunnyside on the periphery of the existing city blocks, leaving the resultant interior courtyards free for common gardens. Automobiles would thus be excluded from the major expanses of the site, to be confined instead to the streets (on which the housing units turned their backs) and parked in garages at a relatively far remove from the residential blocks.

It was a simple idea, and not so fully worked out at Sunnyside as it was later to be, but Stein’s and Wright’s plan marked a breathtakingly radical break with standard urban land use practices. Although the design distinction of the low-rise housing blocks was minimal, the buildings were clad with a warm brick facing that added considerably to their appeal, and the thoughtful landscaping of the interior gardens enhanced the quality of life there immeasurably.

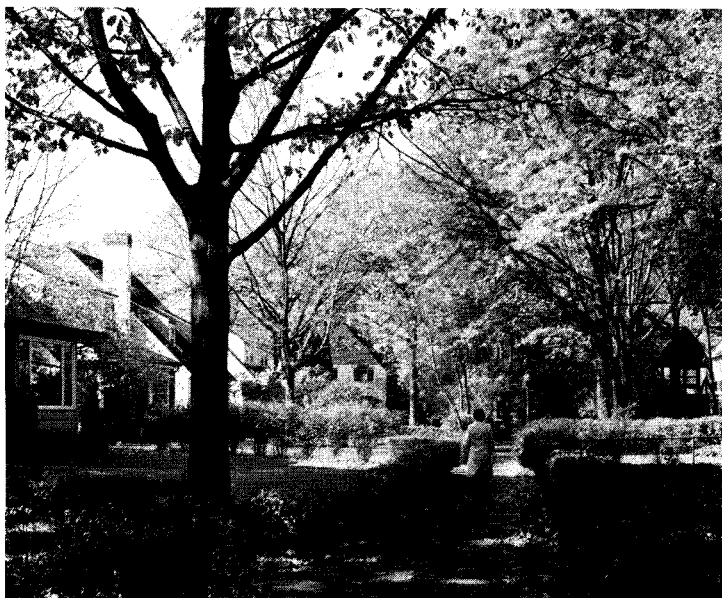
Sunnyside Gardens did not remain a secret for long. Soon the variety of its interior layouts, its close proximity to midtown Manhattan (which was then only a 15-minute subway ride away) and its low, subsidized rental rates and purchase prices (some units were cooperatives), to say nothing of the rarity in New York of being able to have a garden, all contributed to its being discovered by a wide social spectrum of tenants who were primarily alike in their knowing a good bargain when they saw it. Among the young couples attracted to Sunnyside Gardens were Sophia and Lewis Mumford, who moved there in 1925 shortly after their first child was born; they remained for 11

Sunnyside Gardens, the first fruit of Stein's productive collaboration with Henry Wright, transformed an undeveloped railroad yard into a model community patterned after the garden cities then emerging in England. The planning principles it introduced were carried a step farther at Radburn, N.J. (1,2), which was planned as a self-sufficient new town rather than a residential

suburb, although the Depression prevented its full realization. At Chatham Village in Pittsburgh (3) the concept of superblocs of housing focused on common gardens was successfully adapted to a hillside site.



The Bettman Archive Inc.



G. E. Kidder Smith



George D. Hetrick

years. By putting his money, so to speak, where his philosophical mouth was, Mumford was able to experience first-hand the first fruits of the movement he and Stein had done so much to instigate.

Now that the RPAA's first garden community was a reality, it was decided that the CHC's next step should be a full-fledged garden city. In 1925, in an article in the historic regional planning issue of the *Survey Graphic*, Alexander M. Bing asked rhetorically, "Is it not time that we, in America, gave the garden city a trial?" The affirmative answer resulted in Radburn, the historic new town in Fair Lawn, New Jersey, 12 miles from Manhattan. The new project's early planning took an important turn in 1927 when Herbert Emmerich, the CHC's general manager, sketched out, on the back of an envelope, the germinal essence of what blossomed into "the Radburn idea." His conceptual outline, quaintly entitled "Safetyhurst: a (highly) theoretical residence district free from traffic and congestion," was modified only slightly as the new town's basic organizational unit. The plan was further refined and expanded by Stein and Wright, again teamed as site planners for the job, over the course of the following year. Their final evolution of Radburn's layout called for superblocs grouped around three community centers—schools and stores—to be no further than one-half mile from the perimeter of each superbloc. The superblocs would be composed of cul-de-sac clusters of houses around large, central commons. (Of Radburn's 149 acres, 23 were given over to park land.) There would be no through streets, pedestrian and vehicular traffic would be strictly segregated, and the park, rather than the road, would be used as the connective tissue of the community. An impressive array of housing types was offered: 430 single-family houses, 92 apartment units, 60 townhouses, 30 row houses, and 54 duplexes.

Radburn was billed as "A Town for the Motor Age," and while that characterization was somewhat misleading (in that the car at Radburn was purposely put in an uncharacteristically subsidiary position), the tag line did get at the gist of Radburn's uniqueness: Stein's and Wright's plan united English garden city principles with the new realities of America's emerging car culture. The inhabitants of Radburn, to be sure, have always depended on automobile transportation: the beauty of the Radburn plan is that it copes with that necessity so well. Radburn's major advances, of which that was not the least, assured it of an important place in planning history from its inception, and the half-century since then has only reconfirmed its importance.

In 1929, though, Radburn still appeared to be only a stepping-stone, rather than the high-water mark that it now seems. Even members of the RPAA found fault with some of its aspects. Several objected to the cautiously traditional nature of its architecture. The colonial-style houses designed by Stein and Frederick Lee Ackerman and the adjacent Collegiate Gothic apartment buildings by Andrew J. Thomas appeared rather *retardataire* when compared to the more daring modern style then being employed in housing estates in Europe. To Lewis Mumford, the houses were "not particularly triumphant examples of modern architecture," which is true enough; yet their gently vernacular design has passed the test of time very well indeed, and now seems a great deal more successful than, say, the austere modern architecture at Stein's Baldwin Hills Village of a decade later.

Mumford, writing in *The Culture of Cities* (1938), pinned down Radburn's significance precisely: "Here was the first town built anywhere that consistently abandoned the corridor avenue lined

with houses, that divorced the functions of domestic living from the noise and traffic of the street, and that provided a continuous belt of park space within the residential super-blocks, instead of placing the park on the outskirts. . . . A major contribution."

In his own account of the Radburn story, Stein wrote that "Sunnyside was a dress rehearsal, but on a stage so limited that the authors' style was cramped." Although Radburn provided a larger arena, the denouement was, alas, not a happy one (except for the people who have lived there). Less than six months after Radburn's first families moved into their new homes in the spring of 1929, the stock market crash brought on the Great Depression, which ultimately led to the ruin of the City Housing Corporation. Thus, only about a third of the original Radburn plan was ever actually executed, and the dream of its growing into an economically self-sufficient community, as garden cities were meant to, was dashed. Yet despite the fact that Radburn in the end became a suburb rather than a fully functioning new town, the basic elements of Stein's and Wright's brave and beautiful design stand out in high relief against other planning schemes of the period.

Before the crash in 1929, with the noteworthy initial success of Sunnyside Gardens in mind, the Buhl Foundation of Pittsburgh asked Stein and Wright to produce the plan for a low-income housing development of 216 units on a 45-acre hillside site two miles from the Golden Triangle. This was a considerably more difficult planning challenge than the flat spinach farm that provided the setting for Radburn: yet the Pittsburgh site drew forth an imaginative solution that underscored the essential adaptability of the superblock concept and the circulation principles of the Radburn idea in terms of terrain as much as Stein's later Baldwin Hills Village plan was to prove them in terms of climate.

The houses at Chatham Village, as the Buhl project was named, were designed by the firm of Ingham and Boyd and completed in two increments in 1932 and 1936. Though essentially no more avant-garde architecturally than Stein's and Ackerman's houses at Radburn, their feeling of variety (which the uniform Sunnyside Gardens blocks lacked) was greatly enhanced by their being stepped up and down the hillside. Stein freely assigned credit for the imaginatively conceived site planning at Chatham Village to Henry Wright, who, not surprisingly, had begun his career as a landscape designer. The actual landscaping was done by R.E. Griswold and T.M. Kohankie, and once again demonstrates Stein's impeccable taste in landscape design at every one of his projects. This, unfortunately, was to be the last Stein and Wright collaboration. Yet even on the basis of just three jobs—Sunnyside Gardens, Radburn, and Chatham Village—it is clear that theirs was one of the most felicitous and mutually stimulating partnerships in all of American architecture.

In 1932 there occurred a permanent falling out between Stein and Wright which polarized and then smashed the nucleus of the RPAA. It brought previously latent factional differences to the surface; Mumford sided with Wright, Catherine Bauer with Stein, and the group came apart after a decade of existence. The break, moreover, was a compound one. Stein did not become part of the Housing Study Guild set up in 1933 by Wright, Mumford, and Albert Mayer. And even the RPAA members who had remained close to Stein after his rift with Wright—most notably Catherine Bauer, who accepted a job in Washington in 1934—began to slip away from him as new opportunities opened up for them, in sharp contrast to Stein's own diminishing prospects.

other things that were built around them at the same time. But today, in the light of a hundred years, Stein's greatest works remain vital, living places that continue to enhance and enrich the lives of the people who dwell there. They stand as a far finer memorial of Clarence Stein's achievement than any other that could be imagined.

Stein's independent planning work after Chatham Village continued his experiments with new variations on the basic superblock theme. His Phipps Garden Apartments of 1931 in Long Island City, adjacent to Sunnyside Gardens, took the superblock concept a step farther by applying it to a large-scale, six-story apartment building complex. Again, a central garden court was the result, with the fine landscaping of Marjorie Sewell Cautley the focus of the plan. The six mature elm trees that were planted there, costing the then-considerable sum of \$2,900, were a sign of the Phipps Foundation's desire to convey a sense of real amenity despite the charitable intention of the low-income project.

A larger expression of the Phipps conception was Stein's last major planning commission of the 1930s, the Hillside Homes project in the Bronx, begun in 1933 and completed in 1935. Financed by an 85 per cent loan from the Public Works Administration and geared by its cost-conscious architect to qualify for a New York State tax exemption applied to housing that rented for only \$11 per room, the Hillside Homes were in effect Stein's only government-sponsored project. If it was not quite so architecturally pleasing as the Phipps Garden Apartments, its sensitive planning for people nonetheless fostered a sense of community that was noticeably lacking in New York's post-war housing projects.

Also dating from 1935 was Stein's partially executed design for the Wichita Art Museum. Only the central part of his scheme, which combined stripped classical massing with Mayan-inspired ornament, was ever built, and it was virtually effaced by a new addition in the early 1960s. It is symbolic, as architecture can so eloquently be, of Stein's career at the time he designed it: unfulfilled to the extent that it might have been.

The cruelest turn of fate in Stein's life was that the period that ought to have called forth his finest hour instead saw him excluded from the role to which his whole previous career had so logically led. The social awareness of Franklin Roosevelt, who became president in 1933, created the decisive climate that had been lacking in the 1920s, when Stein's planning schemes, no matter how fine as individual projects, lacked the larger governmental and economic matrix that truly effective planning—especially on the regional scale—requires. Not least of the reasons that the Roosevelt administration's housing schemes were only partially successful as social experiments was because their designers and administrators largely lacked Stein's acute social vision.

The causes behind Stein's absence from the centers of influence at the very moment when his ideas could at last have been given full expression are as difficult to fathom now as they were impossible to justify then. To a certain extent, Stein may have been a victim of the acrimonious feud between Franklin Roosevelt and Al Smith, Roosevelt's predecessor as governor of New York and the unsuccessful Democratic Presidential nominee in 1928. Smith felt betrayed by Roosevelt's usurping his role as titular head of the party in 1932 when FDR won the nomination and later the "unlosable" election. Smith never forgave Roosevelt, and he became an outspoken opponent of the New Deal early in the Roosevelt administration. The fact that Clarence Stein had been closely associated with the reformist circle in Smith's administration no doubt gave Stein a certain political taint in FDR's eyes.

Roosevelt, for his part, had a rather naive view of regional planning, sentimental and colored by nostalgic notions of crafts and cottage industries. For Roosevelt, the very idea of regional planning mitigated against using New York architects for





Two interiors by Torre: an office...

*Robert Panero Associates
New York City, New York*

Owner:
Robert Panero

Architect:
*Susana Torre, The Architectural
Studio—Raymond Beeler, job
captain*

General contractor:
Salmon Management

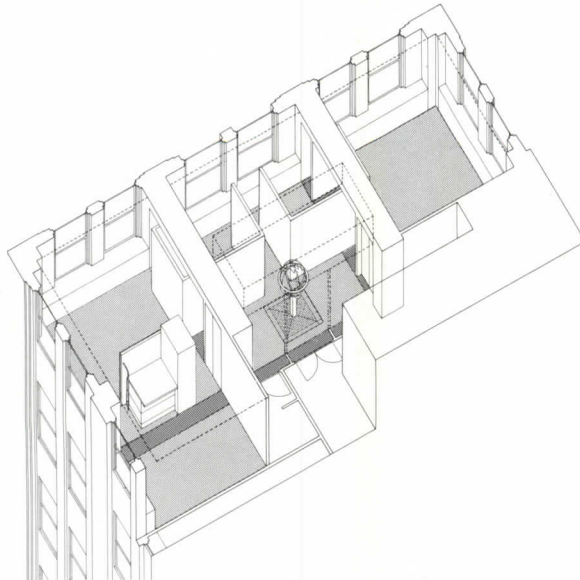


Norman McGrath photos

Susana Torre describes her modest-scale renovations of an office and a restaurant (next page) as “reworkings of a basic idea search.” That design quest might be summed up as research in manipulating space, usually by conflicting, yet often very simple means. “To perceive and understand space is to perceive and understand the world,” Torre philosophizes, then adds, “but I like to work in real conditions, with no superfluous stuff.”

The result of all this, and clearly reflected in most of her finished work, is an artful yet down-to-earth and personal interpretation of some of the concepts that are coursing through design today: complexity, contradiction, allusion, color, et al.

For the offices shown on this page for Robert Panero Associates, an internationally based think tank, Torre was faced with some *very* “real conditions”: a limited amount of raw space in a 1920s midtown New York City office building, and restrictions to make maximum use of building-standard materials, finishes and details. While not complicated, the program called for a number of rooms or areas for such a small space: reception, waiting, secretary, researchers, two main offices and a conference room. Privacy was needed for all, and internal circulation to bypass the reception area. Torre took the building grid as a given, and emphasized it by changes in flooring and in ceiling heights, then punctured it with blue enclosures for the aides. The perimeter is free of partitions to abet the view and give internal passage. The president’s office (left) can be closed off by opening panels in the conference room “presentation wall.”



...and a restaurant

In this Chambers Street, New York, restaurant, called Laughing Mountain Bar and Grill, Torre has converted a ground floor loft (with basement kitchen space) into a stylish "mesh of turn-of-century and modern" aimed at the Wall Street inexpensive-lunch crowd and SoHo sophisticates at night. The glass-fronted bar was treated as "an extension of the street," with a facade-like screen used to unify a pieced-together old oak bar. The restaurant reflects a quiet garden-like space with an "abstract topiary" fence demarking a forest-green booth section. Table tops are gray marble salvaged from the hall wainscoting. Patrons enter between bar and dining via the building's hallway. Stair and elevator cores are expressed as "piercing volumes" by different colors (bright red for the stairs and blue for the elevator) and mirror reveals at the ceiling.

As these two interiors bear out, in Torre's philosophy her "complexities" and "contradictions" are broad ones: intimate/monumental; symmetry/asymmetry; open/closed; non hierarchical/room-like; and so on.

She variously refers to them as "a dialectic between specific and general," "a simultaneity of opposites," the creation of "dynamic tension," or simply "not this or that."

Her "allusions" are simple and familiar ones: garden, street, topiary and the like. As for the current predilection to recall classicism, her interest is in "underlying proportion, not style." And her colors tend to be more vibrant.

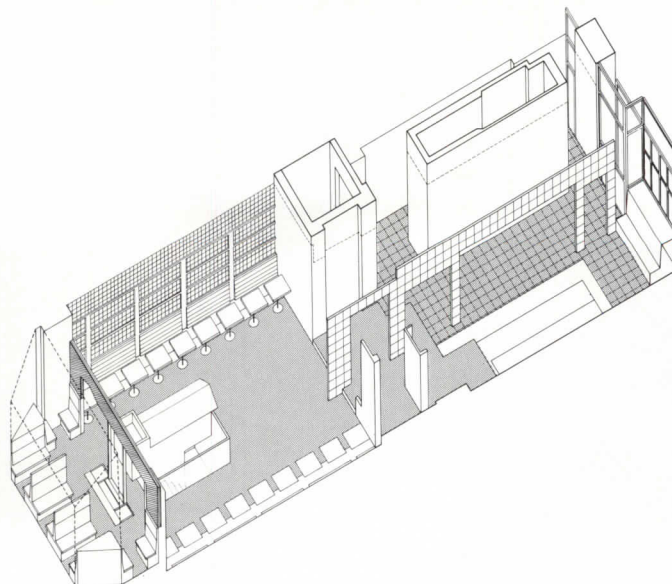
All in all, it is a refreshingly simple and somewhat different way "to perceive and understand space."
Herbert L. Smith, Jr.



*Laughing Mountain Bar and Grill
New York City, New York*

Owner:
Robert Schoenholt and Julio Curbelo

Architect:
Susana Torre, The Architectural Studio—Donna Robertson, job captain; D. Robertson, J. Salvat, R. Velsor, development and production





Round Table:

Improving communications between architect/engineer and the client at the technical level

The Round Table brought together architects, engineers, developers/owners/managers and a construction manager to ask the question: What are the impediments that keep buildings from working better technically than they might? Moderator Wagner wondered if there might be more interaction between design professionals and the owner's managerial and operations personnel. He asked the group what they thought of the potentialities of post-occupancy evaluation by architects and engineers. Can they afford to do this within current fee structures? Do owners need to have more involvement with designers and contractors in the detail development and working drawing stages? Does quality suffer because of last-minute budget savings? Do the realities of the marketplace allow A/E's to innovate as much as they might in energy-conserving techniques?

Architect Sam Brody was first to point out the difficulty in identifying who the client really is: "Working in New York, especially in housing projects, we are told to get input from the community. It turns out there may be 50 different interest groups. I find the owner is sometimes like that. In fact, we get many different signals from different parts of the owner, and many of these are irreconcilable points of view. There is the maintenance man at one end and the executive at the other end. Then there is the research guy who starts off with a concept of laboratories, but he's replaced. By the time the building is started, a new research guy has come in who says, 'Why did you do it this way?'"

"There are all kinds of issues of why and when a building works, and, of course, some things can be measured—we know about energy in and energy out. But other things cannot be measured so simply.

"The owner often is a very complex organization, even in a seemingly simple situation such as a developer. I think what is interesting is how the decisions are made, not what the communication is. The decisions are usually made between the crunch of time and money, and the people who make those decisions often are not the people who are going to have to deal with the end result and how it's going to work.

"The contractor says if you do it this way, we are going to get it done faster; if we do it this way, it's going to cost less. The finance guy says we have only so much money to spend, period, and cuts and tradeoffs are made often early in the job—or sometimes later on, and done more brutally without all the client's team coming in and being part of it. Then the end product is there, and people have to live with it. The question of whether a building works or not depends upon whom you ask."

Reinterpreting Brody's comments in his own context, the Navy's Ben Johnson remarked: "What you are saying is that the documentation of decisions made in the beginning of design is not adequately preserved for posterity. Two things that help us are: 1) an adequate number of reviews during the design process, and 2) the assignment of an individual from the user's staff to the project as part of the project team, and decisions made during initial stages are well documented and become part of the project history. This way, even though there are military turnovers every three or four years, new facilities managers have a record of design intents for guidance."

For early design decisions to reflect more closely the actual needs of tenants, Williams Real Estate's Edward Riguardi argued for earlier involvement of the managing agent. "Usually I am called in when someone has to move in, or the marketing has already been set. By this time, the architect's and engineers'

representatives don't remember who said what and how they said it. People who were initially involved in the design are now off on other projects. It would help if in the beginning someone were given the responsibility of communication with the various parties involved whether the problem be design, operation or construction. Having early input of users' experience is increasingly important. Window and column spacings affect space planning and operation. Supplementary air conditioning for a tenant's computer is rarely tackled in the beginning. When a tenant needs a computer the managing agent and operator have to make provisions for additional electric service. I have to take space away from existing tenants and renegotiate their leases in order to create a shaft for risers. I think our architects should go back to buildings and review what has happened to them after a few years to better comprehend the need for flexibility."

How well the consultant's experience and expertise get utilized depends on, said engineer Joe Loring, who hires him. "There is a hierarchy as far as communication is concerned. If an engineer is retained by an architect, he has to communicate through him. If a construction manager is involved, the communication process has to take another step and go through the CM's filter process. When an owner retains an engineer independently, he feels he has the engineer's undying loyalty. And finally, engineers are retained sometimes by real estate construction departments of corporations. Problem is some of these real estate departments are interested only in getting the building built to their budget, and a kind of budget battle goes on, and depending on who wins, the actual user may or may not be happy."

Two major things stand in the way of architects optimizing buildings to better suit users' needs, said architect Jordan Gruzen, and these are the fee structure and clients budgeting for first costs rather than long-range costs. "Even the AIA contract doesn't seriously consider post-occupancy evaluation fees. It's not considered the fifth stage of a job. There is a basic hypocrisy many times between the values clients set up for building characteristics during the selection process and their willingness to account for, either through fees or building budgets, those long-range issues that affect operating costs and value engineering. An example: we work with agencies which will have an elaborate process of scoring 500 or 600 points for every characteristic including mechanical and operating costs and performance experience from other jobs. Yet when you sit down to negotiate your contract, seldom will you negotiate a post-occupancy part of the services. And usually when the job is finished, you will have to struggle to get back into that building to re-examine it, to deal with the operating engineers, deal with the dampers properly, create an efficient environment. Take another example, a hotel. The minute the operating manager moves in, he takes over. If you are around, he may let you help him; otherwise he will solve the problem for you."

More than half-seriously, engineer Larry Spielvogel suggested that every design professional ought to be required to take a sabbatical, "... and operate the building he's designed; and, similarly people who operate buildings ought to be required to work in a designer's office once every seven years, and the same with contractors. Most general contractors don't have the foggiest idea of what their subs do or what architects do."

"The problem of communicating at the technical level is so complex," said architect Gene Kohn, "that you will find no simple answers. The complexity of the client is a real concern, as is the make-up of the team. The people behind the names is what

The milieu of the Round Table emerges from photographer John Ashworth's candid shots. The panelists are (left to right, and top to bottom): Willard Rouse (developer), Rouse Associates,

Malvern, Pa. Tyrone Pike (construction manager), project executive for Tishman Research, New York City. Edward Riguardi (building manager), executive vice president, Williams Real Estate, New York City. Martin Raab (architect), Haines Lundberg Wahler, New York City. Norman

Kurtz (engineer), Flack & Kurtz, New York City. Ben Johnson (mechanical engineer/owner), Naval Facilities Engineering Command, Charleston, S.C. Eugene Kohn (architect), Kohn Pedersen Fox Associates, New York City. Maurice Payne (AIA), director of Professional Interest Programs,

Washington, D.C. Larry Foster (property manager), American Financial Corporation, Cincinnati. Jordan L. Gruzen, FAIA (architect), Gruzen Partnership, New York City.



John P. Sirna (owner), manager of project engineering, SmithKline Beckman, Philadelphia. Michael T. Shehadi (building manager), mechanical department, Charles E.

Smith Management, Arlington, Va. Howard M. Phillips, Jr. (building manager), executive vice president, Faison Associates Management Company, Charlotte, N.C. Richard F. Floyd (project manager-agent), Wortham & Van Liew Real Estate Development Company, Houston. David L. Klepper (acoustics)



consultants), Klepper Marshall King Associates, White Plains, N.Y. Remaining panelists (left to right, and top to bottom): Larry Spielvogel (engineer), Lawrence G. Spielvogel, Inc., Wyncote, P.A. Horace Bomar (owner), director of operations and energy management, University of Pennsylvania, Philadelphia. Samuel M. Brody (architect), Davis Brody & Associates, New York City. Michael J. Dickens

(developer), vice president and director of construction, Cadillac Fairview Urban Development, Inc., Dallas. J. Robert Hillier, FAIA (architect), The Hillier Group, Princeton, N.J. Russell Jordan (owner) vice president, hotel technical services, Marriott Corporation, Washington, D.C.



makes jobs successful or not—the quality of those people, and how the job is organized, and the intensity with which the job is pursued. The first problem is clients are so different—corporate, developer, institutional, governmental, each with a different goal and attitude. Next, within the client, there is the complexity of who makes the decisions—the chairman of the board, or the employee down the line who fears for his own job, which causes him to make decisions that ultimately are not in the best interests of the project. Sometimes you have to be aware of the personality or the insecurity of certain individuals within clients to avoid harm to the project.

“Essential to success are for true objectives, budgets and time schedules to be set early, for team members to have a clear understanding of what each can do, and for the owner to participate with the right intensity. Some I have worked with showed very little interest aside from the bottom line and schedule. Other owners so overwhelm you with their participation that they choke off creativity of the architects and engineers. And while CM’s are a marvelous help at times, depending upon their abilities and personalities, they, too, can minimize or aggravate the adversary role. We welcome the owner’s representative who makes the professional feel that he will be listened to if he contributes good ideas, and who, if the ideas are really good, will use them in the project. We’re unhappy when the owner comes to us ready with a bunch of formulas—this mechanical system, that skin.”

Round Table participants offered a range of suggestions for getting the right kind of input from owners

These, not surprisingly, reflected their own roles and experience. For example, Richard Floyd, manager-agent for a major Houston developer, agreed with Gene Kohn that success grows out of having the right team together: “What we are really looking for is architectural firms who believe they are more than just design firms—and yet one of the first things we look for is a design firm. We want architects who can manage consultants, who know what the basic mechanical systems are, and who can communicate with structural engineers—at least to knowing what the basic costs of structural systems are. We are looking for contractors who will give us good prices, but we also want guys who have the resources to monitor what’s happening in the design process. The architect is responsible for all the design process, but the contractor is responsible for knowing what everything is costing at any point in time. We establish a budget up front that is a breakdown of some 12 major items, each of which is subdivided. If any of these get out of line at any time, it’s the contractor’s responsibility to blow the whistle. Then the design team has to interact to solve the problem. Perhaps they have to interact with the subcontractors. Maybe we have a New York engineer trying to do Houston air-conditioning systems, but we have also involved a Houston contractor. Maybe the interaction happens in their back room, I don’t particularly care. But this interaction is almost a daily thing. As the owner we set the goals and try to maintain an environment where everybody is on this team and nobody is subject to real reprimand, criticism or browbeating.

“I have worked in every kind of an environment in Texas. The only thing traditional is that we never do anything the same way twice. Team interaction, fast track, guaranteed maximum price is routine. Change is nothing other than finishing what you started out to do. If you can’t handle change, you have just eliminated yourself from the marketplace. From day one on to the bitter end, it is all one continual flow of changing

information, and much of this is information that you never had before.”

Developer Michael Dickens agreed that the whole process depends upon people: “The process we go through in the selection of consultants relates more directly to the people they will specifically assign to our project than to their fee—in our experience fees vary by small fractions of a per cent. We hope our budgets are reasonable. We have to trade off many competing requirements. Part of the difficulty we face in balancing off these competing objectives is in spending additional capital to save the tenant money in operating costs. We find this a difficult problem to face.

“The captain of our own team is a developer who must take over-all responsibility for the success or failure of a project, but is not expected to be an expert in everything. He has resources in house to turn to—marketing people, construction people, operations people, financial people, and, alas, increasingly, legal people. The ultimate decision has to be his and has to be based on the best information available at the time, and, of course, one of the arts of decision-making is making it when you don’t have all the information.”

From the standpoint of the developer/manager, Howard Phillips, whose firm operates 60 shopping centers in the mid-Atlantic states, felt that perhaps the developer/owner should get a lot more input from the people managing their properties. “We’re getting some feedback from field people, but we don’t bring them in when we’re talking about a new building. We have an in-house engineering staff, and I’m not sure we even communicate with them well enough. But we don’t bring back the managers in a team effort to see what we do wrong as developers/owners. We sometimes complain about their operating costs, but the truth is the burden may have come to the building as a result of decisions made at the development level. I would go so far as to say that we probably ought to bring in our operating superintendents—the hands-on type of guy who’s got to turn the valves and turn on motors and get to the switches.”

Engineer Norman Kurtz reinforced the view that the professional must advise the owner on operational matters

“I find rarely in the early meetings—the romantic phase of the project—that somebody from the owner’s side who is going to operate it is actually there. Very often those people who are responsible for making the building work, mechanically or in terms of the people, don’t have either the power, the status or the confidence of the team to contribute to the early decisions. If the engineer doesn’t have a counterpart to communicate with, he’s going to be talking to people who understand finishes and esthetics, economics and things like that. Most businessmen do. But if you try to tell them that they should or should not have chilled-water storage or the economizer cycle, they can’t respond except on the basis of hearsay: ‘A friend of mine did it and it sounds like a good idea.’ If the client doesn’t have anybody on staff who can contribute, then the engineer has to step forward and stick his neck out and take the responsibility.”

Architect Martin Raab thought that the process would work much better if owners had standards for their own performance: “Every architect is judged. No owners are judged. In my professional career I have received only one contract that indicated the responsibilities of the owner within the design process, and that was from a unique commercial developer who had 10 pages of architect’s responsibilities and 10 pages of owner’s. So someone understood the process. There are a lot of

good institutional owners who have a memory of what they did last time which they can pass on. They have a process. Many don't. I perceive this as a major problem because we have to adjust the standard methodology to the operational whims of many different types of owners, and it's very difficult to serve on a uniform basis.

No matter how carefully a building is programmed and how well it is designed, said Tyrone Pike, things can go wrong in the field because of the way buildings get built: "The business of building buildings is highly segmented. As you move out from the center of what we call the hub of the team, you get more and more specialization. As you approach the zero hour, you get to the guy who is putting up curtain wall or to the tin knocker who has one piece of ductwork that will not fit around a column. At the zero hour, the buildings gets the the best work the technician who is on the site at the time can provide. We have tried a lot of innovative solutions to certain little technological features of buildings in some recent projects. But to get them done right the right people had to be there at the right time."

Pharmaceutical company project engineer John Sirna returned to the designer's problem of getting the right information from the owner: "I often think that design professionals get the wrong information because they talk to the wrong owner's representative. In the company I work for, there are people concerned with cost, professional facilities people, the in-house client, the people who will use the facility, laboratory people and manufacturing people. Now, the architect will have a devil of a time figuring out who has the authority. Moreover, the professional facilities man, such as myself, will probably tend to keep my in-house client away from the design professional. If my in-house client sees the design professional, he will tell him he wants 100 per cent outdoor air and a room infinitely variable in temperature for his animals. But there are other very important considerations such as the quality of the work environment for personnel. And then there is the problem of in-house security. Generally, whatever they want they get. I have to ferret these things out, and pass them on to the design professionals—and it's a very delicate balance."

"To get more specific, do any of you owners have written standards for architects?" queried moderator Wagner

For the first response he turned to Russell Jordan, head of hotel technical services for Marriott Corporation. Replied Jordan: "In our case, three separate entities participate in and produce our buildings: the finance and development group, who acquire the land and make whatever business transaction is involved; an architecture group and construction group who are responsible for production of the facility; and our operating division which makes decisions leading to program. They have to operate the building and make a profit, so they put their two cents worth in. Beyond this are the thousands of technical points that have been discovered through experience to be good which we would like to have repeated. So what we have is a book that is about two inches thick, which is a compilation of things we have learned that serve certain specific purposes very well. It gives all kinds of heights, chair sizes, weights, thicknesses, etc. One problem with this kind of thing—and we have it—is that our in-house people tend to consider that a bible and not a guide—which it is meant to be—and our outside consultants might tend to react in the same way. So we have to be careful to let our outside architects (we are presently working with about 45 of them around the country) know that any specific information we give is a guide. Also we constantly remind ourselves that there is no

substitute for common sense."

"There is no way, to my knowledge, that an owner can hire an architect and have him fend for himself, and decide whom to talk to and whom to listen to, and decide what the owner's requirements are. In our hotel division, which is only part of our company, there are 105 expert general managers of hotels, 105 expert head chefs, 105 chief engineers responsible for maintenance, and 105 room managers. Our company has very highly centralized control, and there is an established channel for feedback from completed projects. Among the 2,000 people at headquarters, there may be only eight whose responsibility it is to sift through all this information and arrive at a decision on a certain point. We have found that it works fairly well, and I don't know of any other way to do it."

Panelist Robert Hillier, whose firm is working with Marriott, had some positive things to say about the guidelines and described some approaches his own firm has adopted for working with clients: "My people have been very impressed with what they call the 'cookbook.' While it spells out guidelines, it does not close off good healthy discussion or new ideas. Because Marriott has been through this so many times, they can keep refining and refining. What they do doesn't really apply to the client who is building once or twice in a lifetime. But it represents one solution to the problem of communications and deals with the issue of language. Ask some architects what a client's program is, and they reply that it's a list of items the client wants; they take the list and try to design a building from it. What we do is take part of our fee and try to get inside the client's head. We communicate with him in his language, which probably is not the language of architecture. The architect has to communicate with the chairman of the board in his language, and with the guy running the boiler room in his language. The way we do this is with a check list. Our book is only one-inch thick. We go back to the client with our interpretation of what the client has told us. Where do we argue? We argue about budget. When we deliver the check list, we deliver our anticipated budget, and we live with it. If the bid is too high, we go back through the program, we don't rip up marble or redo the lobby. Where else do we argue? We argue about color. We don't argue about VAV boxes because clients don't understand VAV boxes. So these things that can be expensive slip in."

Commented acoustical consultant David Klepper: "We encounter problems when the owner thinks of additional uses for his building long after the project is well along in the programming stage. Very often a room called the 'conference room' turns out to be a full-scale auditorium or a board room with perhaps half-a-million dollars worth of complex audio-visual equipment required to satisfy the owner's express needs when they get deeper into the project. None of this has been budgeted at the beginning, and this puts the audio-visual consultant, and sometimes the acoustical consultant, in conflict with the architect who doesn't want to turn money into that area."

The mechanical department of Charles E. Smith Management Company, which panelist Michael Shehadi works for, has its set of criteria based on their experience in operating some 90 office and apartment buildings in the Arlington, Virginia area. "Working with different consultants we have to transmit this experience. We might say we want copper-wound motors not aluminum-wound motors because they are more efficient. We just did our first heat pump job, and we thought we would give the owner the option of selecting one of three different manufacturers. But we found a lot of differences on the

maintenance side so we recommended that the owner pick the one that had the easiest access for changing the compressor, changing the motor, and changing the filters, rather than letting the mechanical contractor pick the low bidder of the three."

Now we know the problems of project management. How do you resolve issues such as energy, asked the moderator

Replied engineer Kurtz: "I have seen three generations of response to this issue. The first was office buildings done in 1974 in which everybody went to double glazing, VAV systems became very popular, we got lighting down to two Watts per square foot, and architects used a lot of reflective glass. None of the 1974 buildings cost more than those we designed prior to that time, I was shocked to find out.

"Then everybody said, 'Hey that's not so bad, let's spend a little bit more money and get some more return.' Some of the more venturesome people went to heat pumps and to building automation, and a few other things. Now, however, I think we are getting into a third-generation response. We are taking bigger risks. Architects are changing building shapes. You hear about daylighting and light shelves. What's good about this is that people are trying to do things not just in the mechanical and electrical systems, and are not merely paying lip service to energy conservation. When you get into these things, you take an element of risk. But somebody has to do it. If architects and engineers innovate, there is risk because they don't have R&D budgets.

"I think it's important for owners to understand the nature of the risks to be taken—it all shouldn't fall on the backs of the architects and the engineers. If you want to innovate, you should innovate across the board. The Prudential energy project (RECORD, May 1982) that we did in Princeton is a good example of this. They came up front and said, 'We want to innovate; can you help us?' This time they put the horse in front of the cart. Many of the innovations have turned out to be big pluses for the project. They have attracted tenants to the project. With this sort of risk-taking, projects can be attractive enough for owners to seek higher rentals."

"But how can design professionals minimize their risk in innovation," asked moderator Wagner, "and how can they afford the design effort?" Said Tyrone Pike: "We have to examine the design tools now becoming available, including a large range of computer modeling techniques. I think these will give professionals a good understanding of the benefits derived from doing a real energy-aware design. But from the owner's point of view you have to take a hard look at whether energy has anything to do with the profitability of a building because in some cases it doesn't, especially if energy costs are pass-throughs to tenants. The only thing the owner may be interested in is limiting the base building loads because these are the only direct chargeables to him."

Owner/developer Willard Rouse said that his firm started innovating in energy-conscious design because of two implied pressures—1) the fear that the government might put a ceiling on building energy use, and 2) the likelihood that utilities would start changing their rates. For this reason one of their recent buildings has water-loop heat pumps, and every tenant is separately metered.

U. of Penn's energy management director, Horace Bomar, wondered if architects and engineers are yet capable of designing truly energy-efficient buildings. "People are talking about energy management systems, but I have yet to see well-oriented buildings. Is the majority of professionals out there

really well trained? Is the profession doing enough to educate itself in proper design techniques?"

In an affirmative answer architect Sam Brody replied that, "I think building design has changed tremendously. In five years buildings have turned around. The whole attitude toward design has changed. All the AIA is about these days is energy symposia and energy courses and people going back for retraining. Yet our own experience has frankly made us a little bit cynical about certain attitudes. We worked on a research laboratory for an energy company where a whole set of energy-conserving devices was eliminated because it didn't pay off in three or four years. An awful lot of the time we have found that beyond common-sense organization of buildings, orientation, and the like, some of the proposals made by our engineers and by us have simply been eliminated because they didn't fit within the first-cost cap or because the payback on a cost-benefit basis has not been proved within a shadow of a doubt."

Added owner-management representative Shehadi, "There is a degree to which you have to look at the long-term impact of the building efficiency. We are coming close to having a glut of space in some of the major cities. The owner with the energy-efficient building is going to have the competitive edge. Still, I don't see engineers doing a lot of innovation in things like lighting controls, peak shaving, or thermal storage. One should look at the various alternatives and design them into the project—lighting controls is a big one coming down the line. But a beef of mine is that there is not just enough examination of new options by the professionals."

Countered engineer Loring, "Innovation is not necessarily the word—the whole story. We can only apply equipment that someone else devises, and we pay the penalty for it if it doesn't work. The real question is not so much that the knowledge isn't there. There are no *mea culpas* here. Our bag of tricks is very small, and everyone carries around the same bag. It comes down really to the question of how much we can justify to an owner in a particular situation with all the diverse interests around."

Tishman Research's project executive Tyrone Pike saw a rosier picture with respect to professionals' expertise in energy matters: "Both architects and engineers are going through a retraining process. Candidates coming out of the schools of architecture and engineering are of much higher caliber. They are much better versed in computer modeling techniques so they can look at alternatives more broadly.

"But I think the biggest issue is how do you market this for more benefit than just saving dollars on energy? How do you actually provide a better environment? How do you provide a higher quality of space that can be sold for more? What happens in a saturated market when tenants are shopping around for the best quality space? At this point you need to consider new approaches such as daylighting and lighting controls. I feel that daylighting provides a really great focus because it brings architects and engineers together and actually puts the architect back in control of the project in a very interesting way. It forces him to deal with the full reality of how lighting, fenestration, controls, surfaces, interior design all come together. Daylighting controls are no simple addition to a building. They require a highly-integrated professional team to put together a system that will be as acceptable to occupants as the lighting they have been accustomed to."

An important issue vis-a-vis energy overlooked by the panelists, said engineer Larry Spielvogel, was the issue of the building operator. "We have to look at not only the capability of the operator, but must give attention to the flexibility the

designer gives to the operator to be able to use the building under a variety of conditions. Further, I think that by and large the issues of design and shading never show up on the meter. How can we put a basketful of goodies into a building if we don't know which of these is contributing the most benefit, or if some of the items are actually of a negative benefit? We have to balance the economics and practicality of operating very complex buildings against first cost. I feel that with relatively simple and straightforward technology and good-quality operation, we can get energy cost down to a reasonable number without a burden in capital costs to the owner."

Next the Round Table panelists turned their attention to two remaining questions on moderator Wagner's agenda: 1) in general are owners willing to pay for higher quality features in buildings? and 2) do you feel that professionals' involvement in post-occupancy evaluations will increase, and if so, why?

Architect Martin Raab began: "We have been spending more on corporate headquarters than I have seen at any time. Owners are doing a tremendous amount of upgrading where they are, or they are moving into low-rent areas and then trying to enhance the quality of the environment they put up. The concern of corporations for their employees is an increasingly important aspect of personnel retention."

Said Russell Jordan: "Most changes in direction that human being make are generated by economics in some form or other. It's an interesting phenomenon in the hotel business that, in the face of inflation and doomsday theories of economic collapse, all indications are that the market is asking for or thronging to those places that have the more luxurious finishes."

Observed moderator Wagner: "So it is a general feeling that there is an urge not just to maintain quality levels, but to increase space and enhance the general environment, whether it's the hotel business or an office building."

Interjected architect Kohn: "A humorous note—It seems that for the good of the architect and achievement of quality, that an educated consumer is our best friend. Maybe the key for us is to promote to tenants to demand better quality."

Followed acoustical consultant Dave Klepper: "We are finding owners do have early open-plan spaces that want to redo them to provide better privacy from work station to work station, and in general improve acoustical performance of these spaces."

With regard to building quality, Tyrone Pike foresaw help from the rapidly developing electronic communications technologies: "From our view as construction managers, our research suggests that multidisciplinary CAD/CAM systems could speed up and improve the accuracy of the communication process. The architect, engineers, construction manager and contractor could be tied into the same CAD system for shop drawings and for coordination of the construction. We also foresee use of microcomputers for memo systems and for electronic mail. Further, in a more sophisticated area, energy analysis, we see relatively inexpensive programming tools being developed that will let us look at more and more alternatives testing design functions up front."

Said Larry Spielvogel: "It's heartening to see the beginnings of an improvement in the quality of buildings. But further improvement is going to take more time and effort from design professionals to do a little investigation, a little analysis, and, more importantly, to spend more time observing actual operation. Professionals should go back to see how well design concepts have been implemented and are performing. Whether or not you get paid to do a post-occupancy evaluation, I think you have a responsibility to your own practice to do so."

"I think that's just right," agreed moderator Wagner. "If nothing else it is smart—it's good marketing. It reassures the client for the next time. But can professionals do this for the fees they normally get, or need they ask for additional fees?"

While he recognized the advantages of post-occupancy evaluations by professionals, manager/operator Shehadi saw benefits in management's long-term observation of systems and materials: "Architects, engineers and builders don't see the operational problems that occur down the road—the five-year, 10-year, 15-year quality-of-component problem. The management company does see those, and having changed, fixed and rectified all the things that happen over the long term, has a lot of constructive input that should be placed into the front end of the design."

"In our construction-phase fee budgeting," said Jordan Gruzen, "we actually have a line for post-occupancy evaluation. but, to be frank, there are only a few jobs in which this is done in a formal way. In one case, for a Federal agency, we had a team examine a building after two-years' occupancy, and this team wrote a report evaluating not only how the building was functioning technically, but how we would really program the building if we had it to do all over again."

The future: More engineer participation (Kurtz); more complex architectural firms (Gruzen)

Summing up the positive steps he would recommend for improving communication between architect/engineer and the client at the technical level, engineer Norman Kurtz said: "If we expect buildings to work better, we first of all must raise the status of operators and include them in the decision-making process. Large organizations could do this. Or there could be better liaison between consultants and operators. A startup service or one-year-follow-through services added onto the AIA contract would enhance the stature of operators because we would have better record-keeping and feedback. The design team would have *the numbers*—and hard stuff to compete with the bankers and the lawyers who also have hard numbers that everybody can believe in."

"Secondly, the owner should create a positive environment for decision making—not a police state where everybody is covering his tail. Innovation is really an exercise in risk-taking, and if everybody understood the risks, they would be more willing to entertain new ideas."

"Thirdly, architects and engineers should not shroud what they do in a mystique of calculations. The objective is to make risk-taking credible. When I explain to good executives what's really involved, they are actually flattered that they now understand."

"Over-all I'm pretty optimistic. I feel that since 1973 engineers have sort of come out of the closet. We used to make a lot of recommendations, but nobody listened. It was like selling insurance or mutual funds. But attitudes have changed. Owners are now listening."

Concluded architect Jordan Gruzen: "My message is that the architect is a synthesizer, being responsible for a work of art in the community, for urban planning, for a building that works in the cityscape, and for technical performance. This demands that we build our firms as very complex organizations. No longer can we merely, as Richard Floyd said, put a little funny architecture on the front. We have got to put that funny architecture on the front, and at the same time we have to do everything else on the inside. The task, as a whole, is very humbling."

Robert E. Fischer.

Latest additions to the Saporiti Italia furniture collection

These four new furniture pieces from Saporiti Italia are part of the company's expansion programs for both contract and residential markets. Another aspect of this expansion will be the addition of showrooms in Los Angeles and other major cities to those that already exist in New York and Miami.

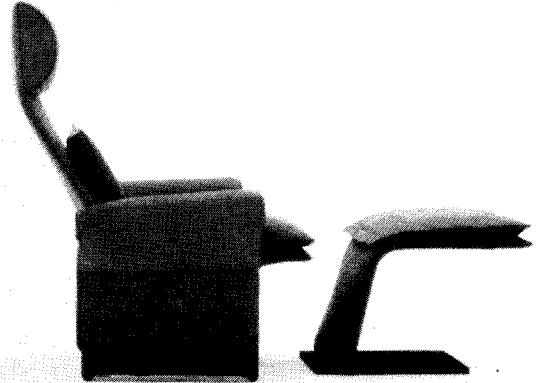
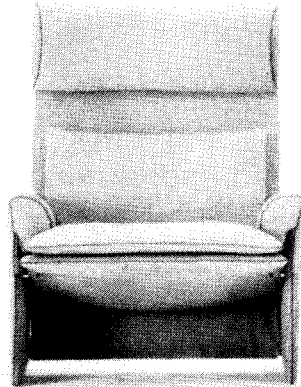
1. Dream/Con Braccioli: designed by Giovanni Offredi, this high-back chair has a curved back and seat section with solid panel arm rests; upholstered cushions for head rest and back support complement the design.

2. Dream/Senza Braccioli: as a variation on Offredi's Dream/Con Braccioli chair, this simplified, sleek version has no arm rests; the base plate is metallic with rubber covering.

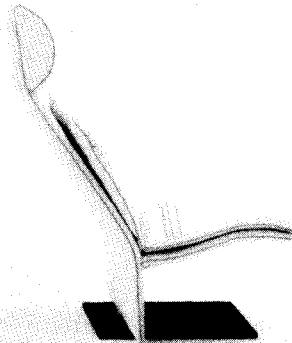
3. Swing: this chaise longue has a slightly S-shaped form supported by an adjustable metal base; a one-piece support cushion is sectioned for greater comfort.

4. Collection: this room setting shows off the Dalton sofa designed by V. Milles, the Dream Bassa/Con Braccioli low table designed by Giovanni Offredi, and a geometric tapestry produced by Saporiti with Missoni Original Fabrics, along with the Dream/CB chair shown in detail above.

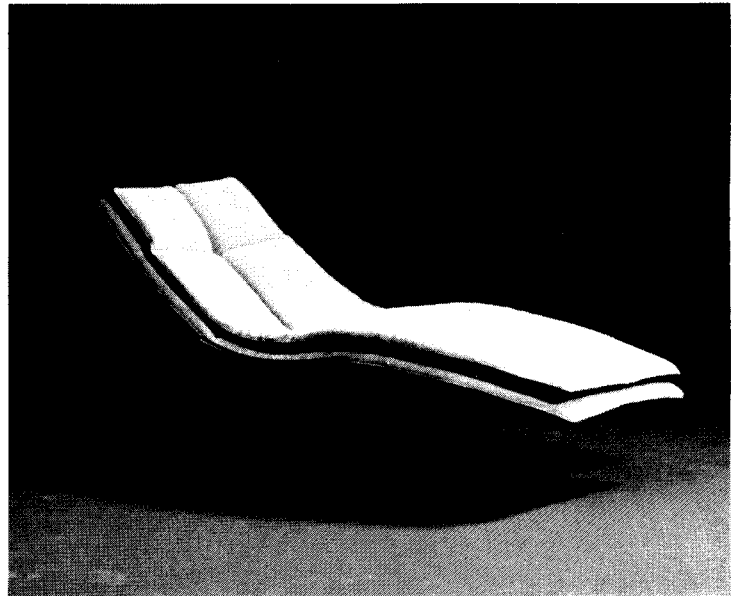
Saporiti Italia, New York City.
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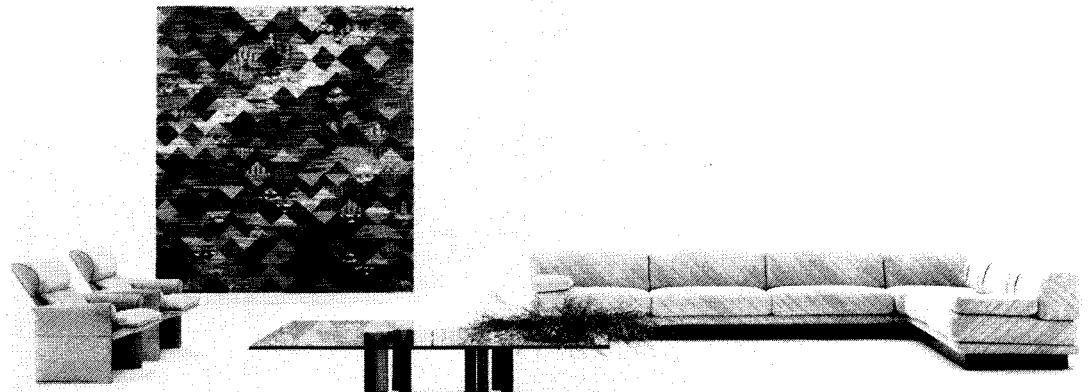
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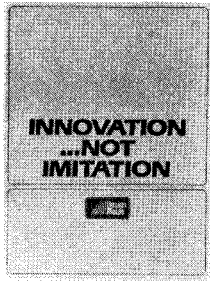


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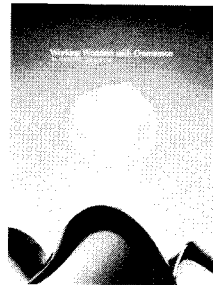
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Overlay drafting equipment
A 50-page book illustrates equipment for overlay drafting. Products ranging from file punches to registers, pins, bars and lamps are each explained in a short caption. A price list and warranty are also included. Design Mates, Inc., Lombard, Ill.

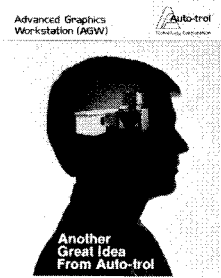
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Microcomputers

A 12-page color brochure describes 3 systems of microcomputers that can handle from 3 to 6 terminals and have up to 5 megabytes of storage capacity. Among the components featured are printers and terminals. Cromemco, Inc., Mountain View, Calif.

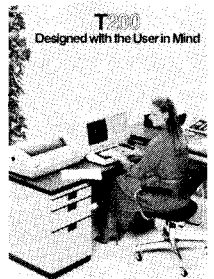
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New CAD/CAM system

This new micro-processor based "Advanced Graphics Workstation" provides 32-bit CAD/CAM system for under \$80,000. Networking capabilities allow linking many units to share data and resources. Auto-Trol Technology Corp., Denver.

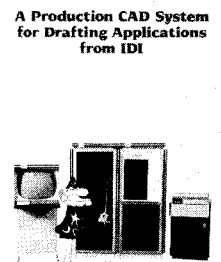
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Three units

A foldout four-color brochure covers both the "T 200" and the "T 250" office computers. Both models come in the standard three units—CPU-CRT disc, keyboard, and printer. They use Digital Research CP/M as an operating system and Microsoft BASIC-80 as a language. Toshiba America, Inc., Tustin, Calif.

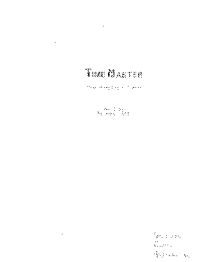
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Display systems

The IDI System 150 described in a 4-page pamphlet enables the designer to work with a light pen directly on a display screen. The system's software package, "IDRAW," allows the user to work in the language of his individual specialty. Information Displays Inc., Armonk, N.Y.

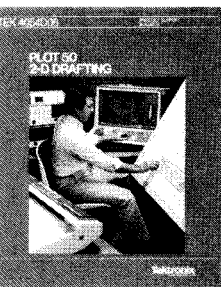
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Software

A CP/M software package called "TimeMaster" automates the job of time accounting for service firms such as consulting engineers. The package comes in CBASIC-2; accepts daily time entries; and prints monthly, by project and by employee summaries. Southern Digital Systems, Inc., Kinston, N.C.

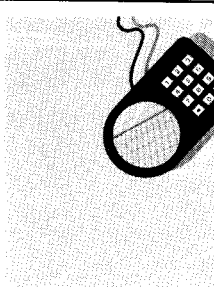
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2-D drafting

An 8-page brochure describes the elements and procedures of the "Plot 50" 2-D drafting system. Among the features discussed are applications, "menu" and drafting functions, and sample drawings are provided to illustrate the system's capabilities. Tektronix, Inc., Beaverton, Ore.

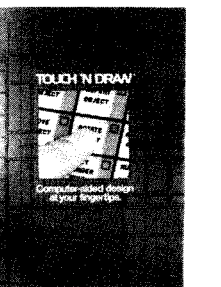
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A/E design

An illustrated 14-page color brochure explains how an interactive graphics system (IGS) can save time and cost in design and drafting work. Features include design expediency, drafting productivity, and standardized drawing appearance. CalComp, Anaheim, Calif.

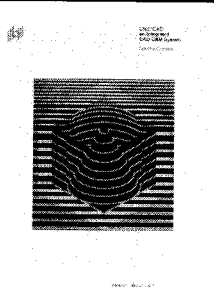
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Graphics

A 4-page color foldout describes "Touch 'N Draw," a computer-aided design system for users with no previous computer experience. Programs within the package include architectural floor plan, symbol placement, texturing, area/line measurement and cost estimating. Arrigoni Computer Graphics, Inc., San Jose, Calif.

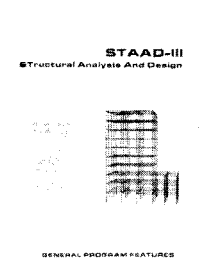
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Design and manufacture

A booklet describes the UNIS*CAD integrated CAD/CAM system. Designed for use in manufacturing, the system's ability to cut time and expense and produce a better product is discussed in detail. Sperry Univac, Blue Bell, Pa.

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Structural design

A 4-page brochure describes "STAAD III," a program used for structural engineering design and analysis. Among the features highlighted are free format input, band width reduction, and output options. Research Engineers, Inc., Cherry Hill, N.J.

Circle 405 on reader service card



Design/drafting

A technical resource featuring interactive computer graphics, engineering design processing and word processing capabilities is available. The basic station consists of a 64 Kbyte CPU, 10 Mbyte fixed disc drive, and a 19-in. graphics CRT. Interactive Computer Systems, Inc., Baton Rouge, La.

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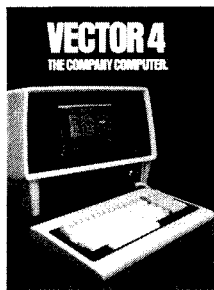
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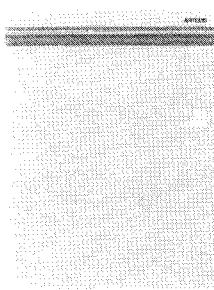
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Expanded bit processor

A 4-page color brochure describes the "Vector 4," an 8/16 bit desktop computer. A photograph of the inside of the computer illustrates its features; while its capabilities, such as 128K of main memory, are described in detail. Vector Graphic, Inc., Thousand Oaks, Calif.

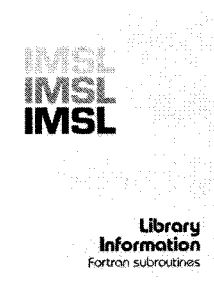
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Project management

As described in a 28-page color booklet, Artemis is an information processing and reporting system for project management. Sample printouts, charts and photographs illustrate the uses of the system. Metier Management Systems, Inc., Houston, Texas.

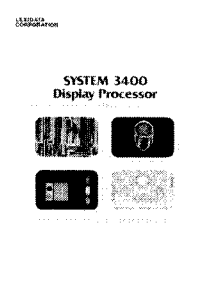
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Library

A set of 540 Fortran subroutines is described in a 25-page booklet. The subroutines, designed to save programming time in developing scientific and engineering application programs, are listed under group categories such as Observation Structure and Nonparametric Statistics. IMSL, Inc., Houston, Tex.

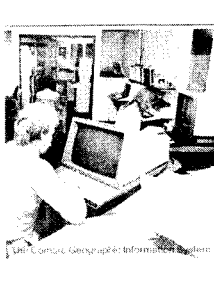
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Graphics

A 12-page brochure describes the "Lexidata Model 3400," an image and graphics processor with raster-scan display technology. The differences between raster-scan and scan converters are covered in detail. Descriptions of software and specifications are included.

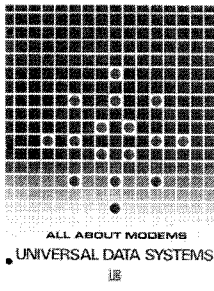
Lexidata Corp., Billerica, Mass.
Circle 419 on reader service card



Site planning

As described in a 6-page brochure, the "Geographic Information System" can accommodate graphic data from a variety of sources to produce any type of map. Photographs illustrate components while text covers software cartographic capabilities. Comarc Systems, San Francisco.

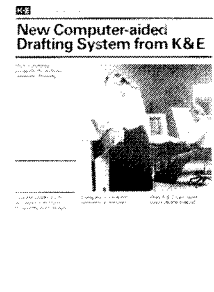
Circle 414 on reader service card



Modems

"All About Modems" is a comprehensive guide to modems (modulator/demodulators) and their design. Included is information on digital interface types, FCC registration and automatic calling units. Also included is a list of abbreviations.

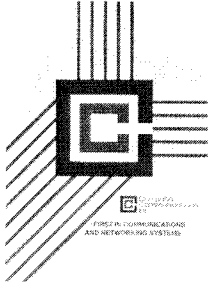
Universal Data Systems, Huntsville, Ala.
Circle 420 on reader service card



Computer-aided drafting

A 4-page brochure emphasizes the advantages of increased drafting productivity by users with no computer training, and widespread uses by using this company's system. Photographs of components illustrate the system which handles English and metric measurements. Keuffel & Esser Co., Morristown, N.J.

Circle 415 on reader service card



Communications

A packet of material describes front-end processing featuring terminal-initiated host application selection, polling algorithms to unburden the host, on-line network reconfiguration, traffic and performance statistics. Computer Communications, Inc., Torrance, Calif.

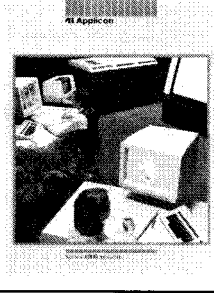
Circle 421 on reader service card



Relocatable terminals

A 20-page color brochure describes the "PDS 270," a microprocessor-based communications system which uses high-speed "loop" technology. The "loop" concept allows for expansion of units on the system and portability of equipment without expensive recabling. Paradyne Corp., Largo, Fla.

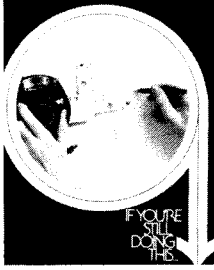
Circle 416 on reader service card



Data sheet

A data sheet on the Series 4000 family of CAD/CAM systems summarizes different types of graphics processing facilities, workstations and plotters. Also described is the Distributed Graphics Network (DGN), graphics applications, and industry-specific application software. Applicon, Inc., Burlington, Mass.

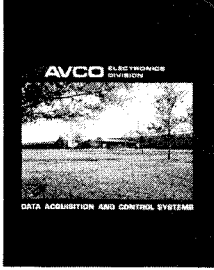
Circle 422 on reader service card



Computer-aided drafting

The EasyDraft system for architectural and engineering applications is illustrated and described in a foldout color brochure. The mechanics of the system are covered in 6 steps which include photographs of each component. Also covered are customer support services. AM Bruning, Itasca, Ill.

Circle 417 on reader service card



Systems

A 5-page color booklet describes computer systems for a variety of tasks: facility management, remote supervision, energy management, engine testing and process control. Charts and photographs illustrate system capabilities.

Avco Electronics Division, Huntsville, Ala.
Circle 423 on reader service card
Continued on page 151

Now Touch 'n Draw™ puts computer-aided design at your fingertips.

If you're trying to stay ahead in the architectural/design field today, you're facing pressures you've never faced before.

To counter these pressures, it takes powerful tools, like computer-aided design and drafting (CADD) systems. And to do it effectively and economically, it takes Touch 'n Draw™.

Easy to use.

Touch 'n Draw™ is designed for designers—not programmers. That means any of your design and drafting people can work with the system productively after just a few days' training. And in a couple of weeks, they'll be using it like experts.

Through its Touch Control Station, the system puts computer power right at your fingertips. While a drawing is being electronically created on the display screen, it can be changed, moved, or scaled up and down—limited *only* by your imagination. Once they're complete, drawings can be automatically produced on a digital plotter in just minutes.

Easy to integrate.

No matter what your design specialty is—architecture, facilities



planning, interior design—you'll appreciate how quickly Touch 'n Draw™ goes to work in your practice. That's because it has all the specialized symbols and commands you need. At present, a library of over 1,000 drawing symbols is available, covering all of the specialty areas—electrical, mechanical, landscape, furniture, etc.—required for complete working drawings.

Easy to afford.

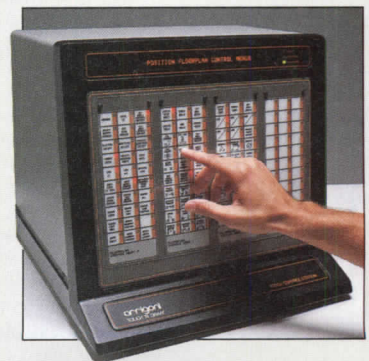
For the cost of a single draftsman, you can now have a Touch 'n Draw™ system. Typically, one system does three to five times the drafting work possible manually—and considerably more than that on repetitive tasks. That means now you can add design and drafting power to your office, without adding manpower. And reduce turnaround times dramatically too.

Easy to grow with.

No matter how large or small your design workload is, a Touch 'n Draw™ system will be easy to grow with, as your business grows. Upgrading is simple—from a single station to the most complex, multiple-station system—so your initial investment is protected as

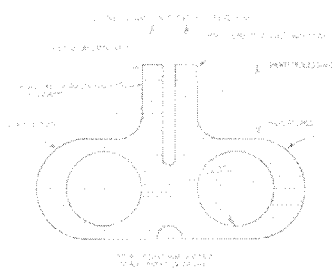
your needs expand.

Touch 'n Draw™ could be your blueprint for success in the '80s, right now. To find out how, contact us today for a descriptive brochure or a demonstration.



TOUCH 'N DRAW™

Arrigoni Computer Graphics, Inc.
170 Knowles Drive
Los Gatos, CA 95030
(408) 370-1400



LET DATA BASICS HELP BUILD YOUR BUSINESS

Data management

A 6-page foldout brochure describes a word processing system which may be supported by Wang 2200. The system performs such office functions as general specifications, mailing lists, proposals/contracts and general correspondence. Integrated with this system is a data management program which maintains records, drafting notes, and door and finish schedules. Sample printouts are shown to illustrate features of the systems. Data Basics, Inc., Cleveland.

Circle 424 on reader service card



What is Computer Aided Drafting? Computer Aided Drafting (CAD) is a computer system that allows the user to create and modify drawings on a computer. The user can create a drawing on a digitizer or a light table, and the computer will store the drawing in a file. The user can then retrieve the drawing and make changes to it. CAD systems are used in many industries, including architecture, engineering, and manufacturing.

Summagraphics...more than Digitizers



Digitizer plus

A foldout brochure describes the functions of a digitizer and computer-aided drafting system. Detailed photographs illustrate the process of using a digitizer, a tablet for input into CAD systems, and the CAD system in use. A diagram illustrates the interaction of all elements. Summagraphics Corp., Fairfield, Conn.

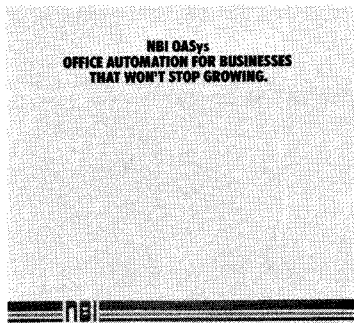
Circle 425 on reader service card



Cost accounting

The "Account 99" system is a simple job/client and overhead cost accounting software package for small service organizations with up to 150 employees. The system is designed to operate totally within the internal computing capabilities of Texas Instruments' DS990 Model 1. Datasystem Designers, Inc., Kansas City, Mo.

Circle 426 on reader service card

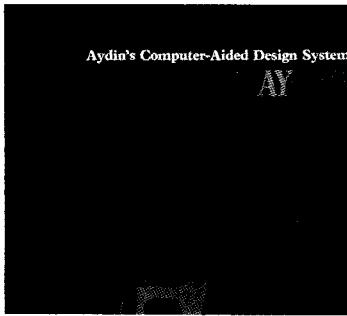


NBI OASys OFFICE AUTOMATION FOR BUSINESSES THAT WON'T STOP GROWING.

Word processors

A 10-page brochure describes the "NBI System 3000" word processor which is the building block to the rest of this company's system. Also illustrated are the "NBI System 8," a shared resources system, and the OASys Network's "System 64," their most advanced system. NBI, Boulder, Col.

Circle 427 on reader service card



Aydin's Computer-Aided Design System

Computer-aided design

A 6-page color foldout describes the *Aycad* interactive, single- or multiple-station, CAD/CAM system for engineering, architectural design and drafting applications. The system translates ideas and sketches into computer format for 2-D and 3-D applications. Aydin Computer Systems, Fort Washington, Pa.

Circle 428 on reader service card



Architecture design and engineering from Computervision



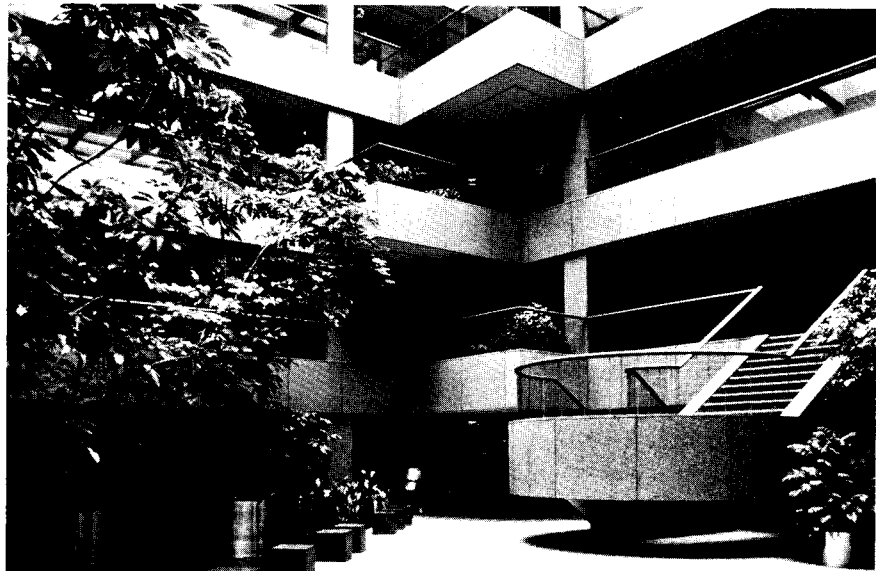
Designer system

A 6-page color foldout describes a designer system for architecture, engineering and construction. Among the capabilities of the system are site planning, space planning and hvac. Computervision Corp., Bedford, Mass.

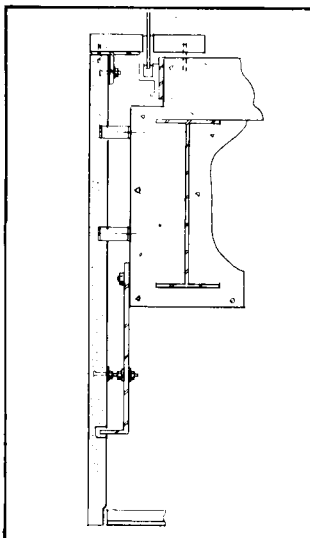
Circle 429 on reader service card
More literature on page 157

Granite.

The maintenance-free interior finish.



AT&T Long Lines Headquarters Bedminster, NJ Architect: J. C. Warnecke



Cold Spring Granite on spandrels. Around columns. On floors and steps. Wherever it's used, Cold Spring Granite is easily appreciated for both outstanding appearance and low maintenance—indoors as well as out. And, with 16 colors and two finishes to choose from, Cold Spring Granite offers an interior finish that doesn't compromise aesthetics for durability.

For a 20 page, full-color catalog showing all that Cold Spring Granite has to offer, just call **800-328-7038**. In Minnesota call (612) 685-3621. Or write to the address below.

Cold Spring Granite Company
Dept. AR-8
202 South 3rd Avenue
Cold Spring, MN 56320
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Advance Architects and Engineers
Wisconsin Rapids, Wisconsin

MOORWOOD[®]

SHOWCASE

Very unusual in its design, this Wisconsin clubhouse gracefully combines sleek modern lines with the more traditional

look of wooden beams and shingles whose natural texture and appearance has been enhanced by a coating of Moorwood Semi-Transparent Stain and Wood Preservative.

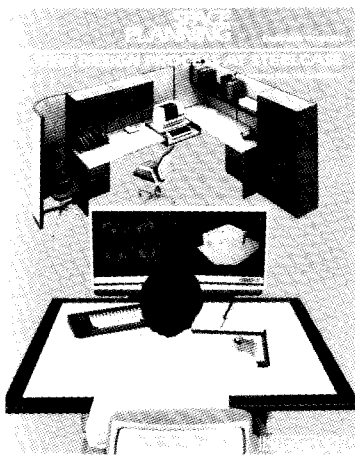
The beauty of the wood shows through the stain and compliments the surrounding landscaping with its lush greens

and fairways. The wood preservative characteristics of the stain help to protect the exterior of the building against the rugged Wisconsin weather.

Quality, protection & natural beauty

Circle 68 on inquiry card

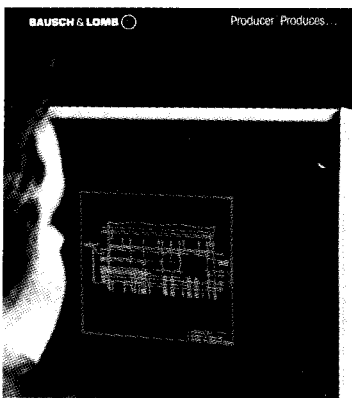
Benjamin
Moore 
PAINTS



Space planning
Steelcase furniture manufacturer and Intergraph have combined efforts to introduce the "Steelcase Computer-based Planning System." This program is intended to give the designer a capability to illustrate office layouts easily, while providing a special service in the way office furnishings can be specified. Intergraph Corp., Huntsville, Ala.
Circle 430 on reader service card

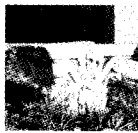


Software catalog
This spring 1982 catalog specifically discusses the "Special Delivery" software collection for the Apple II and Apple III systems. More than 40 software packages are defined, including ones for topographic mapping, and drafting and architecture systems. Apple Computer, Inc., Cupertino, Calif.
Circle 431 on reader service card

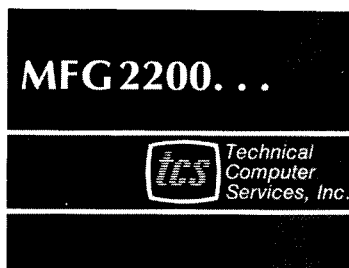


Drafting system
The gatefold color brochure on *Producer* illustrates the basics of this drafting system. Applications, specifications and prices are also available, with descriptions of its differences from a CAD system. Bausch & Lomb, Austin, Texas.
Circle 432 on reader service card

DFI systems
Computers for Architectural Practice



Administrative computers
A 4-page brochure entitled "Computers for Architectural Practice" describes in-house computers and software for specifications, cost estimates and improving energy conservation in construction. DFI/Systems, Orlando, Fla.
Circle 433 on reader service card



Planning and management
A 6-page foldout brochure describes the "MFG 2200," a software accounting and production control system. From cost accounting to material requirements planning, transactions posted to one module automatically update the other affected modules. Software is written in BASIC 2 language. Technical Computer Services, Inc., Columbia, S.C.
Circle 434 on reader service card

DLI DESIGN LOGIC INC.

Design Logic, Inc. is a computer software development and consulting firm. We have a staff of experienced programmers and systems analysts. We are currently seeking qualified individuals for the following positions: Programmer, Systems Analyst, and Project Manager. If you are interested in these positions, please send your resume and references to: Design Logic, Inc., 10000 Westpark Drive, Suite 100, Dallas, Texas 75243. We are an equal opportunity employer. M/F/H/V.



Computer service bureau
This pamphlet describes services offered for developing data processing for architects, engineers and other related professionals. Design Logic Inc., Oakland, Calif.
Circle 435 on reader service card
More literature on page 159

Designing Quality Communications Systems!

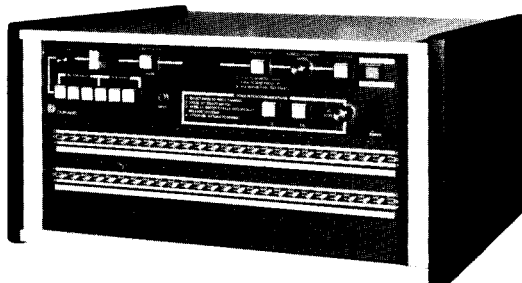
You're the expert in your field. You're the one who put all the time, talent and energy into the project. You specify quality materials to match the quality of your work.

We're the experts in our field — the field of communications. We're Dukane; we manufacture communications systems for schools, hospitals, prisons, institutions and industry. Our systems are designed to meet your requirements for internal communication, public address, paging, monitoring, tone signaling and background music. Dukane offers a full range of quality products from the simple two-way Compact Communications System to the highly sophisticated microprocessor controlled System 1200.

Our commitment to your project doesn't end with the sale of the product. We have a team of highly trained systems engineers who will assist you with the design of a system to meet your specific needs. A nationwide network of Dukane distributors provide on-site communications planning, local installation and maintenance.

We've helped experts in your field with communications systems for the Harris County Jail in Texas, the Miami School District in Miami, Florida and the Market Square Arena in Indianapolis, Indiana. We'd like to show you what we can do for you . . . expert to expert.

Attach your business card to this ad and send for free information.



DUKANE CORPORATION/COMMUNICATIONS SYSTEMS DIVISION
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DUKANE 

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ELEVATORS BY DOVER

**Modern technology
blends with
contemporary
charm.**

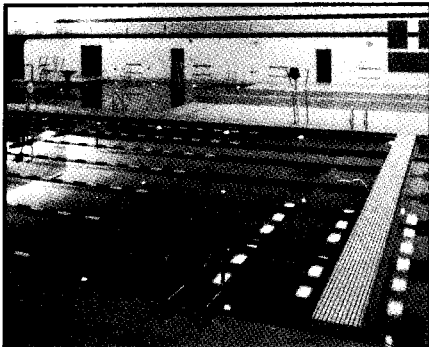
Adding to the revitalized downtown area of San Antonio is the new Hyatt Regency, a \$38-million, 633-room luxury hotel on the Riverwalk along the San Antonio River. A series of waterfalls flows through the atrium lobby as an extension of the river. Six glass-walled, cylindrical Dover Elevators add their own excitement as they move guests through this dramatic space. For more information on Dover's complete line of Traction and Oilraulic® Elevators, write Dover Corporation, Elevator Division, Dept. 688, P.O. Box 2177, Memphis, Tennessee 38101.

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Dover Elevators sold and installed by
Dover Elevator Company, San Antonio



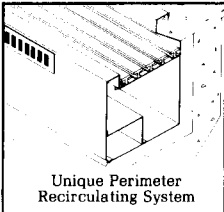
SPECIFY THE PROFESSIONALS.

When you specify Recreonics, you've specified the professionals — designers and manufacturers of complete swimming pool and natatorium systems who can save you time and money.

We offer you the benefits of a single source, single responsibility manufacturer for new swimming facilities as well as pool renovations.

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But Recreonics delivers more than superior swimming pool equipment and systems. Drawing upon our extensive engineering backgrounds in the design, construction and operation of commercial swimming pool systems, we can assist you in the preparation of budgets, specification gathering and complete planning for a successful swimming pool project.



Make sure your next pool project is designed and engineered correctly. Specify the professionals — Recreonics Corporation.

Our colorful 112-page Buyer's Guide and Operations Handbook will prove most beneficial in any pool project. It's yours for the asking. Call or write today.



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Circle 71 on inquiry card

8200 Word Processor

The 8200 Word Processor is a complete word processing system that includes a keyboard, a printer, and a monitor. It is designed for use in a variety of office environments.



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COMPAL PRODUCT LINE



8200 System

The 8200 System is a complete computer system that includes a monitor, a keyboard, and a printer. It is designed for use in a variety of office environments.

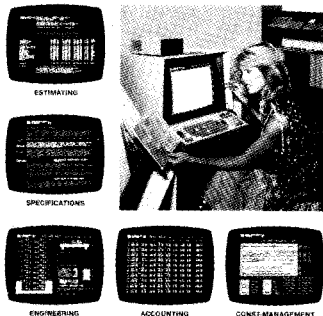
The 8200 System is a complete computer system that includes a monitor, a keyboard, and a printer. It is designed for use in a variety of office environments.

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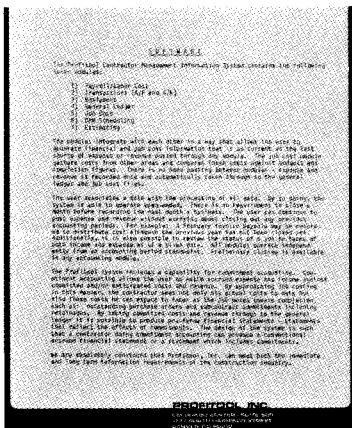
Computer/word processor
In 6 pages the "COMPAL 8200" computer and word processing system is illustrated and described. The system is designed to operate either this manufacturer's software applications or any of the standard CP/M software packages. Compal, Inc., Beverly Hills, Calif.
Circle 136 on reader service card

Think With Color...
It Can Lighten Your Workload



ARCHITECTURAL PRODUCTION SYSTEMS from DFI/SYSTEMS

Architectural production
A 6-page brochure illustrates a system of computers, detailing hard copy options. The advantages of a color CRT and light-pen are also described. Applications in accounting, specifications, planning, engineering and cost estimating are listed. DFI/Systems, Orlando, Fla.
Circle 137 on reader service card

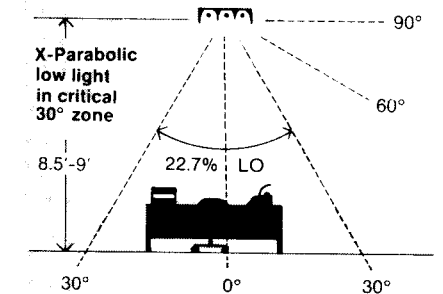


Accounting
The Contractor Management Information System (CMIS) is an integrated group of 7 modules that perform the accounting functions of a contracting firm. Literature includes sample printouts and module features. Profitool, Inc., Denver.
Circle 138 on reader service card
More literature on page 161

LPI's energy saving PARABOLIC™ fluorescent luminaires

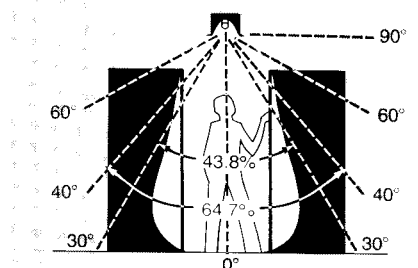
- **TWO UNIQUE DESIGNS** for exceptional efficiency, control, and savings.
- **SAVES ENERGY.** No light-absorbing lenses, louvers, or baffles to waste light.
- **REDUCES MAINTENANCE** by 2/3rds. Open, easy access design stays cleaner.
- **FEWER FIXTURES NEEDED.** Reduces air conditioning costs.
- **RECESSED, SURFACE, or PENDANT** designs, for most ceiling systems. Air-handling functions for recessed units.

X-PARABOLIC™ WIDE:



- 86.3% efficient; fewer fixtures needed. Allows 2 to 1 spacing to mounting height. For 1, 2, or 3 40W rapid-start lamps.
- Ballast and switching options allow multi-level lighting, with optimum ESI values.

STACK-PARABOLIC NARROW:



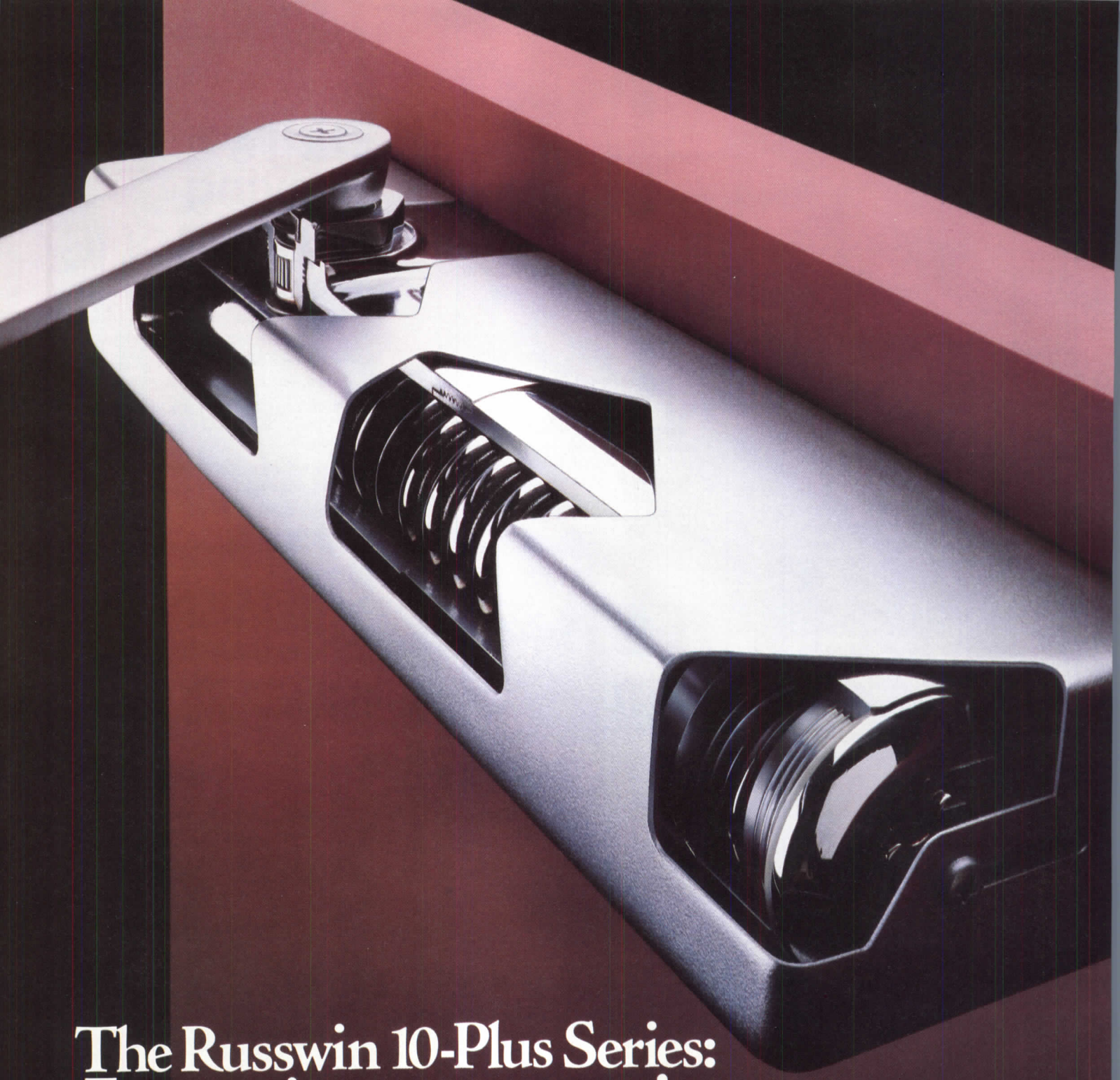
- 83.6% efficient; precisely controlled distribution for even lighting of vertical surfaces in high, narrow areas such as library stacks.
- Available for 40W rapid-start lamps or 60W high-output lamps.



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The Russwin 10-Plus Series: First to give you ten years' protection against costly closer failures.


Five years is a long time in the life of an ordinary door closer. Lots can happen. Springs can break, arms snap, oil leaks, valves pop. End of closer.

That's why a five-year limited warranty has been the most you could expect when you specified closers for new construction or retrofit installations.

Until now. With the development of the advanced 10-Plus Series, Russwin brings you a door closer of exceptional strength and enduring quality.

It's built to last. With a cast iron alloy case. Drop forged steel and wrought parts. And tough enough to pass a 2-million cycle test.*

Result: the Russwin 10-Plus (2800, 2810 and 2820 Series) carries the first *ten-year limited warranty* to ever accompany a high performance door closer.

With over 140 years of experience, no one knows the ins and outs of architectural doorware better than Russwin. Or has a sharper eye for budgets. Learn more now. Ask your Russwin Distributor or call for details. 1-(203) 225-7411. Russwin Division, Emhart Hardware Group, 225 Episcopal Road, Berlin, Connecticut 06037. 

*Test administered by Electrical Testing Laboratories, designated by BHMA for testing ANSI standards.

RUSSWIN
HARDWARE GROUP

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

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GBC System 12 MULTI-USER SYSTEM



Low Cost Package: High Performance. More than 100 users can share the power of the GBC System 12. A 6-page brochure describes the system's capabilities and features. It includes a complete list of hardware and software options. The system is designed for small and medium-sized businesses. It is used to analyze data, perform basic accounting functions, and manage day-to-day transactions. Business Computer Systems, Northbrook, Ill. Circle 439 on reader service card

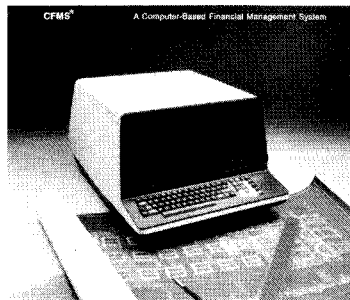
Business computers

GBC System 12, which provides both hardware and software for business and financial applications, is described as a multi-user system for small- and medium-sized businesses. It is to be used to analyze data, perform basic accounting functions, and manage day-to-day transactions. Business Computer Systems, Northbrook, Ill. Circle 439 on reader service card



Dot matrix printer

A page of information describes the "Model 739," a small business computer printer which produces text, data processing and graphics. Under manual or software control the printer performs half-line steps to create superscript and subscripts. A self-test capability allows the user to verify operation. Centronics Data Computer Corp., Hudson, N.H. Circle 440 on reader service card



Financial management system

A 6-page brochure illustrates the "CFMS" system for architects, listing applications in project costs, budgets, and compensation negotiation. A separate system is also available for business managers in the areas of payroll and financial statements. Sample printouts for each one are pictured. Harper and Shuman, Inc., Cambridge, Mass. Circle 441 on reader service card

More literature on page 175

The flexibility of structural steel...

Why steel-frame structures are renewable resources.

Structures, as expressions of human needs, are subject to the same pressure of change as other aspects of our society are today. Structures that cannot be economically changed or modified, die. Their potential value is lost... and this process is accelerating. Which, of course, is one reason the inherent flexibility of steel construction is an important element in present day planning and design.

Steel structures have flexible futures.

Once a concrete structure is built, you're pretty much stuck with it, as is. With steel construction you can make changes that would be prohibitively expensive, if not impossible, with concrete. These changes can be as minor as rerouting ducts or wiring, or as major as reinforcing for greater loads or adding bays or floors. Steel-frame structures can be, and often are, completely rebuilt. They can be extended, expanded or converted to entirely new uses, remaining functional, modern, competitive facilities.

Sometimes the future is now.

The wisdom of having built with structural steel often pays off quickly these days. In 1980, 25-year old Bingham Hospital in Idaho was completely rebuilt and upgraded to current seismic standards at an estimated \$200,000 savings over a new building. After only 23 years, Point Loomis shopping center in Milwaukee was extensively remodeled to bring it back to its full retail potential. And in one remarkable case, a 3-story steel parking structure completed in 1968 at Love Field, Dallas, was dismantled in 1976 and re-erected for a hospital in downtown Tulsa.

For the full story on the flexible strengths of structural steel, write to: R. G. Altmann, President, American Institute of Steel Construction, 400 N. Michigan Ave., Chicago, IL 60611.

The future is being built with structural steel.



AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

Circle 74 on inquiry card

REDWOOD

INTRODUCING RUSTIC SIDINGS

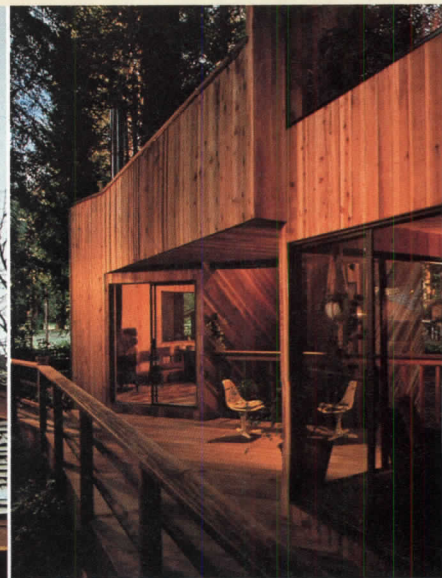
Now you can create an attractive rugged look for residential or commercial projects with new seasoned rustic redwood sidings.

These saw-textured sidings with knots and creamy ribbons of sapwood give you all of the natural attributes of the luxury grades. They are available in channel, tongue and groove and new thick bevel patterns.

Like all redwood, they take and hold finishes better than other woods. There's a minimum of warping, checking or cupping. They insulate against heat, cold and noise. And they resist flame spread.

So introduce yourself to a new redwood look — seasoned rustic sidings.

● California Redwood Association One Lombard Street, San Francisco, CA 94111
Write for our seasoned rustic redwood sidings data sheet. **Circle 75 on inquiry card**



PROFESSIONAL SERVICES

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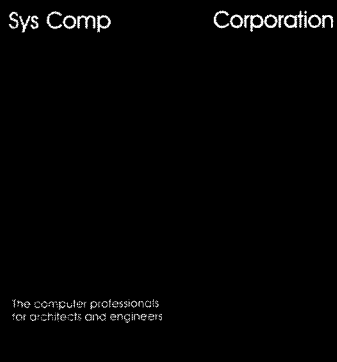
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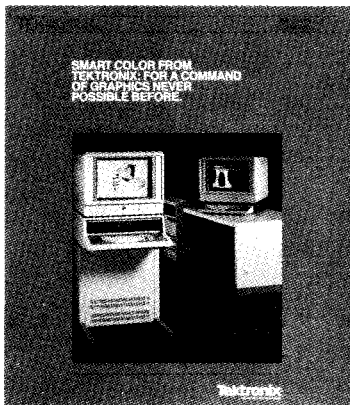
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Desktop microcomputer

A packet of information describes a desktop microcomputer and a library of engineering, word processing and accounting software applications. The microcomputer features a 16 bit 64KByte MicroNOVA CPU with an integral 716KByte dual floppy diskette system and supports Basic, Fortran and Pascal languages. Sys Comp Corp., Santa Monica, Calif.
Circle 442 on reader service card



Computer system

A 4-page color brochure explains the uses and advantages of the Tektronix 4113 system which offers color graphics. The 4113 is claimed to have no screen flicker and that piecemeal design work is unnecessary with its memory system. The software core package is also described. Tektronix, Inc., Portland, Ore.
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EVANS & SUTHERLAND

Multi-picture system

This system was designed for multiple terminal installations requiring high-performance 2-D and 3-D graphics capabilities. Each "Picture Station" provides real-time user interaction with a high-quality color image. Key design features include 16-bit coordinates, compounding of transformations, zooming and viewpoint mapping. Evans & Sutherland Computer Corp., Salt Lake City, Utah.
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Parker's Model 6000A paper towel dispenser with waste receptacle is specially designed for installation in 4" walls. The durable recessed unit has a one-piece solid frame construction of satin finish stainless steel. Its double pan back doors are equipped with full length stainless steel piano hinges and tumbler locks. Parker also produces a similar concealall model, which features a smooth full-panel door, without frame. Both units can be mounted at a height which makes them suitable for use by the handicapped. The 6000A is part of a wide line of Parker dispensers and disposals.

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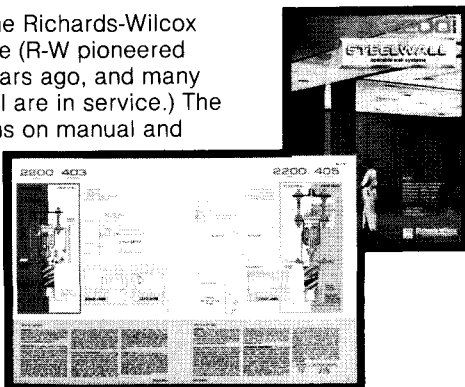
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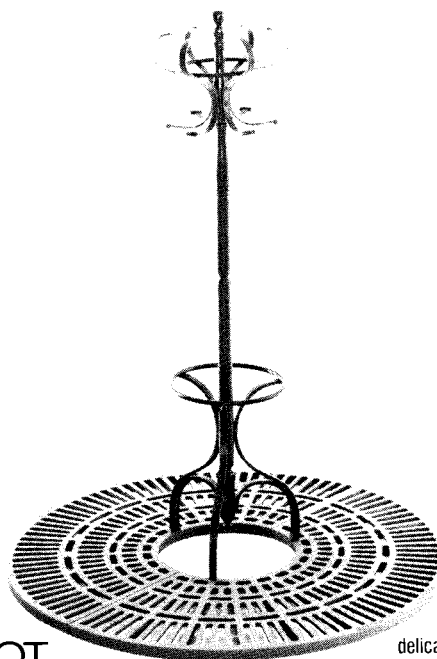
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