

The background of the cover is a detailed photograph of a classical architectural capital, likely a Composite capital, showing its various moldings and fluted sections. The lighting creates strong shadows, emphasizing the three-dimensional form of the stone.

ARCHITECTURAL  
RECORD

Business Design Engineering  
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October 1985

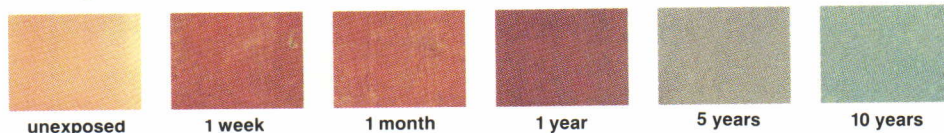


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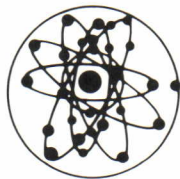


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*Diplomatic reception rooms for the U. S. Department of State, Washington, D. C.*  
*Allan Greenberg, Architect*  
*Photographer: Robert Cheek*





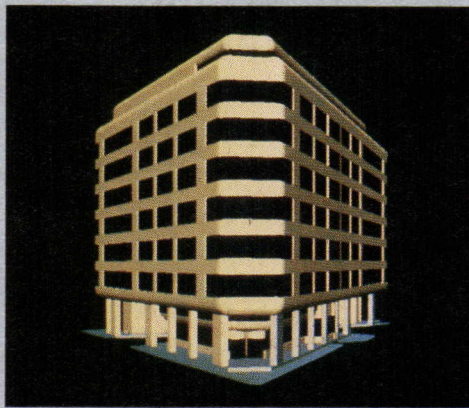
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The article by Theodore L. Mularz on architectural education and the NCARB [RECORD, August 1985, page 53 et seq.] was a comprehensive statement of the progress being made in the national examinations for architectural licensing.

Both the requirements for education standards and the examination content reflect a concern to monitor the skills, abilities and competence of architects and to assure that the public's health, safety and welfare are protected to the highest degree possible.

Unfortunately, all of these fine efforts by Mr. Mularz and the many individuals who assist the program are being undermined by the lack of enforcement of the architectural act regulations in many states. Many non-architects are practicing architecture with relative immunity, without the benefit of architectural license.

In Illinois, we have seen numerous examples of persons other than architects preparing construction documents for buildings. A survey in 1982 of building departments in the Chicago metropolitan area showed that 40 per cent were not abiding by Illinois architectural registration statutes. Ninety-five per cent responded that they accepted building plans verified by non-architects such as structural engineers, professional engineers, civil engineers, building "designers" or others.

It appears that the finite requirements for education, examination and licensing of architects established by NCARB in many cases go unrecognized by the officials who issue building permits to non-architects. A concentrated effort by all architects must be taken to eliminate the practice of architecture by persons who are not educated, trained, examined and licensed to practice architecture.

Legislation must be improved and enforcement strengthened. A rigorous program of education of building officials to encourage enforcement of state architectural statutes must be undertaken if we are truly concerned for the health, safety and welfare of the public.

*M. S. Markson,  
Vice President, Illinois Council  
Society of American Registered  
Architects  
Mt. Prospect, Illinois*

As I look through the August 1985 issue of ARCHITECTURAL RECORD featuring Michael Graves's building for Humana [pages 102-113], I can't help but wonder what happened to the precept "form follows function."

One of these days a young architect will come along and really show us a new direction,

and then perhaps this mockery masquerading as architecture will be recognized for what it really is—a stage set for an Egyptian movie.

Wouldn't it be interesting if it were possible to hear what Frank Lloyd Wright would have to say about it?

*Homer L. Williams,  
Architects Design Collaborative,  
Inc.  
Parkville, Missouri*

Thanks to ARCHITECTURAL RECORD for the August 1985 article on Humana.

Humana has created more publicity for Louisville in two years than the Kentucky Derby has in 108 years.

*George Ruckriegel  
Ruckriegel Engineering  
Louisville, Kentucky*

Leafing through RECORD's July 1985 issue, I came upon the Whitney expansion designed by Michael Graves [page 65]. It brought to mind a quote by Walt Whitman I had read many years ago. Whitman states he knew no sure road to success, but the one sure way to failure is to try and please everyone.

There was a time when I would have been incensed at seeing such an absurd design being proposed and taken seriously. Now the only thing I can think of is that some 40 to 50 years hence when architects observe works of this nature they will double over with laughter, as we did 30 years ago studying some of the plates of the original Tribune Tower competition.

Unfortunately, it seems that Mr. Graves has fallen into the technique of today's pseudo-intellectual, neo-neo-classicism, which presumes that if one sticks the details from one period onto new structures, then those structures magically become of that period (shades of Palladio). Historians should be having a field day with today's superficiality. At its best, revivalism reflects lack of imagination, producing design with no reason.

All I can hope is that somewhere in some architectural design room there are some students with enough integrity to laugh, get angry, and resolve to follow the principles of architecture and to apply those principles to a more creative and imaginative movement.

*Ronald E. Zoicher, Architect  
New Haven, Connecticut*

#### October 15-18

Annual meeting, American Association of Housing Educators, on the theme "Rural Renaissance"; at Ames, Iowa. For information: Dr. Christine Cook, University of Minnesota, Housing Program, 240 McNeal Hall, St. Paul, Minn. 55108.

#### October 16-18

Annual meeting, Professional Services Management Association; at San Francisco. For information: PSMA, 1213 Prince St., Alexandria, Va. 22314 (703/684-3993).

#### October 16-18

Three-day seminar on "Computer-Aided Facilities Planning and Design," sponsored by the Institute of Industrial Engineers; at San Antonio, Tex. The program will be repeated December 6-8 in Chicago. For information: Stephanie Starr, Institute of Industrial Engineers, 25 Technology Park/Atlanta, Norcross, Ga. 30092 (404/449-0460).

#### October 18-20

Annual convention, celebrating New York State architecture and architects, New York State Association of Architects; at Rochester Plaza, Rochester, N. Y. For information: Barbara J. Rodriguez, NYSAA, 235 Lark St., Albany, N. Y. 12210 (518/449-3334).

#### November 9

Fourth annual Design Symposium, examining the components of design for the hotel and restaurant industries, sponsored by Center for the Study of Foodservice Management, New York University; at Parker Meridian Hotel, New York City. For information: Joseph Durocher, Center for the Study of Foodservice Management, 537 East Building, Washington Sq., New York, N. Y. 10003 (212/598-2369).

#### November 13-15

National Commercial Buildings Exposition and Conference (The Buildings Show), sponsored by *Buildings* magazine; at Dallas Convention Center, Dallas. For information: Marvin Park and Associates, 600 Talcott Rd., Park Ridge, Ill. 60068 (312/823-3599).

#### November 21-23

IIDEX 85, the International Interior Design Exposition, with displays and seminars on the theme "Perfecting Professionalism"; in Toronto. For information: IIDEX/ARIDO, 168 Bedford Rd., Toronto, Ont. M5R 2K9.

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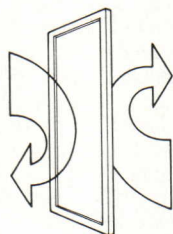
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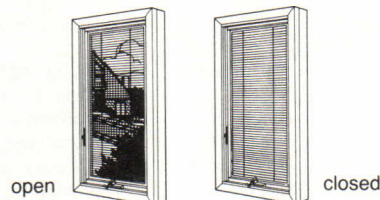
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As the new chief editor of ARCHITECTURAL RECORD, I get the chance to ruminate in print once a month about architectural matters that seem important to me—for readers who care as much about architecture as I do. Fortunately, most of you respect, enjoy, and learn from RECORD, and some of you have already expressed to me the hope that the magazine will not change too much under new direction. It won't, for a single important reason. Everyone knows the MGM lion, but no one thinks he made the movie all by himself. And RECORD, like a movie, is the product of a team of creative people. On our magazine, the staff is uniquely balanced to approach architecture comprehensively. Inclusiveness remains our goal.

We know, for example, that for most of you the main task is to design buildings; so we devote most of our pages to design *per se*. While making our own esthetic judgments as editors and writers, we also offer editorial space (usually in "Observations") to architects, planners, critics or historians who have devised compelling theoretical formulations to justify a particular design approach. We see the design function, however, as being integrated with all building skills, and for this reason our engineering pages will continue to feature new knowledge being developed in the fields of structure, mechanical equipment, materials and methods. The focus of our business section is, for the most part, pragmatic: how to get jobs, deal with clients, work with computers. In this part of the magazine we address current professional issues as well: liability, ethics, tax reform, professional development, architectural education.

New beginnings must augur change, as well as assure continuity. Will we be doing anything different? Well, not so long ago, RECORD regularly focused upon issues of architecture and public policy: how to provide housing for people of low or moderate income, the search for equitable land-use policies, the development of more effective urban design and planning strategies, and other environmental concerns. Until the recent decade, a significant number of architects were hired to work on these problems, and we had the results of their efforts to publish. Today, since public investment in housing and planning has dwindled almost to zero, architects do little work in these fields, at least in the public sector. Nevertheless, housing and urban policy concerns, though not presently in fashion, belong to the discipline of architecture. Some leading U. S. architectural schools still teach civic and urban design, and there is important work being done abroad. We plan in future issues to pay more attention—a change I believe to be in the right direction. And because we will be making other fresh starts, now is a good time for you readers to make your needs and concerns known to us. Write. *Mildred F. Schmertz*



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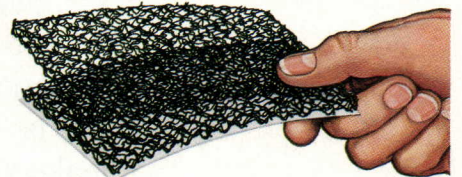
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## Conference on education and corporate architecture to be held in Tallahassee

The role of education in providing a professional understanding of corporate architecture will be addressed at a conference sponsored by The American Institute of Architects, November 4th through 7th in Tallahassee, Fla.

To be presented by the AIA's Architects in Industry Committee, the conference will examine how corporations acquire their facilities and how that process affects the education of those future architects who will have to deal with the process. Other educational issues, such as the architect's awareness of corporate management, corporate responsibility to the community and private practitioners' understanding of the role of architects in industry, will be examined by educators and architects during a series of workshops, seminars, and lectures.

An intensive all-day design charette on the 6th will offer

workshops covering a range of architectural and educational issues, including general problem-solving techniques, design processes, information handling, communication and presentation, management and organizational structures, economics, research, facility programming, and management and post-occupancy evaluation. Participants will work with teams of architecture students at Florida A & M University to provide the best "eight-hour solution to challenging issues facing architects in industry."

The conference will seek to establish long- and short-range educational objectives for architects in industry as well as specific recommendations for an educational process and program.

For information, call Diane Ots at Florida A & M University, Tallahassee (904/599-3244).

## Design services in Moscow?

Housing and Urban Development Secretary Samuel R. Pierce, Jr. led a 20-member American delegation to the Soviet Union during September to review Soviet housing and industrial construction sites and techniques.

But in addition to the senior U. S. government officials, the delegation included half a dozen building industry executives who went in hopes of unearthing possible new business opportunities.

The trip was the first cabinet-level meeting since 1978 of a binational committee set up under an earlier agreement on cooperation in housing and other construction. Pierce made clear that the visit had political and commercial dimensions: "It can be seen as part of an attempt by both the U. S. and the U. S. S. R. to renew mutually beneficial cooperative links."

The inclusion of the construction industry representatives was insisted on by the United States. The six executives in Pierce's group were:

Austin Guirlinger, president of Cardinal Industries, Columbus, Ohio, a manufacturer of modular housing;

Kenneth E. Horn, president of Horn and Bottoms, Inc., Santa Monica, Calif., a cement consultant;

George H. Matters, chairman of the U. S. Home Corporation,

Houston, Texas, a builder of single-family houses;

Henry Nagy, chairman of Spancrete Industries, Milwaukee, Wis., a manufacturer of machinery for precast concrete planks;

A. Alfred Taubman, chairman of the Taubman Company, Bloomfield Hills, Mich., a real estate development firm; and

Gregory Weidler, manager of business development for ARCO Chemical of Philadelphia, Pa., a manufacturer of building materials.

Pierce co-chaired the over-all sessions with his Soviet counterpart, Sergey V. Bashilov, chairman of the Soviet State Committee on Civil Construction. The other American officials co-chaired six working groups with their Soviet counterparts. Areas covered were building design and construction, utilities systems, building materials and components, construction in seismic areas, building for extreme climates and unusual geological conditions, and urban planning, development, and management.

And the trip was educational. Pierce said that Soviet mass-produced housing and construction in special areas, such as earthquake zones and cold regions, was of special interest.

*Peter Hoffmann, World News, Washington, D. C.*

## Magazine for facilities managers to be launched

Plans to publish a monthly magazine for owners, managers, designers, and engineers of commercial buildings and government offices have been announced by the McGraw-Hill Information Systems Company.

Called *Building Economics*, the magazine, starting in early 1986, will cover a full range of building management topics under the leadership of editor-in-chief Natalie Gerardi.

"A rapid escalation in the cost and complexity of the office environment has made the traditional building manager's role obsolete," says RECORD publisher Paul B. Beatty, who will also publish *Building Economics*.

"Today's owners, managers, designers, and engineers—the building management team—must be equally comfortable with high technology and high finance. We've designed the new magazine to help them do that. It is a new facet of the McGraw-Hill Information Systems Company's coverage of the construction fields," he continued, "and it illustrates our long-term commitment to meet the changing needs of this industry."

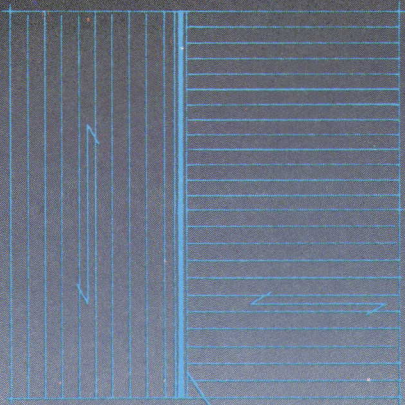
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## National students' convention coming

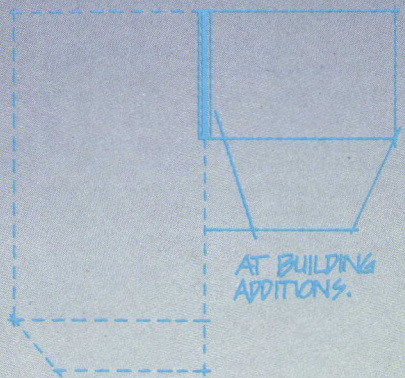
The national convention of the American Institute of Architecture Students will take place in New York City on November 26th through 30th. Its theme: "Re-evaluating the urban center." Speakers will include Brendan Gill, Theodore Liebman, Oscar Newman, Mario Salvadori, and Robert A. M. Stern. Events will include an eight-hour workshop, a seminar hosted by RECORD, and tours of the AT&T Building, the Metropolitan Museum of Art, The New York Convention Center, and the computer graphics department at Skidmore, Owings & Merrill. The convention is expected to draw over 1,000 students from across the country. The sponsors are Pratt Institute and the New York Institute of Technology, Old Westbury. For information, contact Rene Alvarez (212/807-0400), or Pratt Institute, School of Architecture, Brooklyn, N. Y. 11205.



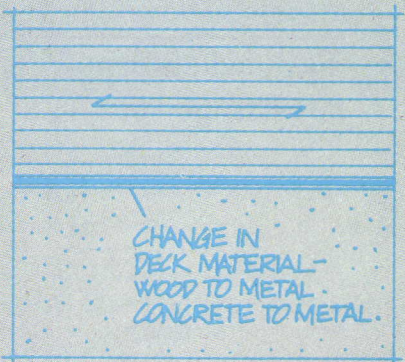
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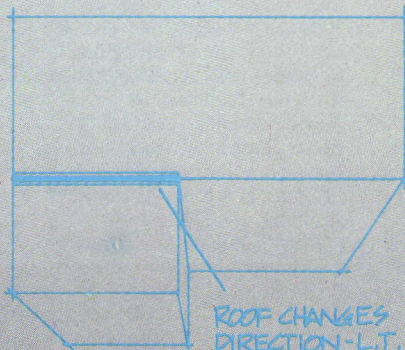
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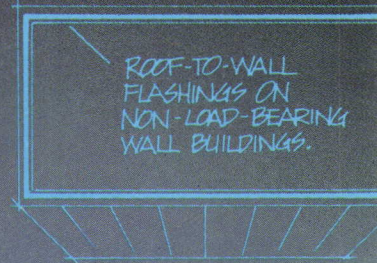
A roof normally comprises only a small percentage of a building's total construction cost. Yet, at least half of all building litigation stems from roofing problems.

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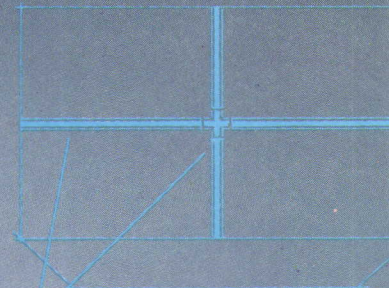
Roof substrate element movement (deck panels, insulation, roof to parapet) accounts for a good share of roof failures. Temperature change, building settlement, wind and other forces cause these elements to move—but not always to the same degree. The difference in movement creates shear and tensile stresses where elements meet, often causing splits in the overlying roof membrane.

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## Computers: Evaluate your options

*After many articles in RECORD on advanced computer use, the authors give those of us who may have yet to dive in a timely return to basics*

By John C. Dill and Jon H. Pittman

*Architects and engineers who have yet to face the introduction of computers to their practices are bombarded with a baffling array of choices:*

- *Is this the right time to start?*
- *Should I build or buy a system?*
- *If I buy, should it be a specialized turnkey system or a general-purpose one?*
- *Should it be a PC-based system or a larger one?*
- *Should I train architects in programming or programmers in architecture?*
- *How can I ensure that advances in technology won't make my investment obsolete?*

*There are no simple answers to these questions. The appropriate answers vary from firm to firm. To make intelligent choices about hardware, it isn't really necessary to know a great deal about its technical details or its inner workings. It is important, however, to understand what you intend to do with your computer and how it will fit into your practice. You must have a process by which you can evaluate your firm's computer needs. And there is other information that you will need to make rational, intelligent choices among all the different kinds of computer technology. Herewith. . .*

### **To know what computers can do for you, you must first know your firm**

A great deal of information is available to help you compare computer systems on a technical level. While this information can be quite useful, it does not help deal with the most crucial question in the decision to acquire computer technology: What will be the benefit to your practice?

The technology has the potential to radically transform your practice. It may also simply automate some tasks that are now performed by hand. Where on the spectrum between these extremes you want your firm to fit depends on what you want to do.

Before designing a building, it is necessary to understand the design problem. As architects, we devote the programming phase of our design process to this task.

In acquiring a computer system, it is also necessary to understand the problem. In this case, the part of the problem that must be first understood is the way your practice works. The more you know about your practice, the better prepared

you will be to make intelligent decisions. The aspects of your firm that you need to understand are:

• *The people:* The type of computer system acquired, what it is used for, how it is paid for, and how it is managed all depend on the people in your practice. The impact of a computer system on a firm is quite different when the primary user is a well-compensated principal who has a great deal of design and management authority as opposed to a modestly compensated intern who is responsible for a limited portion of the contract documents. To settle the people issue, know:

Who will be working the system?  
How much responsibility will those persons have for design?  
How much responsibility will they have for management decisions?

How is their performance in this new field to be measured?

How is their cost to be billed to a client?

What is their background with computers?

• *The tasks:* What will the people in your practice be doing with computers? The type of computer system that you acquire will depend on the tasks for which it will be used. Financial accounting, word processing, drafting, design, engineering analysis, facility programming, cost estimating, and financial analysis all require different kinds of hardware and software. It is important to identify the tasks with which you wish to have the computer assist you.

It is also important to know how these tasks relate, and how information is shared between tasks. It might be helpful to list these tasks in their relation to the time they are done in the design process. This allows you to plan an orderly evolution of your computer capabilities.

• *The design/production process:* The way your firm goes about designing buildings and producing the contract documents can affect the type of computer system that you acquire. If your firm is organized horizontally where one group does design and another does production for all jobs in the office, the design and production process will be different from that of a firm that is organized vertically with one team performing both functions.

Using either organizational form, it is necessary to decide which projects and which phases of projects are to be put on the computer. If you wish to put both design and production phases on the computer, you must be sure that your system is capable of such tasks. A two-dimensional drafting system may be adequate for contract documents. But you may

need a much more powerful system for design. Knowing how your firm approaches the design/production process and having a clear idea of how you expect computers to fit into that process is essential to making a decision about the kind of computer system you will want to acquire.

• *Politics:* People in your firm will have differing opinions about what you should do with computers. Their level of support for computers may run from wild enthusiasm to solid opposition. Getting a computer system to work within your firm should be a cooperative effort. It will be important for all members to understand and cooperate in your efforts to get up and running.

You may not be able to gain everyone's full cooperation but it is important to know who is in favor of computers, who is opposed, and why each person holds their opinion. Determining how each person in the firm views computers can be very helpful in determining the direction you should take. Perhaps those who are opposed have good reasons for being opposed. Testing the political waters and making sure that there is an understanding within the firm about developing computer capability will certainly be beneficial. And an awareness of attitudes of firm members can, with proper message, help to make the introduction of computers a positive experience for all.

• *Information flow:* Since the computer is a tool to manage and control information, understanding how information is used in your firm is a must in planning for the introduction of a computer system.

If you work across a wide geographic area, you might be concerned about communications technology. If you work with a lot of consultants, you might be concerned about data exchange standards and capabilities. If your firm typically does small jobs with only one or two individuals working on each, you might want to go to a small system. If you work on large, complex jobs with large teams of people, a system that allows you to develop a shared database for each project would be appropriate. Knowing how information moves around and through your firm allows you to make decisions about your computer system as a tool to manage that information.

• *Your firm's future:* Chances are your firm will grow and change over time, entering new markets, working with new building types, offering new kinds of services, and possibly expanding into new geographic areas. You will want your computer system to accommodate this change. You certainly cannot predict the future

*Continued*

*Mr. Dill is a design systems manager with Microtel Pacific Research, Ltd., Vancouver, British Columbia.*

*Mr. Pittman is a vice president of the HOK Computer Service Corporation, St. Louis, Missouri.*





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*The authors illustrate by their chart a sort of family tree of options. Once having decided to get a computer, the design professional must decide just exactly what is wanted of it. The choices divide into the two large areas of graphic capabilities, for design and working drawings, and non-graphic capabilities, such as accounting and word processing.*

but if you have a feeling for the kinds of changes that you would like to see happen to your firm, you can better develop a strategic development plan for how your computer system can help those changes. Making sure of the capability of your system to do what your firm needs as the firm changes is a challenging task. But it is essential to know that capability if you want to protect your investment in that system.

Make sure the system you acquire can grow with your firm's growth. Having a good working knowledge of your firm and how it operates is the first prerequisite to evaluating which computer system is right for your firm. When looking at available computer systems, try to imagine them in your organization.

Think about how a particular task might be done with the system you are evaluating. Think about the reaction that a particular individual might have to that system. Think about how the system evolves and changes as technology and your firm's needs change. Think about how computers will help you manage information.

Computers are only tools to amplify the abilities of your existing organization. If there are problems in the organization, it is likely that computers will amplify those problems. It is also likely that computers will amplify the positive qualities of your firm, too. Before acquiring a tool understand the people that will use that tool, and be sure that the tool fits your firm.

#### You should set out to accomplish definite goals with your system

Architects these days seem to be jumping on the computer bandwagon in unprecedented numbers. The reasons are unclear. Are they simply acquiring systems because "it is the thing to do?" Or do they have clearly defined goals in mind?

If you really want to make effective use of computers in your firm, it would be a good idea to take a hard look at your motives. Why do you want them?

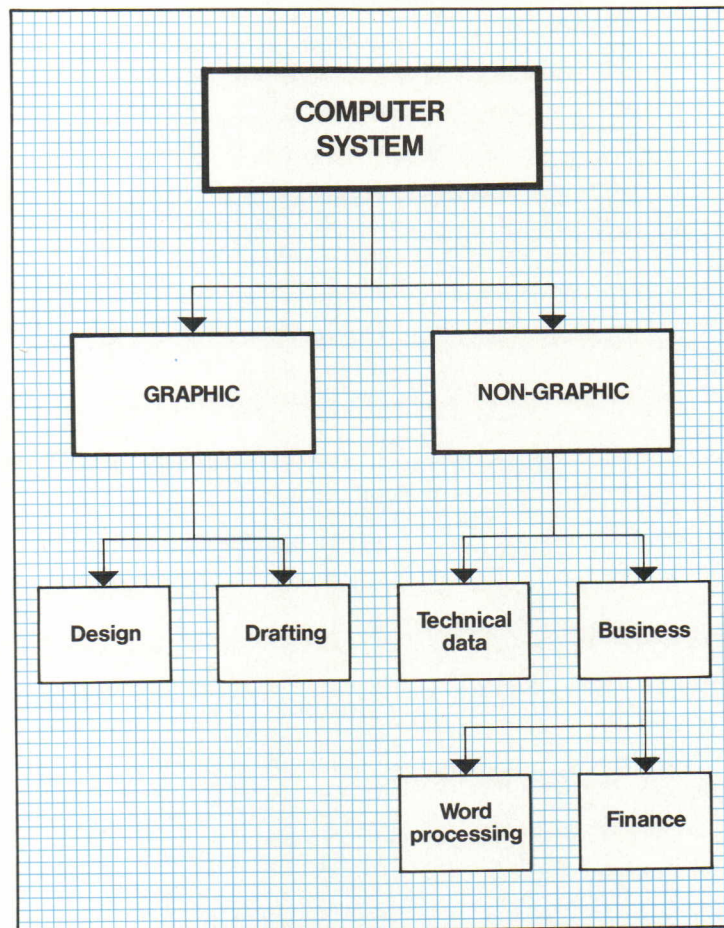
Having a clearly defined set of objectives will help you achieve something positive. In formulating your objectives, it might be helpful to think about these issues:

- **Graphics.** Do you need graphics capability? Architecture is obviously a profession that relies heavily on graphic communication. As architects, we design, present, and tell construction workers how to build buildings using drawings. Depending on your short-term objectives for computer use in your firm, you may or may not want graphics capability now.

It is likely, though, that you will want graphics capability at some point. You will then need to decide what kind you want. You will find that people selling computer systems have many different definitions of "graphic capability." To some, it simply produces pie and bar charts to display statistical data. To others, graphic capability means the ability to produce a realistically rendered, three-

dimensional image of an imaginary scene or object. contract documents, one is concerned with producing an accurate, consistent, and readable representation of something that is to be built. By the time contract documents are being drawn, the design is, for the most part, finalized. The real task is communicating design intent to the builder.

On the other hand, design is a process of trying to synthesize an



dimensional image of an imaginary scene or object.

Generally, architects are interested in something in between. As with computer technology in general, it is important to know what you want to do with graphics and to evaluate graphics technology in terms of your objectives. Is the hardware physically capable of generating the graphics you wish to use and is the software logically capable of displaying and manipulating those graphics? Remember that appropriate graphic communication is essential to your practice.

- **Design.** Do you want to use computers to help design or merely to automate the production of contract documents? Although design and drafting look similar on the surface, they are in reality very different activities and require different capabilities. In producing

appropriate solution from a vast number of inputs. Design tends to be a messy, ambiguous process in which a gradual refinement takes place over time. In addition, drawings in contract documents are generally two-dimensional, while design drawings are often three-dimensional. Certainly one must be aware of three-dimensional space during the design process. The type of computer necessary to support design activities might be quite different from one necessary to support production activities. A simple but good two-dimensional drafting system might suffice for production. If you wish to use computers for design, though, additional capability will be necessary.

- **Marketing.** Many architects are acquiring computer systems because they feel that using a computer will give them a

marketing edge over their competitors for commissions. Know how your computer system will affect your marketing strategies and opportunities for developing new business. Asking the following questions may help you determine how marketing might affect your choice of computer systems:

Will computers allow you to do larger or more complex jobs with the same staff?

Will computers allow you to attract commissions from clients who would normally go to someone else?

Do your clients want you to provide them with design and/or construction drawings in digital form?

How will your computer system affect the potential for joint ventures with other architecture firms, engineers, and consultants?

What benefits of your computer system do you wish to exploit in selling your services to potential clients?

What type of projects do you wish to do and how do they lend themselves to computer production?

How will you pay for your computer services and how will those costs be passed to clients? • **Cost savings.** Are you acquiring a computer system to reduce costs? This may or may not be realistic. A system, in a sense, replaces labor costs with a capital investment. If one evaluates only the labor cost against hardware and software costs, this may seem very attractive. But you must be aware of other costs involved with a system in addition to the initial purchase price. These are the ongoing ones and include:

Hardware and software maintenance that can range from 5 to 12 per cent of the initial purchase cost per year.

Training costs that can be made even higher by rapid staff turnover.

Supplies such as paper, plotter pens, ink, magnetic tapes, etc.

System upgrade costs.

If your system requires a special environment due to mechanical and climate considerations, this cost must be considered.

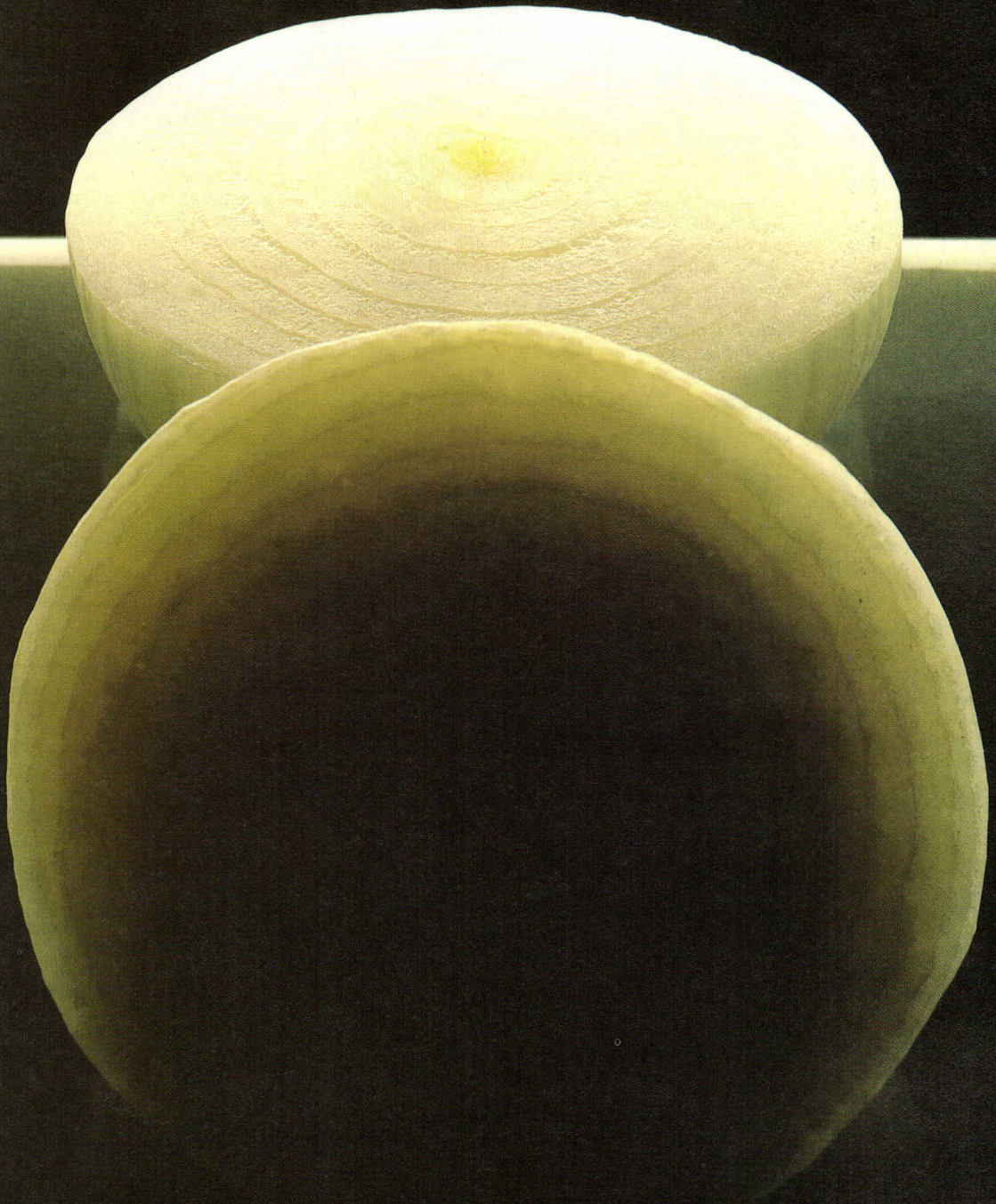
Employees acquire additional skills for which there is a demand in the labor market. You may find that it is necessary to give more attention to personnel than you had previously and to pay them more.

It is probably true that computers reduce your costs. However, be aware of hidden costs when evaluating your benefits.

*Next month in RECORD, the authors will conclude with methods by which you can assure yourself that the purchased system will accomplish your objectives.*



## Role Model



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# Costs: Steady prospects for the rest of '85

## Summary of Building Construction Costs



	Number of metro areas	Districts Eastern U. S.		
		4/85 to 7/85	7/84 to 7/85	1977* to 7/85
Metro NY-NJ .....	18	0.84	4.99	1698.83
New England States .....	33	0.95	3.87	1644.93
Northeastern and North Central States ...	120	0.40	2.35	1639.64
Southeastern States .....	106	0.54	2.10	1693.92
<b>Average Eastern U. S. ....</b>	<b>277</b>	<b>0.55</b>	<b>2.61</b>	<b>1664.89</b>



	Number of metro areas	Districts Western U. S.		
		4/85 to 7/85	7/84 to 7/85	1977* to 7/85
Mississippi River and West Central States .....	122	0.59	1.95	1650.56
Pacific Coast and Rocky Mountain States .....	106	0.32	1.41	1731.98
<b>Average Western U. S. ....</b>	<b>228</b>	<b>0.46</b>	<b>1.70</b>	<b>1688.41</b>
<b>United States Average .....</b>	<b>505</b>	<b>0.51</b>	<b>2.20</b>	<b>1675.51</b>

The construction industry continued to reflect minimal cost increases for both labor and material during the second quarter of 1985. Labor agreements reported to date for the entire year reflect a gain for workers of approximately 1.4 per cent over 1984—a general trend that has held the line, and actually reduced costs in real terms, rather than, as in the past, pushed labor costs ever upward.

Some regional variation did exist with the highest increase agreements occurring in the southeastern states, where the highest demand has been on those states' limited labor pools, and some of the lowest increase agreements occurring in the northeastern region. However, most labor agreements in all regions have been negotiated for only one-year terms. This means that the firm prospects of steady costs *do* have a limited duration, and could change when current contracts run out within the next year.

Ironically, material cost increases were highest in the northeast—namely in metropolitan New York, New Jersey, and the New England states. This reflected the general increase in demand for building materials in these local areas due to unexpectedly high rates of construction—even while large labor pools remained undrained.

Material costs in other geographic areas were stable—resulting in an over-all average increase of one per cent for the quarter. Only concrete block, light framing lumber, plywood, and reinforcing steel were over the one per cent average. These reflected the impact of increased housing starts at the end of the quarter.

The prediction for the balance of the year is more of the same—minimal labor- and material-cost increases with a projected four per cent to five per cent increase overall for the year.

McGraw-Hill Information Systems Company studies are conducted quarterly by direct contact with union and nonunion sources, direct material suppliers, construction labor consultants, and both general and specialty contractors in each city.

*Cost Information Systems  
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## Historical Building Costs Indexes

### Average of all Nonresidential Building Types, 21 Cities

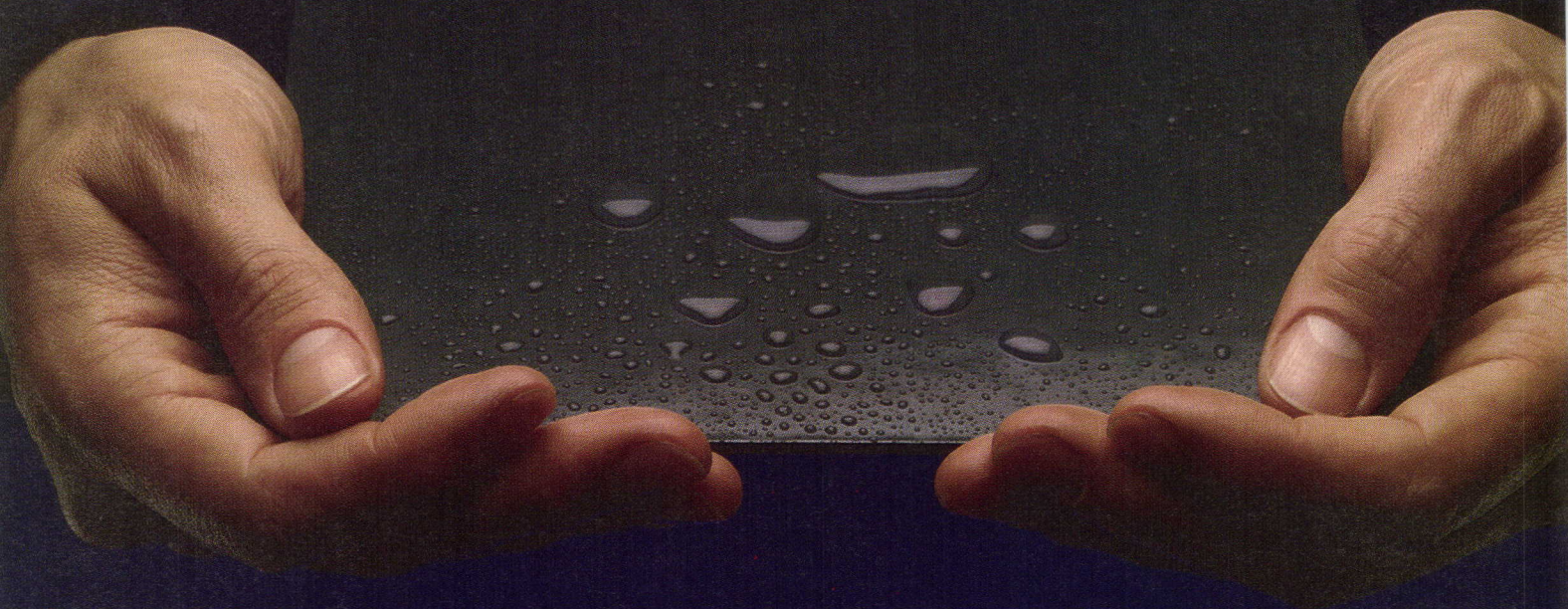
1977 average for each city = 1000.0

Metropolitan area	1977	1978	1979	1980	1981	1982	1983	1984				1985		
								1st	2nd	3rd	4th	1st	2nd	3rd
Atlanta	1171.5	1712.6	1925.6	2098.6	2078.0	2360.6	2456.7	2506.6	2473.0	2483.8	2448.7	2446.2	2506.3	XX
Baltimore	1018.4	1107.7	1304.5	1446.5	1544.9	1639.5	1689.7	1673.3	1668.5	1688.5	1703.7	1737.1	1749.9	XX
Birmingham	1029.7	1142.4	1329.9	1407.2	1469.9	1468.1	1535.7	1570.6	1567.0	1599.0	1594.7	1592.8	1583.9	XX
Boston	1028.4	0998.6	1236.0	1283.7	1432.5	1502.0	1569.9	1607.1	1606.1	1625.8	1646.0	1671.6	1696.9	XX
Chicago	1007.7	1032.8	1199.7	1323.6	1344.7	1425.8	1439.5	1459.7	1465.7	1464.6	1476.7	1476.8	1479.5	XX
Cincinnati	0848.9	0991.0	1323.9	1385.2	1350.4	1362.6	1430.8	1444.9	1474.9	1478.6	1484.5	1487.7	1492.5	XX
Cleveland	1034.4	1040.8	1287.5	1388.2	1459.5	1511.4	1475.9	1451.9	1461.5	1463.1	1464.0	1461.6	1472.8	XX
Dallas	1042.4	1130.6	1431.9	1481.9	1750.6	1834.3	1925.9	1962.8	1957.8	1976.0	1958.0	1961.5	1971.5	XX
Denver	1038.8	1100.4	1495.6	1487.4	1632.2	1679.1	1800.1	1819.5	1819.5	1820.2	1824.3	1828.7	1824.6	XX
Detroit	1018.1	1087.3	1275.3	1447.4	1580.3	1638.0	1672.1	1665.1	1661.6	1687.8	1697.9	1711.9	1712.3	XX
Kansas City	1023.5	0951.5	1125.8	1233.2	1323.4	1381.8	1407.5	1418.8	1435.6	1444.2	1447.1	1455.7	1465.1	XX
Los Angeles	1022.5	1111.0	1255.3	1387.5	1474.3	1503.3	1523.9	1548.7	1529.8	1546.0	1555.1	1571.0	1584.3	XX
Miami	1004.5	1080.9	1330.1	1380.6	1369.1	1392.1	1467.6	1491.1	1505.6	1523.7	1522.2	1529.8	1536.1	XX
Minneapolis	1060.2	1196.8	1286.9	1327.7	1442.6	1576.8	1624.6	1635.0	1634.8	1627.7	1640.4	1639.9	1667.3	XX
New Orleans	1001.3	1138.8	1291.9	1505.7	1572.7	1616.9	1650.5	1682.4	1689.0	1689.0	1691.4	1739.5	1751.0	XX
New York	1005.4	1043.0	1247.1	1319.4	1419.2	1491.8	1672.5	1677.3	1666.6	1700.2	1747.2	1765.1	1789.5	XX
Philadelphia	1013.8	1074.2	1487.5	1539.5	1660.7	1769.4	1819.5	1860.5	1893.0	1903.9	1922.1	1965.4	1982.2	XX
Pittsburgh	1016.1	1015.0	1227.0	1341.7	1493.2	1479.5	1497.2	1506.7	1565.1	1571.4	1576.1	1580.2	1595.5	XX
St. Louis	1039.1	1198.8	1275.9	1320.0	1397.3	1451.2	1524.9	1552.5	1575.7	1603.9	1625.5	1628.2	1644.8	XX
San Francisco	1083.2	1326.8	1473.4	1644.8	1776.4	1810.1	1856.8	1855.7	1921.3	1942.8	1935.3	1929.5	1944.8	XX
Seattle	1142.5	1137.9	1373.4	1616.8	1814.9	1962.7	1979.0	1984.2	1939.0	1962.3	1948.9	1973.1	1955.3	XX

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 divided by 200.0 = 75%) or they are 25% lower in the second period.



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# Marketing: Daring scores high in 1985 SMPS awards

By Rolf A. Fuessler and Ernest Burden

*Firms that were willing to take risks captured many of the top positions in this year's awards program sponsored by the Society of Marketing Professional Services—as was apparent after three days of judging 269 entries in 12 categories from 161 building design firms. In fact, winning entries challenged many of the well-established comfortable standards that the industry has used for years.*

*Award winners ranged from a brochure that, for calculated reasons, did not include the firm's address and phone number to a set of post cards that depicted a highly technical subject in abstract terms. And they ranged from a special market brochure that was really a poster to an especially outstanding corporate identity program.*

*Minimalist approaches to copy and design also attracted praise from the judges. Less was more in many of the award-winning submissions, which produced—particularly for narrowly targeted audiences—finely tuned messages. Very few of the winners included simple catalogs of projects. Instead, the winners relied on making a good impression of general design abilities and philosophies.*

*Many more high-quality entries were seen this year. Most were professionally designed, visually interesting, and well written. But in those that did not receive awards, there was nothing unique to hold the judges' attention. The judges kept going back to basic questions:*

- Does this entry really set the firm apart from others?
- If this came across my desk would I want to read it?

*With design firms bombarding clients and potential clients with brochures and marketing material, the judges felt that only those entries that so stood out would hold the short attention spans of busy decision makers.*

*Several categories seemed to have hit a plateau in the number and quality of entries when compared to previous years. These were audio visual, direct mail, and advertising.*

*Mr. Fuessler heads Fuessler Communications, public relations and marketing consultants for design professionals in Boston. Mr. Burden heads Ernest Burden Associates, design communications consultants in New York. He is the publisher of The Communicator's ADVISOR, a newsletter for others in his field, and is the author of several books including Architectural Delineation and Design Presentation, both published by McGraw-Hill.*

*Those entries in every category that did stand out exceeded the sophistication of previous years. They were good representatives of the diversity in approaches now being used by design professionals to grab attention away from their competition. They emphasized the unique aspects of the firms that produced them.*

*There was a good mix of previous winners and newcomers, and of large and small firms in this year's winner's circle. Texas, with eight winners, far outstripped runner-up New York City, which had four winners. Other winners came from such diverse locations as Peoria, Ill., Newark, N. J., Irvine, Calif., and Greenville, S. C.*

*A significant change in this year's program was the addition of a best-of-show award, which will become an annual tradition. Two categories, deleted in recent years, were added back into the program—annual reports and communications programs. The two audio-visual categories were combined into one new category, and an entirely new category was added—trade-show programs.*

*Judges were: Matthew Sheridan, The Aetna Company, Hartford, Conn.; Nancy Cameron-Egan, Interspace, Inc., Philadelphia; Ted Leonhardt, Spangler Leonhardt, Inc., Seattle; Raylene Kershaw, Great Inc., Alexandria, Va.; Lea Johnson, PR Casebook, Cohasset, Mass.; Stanley Cohen, Consulting Engineer magazine, New York City; Pat Lynn, Greeley & Hansen, Phoenix; George Wittenberg, Wittenberg Delony & Davidson, Little Rock, Ark.; Toni Hamilton, Hansen Lind Meyer, Iowa City; Ernest Burden, Burden Associates, New York City; Jacqueline Borrowes, Reynolds Smith and Hills, Orlando; and Jan Moffatt, Windemere Design & Type, Alexandria, Va.*

*A list of winners can be obtained by writing to SMPS, 801 North Fairfax St., Suite 215, Alexandria, Va. 22314.*

The comments on each category of awards come from that judge listed after its heading.

## Corporate brochures

*Toni Hamilton*  
"When in doubt, do a brochure," appears to be the guiding principle of many promotional programs. Such expensive calling cards arrived in the SMPS headquarters by the dozens. While some were truly outstanding, most formed a middle ground of competent products that, like dutiful children, were marred by predictable sameness.

Those few brochures that did stand out were the ones that would

also stand out in clients' memories. Each was exciting and idiosyncratic. Each was produced by a firm with a clear-sighted vision of itself and a disciplined notion of the message the firm wanted to deliver. Not a single firm chose to produce a catalog of its work. This fact prompted a dialogue among the jurors about what professional service firms are really selling: finished products; services; people; or success?

The copy in the winning brochures was often minimal, focused on one message only, and was artfully aimed at a well-defined market. None of these brochures recited a history of the firm or intoned a simple self-laudatory listing of its capabilities.

Although the winning brochure from Hill Pinckert Architects, Inc. in Irvine, Calif., lacked an address or phone number, we knew instantly the postmark had to be in that state. Aimed squarely at high-end, sophisticated developers, each spread had one color photograph with a surreal appearance, and one brief paragraph of copy. The overall effect was, in the various words of the judges, "engaging, wacky, challenging, irresistible." It seemed to many of us to achieve what we would like to achieve, if we dared. Hill Pinkert's brochure met their stated objectives in a fresh and vigorous style and reminded us of the benefits of calculated risks.

*Compendium/A Design Systems Corporation*, Houston, placed second with a handsome three-part brochure. The parts cover the firm's corporate statement, specific clients, and works in progress. Whether standing alone or working together, the parts produce a strong, flexible graphic statement about the firm based on philosophy rather than on specific projects.

The third-place winner, *Brendler/Dove*, San Antonio, submitted a brochure as different from Hill Pinckert's as Texas is from California. An example of what you can do without many completed buildings, this brochure uses handsome detail photos which emphasize lines, planes, colors, and contours to capture the essence of the design process. The finished product projects the personality of the firm in a sunny style so fresh that it is difficult to imagine it ever becoming dated.

Honorable mentions went to *Morris Aubry*, Houston, and *Calcara Duffenback Foss Manlove Inc.*, Kansas City. In particular, the jurors found themselves coming back to the Aubry entry again and again. Unusual in its magazine-format approach, it offered many kinds of information to invite repeat

*Continued*

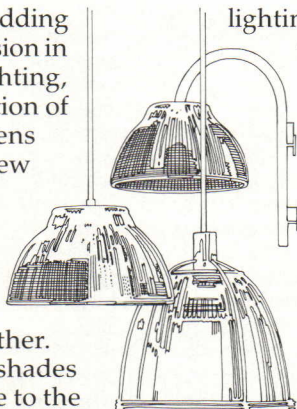


## HOLOPHANE CLASSICS. THE EDMUND STEVENS COLLECTION.



**H**olophane is adding a new dimension in prismatic glass lighting, with the introduction of our Edmund Stevens Collection. Two new ceiling-mounted fixtures and a wall-mounted design that take the best idea in lighting a step further.

Prismatic glass shades give subtle sparkle to the



lighting. Holophane construction assures you of long-lasting durability. And Edmund Stevens added his personal touch for a timeless statement of unequaled elegance.

Contact your local Holophane representative or call Jodi Swanson, (303) 978-2451, for ordering and product information. Holophane Division,

Manville, P.O. Box 5108,  
Denver, Colorado 80217.  
Available for Export.



**HOLOPHANE**  
LEADER IN LIGHT CONTROL

**Manville**



# 1985 Guide to computer software for architects and engineers

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This year's Guide, like last year's, contains some 360 entries. There the similarity ends, for the software vendors have been busy creating new programs and updating old ones. Our researcher, Joan Blatterman, who undertook the prodigious task of checking last year's entries and tracking down new ones, notes that in general this year's listings are more architect- or engineer-specific and—welcome news—less expensive than last year's. Doubtless this has resulted from increased competition among the vendors in response to increased demand as more and more architectural and engineering firms take their first steps toward computerization.

The Guide is divided into six sections:

- **Section 1, Office management.** This section includes programs designed to help you run your office, covering such subjects as business development, database management, simple graphics e.g., charts, specification writing, spreadsheets and word processing.
- **Section 2, Project cost analysis and control.** These programs cover bills of materials, feasibility studies, job budgeting, costing and estimating, materials take-offs and project cost accounting.
- **Section 3, Project scheduling and management.** The subjects covered here include construction management, job scheduling, manpower utilization and resource management.
- **Section 4, Space planning and facilities management.** These programs manipulate both graphic and alpha/numeric data to allow you to produce overlay floor layouts, stacking plans and adjacencies, as well as track space information such as lease data, occupancy, equipment assignments, etc. and generate reports.
- **Section 5, Computer-aided design and drafting.** This is by far the largest section of the Guide, and it includes programs for preliminary and production drawings designed to run on everything from micros to mainframes.
- **Section 6, Architectural engineering.** Here you will find programs for energy analysis, hvac design, site planning and structural analysis.

In some instances you will find multiple listings for programs that fit into more than one section.

To use the Guide, simply decide which job function you would like to computerize, turn to the appropriate section, and scan the entries to see which programs do what you need and, if you already have a computer, which are designed to run on your system. Then request more information from the vendor by circling the item number on the special Reader Service card following the Guide.

And if you find that a program you're already using is not listed, please let us know about it. Simply photocopy the form on page 80, fill in as much of the information requested as you can, and return it to us so that we can get in touch with the vendor when we compile next year's Guide.



# Office management

Business development  
Database management  
Simple graphics  
Specification writing  
Spreadsheets  
Word processing

## 500 CAP

Computer Aided Planning, Inc., 169 Monroe N. W., Grand Rapids, Mich. 49503—Mike Fowler, 616-454-0000 • For use with IBM PC-AT/, DOS 3.1, IBM Topview, Microsoft BUS MOUSE. Supports Epson FX-80 printer and HP 7475A plotter; requires 640 RAM • Price: \$12,500; Updates: billable • Training: in-house.

*CAP* specifications software includes a complete product database, pricing, specification and graphic images (both plan and elevation) of any of the major contract furnishings companies. Program takes the architect through bidding to design, reporting, documentation, final ordering, installation, up to product management or inventory control.

## 501 CONSTRUCTION MARKETER

Tecton Media, Inc., 310 Madison Ave., New York, N. Y. 10017—Randy Lerner, 212-867-0820 • For use with IBM PC, PC-XT/compatibles with 128k RAM; requires two double-sided, double-density disk drives • Price: \$395; Updates: billable • Training: manual.

*Construction Marketer* is a database management and reporting software system designed to improve a firm's efficiency in tracking prospects, projects, clients and sales contacts. Reports include forecast, follow-up and win/loss—all sortable on any of 47 fields. System available on a 30-day trial.

## 502 CROSS/POINT

Cross Information Co., 934 Pearl Mall, Suite C, Boulder, Colo. 80302—Thomas B. Cross • For use with IBM/compatibles, AT&T/compatibles, MS/PC-DOS or UNIX • Price: \$150 • Training: on-line.

*Cross/Point* is an interactive multiuser networking system with electronic mail, conferencing (many-to-many) and bulletin board. It is also a reference, charting and computer-assisted "whiteboard," where ideas can be added, edited, organized or erased. A series of applications articles includes technical writing and communication, courseware, software documentation, sales/marketing and management.

## 503 CROSSWORD

Data Processing Design, Inc. 1400 N. Brasher, Anaheim, Calif. 92807—Karen Ackland, 714-970-1515 • For use with VAX/VMS Digital U3.5 or later; IBM PC/compatible; disk space: 150k • Price: \$1,300 to \$2,300; Updates: with service contract • Training: in-house and on-site.

*Crossword* converts word processing documents between VAX/VMS and various IBM PC systems, and is said to combine the benefits of a shared logic system with the freedom of choosing personal computer software that best suits individual requirements. It converts files from one word-processing format to another, as *WordStar* to *Word-II*.

## 504 dBASE III

Ashton-Tate, 10150 W. Jefferson Blvd., Culver City, Calif. 90230 • For use with IBM PC-AT/XT and strict compatibles; requires 256k RAM, two floppy drives and monitor • Price: \$695; Updates: billable • Training: manual and computer-aided instruction.

*dBase III* is a relational database management tool that includes multiple file manipulation capabilities, powerful reporting features, and a versatile programming language. The command language will allow option menus, custom input forms, data validation and error-checking routines, application HELP messages, and reports combining up to 10 different data files, two levels of totaling, and embedded calculations.

## 505 DISCO-SPECS

Disco-Tech/Morton Technologies, 600 B St., P. O. Box 1659, Santa Rosa, Calif. 95402—Ralph R. Russe, P. E., 707-523-1600 • Runs on all CP/M-80, CP/M-86, MS-DOS or TRS-DOS/compatibles • Price: \$195; Updates: billable • Training: manual.

*Disco-Specs* is an architectural specification-writing data package compatible with *Spellbinder*, *WordStar*, *Perfect Writer*, *Scriptit*, *Super Scriptit*, and *Word* (Microsoft) word-processing programs (not included). The program database is a set of specifications in each of the 16 CSI divisions that the user modifies to produce the final operating specifications.

## 506 GRAPHICS II

Data Processing Design, Inc., 1400 N. Brasher, Anaheim, Calif. 92807—Karen Ackland, 714-970-1515 • For use with Digital VAX/VMS, MACRO 32, VAX BASIC; requires Regis terminal, HP plotters HP 7220, 7550 and 7470; Digital LVP-16 • Price: \$2,000 to \$3,500; Updates: with service contract • Training: in-house and on-site.

*Graphics II* is a drawing package for presentations, documentation and the enhancement of business graphics. The user can draw shapes from keyboard commands and add text, patterns or colors anywhere on

the screen in the size and rotation desired. Output is to plotters, printers or 35mm slides.

## 507 HOK DATABASE

HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Texas 75201—Ken Herold, 214-742-7000 • For use with any DEC-VAX using DEC VT200 or Tektronix display terminals and DEC laser printers • Price: quoted on request; Updates: with service/maintenance contract • Training: in-house, on-site, manual and videotapes.

*HOK DATABASE* is the interface to the INGRES relational database management system. It has both command language and screen forms interfaces. Features include a query language and a report writer with a forms-driven visual interface.

## 508 HOK DOCUMENT

HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Ken Herold, 214-742-7000 • For use with any DEC-VAX using DEC VT200 or Tektronix display terminals and DEC laser printers • Price: quoted on request; Updates: with service/maintenance contract • Training: in-house, on-site, manual and videotapes.

*HOK DOCUMENT* is a text-formatting system that provides justified, camera-ready copy for use in proposals, brochures, graphic design and publications. The system automatically generates headings, title pages and copyright pages. It also supports various fonts and text sizes. Program will generate logos on memos and letters.

## 509 IB GRAPH

Data Processing Design, Inc., 1400 N. Brasher, Anaheim, Calif. 92807—Gus Mauritsakis, 714-970-1515 • For use with DEC-VAX, Micro/VAX, PDP-11 and Micro II systems • Price: \$2,000-\$3,500 depending on hardware; Updates: included with annual support • Training: in-house, on-site and manual.

*IB Graph* is a menu-driven graphics software package for creating bar, line and pie charts on a variety of graphics output devices. Data can be input directly or copied from existing data files. Charts can be output to the screen, a plotter, or 35mm slides.

## 510 JOB-SPECS

Syska & Hennessy, 11 W. 42nd St., New York, N. Y. 10036—Laheri Mehta, 212-556-3212 • For use with DEC-VAX and VAX/VMS minicomputers • Price: \$7,500; Updates: billable • Training: in-house and on-site.

*Job-Specs* works from specification material through a series of editing instructions such as add, change and delete. The format of the finished specification can be dictated and modified by the engineer at any time. Database specification material for hvac and other trades is available in the system format (see Division 6), and on Wang format diskettes for \$2,000.

## 511 MASTERSPEC

The AIA Service Corporation, 1735 New York Ave., N. W., Washington, D. C. 20006—Kathy Stark, 1-800-424-5080 • Diskettes are available for almost all types of computer equipment • Price: yearly subscription fees vary from \$420 to \$625 depending upon version selected; Updates: issued quarterly as part of basic subscription • Training: manual.

*Masterspec* is a master specification system compatible with over 100 computer systems. The program employs the industry standard 16-division format of the Construction Specifications Institute. Users have claimed that the system cuts their specifying time in half. Editions are Architectural/Structural/Civil and Mechanical/Electrical. Each is available in "Basic," "Short" and "Narrow" scope versions.

## 512 MICROSOFT WORD

Microsoft Corp., 10700 Northrup Way, Box 97200, Bellevue, Wash. 98009—1-800-426-9400 • For use with IBM PC/compatibles, MS-DOS 2.0 or higher; requires two double-sided disk drives, or one hard disk 256k RAM • Price: \$375; Updates: available at nominal charge • Training: manual.

*Microsoft Word*, for complex writing tasks, supports the latest graphics cards, high-resolution monitors and laser printers. An Apple Macintosh compatible version of *Word* is also offered, at \$195 suggested retail.

## 513 MITAS

MIICORP, Box 17130, Dulles Airport, Washington, D. C. 20041-0130—Rob Mainor, 703-471-1717 • For use with IBM System 34/36 and IBM PC-XT/AT/compatibles; requires 256k RAM • Price: \$2,500 per component up to \$9,500 for System 34 and 36; \$3,500 for PC-XT/AT; Lease/purchase plans available for 1, 2, or 3 years; Updates: free first year, 15 per cent of program cost thereafter • Training: on-site and manual.

*Mitas* helps firms apply strategic marketing information to develop new business. The software includes four menu-driven modules:



professional expertise, experience and affiliation portfolio; prospect/client portfolio; lead capture and assignment; and prospect tracking. Each module may be purchased separately.

#### 514 MOBIUS II

Richard Sferra/Henry Smith-Miller, Architect, 305 Canal St., New York, N. Y. 10013—Alison Meldrum, 212-966-3875 • For use on MS-DOS, IBM-XT; requires 256k RAM, hard disk • Price: \$495; Updates: none planned • Training: manual; on-site at additional cost.

*MOBIUS II* is a menu-driven program based on AIA standard phases of work, schematic design, design development, construction documents, bidding and negotiation, and supervision. It generates reports tracking all projects by phases, computes and prepares invoices, tracks expenses and reimbursables, as well as personnel time.

#### 515 P-SPOOL

Elite Software Development, Inc., P. O. Drawer 1194, Bryan, Tex. 77806—Terri J. King, 409-846-2340 • For use with CP/M and MS-DOS-based microcomputers; requires 56k RAM on CP/M computers; 128k RAM on MS-DOS units • Price: \$29; Updates: none • Training: manual.

*P-Spool* is a printer utility program that allows a microcomputer to print files while its user employs other programs. This "spooling" process can be run alone or simultaneously with other application programs.

#### 516 PROFESSIONAL ACCOUNTING SYSTEM

Heiniger Associates, 636 Jefferson St., Morton, Ill. 61550—Jim Heiniger, 309-266-5812 • For use with Wang 2200 System (SVP/LVP/MVP) and Wang PC; requires 64k RAM • Price: from \$1,500, depending on number of modules purchased; Updates: billable • Training: manual and on-site.

*Professional Accounting System* integrates job-costing/marketing software, including payroll, general ledger, accounts payable and word processing. Generates multiple invoice formats. Other modules are projects (Standard Form 254/255), contact information, personnel/company data, calendars and labels.

#### 517 RTFILE

Contel Information Systems, 4330 East West Highway, Suite 200, Bethesda, Md. 20814—Judith C. Mangels, 301-654-9120 • For use with DEC-VAX, PDP-11, LSI-11, PRO-350

and IBM PC; requires 64k RAM • Price: \$500 to \$5,000 depending on the operating system; Updates: billable • Training: computer-aided instruction.

*Rtfile* is an interactive, relational database management system that enables users without programming experience to create and modify files, screens and reports and to sort modules.

#### 518 SPACECALC

Resource Dynamics, Inc., 150 E. 58th St., New York, N. Y. 10155—Matthew A. Clark, 212-486-9150 • For use with MASSCOMP Supermicrocomputer; turnkey hardware package requires 50 mb disk • Price: \$10,000; Updates: free • Training: on-site and manual.

*Spacecalc* combines a graphics editor, a dedicated spreadsheet, and a relational database. This module is a calculation, display and database system, which serves as the base technology for a growing number of facilities management application templates for stack and block planning, lease management, and maintenance scheduling.

#### 519 SPEC-WRITER

ACCI Business Systems, Inc., 12707 N. Freeway, Suite 140, Houston, Texas 77060—Paul Pamer, 713-872-4134 • For use with IBM PC, Compaq, TeleVideo, Vector or other CP/M or MS-DOS operating systems; requires 64k RAM and *WordStar* or *Memorite* software • Price: \$750; Updates: billable • Training: manual.

*Spec-Writer* works with a text editor to help architects prepare camera-ready specifications. Automatically rennumbers and re-alphabetizes modified specifications. Translates *Masterspec II* files into the CSI format.

#### 520 SPECTEXT-ON-MAGNETIC MEDIA

Bowne Information Systems, 400 Oser Ave., Hauppauge, N. Y. 11788—Robert A. Cohn, 516-231-0333 • For use with 8-in. or 5 1/4-in. diskettes for more than 160 different microcomputers • Price: \$1,100-\$2,400 subscription fee, depending on number of CSI divisions purchased; Updates: first year free, then billable at \$300 to \$750 per year, depending on number of CSI divisions purchased • Training: none needed.

*Spectext* is a master guide specification written by specification consultants and reviewed and recommended by CSI. May be used in developing a comprehensive master specification

tailored to the specific practice of a firm, or for inserting sections directly into a project specification under development. Can be used with *WordStar*, *WordStar 2000*, *Multi-Mate*, *Displaywrite 2/3* and *Scriptit*.

#### 521 SPOTLIGHT

Lotus Development Corp., 55 Cambridge Parkway, Cambridge, Mass. 02142—Customer Service, 617-253-9150 • For use with IBM PC, PC-XT/AT or Compaq Portable Computer; requires DOS 2.0 and 64k RAM memory • Price: \$75; Updates: free or billable, depending on type.

*Spotlight* is an on-screen organizer with accessories that can be used alone or with nearly every software program currently available for the IBM PC, PC-XT and Compaq computers. Provides a flexible appointment book with optional reminder "alarm clock," on-screen calculator, telephone and address book, index card file for organizing notes, note pad for writing messages, and a DOS filer for using the operating system while still in another program.

#### 522 WIPS EDITOR

Datacopy Corp., 1215 Terra Bella Ave., Mountain View, Calif. 94043—John Hughes, 415-965-7900 • For use with IBM PC-XT/AT • Price: \$245 • Training: manual.

*WIPS EDITOR* modifies Datacopy image files down to the picture element level. Images can be edited using a set of graphic tools that will draw, fill, airbrush, erase, set type and rearrange the screen. A variety of line widths, color and texture patterns is available. Program can zoom in on a portion of the image file to make each picture element clearly visible.

#### 523 WIPS JR.

Datacopy Corp., 1215 Terra Bella Ave., Mountain View, Calif.—John Hughes, 415-965-7900 • For use with IBM PC-XT/AT • Price: \$495 • Training: manual.

*WIPS JR.* is a lower-cost edition of *WIPS*, offering all functions except image capture. Image files may be cropped, scaled, rotated and stored to disk in compressed form. Review and imprint facilities allow the image to be displayed with text files to verify formatting, and printed as a combined text and image file.

#### 524 WORD IMAGE PROCESSING SYSTEM

Datacopy Corp., 1215 Terra Bella Ave., Mountain View, Calif. 94043—Sue Seubert, 415-965-7900 • For use with IBM PC-XT/AT; requires 640k

RAM • Price: from \$3,950 to \$11,945, depending on scanner. Updates: billable • Training: manual.

*Word Image Processing System* (WIPS) permits images (line art, graphics, documents) to be scanned with a datacopy electronic and digitizing camera, and integrates with the output of most IBM PC-XT/AT/compatible communications, graphics, database-management, spreadsheet and word-processing software. *WIPS* controls image scanning, storage and retrieval, and printing.

#### 525 WORD-11

Data Processing Design, Inc., 1400 N. Brasher, Anaheim, Calif. 92807—Gus Mavritsakakis, 714-970-1515 • For use with Digital, Micro/VAX, Micro II and PDP-11 • Price: \$2,500-\$9,500 depending on hardware; Updates: included with annual support • Training: on-site, in-house and manual, basic training included with purchase.

*Word-11* is a word-processing package that includes list processing, spelling-error detection, footnoting, automatic creation of table of contents and indexes, automatic paragraph and page numbering, manager's utility, and laser printer support.

#### 526 WORDMARC AUTHOR

MARC Software International, Inc., 260 Sheridan Ave., Suite 200, Palo Alto, Calif. 94306—Sheri Heffley, 800-835-2400 • For use with MS-DOS, PC-DOS 256kb, Apollo under AEGIS, AT&T 3B, and many others. • Price: From \$295, on microcomputers with multiuser systems; Updates: billable; with service contract • Training: on-site, manual and self-teaching guide.

*WordMARC Author* puts ideas into documents quickly with concise features for rapid communication. Features include automatic pagination, multiple indenting, hyphenation, search and replace, and tabs. Program allows such editing functions as cut and paste; copy from an outside file; and copy, erase, and move text from words to blocks.





# Project cost analysis and control

Bills of materials  
Feasibility studies  
Job budgeting  
Job costing  
Job estimating  
Materials take-offs  
Project cost accounting

## 532 ACCOUNTING FOR DESIGN PROFESSIONALS

Yeakel Electronic Software, Inc., 185 El Camino Real, Tustin, Calif. 92680—Fred Yeakel, 714-832-9371 • For use with IBM System 36/38, PC-36 or PC-XT/AT; • Price: \$5,000 (includes source code) PC-XT/AT \$3,000 (no source code); Updates: billable—at \$85 per month includes hotline • Training: in-house, on-site, manual and computer-aided instruction.

*Accounting for Design Professionals* is a multiuser on-line project and employee control system enabling all invoicing and accounting functions to be accomplished with a single entry of the source document, time cards or accounts payable. Program is menu-driven and can work with an IBM query program to create database capability. Accounts payable, accounts receivable and payroll modules included. General ledger module available.

## 533 ACCOUNTING FOR ENGINEERS AND ARCHITECTS (AEA-1)

Global Computer Systems, Inc., 42800 Garfield Rd., Mt. Clemens, Mich. 48044—Anousha Shifteh, 313-286-1321 • For use with any Wang micro- and mini-computer; requires 32k RAM and 5mb disk storage • Price: \$4,000-\$14,000; Updates: free • Training: seminar, in-house and manual.

*AEA-1* is a fully integrated menu-driven job-cost accounting system for small- to medium-size A/E firms. Contains six modules: payroll and personnel, project-cost accounting (by classification and labor function), accounts payable, accounts receivable, general ledger and financial statements and utilities. Tracks project cost by classification and labor function and provides a detailed audit trail and accounting flow-through. A password security system is also included.

## 534 ACE

Business Information Systems, Inc., 747 Third Ave., New York, N. Y. 10017—Julie Holland, 212-752-0831 • For use with most micros under PC-DOS, UNIX or XENIX, and most mini operating systems • Price: micro: \$6,995; mini: \$14,950. Updates: free with maintenance contract • Training: seminar, in-house, on-site, manual and computer-aided instruction.

*ACE* is an integrated job control and accounting system for either a single- or multiuser environment. Special features include browsing, spooled printing, on-line help and multilevel security. Real flexibility

gained through user-defined parameters includes invoice and financial statement formats; unlimited number of projects, employees, tacks, and phases. Over 60 reports on projects, costs, time, budgets, management and accounts receivable/payable are available.

## 535 AE/DB BASIC SYSTEMS I, II, III, IV

Halford A/E Systems Corp., 5207 McKinney Ave., Suite 24, Dallas, Tex. 75205—Bob Halford, 214-528-9352 • For use with microcomputers running CP/M-80 or 86, MP/M-80 or 86, PC-DOS or TURBOSDOS; requires hard disk and 48k RAM for 8-bit machines; 96k for 16-bit machines • Price: \$2,000 to \$5,500 depending on firm size and software configuration; • Updates: included with support agreement • Training: on-site, computer-aided instruction, telephone support and manual.

*AE/DB Basic Systems* are fully integrated practice management systems that use a shared database of information to serve project, financial and personnel management, accounting and marketing functions. Automated payroll and check writing features are available at nominal additional cost.

## 536 AE/DB LTD. SYSTEM

Halford A/E Systems Corp., 5207 McKinney Ave., Suite 24, Dallas, Tex. 75205—Bob Halford, 214-528-9352 • For use with CP/M-80, PC-DOS or MS/DOS; requires hard disk and 48k RAM for 8-bit units, 96k RAM for 16-bit computers • Price: \$1,100; Updates: none • Training: user installation, tutorial programs and manual.

*AE/DB Ltd. System* is an integrated management program for firms with 10 or fewer employees. It offers project budgeting and cost accounting, general accounting, financial statements and limited database management for client, prospect, project and employee records. User may upgrade to *AE/DB Basic System*.

## 537 A/E MULTIPURPOSE

P.I.C. Renovation, Inc., 2720 Queen City Ave., Cincinnati, Ohio 45238—Pietro Cassinadi, 513-662-2888 • For use with IBM PC/compatibles. Requires two disk drives, 256k RAM; monitor and printer • Price: \$160; Updates; billable • Training: manual.

*A/E Multipurpose* is a package containing a variety of programs developed for the design-build firm. Includes: conceptual estimates, project cost analysis, critical path analysis, structural analysis,

heating/cooling loads, lighting design, acoustical criteria, and financial equations.

## 538 AEGIS (ARCHITECTS AND ENGINEERS GENERAL INFORMATION SYSTEM)

SOTA Software Inc., 10014 North Dale Mabry, Suite 101, Tampa, Fla. 33618—Anita Karst, 813-963-2127 • For use with Prime, Data General or DEC computers • Price: \$20,000-\$28,000 depending on options; Updates: with maintenance contract • Training: on-site.

*Aegis* is an integrated financial and project management information system designed for the medium- to large-size A/E firm. System provides full financial facilities including general ledger, accounts payable, project accounts receivable and company-defined subsidiary ledgers. Job cost and project control facilities support a wide variety of job budgeting and work breakdown methods. Automated project invoicing provides company-tailored invoice formats and fee compensation methods. A payroll/personnel module is also available.

## 539 AEPEX

Timberline Systems, Inc., 7180 S. W. Fir Loop, Portland, Ore. 97223—Scott Drushella, 503-684-3660 • For use with IBM PC-XT/AT, TI PC, DEC Rainbow and AT&T 6300; new version of *Aepex* supports DOS 3.1 networks • Price: \$5,790 for PC; Updates: billable • Training: seminars and manual.

*Aepex*, an integrated project management and accounting system for small- to medium-size firms, consists of project management/accounts receivable, accounts payable, payroll and general ledger modules. It permits flexible numbering of tasks, reporting, billing and invoicing of projects. Time sheet and expense information is entered in the project management module, and is automatically transferred to the other three. Users can select from 99 invoice styles; package includes a self-tutorial starter set and custom report writer.

## 540 ANALYSIS

Haulman Associates, 9886 E. Belmont, Sanger, Calif., 93657—Donald J. Haulman, AIA, 209-251-0823 • For use with IBM PC and MS-DOS with two disks and printer; requires 128k RAM • Price: \$349; Updates: billable • Training: manual and computer-aided instruction. Demonstration disk: \$25.

*Analysis* plans tasks and profit for architectural and engineering projects. Establishes project plan

and budget and determines labor dollars available or necessary for successful completion. Software follows AIA-recommended procedures, and prints a project-specific schedule of designated services. Works top-down or bottom-up pricing strategies with on-screen and printout of project plan data.

## 541 ANAREAL

The Anareal Corporation, 3310 West End Ave., Nashville, Tenn. 37203—Richard Fletcher, 615-383-8325 • Timesharing software accessed via various makes of microcomputers and CRT terminals; requires a 1200-baud modem • Price: \$57 per analysis; Updates: free • Training: manual and computer-aided instruction.

*Anareal* enables an architect to determine whether to commit time and effort to speculative work. Program provides complete source and application of funds projected for the construction period, rent-up period and 10 years of stabilized operation.

## 542 ARCHITECT'S BUSINESS MANAGER

Architectural Computer Software, P. O. Box 4811, Santa Barbara, Calif. 93103—Marlessa Knoles, 805-962-4962 • For use with IBM PC/PC-XT • Price: \$2,500—\$3,200; Updates: \$150 per year • Training: seminar, in-house, and manual.

*Architect's Business Manager* is an integrated financial management system designed for small- to medium-size architectural and engineering firms. Maintains job-expense, billing and accounts receivable information for each project. Produces standard or custom reports for job costs, client billing, cash flow, income, balance sheets and more. Standard modules are job-cost, payroll, accounts payable and general ledger.

## 543 ARCHITECT'S OFFICE MANAGER

Facility Design Group Inc., One South Main St., Wilkes-Barre, Pa. 18701—John Cowder, RA, 717-824-1234 • For use with IBM PC/compatibles • Price: \$495; Updates: free for first six months, billable thereafter • Training: manual.

*Architect's Office Manager*, written by an architectural firm for itself, automates job-cost reporting. Figures profits, markups, billings and reimbursables. Uses AIA- or user-defined formats for cost accounting. Permits variable billing rates. Reports detail jobs by phase, hours/dollars-



budgeted/spent, totals-to-date and per cent complete.

#### 544 ARCHITECTS ACCOUNTING PROGRAM

Computer Services, P. O. Box 702, Atkinson Mill Rd., Fairmont, N. C. 28340—James C. Atkinson, 919-628-8727 • For use with TRS-80/1/3/4/12/16, (Tandy 6000); IBM PC, MS-DOS 1.1/compatibles; requires 48k RAM and 250k disk storage • Price: \$300; licensed to end user only when purchased or leased; Updates: \$75 • Training: manual and computer-aided instruction.

*Architects Accounting Program* is designed for the small architectural firm, yet permits any number of accounts. The program tracks expenses and income by project and works as a double-entry bookkeeping system: user makes one entry for each transaction, similar to a check register, program posts entry to payables, receivables, and all other records automatically.

#### 545 ARCHITECTURAL COSTING

CalComp, 2411 W. La Palma, Anaheim, Calif. 92801—714-821-2000 • Turnkey system for use with CalComp System 25 • Price: \$7,500; Updates: free on an annual basis • Training: manual; System 25 training on-site.

*Architectural Costing* converts material takeoffs into a complete construction cost estimate, based on the quantities file of the *Architectural Production* package (see 680, below). The *Costing* database would contain the material and labor cost of each component, supplied either by you or by cost estimating services. Itemized cost reports let you see and control both component costs and over-all project costs.

#### 546 ARCHITECTURAL/ENGINEERING MASTER ACCOUNTING SYSTEM

Data-Basics, Inc., 11000 Cedar Rd., Suite 110, Cleveland, Ohio 44106—Sales, 216-721-3400 • For use with Wang VS, 2200 and Wang PC, IBM PC-AT/XT/compatibles; MS-DOS, XENIX; requires 256k RAM • Price: \$4,890; Updates: billable • Training: seminars, on-site, manual and computer-aided instruction.

*Architectural/Engineering Master Accounting System* is an integrated job-costing, payroll and accounting system with single-entry posting to all related accounts.

Tracks all costs through the life of a project. Reports available in summary or detail. Modules available are job-costing, payroll,

accounts receivable, accounts payable, general ledger and automatic invoicing.

#### 547 ASTRO/STAR

R. S. Means Co., Inc., 100 Construction Plaza, Kingston, Mass. 02364—Priscilla Driver, 617-747-1270 • For use with IBM PC-XT/AT; requires 256k RAM • Price: \$1,750-\$2,485; Updates: billable • Training: in-house, on-site, seminar, manual and 800-number hotline.

*Astro/Star* is a general estimating program using the unit price method. Users can develop their own material and labor-cost information. Produces estimating reports for an entire project broken down by subcontracts or full 16 divisions. Software has the ability to create assemblies, with each component user-identified.

#### 548 AUTOBID II

WJ Automation Bid Center, 12-825 McBride Blvd., New Westminster, B.C., V3L 5B5—B. K. Snyder, 604-520-3061 • For use with UNIX, XENIX, MS/DOS PC/DOS; requires 256k RAM, 10mb hard disk storage • Price: \$5,950; Updates: billable; with service contract • Training: in-house, on-site and manual.

*Autobid II* provides detailed estimating for architects and contractors. It features direct take-off from plans with probe or digitizer, unlimited file sizes, alpha/numeric coding fields, and automatic conversion from one set of units to a second or third.

#### 549 BMP: BILL OF MATERIALS PLUS

C. R. Smolin, Inc., 5230 Carroll Canyon Rd., Suite 206, San Diego, Calif. 92121—C. R. Smolin, 619-455-1285 • For use with any CP/M-80, CP/M-86 or MS-DOS; requires 132-column printer; hard disk recommended • Price: \$995; Updates: free • Training: manual.

*BMP: Bill of Materials Plus* is a complete bill of materials processor and engineering documentation control system that supports multiple databases of up to 32,000 parts per database and includes extensive costing and cost roll-up features. Reports, which have comprehensive sort and data selection capabilities, include part master, single level, indented and summary bills of material, "where used," and manufacturer's cross-reference.

#### 550 CAMS

Construction Systems Associates, Inc., 2121 Newmarket Pkwy., Suite 124, Marietta, Ga. 30067—James R.

O'Brien, 404-955-3518 •

For use with any Data General computer from a desktop micro to the MV1000; requires 128k RAM and 20mb disk storage • Price: \$3,000-4,000 per module; Updates: included with maintenance contract • Training: in-house and on-site, one day per module.

*CAMS* is a modular, fully integrated package containing numerous application modules that can be configured to meet the individual needs of different architecture/engineering firms. Basic modules are job costing, billing, accounts payable, accounts receivable, payroll, general ledger and forecasting.

#### 551 CFMS

Harper and Shuman, Inc., 68 Moulton St., Cambridge, Mass. 02138—Sheila A. Boudreau, 617-492-4410 • Software available to run on stand-alone units such as DEC-VAX and Prime Computer. May also be accessed via service bureau or timesharing on compatible computers, including IBM PC-XT/AT, TRS80/2/12/16 (Tandy 6000), DEC Rainbow Series, and Apple III • Price: one-time license fee from \$14,995 to \$21,995; Updates: automatic with timesharing or billable • Training: seminar, in-house, on-site and manual.

*CFMS* is a comprehensive and fully integrated project control/financial management system created specifically for the design professions.

#### 552 CMS COST MANAGEMENT SYSTEM

Educol, Inc., P. O. Box 726, San Luis Obispo, Calif. 93406—Dr. Jens Pohl, 805-489-0806 • For use with Alpha Micro AM-100/100T/100L/1,000; requires 32k RAM and 10mb disk storage • Price: \$1,800; Updates: billable • Training: seminar, on-site and manual.

*CMS Cost Management System* is a microcomputer-based program with three levels of cost-estimating: preliminary cost estimates, approximate quantities cost estimates, and detailed quantities cost estimates. *CMS* also has construction cost monitoring and control capabilities. The program integrates with *OMS Office Management System* database (see 585 below).

#### 553 CARD READER SYSTEM

National Information Consultants, Inc., 403 S. Cheyenne, Tulsa, Okla. 74103—Sales, 918-584-2365 • For use with IBM PC-XT/AT, Radio Shack 2/12/16

(Tandy 6000) with CP/M, Intertec ATS; 64k RAM. Hard disk recommended. Requires True Data Micro Mark II card reader • Price: \$495; Updates: no charge first year; maintenance fee thereafter • Training: in-house, on-site and manual.

*Card Reader System*, designed to work with the vendor's *General Accounting System*, controls time management and payroll input. Employees record their hours on a card using a pencil, the card is reviewed, and then input to the payroll system using a card reader—no keyboard entry is required. In addition to the standard project management reports, the system produces a daily project report and employee time sheet.

#### 554 COMPUTER AIDED CONSTRUCTION TAKE-OFF AND ESTIMATING SYSTEM

E. F. Paynter & Associates, Inc., 6140 North College Ave., Indianapolis, Ind. 46220—Edwin F. Paynter, 317-257-7561 • For use with Wang 2200 Series IBM System 36/PC/compatibles • Price: \$6,000-\$12,000 for basic system; Updates: included with maintenance agreement • Training: in-house, on-site, manual and HELP screens.

*Computer Aided Construction Take-off and Estimating System* calculates and reports quantities, costs and hours for all cost items in a construction project. The take-off function is user-defined with entry at the cost item or phase level of either dimensions or units. User can override all rates, prices, crews and factors at any time. Estimate summary reports include selection and subtotals by cost item, phase, division and project section and labor and equipment summaries. Estimate results are transferable to EFP or other job-cost systems.

#### 555 CONSTRUCTION BID COMPARISON PROGRAM

Computer Services, P. O. Box 702, Atkinson Mill Rd., Fairmont, N. C. 28340—James C. Atkinson, 919-628-8727 • For use with TRS-80/1/3/4/12/16 (Tandy 6000); IBM PC/compatibles; AT&T, requires 16k RAM and 250k disk storage • Price: \$50; licensed to end user only when purchased or leased; Updates: none • Training: manual and computer-aided instruction.

*Construction Bid Comparison Program* compiles base and alternate bid information to show low bidder on screen or in a printed report within 10 minutes after bid information is input. Program is a





component of *Construction Cost Estimating System* (see 556 below).

### 556 CONSTRUCTION COST ESTIMATING SYSTEM

Computer Services, P. O. Box 702, Atkinson Mill Rd., Fairmont, N. C. 28340—James C. Atkinson, 919-628-8727 • For use with TRS-80 1/3/4/12/16 (Tandy 6000), IBM PC/compatibles and AT&T; requires 48k RAM and 250k disk storage • Price: \$600 (lease—\$50/mo); licensed to end user only when purchased or leased; Updates: billable • Training: manual and computer-aided instruction.

*Construction Cost Estimating System* is a series of 16 individual sub-programs that provides an estimated cost of a project—Quantity take-off of material; Pricing program; Bidday compiler; Pricing and take-off program.

### 557 COSTPAK

Integrated Technical Computers Co., Ltd., 205R, Choo Cheeng Khay Rd., Kuala Lumpur, Malaysia—Lim Tong Leong • For use with MS-DOS, IBM PC-XT/AT/compatibles; requires 320k • Price: \$1,680; Updates: billable • Training: manual.

*Costpak* allows an architect/contractor to perform project cost accounting with multiple-level accounting. The systems tracks resources in terms of actual quantities used, in addition to financial amounts. Full accounts payable module available; system is completely menu-driven with built-in HELP facilities.

### 558 CV/CFMS BILLING

Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Philip Chischportich, 617-275-1800 • For use on IBM PC-AT/XT; requires 512k RAM, math co-processor (8087/82087), graphics card (Tekmar, IBM Professional, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, \$19,900; software only: \$395; Updates: billable • Training: in-house, on-site and manual.

*CV/CFMS Billing* supports automatic customer billing. Other products in this series of PC/compatible *CFMS* modules are *CV/CFMS Accounting*, which tracks expenses and budgets, breaking down costs by project and summarizing total expenses, and *CV/CFMS Payroll*, which supports payroll journal and 941 and W-2 reports. It also generates paychecks and associated reports.

### 559 DESIGN ESTIMATOR

McGraw-Hill Cost Information Systems, P. O. Box 28, Princeton,

N. J. 08540—Paul Piccione, 800-257-5295 • For use with Apple II+ /IIe/III or IBM PC; requires 64k RAM, two disk drives and printer • Price: \$795; Updates: billable • Training: manual.

*Design Estimator* produces a preliminary design estimate to project the construction cost of a building using preliminary design sketches. Uses a continuously updated database that includes costs for more than 25,000 building components and the productivity and wage rates of 22 trades in more than 700 locations.

### 560 DODGE SYSTEM 1

McGraw-Hill Cost Information Systems, P. O. Box 28, Princeton, N. J. 08540—Paul Piccione, 800-257-5295 • Service Bureau—requires teletype-compatible computer terminal or microcomputer and a Bell-compatible 300- or 1200-baud modem • Price: varies; Updates: free • Training: seminar and manual.

*Dodge System 1* assists in the development of detailed cost estimates that can be used to evaluate contractor's bids and check costs using detailed drawings. The software uses a continuously updated database covering the cost of some 25,000 building components and productivity and wage rates of 22 trades in over 700 locations.

### 561 DODGE SYSTEM 73

McGraw-Hill Cost Information Systems, P. O. Box 28, Princeton, N. J. 08540—Paul Piccione, 800-257-5295 • Service Bureau—requires teletype-compatible computer terminal or microcomputer and a Bell-compatible 300- or 1200-baud modem • Price: fee varies; Updates: free • Training: seminar manual.

*Dodge System 73* is a preliminary-design estimating tool that projects the construction cost of a building using preliminary design sketches and a continuously updated database that includes costs for more than 25,000 building components and productivity and wage rates of 22 trades in more than 700 locations.

### 562 DODGE SYSTEM 90

McGraw-Hill Cost Information Systems, P. O. Box 28, Princeton, N. J. 08540—Paul Piccione, 800-257-5295 • Service Bureau—requires teletype-compatible computer terminal or microcomputer and a Bell-compatible 300- or 1200-baud modem • Price: varies; Updates: free • Training: seminar, manual and 800-number.

*Dodge System 90* automates the

development of a conceptual budget analysis required to project construction costs of a proposed building design before blueprints are prepared. The program uses prevailing labor and material costs for the zip-code area in which a proposed building is to be built.

### 563 ESPRI

Contractor's Management Systems, 1760 Reston Ave., Suite 101, Reston, Va. 22090—Marketing, 703-435-3172 • For use with IBM PC-XT/AT and compatibles running MS-DOS or CP/M • Price: \$2,995; Updates: billable • Training: seminars, in-house, on-site, manual and computer-aided instruction.

*Espri* is a user-definable estimating package operating under MS-DOS or CP/M that can track up to 16,000 items (variables) and 999 distinct jobs. The program uses item or assembly-system take-offs. Information is screen-available and can be created, changed or deleted at any time. Marketed nationally, in Canada and the U.K. Also available is *Schedule-Manager* software, designed to handle more than one construction job at the same time.

### 564 ESTIMATING SYSTEM

NOW Computer Systems, Inc., 8840 Tradeway, San Antonio, Tex. 78217—Nathan O. Wehe, 512-821-6922 • For use with IBM S36 or S/36 PC • Price: \$3,000 to \$24,000; Updates: billable or with service contract • Training: in-house, on-site and manual.

*Estimating System* allows several people to work on the same estimate at the same time. Estimates can be customized to fit a special project, or can use a predefined estimating master skeleton. On successful bids the estimates are consolidated into user-defined cost codes and transferred into the job master file.

### 565 ESTIMATPAK

Integrated Technical Computers Co., Ltd., 205R Choo Cheeng Khay Rd., Kuala Lumpur, Malaysia—Lim Tong Leong • For use with MS-DOS, 320k, optional 8087; IBM PC-XT/AT/compatibles; networking option • Price: \$1,680; Updates: billable • Training: manual.

*Estimatpak* uses a database of products prices to perform job estimating and budgeting. Bills of materials are automatically generated together with a summary of resources; results of "what-if" design changes are reported instantly. A directory of all suppliers/contractors is kept; system is menu-driven with built-in HELP facilities.

### 566 E-Z-MRP MATERIAL REQUIREMENTS PLANNING SYSTEM

C. R. Smolin, Inc., 5230 Carroll Canyon Rd., Suite 206, San Diego, Calif. 92121—Rocky Smolin, 619-455-1285 • For use with CP/M-80, CP/M-86, MS-DOS, PC-DOS; 132-column printer; hard disk recommended • Price: \$1,495; Updates: one year free; hot-line support • Training: manual with tutorial sections; on-site and in-house (fee).

*E-Z-MRP* operates in tandem with this vendor's *Bill of Materials Plus* software, and requires no other on-line applications. Said to provide many of the features and benefits usually found only in mainframe *MRP* systems, its user-oriented approach to data entry and report generation greatly shortens the *MRP* implementation cycle.

### 567 FINANCIAL MANAGEMENT SYSTEM

Microstructure, 218 West Main St., Charlottesville, Va. 22901—Stuart G. Burgh, 804-295-2600 • For use with: IBM PC-XT/AT, AT&T, PC 6300, and Compaq DESK PRO, with 10mb hard disk • Price: \$4,670; Updates: free • Training: seminar and manual.

*Financial Management System* is a costing and accounting system that comprises six integrated software modules to provide in-house project costing, payroll and accounting services. The modules are designed for architectural and engineering firms and are fully integrated with interactive graphic displays.

### 568 FULLY INTEGRATED A/E PROJECT MANAGEMENT/GENERAL ACCOUNTING

ACCI Business Systems, Inc., 12707 N. Freeway, Suite 140, Houston, Tex. 77060—Paul Pamer, 713-872-4131 • For use with AT&T 7300, IBM PC-XT, Compaq Plus, Televideo 806, Altos and Vector Graphic under CP/M, MS-DOS or UNIX System V operating systems; requires 64k RAM and 10mb disk storage • Price: \$6,250, UNIX version, \$7,500; Updates: billable at price of diskettes and mailing • Training: on-site (travel plus \$1,000).

*Fully Integrated A/E Project Management/General Accounting* consists of four integrated modules that emulate the structure of the *CFMS/AIA Standardized Accounting for Architects*. Entry of time-sheet and expense data updates all project files and all related accounting files. Individual modules are project management/billing, payroll management, accounts payable, and general ledger.



#### 569 GALAXY

R. S. Means Co., Inc., 100 Construction Plaza, Kingston, Mass. 02364—Priscilla Driver, 617-747-1270 • For use with IBM PC-XT/AT; requires 256k RAM • Price: \$15,050; Updates: billable • Training: on-site and manual.

*Galaxy* is an automated quantity take-off and pricing system that enables a user to do both the quantity survey and cost estimating of a project directly from drawings, using a digitizer. Provides unit cost, extended costs, and total costs for all building components. Users can develop files of cost data or use the Means data already contained in the file.

#### 570 G/C CUE

Gilbert Services, Inc., P. O. Box 1498, Reading, Pa. 19603—Paul DeMeo, 215-775-2600 • For use with Hewlett-Packard 3000, Prime, DEC-VAX and IBM 370/30XX/43/XX computers • Price: from \$39,500 depending on hardware and software configuration; Updates: free first year, billable thereafter • Training: seminars, on-site, in-house and manual.

*G/C Cue* is a comprehensive minicomputer system for large A/E firms that integrates project planning, scheduling and management functions with costing and accounting capabilities. Maintains data for over 1,200 projects separately on one system. Can support up to 100 users simultaneously.

#### 571 HOME BUILDER CONSTRUCTION MANAGEMENT SYSTEM

NOW Computer Systems, Inc., 8840 Tradeway, San Antonio, Tex. 78217—Nathan O. Wehe, 512-821-6922 • For use with IBM S/36 or S/36 PC • Price: \$3,000 to \$24,000; Updates: billable or with service contract • Training: in-house, on site and manual.

*The Home Builder Construction Management System* is an interactive, on-line program for project cost accounting. Job cost detail, summaries and contract status are updated immediately. In addition to all standard payroll requirements, the system provides labor cost distribution, certified registers and union reports.

#### 572 IMS MANAGEMENT SYSTEM

Educol, Inc., P. O. Box 726, San Luis Obispo, Calif. 93406-0726—Dr. Jens Pohl, 805-489-0806 • For use with AMOS; requires 256k RAM • Price: \$6,000; Updates: with service contract • Training: in-house and manual.

*IMS Management System* provides office and construction job cost control, estimating, scheduling, payroll, accounts receivable, accounts payable, general ledger and design project information management. It also performs word- and list-processing functions.

#### 573 INCOME PROPERTY ANALYSIS

Micro-Mode, Inc., 4006 Mt. Laurel, San Antonio, Tex. 78240—Bill Henderson, 512-341-2205 • For use with IBM PC, Compaq, Televideo, Vector, Altos, CP/M and MS-DOS; requires 64k RAM • Price: \$1,995; Updates: billable • Training: manual.

*Income Property Analysis* produces a complete financial feasibility study on a project for a prospective income property developer to take to the mortgage banker. Used by architects to sell their design services to developers. Also used by property development firms and commercial loan officers. Software was designed by a San Antonio architect.

#### 574 INTEGRATED FINANCIAL MANAGEMENT/GENERAL ACCOUNTING SYSTEM

Micro Mode, Inc., 4006 Mt. Laurel Dr., San Antonio, Tex. 78240—Bill Henderson, 512-341-2205 • For use with IB PC-XT/AT, AT&T 6300/7300/3B2, DEC Rainbow and compatibles running CP/M, MS-DOS or UNIX/XENIX; requires 64k RAM and 10mb/20mb disk storage • Price: \$6,250 for CP/M, MS-DOS, \$7,500 for UNIX/XENIX; Updates: optional at \$150 semi-annually • Training: on-site; includes conversion of customer's data to system.

*Integrated Financial Management/General Accounting System* is a widely-used series of programs designed to meet the needs of A/E firms for control and audit of costs and revenues. Emulates features of the AIA standardized accounting system and ACEC Guidelines to Practice. Entry of time sheets and expense data updates all project and related files.

#### 575 JOB CAPTAIN

EMA Management Associates, Inc., 1145 Gaskins Rd., Richmond, Va. 23233—Terri C. Connell, 804-740-8332 • For use with TRS-80/3/4, with two disk drives and 48k RAM; requires Tandy's *Profile III* and *Database Management* • Price: \$395; Updates: free • Training: manual.

*Job Captain* calculates net and gross square footages of spaces and probable construction-cost budgets. Prints reports for programming,

space planning and adjacencies. Prints door and room-finish schedules and remembers all doors, jambs and frame material. Manages and prints complete shop drawing file. Uses fill-in-the-blank multiple screens for inputs.

#### 576 JOB COST ACCOUNTING PROGRAM

Elite Software Development, Inc. P. O. Drawer 1194, Bryan, Tex. 77806—Terri J. King, 409-846-2340 • For use with CP/M, MS-DOS, PC-DOS and CP/M-86; requires 56k RAM for CP/M and 128k for MS-DOS • Price: \$495; Updates: billable • Training: manual.

*Job Cost Accounting Program* tracks job costs for up to 700 active projects and 75 employees on a perpetual-time basis. Up to 15 hourly task codes, five direct cost codes and 15 overhead cost codes are allowed. All reports can be obtained with various qualifying parameters, such as range of job numbers, range of employees, client receivables, monthly overhead costs, and cash flow summary.

#### 577 JOB COST AND ESTIMATING PROGRAM

Computer Services, P. O. Box 702, Fairmont, N. C. 28340—James C. Atkinson, 919-628-8727 • For use with TRS-80/1/2/3/4/12/16 (Tandy 6000), IBM PC, MS-DOS 1.1. Requires 64k RAM minimum; two disk drives; printer • Price: \$300; Updates: billable • Training: manual and computer-aided instruction.

*Job Cost and Estimating Program* helps the architect keep track of job costs and profits for jobs and track general construction costs with the same software. User may use one set of disks for personal records, and another set of disks for construction cost. Requires only one entry for each cost and income item. About 1,000 entries per two disk set allowed before disk full condition.

#### 578 JUSTIFY

Demand, Inc., 7430 E. Caley Ave., Suite 350, Englewood, Colo. 80111—Steve Tautz • For use with MS-DOS, PC-DOS, IBM PC-XT/AT, TI PROFESSIONAL, DEC, and others; requires 256k RAM • Price: \$495; Updates: free for first year • Training: manual.

*JUSTIFY* helps firms plan and cost justify computer-aided design/drafting projects. It evaluates the present system and performs the necessary strategic planning steps to configure and implement a successful CADD system. The package comes with complete documentation explaining the process; additional help is available if required.

#### 579 KERR COST

Kerr Associates, Inc., 1942 Irving Ave. S., Minneapolis, Minn. 55403—Francis K. Kerr, AIA, 612-374-5438 • For use with DOS 2.0 or higher, two 360k floppy drives, 128k RAM, 132 column printer • Price \$895 (IBM); \$1,195 (CP/M, others); Updates: \$125 per year • Training: manual and computer-aided instruction.

*Kerr Cost* speeds cost estimate or bid preparation for landscape construction. Supplies sitework and landscape cost database; 16 standard reports range from full detail to brief client summaries by job. Prepares bill of materials and labor/equipment requirements reports. User inserts subcontracts; selects from alternative labor and equipment cost schedules; chooses productivity and material cost judgment factors; or customizes the database. Spreadsheet interface.

#### 580 KEYSTONE PROJECT MANAGEMENT ACCOUNTING SYSTEM

Information Engineering Corp., 1155 Louisiana Ave., Suite 200, Winter Park, Fla. 32789—Gail Marcum, 1-800-432-3444 • For use with CP/M-86, MS-DOS and MPM-86; requires 128k RAM per workstation; single- or multiuser system and may run on Novell, PC-Net, and 3-Com (Ether series) networks. • Price: \$5,000 (\$4,000 without optional general ledger); Updates: billable • Training: seminar, in-house, on-site and manual.

*Keystone Project Management Accounting System* enables an architect to track, control and analyze all project and other costs as well as budget to the phase and task levels. "Snapshots" project status and productive time by employee. Output from custom reports to standard financial reports. Supports standard AIA business forms and generates quarterly payroll reports, W-2s and 1099s. Integrates fully with the general ledger as well as Lotus 1-2-3 or other productivity tools using ASCII or ASCII-delimited files.

#### 581 LIFE CYCLE COSTING PROGRAM

Elite Software Development, Inc. P. O. Drawer 1194, Bryan, Tex. 77806—Terri J. King, 409-846-2340 • For use with CP/M, MS-DOS, PC-DOS and CP/M-86; requires 56k RAM for CP/M and 128k for MS-DOS • Price: \$295; Updates: billable • Training: manual.

*Life Cycle Costing Program* is a multiple-phased life-cycle economics program that uses the net present value method to determine the





lowest cost among project alternatives. Analyzes both current and projected financial needs by phasing alternatives over a specified period of time. Program considers inflation, interest and tax rates; initial, operating and cyclical costs; replacement costs and various timing problems. Accommodates up to four phases with 40 years useful life per project.

## 582 MANAGEMENT INFORMATION SYSTEM FOR DESIGN FIRMS

BST Consultants, Inc., P. O. Box 23425, Tampa, Fla. 33623—Chris Meyer, 813-961-3902 • For use with DEC-VAX, Prime Series 50, IBM-PC/AT/compatibles; requires 256k RAM; turnkey package available based on DEC-VAX or Televideo PC hardware • Price: \$12,500 and up; includes source code; Updates: free for first six months, billable thereafter • Training: manual and on-site (up to 10 man-days training included in purchase price).

*Management Information System*, a multiuser business system, assists in monitoring and controlling costs, revenue and project performance on a real-time basis. Labor costs are computed from employee time-sheet entries, and other direct expenses are collected from vouchers, disbursements and journal entries. Information is maintained and displayed on a project, task-phase, department/discipline, and activity basis.

## 583 MISTER PROJECT MANAGEMENT SYSTEM

Park Engineering Associates, P. O. Box 354, Veradale, Wash. 99037—Joseph Powell, P. E., CPL, 509-926-3208 • For use with Prime and DEC-VAX computers; includes super minicomputers • Price: \$7,000-\$80,000 depending on hardware required; Updates: included with service/maintenance agreement; billable otherwise • Training: seminars, in-house and manual.

*Mister Project Management System* is a multi-project management system which integrates CPM-based work schedules and resource leveling with a complete project budget and accounting system. The system supports extensive network and financial graphics, including precedence diagramming. The program will run on supermini-class computer hardware.

## 584 NIC GENERAL ACCOUNTING

National Information Consultants, Inc., 403 S. Cheyenne, Suite 600,

Tulsa, Okla. 74103—Jack Vest, 918-584-2365 • For use with IBM PC-XT/AT, TRS-80/2/12/16 (Tandy 6000) with CP/M, and Intertec ATS • Price: \$1,495; Updates: no charge for first year; included with maintenance fee thereafter • Training: one day included, either on-site or in-house.

*NIC General Accounting* is a fully integrated accounting system with general ledger, accounts payable, accounts receivable and payroll. Produces financial statements in any format. Payroll is job-oriented allowing entry of project number and work code for each employee. Runs salaried and hourly employees simultaneously. Prints well-designed reports and detailed check stubs. Optional modules are *Project Management* (\$495) and *Card Reader System* (\$495).

## 585 OMS OFFICE MANAGEMENT SYSTEM

Educol Inc., P. O. Box 726, San Luis Obispo, Calif. 93406—Dr. Jens Pohl, 805-489-0806 • For use with Alpha Micro AM-100/100T/100L/1,000 computers; requires 32k RAM and 10mb disk storage • Price: \$3,000; Updates: free • Training: seminar, on-site and manual.

*OMS Office Management System* is a multiuser system that integrates job information, office accounts, payroll, people and design project data into an automated data storage and report generation system. Additional applications modules available.

## 586 PRELIMINARY COST ESTIMATING

Micro-Mode, Inc., 4006 Mt. Laurel, San Antonio, Tex. 78240—Bill Henderson, 512-341-2205 • For use with IBM PC, Compaq, Altos, Vector, Televideo CP/M or MS-DOS; requires 64k RAM and 150k disk storage • Price: \$1,995; Updates: billable at \$150 per year • Training: manual.

*Preliminary Cost Estimating* produces probable construction cost for a construction project. Cost is broken down into 12 building systems, special building features and site and special outside work. Cost figures are based on Dodge, Means, and Marshall figures.

## 587 PROCAS-PROJECT CONTROL ACCOUNTING SYSTEM

Sys Comp Corp., 2042 Broadway, Santa Monica, Calif. 90404—Michael Francis, 213-829-9707 • For use with ECLIPSE MV family; AOS/VS; 16-Bit ECLIPSE/AOS; micros/AOS • Price: \$13,000-\$30,000, depending on number of users; Updates: with

maintenance contract; billable • Training: on-site.

*PROCAS-Project Control Accounting System* is a fully integrated, dynamic, interactive system designed for A-E-C firms. It consists of five modules that provide for one-time entry of pertinent data and its distribution to the appropriate files and processes: project control; payroll; accounts payable; accounts receivable; and general ledger/financial statements.

## 588 PROFESSIONAL ACCOUNTING SYSTEM

Heiniger Associates, 636 W. Jefferson, Morton, Ill. 61550—Jim Heiniger, 309-266-5812 • For use with Wang 2200 System (SVP/LVP/MVP) and Wang PC; requires 64k RAM • Price: from \$1,500, depending on number of modules purchased; Updates: billable • Training: manual and on-site.

*Professional Accounting System* consists of integrated job costing/marketing software including payroll, general ledger, accounts payable and word processing. Generates multiple invoice formats. Other modules are projects (Standard Forms 254/255), contact information, personnel/company information, and calendars and labels.

## 589 PROFESSIONAL ACCOUNTING MANAGEMENT SYSTEM

Architectural Computer Software, P. O. Box 4811, Santa Barbara, Calif. 93140—Marlessa Knoles, 805-962-4962 • For use with IBM-PC hard disk/compatibles and DOS 2.1 or greater; requires 128k RAM • Price: \$4,500; Updates: billable yearly; first year free • Training: seminar and on-site.

*Professional Accounting Management System (PAMS)* is a fully integrated financial and project management package designed for professional firms. It contains accounts receivable and payable, job cost, client invoicing, payroll, and general ledger subsystems. *PAMS* links to Lotus 1-2-3; supports overhead allocation and provides customized reports.

## 590 PROJECT CONTROL MANAGEMENT SYSTEM

Creative Software Systems, 399 Sherman Ave. Suite 11, Palo Alto, Calif. 94306—David Bennett, 415-328-5033 • For use with IBM PC-AT/XT, NCR, Prime, Basic Four and others; supports most 132-column printers. Also available as a turnkey system • Price: varies from \$5,000-\$20,000; Updates: made available

with maintenance contract • Training: in-house, on-site, manual and computer-aided instruction.

*Project Control Management System* is a modular, fully integrated accounting and financial management system with five main modules: accounts receivable, accounts payable, project costing, general ledger and payroll. One entry updates all files. Optional systems are PERT (scheduling), library distribution, employee scheduling, file-maintenance generator and a report writer. All source codes are provided; invoice and report formats are flexible.

## 591 PROJECT COST AND ACCOUNTING SOFTWARE

Data Processing Design, Inc., 1400 N. Brasher, Anaheim, Calif. 92807—Gus Mauritsakis, 714-970-1515 • For use with Digital VAX/VMS, Micro/VAX and Micro II • Price: \$12,500-\$20,000 for complete package; Updates: included with annual support • Training: on-site, in-house and manual.

*Project Cost and Accounting Software* is designed to help architects and engineers track labor and expenses for individual client projects on several levels. The software generates reports on project profitability and handles all other operational and financial reporting needs. Data needs to be input only once, and is then distributed throughout this five-program package.

## 592 PROJECT MANAGEMENT

National Information Consultants, Inc., 403 S. Cheyenne, Suite 600, Tulsa, Okla. 74103—Jack Vest, 918-584-2365 • For use with IBM PC-AT/XT, Radio Shack 2/12/16 (Tandy 6000) with CP/M, Intertec ATS; requires 64k RAM, hard disk recommended • Price: \$495; Updates: no charge first year; maintenance fee thereafter • Training: offered with the vendor's *General Accounting System*; manual.

The *Project Management* system, linked to the payroll and accounts payable system, provides for single entry of employee time and project charges. Reports in easy-to-understand format compare actual costs with budgets, allowing the manager to anticipate potential problems and eliminate them. Status reports can be run as often as necessary, in a choice of five different formats.

## 593 PROJECT MGR.

Applied Digital Communications, 214 Flynn Ave., Moorestown, N. J. 08057—Thomas Concannon, 609-234-



**3666** • For use with Data General NOVA, Integrated Business Computer and Eclipse microcomputers; requires 256k RAM and 10mb hard disk storage • Price: from \$5,000 depending on software configuration; Updates: free • Training: seminar, in-house, on-site and manual.

*Project Mgr.* is a modular, menu-formatted project management system that provides detailed budget and cost-capturing capability. Included is a professional invoicing system and a personnel reporting module. Software can be purchased as part of a turnkey system that includes documentation, training and ongoing support.

#### **594 PROJECT TIME MANAGEMENT**

Alpine Datasystems, Inc., 111 S. W. Fifth Ave., Suite 1950, Portland, Ore., 97204—Steve Judd, 503-243-1936 • For use with DEC-PDP and VAX Series computers, including MICROVAX II and MICRO II family • Price: \$10,000 to \$20,000 depending on configuration; Updates: billable • Training: on-site, in-house, and telephone HELP line and modem support.

*Project Time Management* is an integrated project costing and financial accounting system oriented towards medium- to large-size firms using minicomputers. Package includes project costing, accounts receivable, billing, payroll, accounts payable, general ledger, resource scheduling and marketing retrieval. Determines actual costs versus budgeted costs for labor, reimbursables, consultant expenses and direct costs.

#### **595 PROMAX-C**

Promax Systems, Inc., 445 Brush Hollow Rd., Melville, N. Y. 11747—Robert Catania • For use with computers running PICK, including Micro Data, General Automation, Ultimate and IBM PC-XT • Price: from \$10,000 for basic software; Updates: billable • Training: seminar, in-house and manual.

*Promax-C* is a modular financial cost-control system built around a billing and job-costing module and an on-line database. Standard modules are accounts receivable, accounts payable, general ledger and payroll. Options are job-cost estimating, job scheduling, vehicle/equipment maintenance, inventory/purchasing control, fixed assets accounting, personnel reporting and mailing list maintenance.

#### **596 RAPIDCOST-C**

Chempro Data Sciences Corp., 507 Southampton Rd, Westfield, Mass. 01085—Norman St. Martin, 413-562-2353 • For use with IBM PC-XT with monochrome monitor, Compaq portable and IBM portable; supports Digitrak sonic digitizer • Price: \$4,685; includes digitizer; Updates: free during first year, billable thereafter • Training: seminar, in-house, on-site, manual, computer-aided instruction and telephone support.

*Rapidcost-C* is a contractor estimating and take-off system that operates in conjunction with a sonic digitizer. The program stores details and sub-assemblies along with prices and other related information in a database. Digitizer permits take-offs of quantities, areas, lengths and widths and conversion to squares, rolls and other building material units.

#### **597 REQUEST FOR PAYMENT PROGRAM WITH SIMILAR JOB ESTIMATING**

Computer Services, P. O. Box 702, Atkinson Mill Rd., Fairmont, N. C. 28340—James C. Atkinson, 919-628-8727 • For use with TRS-80/1/3/4/12/16 (Tandy 6000), IBM PC/compatibles, AT&T; requires 32k RAM • Price: \$100; Licensed to end user only when purchased or leased; Updates: billable • Training: manual, computer-aided instruction, and phone support.

*Request for Payment Program with Similar Job Estimating* stores data by request period. After user initializes program for project, he/she changes amounts only for each breakout. The program computes the remainder of the entries on a form that prints out on a 132-column printer. This updated program allows the architect to estimate similar project from data in computer.

#### **598 SSD/ESTIMATING SOFTWARE**

Small System Design, Inc., 1120 Oakdale Place, Boulder, Colo. 80302—Susan Penny, 303-442-9454 • For use with IBM PC-XT and dot matrix printer • Price: \$995; Updates: free with continuing service contract • Training: in-house, on-site and manual.

The Estimating portion of the *SSD/Construction Management Software* is useful for specifying materials. Each item can be chosen from a Master File of frequently used items and inserted into a Job File with quantity and cost figures. The format then can be used by the contractor to complete the materials list for the job.

*Project Manager* is a stand-alone software module that runs on the IBM PC-XT/compatibles. It offers

#### **599 SEMAY PROFESSIONAL ACCOUNTING SERIES**

Semaphore, Inc., 60 E. 42nd St., Suite 933, New York, N. Y. 10165—Lynn King, 212-697-1196 • For use with IBM PC-XT/AT/compatibles; DEC Rainbow, PC-DOS, MS-DOS, CP/M or CP/M-86; requires 128k RAM; hard disk; printer • Price: \$2,000; Updates: with service contract • Training: on-site, manual and hot-line support.

*Semay Professional Accounting Series* is described as a user-friendly, integrated accounting system intended for the four- to 400-person firm. It has general ledger, open-item accounts receivable plus agings, accounts payable, time billing and job-costing modules. Features include automatic invoicing, an efficient data-entry system, clearly formatted reports and a password security option.

#### **600 SOLOMON III**

TLB, Inc., 267 Great Valley Parkway, Malvern, Pa. 19355—Bill Freedman, 215-644-3344 • For use with IBM PC-XT and TI Professional; requires 320k RAM • Price: \$595; additional modules priced from \$150 to \$995; Updates: free during first six months, billable thereafter • Training: seminar, in-house, on-site and manual.

*Solomon III* is a 12-module accounting package based on a general ledger module. Other modules are job-costing, accounts payable, accounts receivable, payroll, fixed assets, inventory, purchasing, order entry, sales analysis, address and mail list and *Solomon* reporter.

#### **601 STANDALONE PROJECT COST ACCOUNTING**

Micro-Mode, Inc., 4006 Mt. Laurel, San Antonio, Tex. 78240—Bill Henderson, 512-341-2205 • For use with IBM PC, Compaq, Televideo, Altos, CP/M or MS-DOS; requires 64k RAM and 240k disk storage • Price: \$1,495; Updates: billable • Training: manual.

*Standalone Project Cost Accounting* tracks budgeted versus actual costs, labor and billable amounts for up to 500 projects and 100 employees. Records time and money spent on each project by phase, job service within each phase and labor billing rate. Also records direct and reimbursable costs by project. Produces various summary and detailed reports by both billing rate and pay rate each pay period.

#### **602 TIMBERLINE ARCHITECT/ENGINEER**

IBM Corp., Dept. 7KD/46D, P.O. Box 2150, Atlanta, Ga. 30055—1-800-241-1620 • For use with IBM PC-XT/AT • Price: contact vendor • Training: manual.

*Timberline Architect/Engineer* is an integrated project management, billing and accounting package for architectural and engineering firms. It offers a range of billing types from hourly to phased fees based on per cent of construction cost.

#### **603 WIND-2 ONE**

Wind-2 Research, Inc., 419 Canyon Ave., Suite 315, Ft. Collins, Colo. 80521—Kathryn S. Kurtz, 303-482-7145 • For use with MS-DOS with at least 64k RAM, two disk drives (with 360k minimum), or a hard disk; an 80-column monitor and printer • Price: \$1,995; Updates: at cost • Training: with service and support, an 800-HELP line.

*Wind-2 One* uses standard, readily available accounting data to provide project management, project invoicing, project profit analysis, overhead cost analysis, accounts receivable and labor and task evaluation and management. Also includes cost proposal and input into Lotus 1-2-3. General ledger, payroll and accounts payable are now available.

*Pert 6* is a modular, database-oriented system for project planning, tracking and control of

graphic plots and printer reports to reflect work achieved in activities, probable completion dates, critical path, resources



## 4 Space planning and facilities management

**637 ARCHITECTURAL COMPUTERIZED DRAFTING SERVICES, SYSTEM RENTAL AND SYSTEM SALES**  
NPS Automation Services, Inc., 202 Johnson Rd., Morris Plains, N. J. 07950—Paul Zeman, president, 201-455-1311 • Software available unbundled, as part of turnkey system and through service bureau and timesharing; no hardware required for services or system rental; for system purchase, hardware and peripheral requirements depend on application and processing volume • Price: depends on configuration; Updates: free with service/maintenance contract • Training: seminar, in-house, on-site and computer-aided instruction.

*Architectural Computerized Drafting Services, System Rental and System Sales* permits the creation of complete overlay floor layouts with any requested information—furniture, partitions, electrical, hvac, etc. Uses standard symbology to create current bill of materials. Also produces charts and graphs, stacking plans and block diagrams.

**638 BOS OFFICE PLANNING SOFTWARE**  
Facility Design Group Inc., One South Main St., Wilkes-Barre, Pa. 18701—John Cowder, 717-824-1234 • For use with IBM PC/compatibles and CP/M configured Apple II and IIe • Price: \$1,625; Updates: free for first year • Training: manual and professional consultation.

*BOS Office Planning Software* combines standardized questionnaires with an interactive, user-friendly BASIC program. It gathers and organizes individual job task requirements, designs workstation specs, defines group-shared facilities, and projects growth for a five-year period. *BOS* graphically diagrams interoffice communication links, and produces space summary reports at department, division and company levels.

**639 BUILDING LEASE AREA CALCULATIONS**  
ACCI Business Systems, Inc., 12707 N. Freeway, Suite 140, Houston, Tex. 77060—Paul M. Pamer, 713-872-4134 • For use with PC-DOS 128k RAM; requires 132-column printer • Price: \$1,000; Updates: billable • Training: manual.

*Building Lease Area Calculations* has been designed to facilitate the collection, manipulation and calculation of floor area data according to the BOMA standard.

**640 CALMA-DRAFT FACILITIES LAYOUT**  
GE Calma Co., 501 Sycamore Dr., Milpitas, Calif. 95035-7489—Steve Lukrofka, 408-434-4463 • Turnkey system for use on either the 32-bit DEC-VAX or Apollo; Apollo workstations function either as stand-alone units, or may be linked for added power • Price: typically \$100,000, depending on configuration; Updates: free with service/maintenance contract or billable • Training: Seminar, in-house, on-site, manual and computer-aided instruction.

*Calma-Draft Facilities Layout* is a 2-D drafting system for use in the planning, remodeling and management of commercial/industrial facilities. Easy to use, even for those with no previous computer experience, it provides a range of drawing functions for walls, doors, windows and stairs, and a comprehensive symbol library. System is fully integrated with the graphics and database capabilities of *Dimension III*.

**641 COMPREHENSIVE RESOURCE MANAGEMENT**  
Micad Systems, Inc., 419 Park Ave. South, New York, N. Y. 10016—Ken Eichler, 212-213-9350 • For use with Micad System: 16 bit graphics computer, digitizer tablet, plotter, printer • Price: turnkey with Micad System, \$25,000; Updates: with service contract • Training: on-site.

*The Comprehensive Resource Management System* is designed to manage and administer those multidisciplinary functions related to the efficient and ongoing occupancy of space. Micad/CRM combines graphic and alphanumeric data consisting of human and physical resources of the corporate or institutional entity. Integrates lease inventory, space management, resource protections, specifications and purchasing, furniture and equipment inventory, space planning and design.

**642 FACILITIES MANAGEMENT +**  
Prime Computer, Prime Park, Natick, Mass. 01760—Bob Thomson, 617-626-1700 • Turnkey system running on Prime 50 series super minicomputer, under PRIMOS; PT200 terminal • Price: \$62,000 up; Updates: with service contract • Training: in-house, on-site, manual and computer-aided instruction.

*Facilities Management + (FM+)* is a family of integrated products addressing the areas of strategic planning, lease management and asset tracking. It offers comprehensive, in-depth analytical capabilities for forecasting,

adjacency analysis, inventory, project budgeting and preliminary design. Easy-to-use input screens and replotting features increase productivity.

**643 FACILITIES MANAGEMENT PACKAGE**  
Computervision Corporation, 100 Crosby Drive, Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Software runs on Computervision CDS 3000 workstations, CDS 4000 and IBM PCs. Basic systems include Computervision's CADDs graphics software • Price: software only, from \$2,800 to \$45,000; Turnkey system, from \$20,000 to \$65,000 per seat, depending on configuration; Updates: billable or included with maintenance contract • Training: in-house, on-site, manual and computer-aided instruction.

*Facilities Management Package* addresses the multidiscipline needs of the facilities management team from site preparation, structural design, and building systems through architectural model and presentation. Provides for ongoing management of industrial or commercial facilities by including report-generation function with space-attribute management capabilities.

**644 FACILITIES MANAGEMENT SYSTEM**  
Facilities Management Systems, Inc., 774 Post Rd., Scarsdale, N. Y. 10583—Pat Hayward, 914-472-7174 • For use with IBM DOS 2.1 or higher, IBM PC-XT/AT. Requires 320k RAM minimum, color monitor with color graphics adapter card, graphics printer, Houston Instruments digitizer and plotter • Price: \$8,000; Updates: billable • Training: manual and on-site (three days cost \$2,000).

*Facilities Management System* is designed to calculate and track space according to actual use. A relational database allows the space to be allocated to the appropriate user. Reports are available for space and densities by location, or by organizational structure. Functions include stacking and adjacency affinity.

**645 FACILITY PERSONNEL/SPACE REQUIREMENTS**  
ACCI Business Systems, Inc., 12707 N. Freeway, Suite 140, Houston, Tex. 77060—Paul Pamer, 713-872-4134 • For use with MS-DOS or CP/M; requires 64k RAM • Price: \$1,500; Updates: billable • Training: manual.

*Facility Personnel/Space Requirements* collects, updates and reports data related to space

requirements for architectural and space planning purposes. Allows users to describe a company's organizational structure, project personnel and non-people space requirements, as well as to develop and model corporate space standards to be used for design of office and open-plan space.

**646 FACILITY REQUIREMENTS PROGRAMMER**  
The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 30XX/43XX, under MVS or VM and DEC VAX/VMS • Price: \$25,000; Updates: with service contract • Training: in-house, on-site, manual and computer-aided instruction.

*Facility Requirements Programmer* provides information about the future facility needs of the organization. Features powerful handling of attribute information. Includes adjacency requirements data, and the ability to ask "what if" about various alternatives, including the application of a range of planning factors exploring usable-to-rentable ratios, building characteristics and contingencies.

**647 FACILITY DRAFTING COORDINATOR**  
The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 30XX/43XX, under MVS or VM and DEC VAX/VMS • Price: \$5,000; Updates: with service contract • Training: on-site, in-house, manual and computer-aided instruction.

*Facility Drafting Coordinator* is an interface between the *CADG+FM* system and major industry-standard CADD systems. It allows these systems to produce high-quality working drawings and associated construction documents.

**648 FACILITY INVENTORY MANAGER**  
The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 30XX/43XX, under MVS or VM and DEC VAX/VMS • Price: \$35,000; Updates: with service contract • Training: in-house, on-site, manual and computer-aided instruction.

*Facility Inventory Manager* tracks space information, including costs, associated lease identifiers, occupancy, per cent occupied, ownership status, assignment/sale availability. Reports lease data for each space, and personnel data for each occupant. Stores equipment items and assignments to users, owners or spaces.



#### 649 FACILITY LAYOUT PROGRAM

Mason & Hanger-Silas Mason Co., Inc., 200 West Vine St., Lexington, Ky. 40507—H. Joe Wait • Basic program for use with any IBM PC/compatibles • Price: \$225; Updates: none • Training: manual.

*Facility Layout Program* has been designed to obtain a good, workable disposition for the physical facilities of a unit—either an entire institution, a single department, or a small center within a department.

#### 650 FACILITY LOCATION & LAYOUT PLANNER

The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 30XX/43XX, under MVS or VM and DEC VAX/VMS • Price: \$15,000; Updates: with service contract • Training: in-house, on-site, manual and computer-aided instruction.

*Facility Location & Layout Planner* locates organizational units and activities onto sites, building and floors simultaneously; provides location plans with assignments to cities, sites, buildings and more. Stacking plans shows assignments within multistory buildings; block plans has assignments on individual floors.

#### 651 FACILITY MASTER PLANNER

The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 30XX/43XX, under MVS or VM and DEC VAX/VMS • Price: \$15,000; Updates: with service contract • Training: on-site, in-house, manual and computer-aided instruction.

*Facility Master Planner* provides the tools necessary to develop phased strategic plans satisfying the long-range facility needs of the organization. System ensures that these plans include proper space and supporting characteristics.

#### 652 FACILITY SYSTEM COORDINATOR

The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 30XX/43XX, under MVS or VM and DEC VAX/VMS • Price: \$15,000; Updates: with service contract • Training: in-house, on-site, manual and computer-aided instruction.

*Facility Management Coordinator* includes a powerful, industry-standard database, providing a clearing house for all facility management data. These can be displayed in standard and custom line, pie, bar and similar charts. Menu-driven, with one

consistent, easy interface. Database provides rapid generation of standard reports using efficient network queries, and also allows custom reporting (with fully relational queries and industry-standard SQL).

#### 653 HOK INVENTORY

HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Pat Templeton, 214-742-7000 • For use with DEC-VAX family of computers, under VMS; requires DEC Vt200 and Tektronix display devices • Price subject to application; Updates: with service contract • Training: seminar, on-site, in-house, manual and videotapes for system-wide instruction.

*HOK Inventory* provides the database link for all of the HOK Facility Management systems. *Inventory* generates reports that analyze the value of physical characteristics of the space inventory, including area, ownership, occupancy status and location. It has a relational database, will generate custom reports, and allows users to define measurement factors.

#### 654 LAYOUT

Auto-trol Technology Corp., 12500 N. Washington St., Denver, Colo. 80233—Betty Skatoff, 303-452-4919 • Requires Auto-trol Advanced Graphics Workstation/AEGIS, on DEC VAX/VMS, IBM PC-DOS • Price: according to application; Updates: with service contract • Training: in-house, on-site and manual.

*LAYOUT* is a turnkey application package that provides architects, interior designers and facility managers with a flexible drafting and reporting system geared to the demands of facility design.

#### 655 MODULAR COMPUTERIZED MAINTENANCE MANAGEMENT PROGRAM

Sigma Consulting Group, 12465 Lewis St., Suite 104, Garden Grove, Calif. 92640—John H. Self, 714-971-9964 • For use with the PICK operating system; requires a 10mb hard disk • Price: \$10,000—\$40,000 depending on number of modules purchased; Updates: free during first year; included with maintenance plan thereafter • Training: in-house, on-site, manual and computer-aided instruction.

*Modular Computerized Maintenance Management Program* is a real-time, interactive, integrated database management program for facility and plant equipment maintenance. Modules include work order control, equipment history, preventive

maintenance, parts-inventory control, cost and management-information reporting.

#### 656 PLAN

Auto-trol Technology Corp., 12500 N. Washington St., Denver, Colo. 80233—Betty Skatoff, 303-452-4919 • Requires Auto-trol Advanced Graphics Workstation/AEGIS, on DEC-VAX/VMS, IBM PC-DOS • Price: according to application; Updates: with service contract • Training: in-house, on-site and manual.

*PLAN* is an architectural drafting and documentation system that speeds the creation of floor plans. Part of a turnkey system, this software provides enough drafting capabilities to easily produce construction drawings for use in architecture, space planning, layout and facility management applications.

#### 657 RDI/PC

Resource Dynamics, Inc., 150 E. 58th St., Suite 2500, New York, N. Y. 10155—Matthew A. Clark, 212-486-9150 • For use with IBM PC-AT/XT; peripherals include 8087 or 80287 Math co-processor, requires 512k RAM, Serial Card, color monitor, color graphics adapter, MicroSoft Mouse • Price: \$12,000; Updates: billable; with service contract • Training: in-house and on-site.

*RDI/PC* is an entry-level system that integrates five main functions in a mouse-driven user-interface under IBM's operating environment: Topview, facilities inventory, forecasting of personnel and equipment, affinity optimization, stack planning and lease management. *RDI/PC* also communicates with such personal CAD systems as *AutoCAD* and *CADPLAN*, and with the CAP system of electronic furniture catalogs and furniture specification software.

#### 658 RDI/FP&M

Resource Dynamics Inc., 150 E. 58th St., Suite 2500, New York, N. Y. 10155—Matthew A. Clark, 212-486-9150 • For use with MASSCOMP, UNIX, Micros M68000; requires CRT, 1mb RAM, 50mb disk; "C" language • Price: \$4,000 to \$27,000, for software only • Updates: free • Training: in-house, on-site and seminar.

*RDI/Facilities Planning and Management* is a supermicrocomputer turnkey package offering a relational database, decision support graphics, mathematical optimization algorithms and a mechanism for retrieving information in both standard and ad hoc formats.

System analyzes, tracks and plans corporate facilities, evaluates projected space needs, compares alternatives and advises on the economic impact of each.

#### 659 SPACE PLANNING AND FACILITIES MANAGEMENT

Micro-Vector, Inc., 1 Byram Brook Place, Armonk, N.Y. 10504—Judith Ulrich, 914-273-8700 • For use with IBM PC-XT/AT/compatibles; requires printer and graphics cards • Price: \$1,500 and up; Updates: billable or included with service/maintenance contract; consulting and customization available • Training: seminar, in-house, on-site, manual and computer-aided instruction.

*Space Planning and Facilities Management* is a series of software packages designed to aid in the planning of space and resource requirements, building alternatives, furniture budgets and over-all project budgets. Controls space and facilities utilization. Creates floor (block) layouts. Manipulates graphics and statistics, and integrates databases. Interfaces with PC CAD products.

#### 660 SPACE PLANNING/ FACILITIES MANAGEMENT

Sigma Design, Inc., 7306 S. Alton Way, Englewood, Colo. 80112—Kimberly White, 303-773-0666 • Turnkey system: M68010-based 16/32-bit microprocessor; minimum 1mb RAM; 84mb hard disk standard; b/w or color monitor; choice of input and output devices; cabinet; workstation furniture; software • Price: \$70,000 up; Updates: included in cost • Training: seminar, in-house and manual.

*Space Planning/Facilities Management* provides project analysis, business graphics, affinity analysis by color and automatic stacking and blocking. It also permits furniture layout and specification, bills of materials, graphic catalogs, and 3-D modeling of all 2-D plans.

#### 661 SPACE PLANNING/ FACILITY MANAGEMENT

Intergraph Corporation, One Madison Industrial Park, Huntsville, Ala. 35807—205-772-2000 • An entry-level turnkey system consisting of processor, two fixed media disk drives, tape drive, and one workstation, with core and application software. Systems are available to support up to 12 workstations • Price: \$95,000; Updates: free with service/maintenance contract • Training: in-house, on-site implementation plan, computer-aided instruction and manual.



*Space Planning/Facility Management* provides facility for development of catalog sheets composed of a furniture or equipment component or group of components, with user-defined descriptors such as cost, availability and options. Components may be placed in the space in one of several ways, then manipulated in 2-D and 3-D. Complete resource tracking is provided. Furniture catalogs are available from several leading makers.

#### 662 SPACEPLAN/3000

Computervision Corporation, 100 Crosby Drive, Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Software runs on Computervision CDS 3000 workstations, CDS 4000 and IBM PCs. Basic systems include Computervision's CADDs graphics software • Price: software only: from \$2,800 to \$45,000; Turnkey system: from \$20,000 to \$65,000 per seat, depending on configuration; Updates: billable or included with maintenance contract • Training: in-house, on-site, manual and computer-aided instruction.

*SPACEPLAN/3000* optimizes the use of space in a new, existing or multistructure project. Spatial affinities, including weighted relationships, form the basis for the space definition, stacking and diagram phases and supporting reports. The same affinities are the criteria against which the resulting graphic block layout and alternatives are automatically evaluated and reported on.

#### 663 WORKSMART-ADVANCED MAINTENANCE MANAGEMENT SYSTEM

Sigma Consulting Group, 12465 Lewis St., Suite 104, Garden Grove, Calif. 92640—John H. Self • For use with HP 3000 under MPE operating system. Requires 1mb main memory, 55mb disk drive • Price: \$10,000-\$40,000; Updates: with service contract • Training: in-house, on-site and manual.

*WORKSmart-Advanced Maintenance Management System* is a multiuser, multi-tasking program for large facilities and plant equipment maintenance. Elements include equipment records, work order, preventive maintenance and inquiry, as well as storeroom inventory control and purchase order control. It is a real time, on-line interactive database management system with ad hoc report writing capabilities.

**669 ADVANCED ARCHITECTURAL DRAFTING** Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Philip Chischportich, 617-275-1800 • For use on IBM PC-AT/XT; requires 512k RAM, math co-processor (8087/82087), graphics card (Tekmar, IBM Professional, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, \$19,900; software only: \$4,800; Updates: billable • Training: in-house, on-site and manual.

*Advanced Architectural Drafting* provides full 3-D database description for creation of architectural drawings and study models. Drawings and models are supported with complete geometric creation and editing capabilities.

#### 670 AE/CADD

Autodesk Inc., 2320 Marinship Way, Sausalito, Calif. 94965—Dealer Sales, 415-331-0356 • For use on IBM PC-AT • Price: \$1,000; Updates: billable • Training: seminar, on-site and manual.

*AE/CADD* is a comprehensive computer-aided drafting/design program, based on *AutoCAD* (see 690, below), which uses template-driven drawing commands to increase the speed and accuracy of practically all drafting work associated with the building design and construction industry.

#### 671 A/E CADD 200

ECOM, 8634 West Brown Deer Rd., Milwaukee, Wis. 53224—Ellen Henson, 414-354-0243 • For use with HP series 200 and series 300 computers and peripherals • Price: from \$32,300 for turnkey system; *ECOM* software modules from \$1,000; Updates: billable • Training: installation and 8 hours of on-site training free; billable thereafter; manual and in-house.

*A/E CADD 200* is a 2-D drafting package built around HP EGS Graphics Editor enhanced with any combination of three customized modules: architectural with standard details; office planning and layout; and structural with standard details.

#### 672 ANAGLYPH CAD/D WORKSTATION

Anaglyph Software, 2340 South 2700 West, Salt Lake City, Utah 84119—J. Hawkins, 801-973-9520 • For use with IBM PC-XT/AT/compatibles; requires hard disk, math co-processor 384k RAM minimum; dual monitors; HP, CalComp, Houston Instruments and other plotters; tablet (optional) • Price: \$9,000, complete turnkey system; \$2,000, software alone;

Updates: with service contract • Training: in-house, on-site and manual.

*Anaglyph CAD/D Workstation* provides innovative 2- and 3-D isometric drafting features said to increase productivity quickly. These include colors, multiple line types and fonts, many built-in pattern fills, COGO data entry, multiple base reference points, "snap-to" and intersection search functions, etc. Sophisticated layering involves disk cache, sub-layers, and adjunct layers for dimensioning and pattern fills.

#### 673 ARBASE

SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-868-6003 • For use with Artech Datastation comprising HP 9816 CPU, Pascal o/s, 750k RAM memory, 9 in. monochrome screen and keyboard; range of disk options and networking available • Price: \$10,000; discounts available for multiple purchases; Updates: included with service/maintenance contract • Training: seminar, in-house, on-site and manual.

*ARBASE* is a fully relational database integrated to the *ARPLAN* software (see 684 below) with sophisticated data entry, organizational and reporting capabilities. Usable for project and facilities management, office and project cost control and accounting. *ARBASE* can be used on the Artech Designstation and lower cost Artech Datastation.

#### 674 ARCHITECTURAL CADD FOR MICROCOMPUTERS

Charrette Corp., 31 Olympia Ave., Woburn, Mass. 01888—Jeff Loechner, 617-935-6000 • For use with IBM PC-AT/XT; 512k RAM, 8087 or 80287 math co-processor, high-resolution 13- or 19-in. color monitor, digitizing tablet • Price: \$2,500 to \$9,900, depending on components; Updates: billable • Training: on-site in the New York-New England area and manual.

*Architectural CADD for Microcomputers* combines a series of templates created for design and drafting, symbol libraries and related programs with a training and support service specifically for architectural firms. Turnkey system is based on *Personal Architect* (Computervision) and *AutoCAD* (Autodesk) software.

**675 ARCHITECTURAL DESIGN** CalComp, 2411 W. La Palma, Anaheim, Calif. 92801 • Turnkey system for use with CalComp System 25 • Price: \$10,000 for

software; Updates: free on an annual basis • Training: Manual; training on System 25 at vendor site.

*Architectural Design* provides a sophisticated set of general-purpose design tools for fast and efficient creation and revision of drawings. Creates isometric and perspective views automatically, and simplifies the insertion of doors and windows. High-speed drafting tools include building grid and wall and storefront generation.

#### 676 ARCHITECTURAL DESIGN

Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Philip Chischportich, 617-275-1800 • For use on IBM PC-AT/XT; requires 512k RAM, math co-processor (8087/82087), graphics card (Tekmar, IBM Professional, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, \$19,900; software only: \$6,000; Updates: billable • Training: on-site, in-house, and manual.

*Architectural Design* software supports the creation of 3-D architectural massing models. Software includes a standard symbol library and perspective, isometric and axonometric viewing capability. Geometric dimension information is available in report format from the model.

#### 677 ARCHITECTURAL DRAFTING

Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Philip Chischportich, 617-275-1800 • For use on IBM PC-AT/XT; requires 512k RAM, math co-processor (8087/82087), graphics card (Tekmar, IBM Professional, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, \$19,900; software only: \$2,800; Updates: billable • Training: in-house, on-site and manual.

*Architectural Drafting* provides 2-D geometry creation and editing capabilities for architectural drawings. Supports all graphic entities including lines, circles, arcs, etc., on up to 128 drawing information layers.

#### 678 ARCHITECTURAL INTERACTIVE DESIGN SYSTEM

ARCAD, 811 West Seventh St., Suite 800, Los Angeles, Calif. 90017—Peter H. Martin, 213-627-1427 • For use with DEC-VAX and MicroVAX, Tektronix 4100/4000 series terminals; CalComp, HP, or Versatec plotters • Price: \$7,000 for software license only; turnkey package priced from \$45,000;



Updates: with service contract • Training: on-site, in-house and manual.

**Architectural Interactive Design System** performs computerized design and production drafting for architectural and related engineering disciplines, including 3-D wire frame modeling with "walk arounds" in full color. Includes architectural and engineering symbols and details libraries, unlimited layering, live weight control, pattern-fill, automatic dimensioning, area and linear takeoffs, and eight levels of subpicture nesting.

#### 679 ARCHITECTURAL MODELING

Intergraph Corporation, One Madison Industrial Park, Huntsville, Ala. 35807—205-772-2000 • An entry-level package consisting of processor, two fixed media disk drives, tape drive and one workstation, with core and application software • Price: \$95,000; systems are available to support up to 12 workstations; Updates: free with service/maintenance contract • Training: in-house, on-site implementation plan, computer-aided-instruction and manual.

**Architectural Modeling** package allows the architect to quickly produce and test several alternative design solutions visually, replacing the task of drawing renderings by hand. Designs can be viewed in perspective from any angle, and presented to a client as fully shaded, color-filled models. Colors and shadows can be readily changed, and a structure presented as it would appear under different lighting conditions or with different finishes. Mathematical capabilities allow automatic rendering of complex shapes; automatic shadow-casting, transparency/translucency are also available.

#### 680 ARCHITECTURAL PRODUCTION

CalComp, 2411 W. La Palma, Anaheim, Calif. 92801—714-821-2000 • Turnkey system for use with CalComp System 25 • Price: \$10,000 for software; Updates: free on an annual basis • Training: manual; training on System 25 at vendor site.

**Architectural Production** package makes it possible to assemble drawings by selecting actual construction components. Each is automatically drawn in either plan or elevation view, and at different drawing scales. Drawings can be revised by selecting a new component code. Also, the software allows the user to extract a

complete quantity takeoff for a project, not just an area takeoff. This can be used with CalComp's *Costing* package (see 545, above) to derive a cost estimate.

**681 ARCHITECTURAL PRODUCTION DRAWINGS** Intergraph Corporation, One Madison Industrial Park, Huntsville, Ala. 35807—205-772-2000 • An entry-level package consisting of processor, two fixed media disk drives, tape drive and one workstation, with core and application software • Price: \$95,000; systems are available to support up to 12 workstations; Updates: free with service/maintenance contract • Training: in-house, on-site implementation plan, computer-aided instruction and manual.

**Architectural Production Drawings** develops site plans, floor plans, elevations, sections, details and reflected ceiling plans. All drawings are automatically dimensioned at the desired scale. Project specifications associated with the drawings and stored in the DMRS database (included in the basic turnkey package) are readily extracted and printed out as complete door and finish schedules. Cost information and other specification data may be associated and used as desired.

**682 ARCHITECTURE PACKAGE** Computervision Corporation, 100 Crosby Dr., Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Software operates on Computervision CDS 3000 stand-alone workstations, CDS 4000 host-based systems and IBM PCs. Basic systems include *CADD*s graphics software. • Price: Software only, from \$2,800 to \$45,000; turnkey system, from \$20,000 to \$65,000 per seat, depending on configuration; Updates: billable or included with maintenance contract • Training: in-house, on-site, manual and computer-aided instruction.

**Architecture Package** permits the creation and presentation of architectural building models and contract drawings and accompanying reports and schedules of nongraphic architectural information. Designed for all architectural applications and as a basis for the *Building Engineering, Civil/Structural Engineering, and Civil/Site Engineering* packages that work in conjunction with the *Architecture Package*.

**683 ARMAC** SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-868-6003 • For use with

Artech Designstation or Datastation • Price: \$5,000; Updates: with service/maintenance contract • Training: seminar, in-house, on-site and manual.

**ARMAC** is a macro-language system that allows the user to write special-purpose graphics routines in *ARPLAN*. The routines are combinations of graphics primitives, which may include calculations, and data transfer to the *ARBASE* relational database product (see 684 and 673).

**684 ARPLAN** SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-868-6003 • For use with Artech Designstation comprising HP 9920 CPU, Basic 3.0 o/s, 2mb RAM memory. 19-in. color screen, menu tablet with stylus and keyboard; graphics processor upgrade including 1mb RAM • Price: \$17,500; discounts available for multiple purchases; Updates: included with service/maintenance contract • Training: seminar, on-site, in-house, and manual.

**ARPLAN** is a 2-D CADD system. Among capabilities are layering, colors, symbol and pattern libraries, global editing and a block stretch, which permits stretching and shrinking elements in a schematic diagram without dimensional accuracy. *ARPLAN* also draws the parallel lines of walls to specified thickness and automatically cuts off and seals their ends.

**685 ARPLOT** SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-868-6003 • For use with plotting station comprising HP D- or E-size pen plotters and Artech Datastation • Price: \$1,500; Updates: included with service/maintenance contract • Training: seminar, in-house, on-site and manual.

**ARPLOT** is an off-line plotting product that allows files to be plotted independently of the Artech Designstation. A low-cost Artech Datastation is used to run this system as well as *ARBASE* and *ARMAC*. In a networked configuration, no additional disk storage is required to operate this system.

**686 ARCTEC** Go, P. O. Box 330040, San Francisco, Calif. 94133—Dennis Fukai, 415-652-1972 • For use with Apple Macintosh computer; requires 512k RAM; hard disk and laser printer recommended • Price: \$295, no license; Updates: with service newsletter • Training: on-site, computer-aided instruction and manual. (Documentation includes

advanced techniques and methods, full tutorial, and a graphic index keyed to the software.)

**ARCTEC** generates contract documents through refinement of design concepts established in a unique, pixel-based CADD system. Permits continuous interaction between graphic data included in a library of scaled images. Fully delineates a format for construction drawings that relate 3-D volumes inherent in the design. Specifications and detailing are interfaced in the printed output as chapter and page.

**687 ARVIEW** SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-868-6003 • For use with Artech Designstation comprising HP 9920 CPU, Basic 3.0 o/s, 2mb RAM memory, 19-in. color screen, menu tablet with stylus and keyboard; graphics processor upgrade including 1mb RAM • Price: \$7,500; discounts available for multiple purchases; Updates: included with service/maintenance contract • Training: seminar, in-house, on-site and manual.

**ARVIEW** is an add-on product to *ARPLAN* that allows the user to define the third dimension for all items in a 2-D file. The resulting forms then may be viewed and evaluated as 3-D representations in wire-frame or as surface shaded models. With the Graphics Processor option installed in the Artech Designstation, real-time manipulation and viewing of the model is available. This option also includes smooth shading and on-screen editing of the color palette.

**688 ASP STAIR PROGRAM** Architectural Software Products, Inc., 13974 Westheimer, Suite 200, Houston, Tex. 77077—James D. Noble, 713-531-8533 • For use with Intergraph systems • Price: \$5,000; Updates: free • Training: manual.

**ASP Stair Program** builds a design file containing fully dimensioned plan and section views of the exit-stair design. Design and display parameters are specified by the user in an interactive interrogatory conducted in an off-line mode at an alpha/numeric terminal. Once specified, the program executes automatically in two to three minutes. The program includes a set of typical details that users can modify to describe almost any exit-stair condition.

**689 AT&T OMNIDRAFT** Omnicad Corp., 1000 Pittsford-Victor Rd., Pittsford, N. Y. 14534—Michael D. Sohn, 716-385-8500 • Turnkey workstation includes AT&T



# 5

## Computer-aided design and drafting

graphics subroutines and utilities for the creation of device independent graphics software applications. Written in FORTRAN 77, the program contains over 250 subroutines.

### 712 DATACAD 2

Microecture, 218 Main St., Charlottesville, Va. 22901—Stuart G. Burgh, 804-925-2600 • For use with IBM PC-XT/AT AT&T PC6300 Compaq DeskPro; Mouse Systems and MicroSoft mouse; supports Houston Instruments and CalComp digitizers and plotters; requires 512k RAM • Price: \$2,495; Updates: free • Training: seminar and manual.

*DataCAD 2* is a 2-D design and drafting system that creates drawings using a mouse, digitizer pad, or the keyboard. User-defined template libraries may be created quickly, filed and recalled to the screen for use. Selectable grids, multiple drawing levels and bi-directional zoom are standard features. Drawings are easily plotted at any time.

### 713 DATACAD 3

Microecture, 218 West Main St., Charlottesville, Va. 22901—Stuart G. Burgh, 804-295-2600 • For use with IBM PC-XT/AT, AT&T PC6300, Compaq Desk Pro; Mouse Systems mouse; supports Houston Instruments and CalComp digitizers and plotters; requires 512k RAM • Price: \$995; Updates: free • Training: seminar and manual.

*DataCAD 3* integrates to *DataCAD 2* and creates 3-D models interactively using a mouse, digitizer or keyboard input. Rotates objects in 3-D perspective. Employs macro-object definition to create libraries of 3-D shapes. Hidden-line removal and plane clipping soon available.

### 714 DESIGN BOARD LINK

MEGA CADD, Inc., 401 Second Ave. South, Seattle, Wash. 98104—Karen Kershaw, 206-623-6245 • For use with IBM PC-AT/XT/compatibles, requires 512k RAM, MS-DOS, graphics card, math co-processor, mouse or digitizer and line plotter for drawing output • Price: \$295; Updates: free • Training: manual.

*Design Board Link* formats 3-D designs created with *Design Board Professional* (see 715, below) to be compatible with 2-D drafting programs from other vendors. Transfers any view, including plans, elevations, perspectives and isometrics, into the drafting phase for completion of production documentation, including dimensioning and detailing. Allows same database originally created to

carry through entire project.

### 715 DESIGN BOARD PROFESSIONAL

MEGA CADD, Inc., 401 Second Ave. South, Seattle, Wash. 98104—Karen Kershaw, 800-223-3175 • For use with IBM PC-AT/XT/compatibles with 512k RAM, MS-DOS, requires graphics card, math co-processor, mouse or digitizer, and line plotter for drawing output • Price: \$1,750; Updates: free • Training: manual.

*Design Board Professional* is a true 3-D database for advanced design and modeling applications. Described as easy to use, the software generates unlimited perspective, isometric, orthographic, and walk-through views for conceptual design, comparison studies, visualization and design communication. Automatic hidden-line removal simulates real-life viewing. Completely menu-driven with on-screen prompts.

### 716 DESIGN GRAPHIX

Engineering Systems Corp., 3636 S. Sherwood Forest Blvd., Suite 400, Baton Rouge, La. 70816—Larry McCoy, 504-769-2226 • For use with DEC-350/380 PDP-11/ LSI-11, MicroVAX, VAX/VMS, AT&T, Masscomp, CADMUS • Price: \$2,995 to \$15,000; Updates: free with service contract • Training: in-house, on-line, (included with purchase) on-site, manual and computer-aided instruction.

*Design Graphix* is a 3-D CADD system. Among capabilities are layering, colors, symbol and pattern libraries, global editing, bill of materials, macro-programming and more.

### 717 DESIGN ORIENTED GRAPHICS SYSTEM

PAFEC, Inc., 6855 Jimmy Carter Blvd., Suite L-1200, Norcross, Ga. 30071—Tony Christian, 404-441-9300 • For use with most 32-bit computers including DEC-VAX, Apollo, Data General MV Series, HP 9000 and Prime • Price: \$20,000—\$30,000; Updates: included with yearly maintenance • Training: seminar, in-house, on-site and manual.

*Design Oriented Graphics System (DOGS)* is a 2- and 3-D CAD system available as a turnkey system or software only. The system includes standard architectural symbols, multi-line wall sections, multiple overlays, English and metric units with architectural-style dimensioning and, among many other features, database analysis capabilities for cost estimating and bill of materials.

### 718 DESIGNER I

Orcatech, 28 Steacie Dr., Kanata,

Ontario K2K 2A9—Mark Milinkovich, 613-592-7650 • Turnkey system consists of an ORCA 1000 CPU computer graphics workstation with 512k RAM and a 10mb hard disk, 19-in. high-resolution monochrome or color monitor, separate text monitor, keyboard with joystick and software • Price: \$38,000 CDN monochrome; \$47,000 CDN color; software only: \$13,000; quantity discounts for additional workstations; Updates: billable • Training: seminars, on-site and manual.

*Designer I* is a 2-D CAD system for engineering and architecture. Specific applications capabilities are electrical layout, space planning, general schematics and business graphics. Turnkey system comes with a FORTRAN compiler and a library of 200 FORTRAN-callable subroutines. Optional digitizing tablet and expandable memory.

### 719 DGS-2000

Data Automation, 125 W. Mission St., Suite 202, Escondido, Calif. 92025—Rick Hackworth, 619-743-3334 • For use with HP 9800/200-Series computers; supports digitizers including HP 9111A graphics tablet, Hipad digitizer, Houston Instruments Series 7000, CalComp and Tektronix; plotters include any HP plotter, CalComp drum plotter or HI DMP 41/42/51 or 52; requires 768k user RAM after boot-up • Price: \$2,495 for base package; Updates: billable • Training: on-site, manual, telephone support (\$465 per year) and source code documentation.

*DGS-2000* is a menu-driven 2-D design and CADD system for preliminary and working drawings. Includes database organization, high-speed zoom and pan, move, rotate, scale, mirror, layering, splining and user-created or ANSI symbols library.

### 720 THE DIGITAL PAINTBRUSH SYSTEM

Jandel Corp., 2656 Bridgeway, Sausalito, Calif. 94965—David Hollis, 415-331-3022 • For use with IBM DOS 2.0 and above, IBM PC-XT/AT/compatibles; outputs to dot matrix and color ink jet printers, plotters and Polaroid *Palette*. Requires 256k RAM and game control adapter card (\$60) • Price: \$495 (digitizing pen and software); \$1,295 (digitizing pad and software); Updates: billable • Training: manual.

*The Digital Paintbrush System* is a turnkey system including a digitizing pen or pad for preliminary layout and design and area/length measurements for space planning and cost estimating. The software includes graphic design, graphs and charts, statistics, presentation and

printout modules.

### 721 DIGITRAK

Chempro Data Sciences Corp., 507 Southampton Rd., Westfield, Mass. 01085—Norman St. Martin, 413-562-2353 • For use with IBM PC-XT, color or monochrome monitors, and Digitrak sonic digitizer; supports most plotters • Price: \$5,470; Updates: free for first year; billable thereafter • Training: seminars, in-house, on-site, computer-aided instruction, manual and telephone support.

*DIGITRAK* is a CAD system with applications including mechanical, lighting, hvac and energy/solar. Among capabilities are axis, grid, snap with rubber band, layering, line, circle, arc, fillet, change, copy, move, text erase and plot.

### 722 DIMENSION III

GE Calma Co., 501 Sycamore Dr., Milpitas, Calif., 95035-7489—Steve Lukrofka, 408-434-4463 • Turnkey system with 32-bit DEC-VAX or Apollo. Apollo workstations function as stand-alone units, or can be linked for added power • Price for system: varies according to hardware and software configuration, typically \$100,000; Updates: free with service/maintenance contract or billable • Training: seminar, in-house, on-site, manual and computer-aided instruction.

*Dimension III* is GE Calma's core software system for 3-D design, engineering and drafting, supported by a range of integrated application packages. Each of these operates from a common *Dimension III* project database, which also contains a large amount of nongraphic information such as specifications, part number and prices. As each separate project element is designed, the system's interference checking capability will cross check between design disciplines.

### 723 DOCUDRAFT

DocuGraphix, Inc., 1340 Saratoga-Sunnyvale Rd., San Jose, Calif. 95129—Ray Hilken, 408-446-9700 • Turnkey system consists of 68010 processor, 2.5 mb internal memory, 40 mb Winchester disk, floppy disk drive, 17-in. monochromatic display, detached keyboard, and one-button mouse. Includes dot-matrix printer • Price: \$35,900; leasing available; Updates: with service contract • Training: manual and on-site.

*DocuDraft* is a menu-driven, 2-D architectural drafting and design system incorporating text composition for the production and



merging of drawings and text. Capabilities include change control, auto dimensioning, pre- and user-defined symbol libraries, pattern-fill, generation of schedules of graphic and nongraphic information. The windowing system allows multiple documents to be worked on simultaneously.

#### 724 DOOR AND OPENING SCHEDULE

Facility Design Group Inc., One South Main St., Wilkes-Barre, Pa. 18701—John Cowder; 717-824-1234 • MBasic program for use with IBM PC/compatibles or CP/M configured Apple II and IIe • Price: \$150; Updates: free for first six months • Training: manual.

*Door and Opening Schedule* documents the specifications of each opening within an architectural project, including door and frame number, style, material type, size, glazing, louver style, detail number, hardware set number and special remarks. Printouts can be applied to drawing sheets or included in contract specifications.

#### 725 DRAWING PROCESSOR II

BG Graphic Systems Inc., 6632 S. 191, E103, Kent, Wash. 98032—R. F. Bousley, 206-251-0490 • For use with IBM PC/PC-XT/AT, Eagle PC-XL Plus/1600, Compaq, Columbia, DEC Rainbow, AT&T, and Tandy 1200; requires 256k RAM and 8087 Math coprocessor • Price: \$995; Updates: billable • Training: manual.

*Drawing Processor II* is a menu-driven, 2-D CADD and technical illustration package for architects, designers, engineers and manufacturers. Edit capabilities include block move with rubberbanding (all lines move as a unit), block erase, block components (for repetitive placement), block copy, selective erasure, computer-assisted dimensioning, layering and differential scaling and color. Conditional edits, mouse and digitizer support.

#### 726 E2000

Carrier Corp., P. O. Box 4808, Syracuse, N. Y. 13221—Mike Shurr; 315-432-6838 • For use with HP Series 9000; requires 1mb RAM, floating point, mouse and/or digitizer. Peripherals include 19-in. color CRT, alpha/graphics printer, power adjusted worktable and E-size plotter • Price: \$47,000; Updates: with service/maintenance contract • Training: in-house, on-site and manual.

*E2000* is a menu-driven program designed to help architects and

engineers create complex drawings using multiple layers, colors, scales and patterns. System constantly displays drawing status while on-line HELP prompts are spelled out in English. Program includes 2-D and 3-D software, bill of materials, IGES compatibility, and over 5000 library symbols.

#### 727 EASINET

Sys Comp Corp., 2042 Broadway, Santa Monica, Calif. 90404—Michael Francis, 213-829-9707 • For use with ECLIPSE MV/family: AOS/VS; 16-Bit ECLIPSE:AOS; Desktop generation: AOS • Price: \$38,000; Updates: with service contract • Training: in-house, on-site and manual.

*EASINET* is a complete 2- and 3-D drafting program with 3-D modeling capability linked to a technical database for integrated analysis and design applications, which in turn allows for drawings to be generated automatically. Integrated application options include *MASTR*, a finite element structural analysis program, and *EASI COGO* 3-D coordinate geometry program.

#### 728 EASY DIGIT

Omnitech, Inc., 50 Baltusrol Way, Short Hills, N. J. 07078—K. D. Steidley, Ph. D., 201-376-6406 • For use with IBM PC/compatibles; requires color graphic board, 256k RAM, serial port, digitizer and printer; drawing size up to 6 by 8 ft • Price: \$495; Updates: handling charge • Training: manual.

*Easy Digit* permits acquisition and manipulation of 2- or 3-D data from digitizers. Automatically calculates lengths and areas. Prints customized reports, prints images and plots images (optional). Generates computer files for your own program or Lotus 1-2-3, *dBase II* users and others.

#### 729 ENGINEERING PRODUCTION DRAWINGS

Intergraph Corporation, One Madison Industrial Park, Huntsville, Ala. 35807—205-772-2000 • An entry-level turnkey package consisting of processor, two fixed media disk drives, tape drive and one workstation, with core and application software • Price: \$95,000; Updates: free with service/maintenance contract • Training: in-house, on-site implementation plan, computer-aided instruction and manual.

*Engineering Production Drawings* software supports the design, analysis and production of contract drawings, schedules and bills of materials that are required for bidding and construction. The software addresses hvac, plumbing,

structural and electrical design activities. Additional capabilities are available for civil-site design. Because drawing elements are linked to descriptive information, specifications and bills of materials are readily available for all or part of a project.

#### 730 EXECADD

Tritek Vision Systems, 4710 University Way N. E., Suite 1512, Seattle, Wash. 98105—Kris Nelson, 206-632-2125 • For use with IBM PC/compatibles; requires IBM or Halo-supported color graphics board, 256k RAM, two 320kb disk drives; peripherals include digitizer, mouse, and plotters • Price: \$1,500; Updates: free for first six months, nominal fee thereafter • Training: manual and tutorials.

*EXECADD* features advanced editing that allows users to create complex objects and then rotate, scale and move them; view in perspective; and remove hidden lines. *EXECADD*'s integrated 2-D drafting includes auto-dimensioning, window and overlay commands, text and crosshatching. Optional conversion program permits interface to *AutoCAD* and *CADPLAN*. A *SolidShade* option color-fills and shades 3-D views with a variable light source.

#### 731 1ST PASS

Phoenix Advanced Software Systems, Inc., 201 Park Place, Suite 105, Altamonte Springs, Fla. 32701—Stephen Moore, 305-767-8777 • For use with UNIX on workstations from HP, Sun Microsystems and Silicon Graphics • Price: \$3,500; Updates: with service/maintenance contract • Training: in-house and manual.

*1st PASS* is a 3-D design system that produces wireframe drawings with automatic hidden line removal. Its "Random Logic" feature ensures that any combination of commands can be executed in any order, to supply information needed to complete commands already in progress. Includes HELP screens, on-screen scientific calculator, and multiple viewing windows.

#### 732 GDIG

Decision Graphics Inc., 11 Main St., P. O. Box 306, Southborough, Mass. 01772—John Nilsson, 617-481-4119 • For use with any VAX/VMS system and peripherals such as W4109 or W4115 graphic workstation with digitizer D1, D2 or D3 • Price: \$5,000-\$16,000; Updates: billable • Training: on-site and manual.

*GDIG* is a digitizing program for fast, accurate input of existing drawings. The program uses metric or English units, any scale; and

commands from either keyboard or digitizer. Some of the graphic commands are: lines, rectangles, circles, arcs, text, door symbols, column strings and standard symbols.

#### 733 GENERAL DRAFTING SYSTEM (GDS)

McDonnell Douglas AEC Information Systems Co., Box 516, St. Louis, Mo. 63166, Marketing Services—(800) 325-1551 • For use with Prime 50 series; DEC-VAX Micro series CalComp, HP plotters; Tektronix terminals, Tektronix hard copy units; requires 500k RAM • Available as part of turnkey package or software license • Price: turnkey system from \$68,000; Updates available • Training: in-house.

*General Drafting System (GDS)* is an extremely flexible and fully interactive CADD system, produced specifically for architecture, engineering, facilities management, and space planning. Said to be a highly productive, user-oriented system, *GDS* features include unlimited drawing creation and viewing through object intelligence, associative data, rapid interaction with a large number of complex drawings, automatic geometric constructions and unrestricted selection of drawing content. Additional software available. *GDS* is compatible with *BDS* (694, above).

#### 734 GENERAL BUILDING DESIGN

Computervision Corporation, 100 Crosby Dr., Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Software operates on Computervision CDS 3000 stand-alone workstations, CDS 4000 host-based systems and IBM PCs. Basic systems include *CADD*s graphics software • Price: Software only, from \$2,800 to \$45,000; turnkey system, from \$20,000 to \$65,000 per seat, depending on configuration; Updates: billable; included with maintenance contract • Training: on-site, in-house, manual and computer-aided instruction.

*General Building Design* facilitates the creation of architectural drawings from floor plans to exterior views. Designers can graphically construct 3-D models of planned structures and render perspective views. Software includes keyfiles and libraries (templates, textures and line fonts).

#### 735 GENERIC CAD

Generic Software, Inc., 6 Lake Bellevue #203, Bellevue, Wash. 98005—E. O. Langstraat, 1-800-228-3601 • For use with MS-DOS, PC-DOS;



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requires mouse or digitizer, plotter, 8087 math co-processor; 256k RAM • Price: \$99.95; Updates: billable • Training: none offered.

*Generic CAD* is a fully functional 2-D drafting package with overlays, component capabilities, block operations, conditional edits and user-defined screen menus. A dimensioning module is available at \$49.95; others also offered.

**736 GEOCAD**  
GEOCAD Inc./Rudolph Horowitz Assc., Architects, P. O. Box 186, Pound Ridge, N. Y. 10576—Rudolph Horowitz, 914-764-4072 • For use with IBM PC/compatibles; NEC, APC III. Requires 11- by 11-in. digitizer pad with stylus, 640k RAM, 8087 Math co-processor • Price: \$12,600 turnkey system; \$600 for *GEOCAD* applications package alone; Updates: with turnkey system, billable after first three months • Training: manual and on-site.

*GEOCAD* architectural software contains a combination of some 800 symbols and macro-routines addressable from a digitizer menu. Besides the usual plan symbols, the system has a pre-programmed blank menu into which the user can insert groups of symbols for easy insertion into drawings.

**737 GRAPH/NET**  
Graphic Horizons, Inc., 125 Cambridgepark Dr., Cambridge, Mass. 02140—David B. Lutes, 617-491-6530 • Turnkey system based on the *GRAPH/NET* workstation that can be used singly, networked over high speed lines to other workstations, or tied to other computers; supports a full line of peripherals • Price: \$63,765 for complete system; includes installation; Updates: two per year • Training: included in price.

*GRAPH/NET* provides full spectrum interactive graphics including layered drafting and 2-D simulation (*DRAFT/NET*), dynamic perspective generation (*VU/NET*), layout optimization (*OPTI/NET*) and data management (*DATA/NET*). Menu-driven system allows data to move from the beginning of the architectural design process step by step to the end without duplication of effort. Additional products include software for interior design, facilities management and space planning.

**738 GRAPHICS EDITOR**  
Radian Corporation, 8501 Mo-Pac Blvd., Austin, Tex. 78766—Carl Kurz, 713-686-8481 • For use with most mainframe computers; requires a plotter • Price: \$27,000; Updates: included with service/maintenance contract •

Training: seminars, on-site, in-house, manual and computer-aided instruction.

*Graphics Editor* is an interactive software product that permits image display and edit at a graphics terminal. The program interfaces with CPS-1 and CPS-1/G (see 811 and 812 in Division 6) to edit points, polylines, text and objects.

**739 GRAPHICS TOOL KIT**  
Demco Electronics, 10516 Grevillea Ave., Inglewood, Calif. 90304—Darrell Hoblack, 213-677-0801 • For use with Apple II/IIe; SHG-640 graphics board and complete graphics software package • Price: \$595; Updates: small fee • Training: manual.

*Graphics Tool Kit* is a hardware/software package that installs Apple II computers with the graphics capabilities of Apple Macintosh, plus 40 per cent greater screen resolution. The hardware gives the monitor a resolution of 640 dots by 768 lines, viewable in a movable window of 640 dots by 384 lines. This resolution yields a picture 8 1/2- by 11 in. when dumped to a dot matrix printer. Software capabilities include rubber band line draw, plot, 16 patterns in fill mode, text insert, vector shape manipulation, cut and paste, and cursor control from the keyboard, Apple graphics tablet, or Apple mouse. A joystick or Koala pad can also be used for plotting.

**740 HOK ALLOCATE**  
HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Pat Templeton, 214-742-7000 • For use with any DEC-VAX computer using Tektronix or the DEC VT200 series of display devices • Price: varies depending on application; Updates: included with service/maintenance contract • Training: seminar, on-site, in-house and manual.

*HOK ALLOCATE* is used for both vertical (stacking) and horizontal (blocking) assignment. Assigns activities (spaces, workstations, etc.) to locations (buildings, floors, etc.) so that highly interrelated activities are placed in the same zone or adjacent zones and circulation from location to location is minimized. The system evaluates and tracks alternate building geometries over time. The blocking process is interactive: the system evaluates solutions by indicating violations of size or relationship. The program is closely related to *HOK SPACE* (space and quantity needs over time), and *HOK DRAW* (interactive graphics).

**741 HOK DRAW**  
HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Ken Herold, 214-742-7000 • For use with any DEC-VAX computer using Tektronix display devices • Price: \$72,000 for two-workstation configuration (all software, hardware and peripherals); Updates: included with service/maintenance contract • Training: seminar, on-site, in-house, manuals, workbooks and videotapes available for system-wide instruction.

*HOK DRAW* is a CADD system capable of producing a wide range of 2- and 3-D drawings. Drawing types include plans, elevations, sections, perspectives, parallel projections and axonometrics. *DRAW* has wall, contour and surface generation capability. It allows user-defined interfaces, pattern fills, components, pens, and typesets. It also features automatic dimensioning, and sun and shadow studies. The system uses a relational database management system and is supported on any DEC-VAX environment running VMS.

**742 HOK IMAGE**  
HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Ken Herold, 214-742-7000 • For use with any DEC-VAX computer using Tektronix display devices • Price: varies depending on application; Updates: included with service/maintenance contract • Training: seminar, on-site, in-house and manual.

*HOK IMAGE* is used to develop realistic images from models created using *HOK DRAW*. The system will create shaded, color images on a color raster display. Output can be either 35mm slides or videotape. *IMAGE* supports full 3-D graphics, modeling of reflective and transparent surfaces, and hidden-line and hidden-surface removal. It will generate shading and shadows from multiple light sources, and can use either full ray tracing or high-speed scan line techniques.

**743 HOK SPACE**  
HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Pat Templeton, 214-742-7000 • For use with any DEC-VAX computer using Tektronix DEC VT200 series display devices • Price: varies depending on application; Updates: included with service maintenance contract • Training: seminar, on-site, in-house and manual.

*HOK SPACE* defines an organization's facility requirements. It stores and organizes quantitative and qualitative occupancy information, and analyzes complex

organizational relationships. *HOK SPACE* allows users to define up to 14 planning dates for forecasting various facility requirements. The system allows user definition of circulation, contingency, and grossing factors. *HOK SPACE* also estimates space needs from incomplete data and supports an unlimited number of attributes.

**744 HOK TRANSLATE**  
HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Tex. 75201—Ken Herold, 214-742-7000 • For use with any DEC-VAX computer using Tektronix display devices • Price: varies depending on application; Updates: included with service/maintenance contract • Training: seminar, in-house, on-site and manual.

*HOK TRANSLATE* converts *HOK DRAW* information into and out of generic industry-standard formats. This data may then be read into other CADD systems. This system enables firm to share data with consultants and clients. *TRANSLATE* supports both IGES and SIF standards.

**745 ICON SERIES 2000**  
Summa Technologies, Inc., 161 State St. Extension, P. O. Box 218, Fairfield, Conn. 06430—Karen Shay, 203-384-1344 • Turnkey system consists of Data General Desktop Generation computer, 19-in. black-and-white graphic display; alpha/numeric display, fiberglass workstation and built-in 20- by 20-in. digitizing tablet; plotter and color display optional • Price: \$40,000 black and white; Updates: included with service/maintenance contract • Training: seminars, on-site, in-house and manual.

*ICON Series 2000* is a turnkey system/workstation that enables a user to create, preview, edit, store and recall a drawing, with text, on a graphic display. Drives many plotters for drawing output. Optional software modules are word processing, engineering/surveying, bill of materials, cost estimating/quantity take-off and a user's programmable module, which permits users to tailor the over-all system to their own needs.

**746 IMAGER**  
GMW Computers, Inc., 1417 4th Ave., Seattle, Wash. 98101—Thomas G. Phillips, 206-467-0660 • For use with all DEC-VAX computers, Prime 50 Series, Tektronix 4100 Series workstations with eight planes of memory; VT100 Retrographics, CalComp, HP, Benson, Versatec plotters; Prime, C. Itoh, DEC printers, requires 1mb minimum • Price: \$5,000 license per



workstation; Updates: with service contract • Training: on-site and in-house.

**IMAGER** software produces color displays of geometric components within the 3-D *RUCAPS Building Modeling System* (see 773, below). Each surface of a component can be given a color that is stored in the component database. Colors can be defined and modified by specifying hue, lightness and saturation from a palette of 16-million hues. The model is illuminated by a light source that can be located at any point in space. Shading is automatically calculated.

#### 747 INTEGRATED CAD SYSTEM

Summit Computer Systems, Inc., 451 Broome St., New York, N. Y. 10013—Chick Finder, 212-334-8087 • Turnkey system with IBM AT or compatibles with 512k RAM, printer, plotter, digitizer or mouse; high-resolution 16-color monitor • Price: first workstation \$20-25,000; add-on stations \$11-14,000; Updates: with service contract • Training: seminar, in-house and on-site (in metropolitan New York, five days included in price).

*Integrated CAD System* can be networked to 1048 workstations to share plotters and systems. Basic software includes *CADVANCE* (CalComp), a database system for scheduling and cost control. Task capabilities include space need programming, lease control, on-line furniture catalogs, personnel projections, timesheet/job accounting, production drawings.

#### 748 INVENTORY

Decision Graphics Inc., 11 Main St., P. O. Box 306, Southborough, Mass. 01772—John Nilsson, 617-481-4119 • For use with any VAX/VMS system; any terminal, any printer • Price: \$5,000-\$16,000; Updates: billable • Training: on-site and manual.

*Inventory* reads any *PEAC* (Decision Graphic's turnkey system—see 783 below) drawing and generates files containing all the elements in main and sub-drawings. Query function permits user to search the inventory file interactively and obtain reports on quantities for any or all items in a drawing. Generates bill of materials reports from inventory files.

#### 749 KADWRIGHT

K&A Systems, 405 Urban St., Suite 304, Lakewood, Colo. 80228—Kelly Walker • Turnkey system with IBM/AT with 640k RAM, enhanced IBM color monitor and AMTRON bright resolution monitor allowing dual pictures; 20 mb removable hard disk CalComp 8-pen plotter, 17- by 20-in.

digitizer with 16-button cursor and voice recognizer • Price: \$38,900; smaller systems available from \$24,500; Updates: with service contract • Training: in-house (by a design professional who uses the system daily).

**KADWRIGHT** is a 3-D computer-aided graphics system that utilizes *AutoCAD* software with architectural, engineering and landscape menus and macro commands. The dual monitors allow the user to view the complete drawing on one screen, and the design detail on the other. **KADWRIGHT** was created by and for architects, engineers and planners.

#### 750 KITCHEN DESIGNS BY COMPUTER

Graphic 100, P. O. Box 362, Nashua, N. H. 03061—Paul Paquin, 603-883-4990 • For use with 128k Apple IIe and IBM PC 128k/compatibles • Price: \$1,995; Updates: billable • Training: seminar, on-site, in-house and manual.

*Kitchen Designs by Computer* will design a kitchen from its room dimensions (in Automatic mode) or will aid the designer (in Manual mode). The software generates floor plans, elevations, perspectives and quotations. In the Job Cost mode, a quotation is available with up to 10 styles simultaneously.

#### 751 MAC3D

Challenger Software, 18350 Kedzie Ave., Homewood, Ill. 60430—312-957-3475 • For use with 512k RAM Apple Macintosh with an external drive • Price: \$195 • Training: manual.

*Mac3D* is a 3-D hidden line/surface eliminating shape modeling system for use with the Apple Macintosh. Features include a multi-window environment, user-definable rulers, a pen/fill pattern editor, 360 deg rotation of objects, object and ruler based alignment, etc. *Mac3D* is a full implementation of the Standard Macintosh User Interface on a 3-D drawing graphics package.

#### 752 MAC PERSPECTIVE

B. Knick Drafting, 313 Marlin Place, Melbourne Beach, Fla. 32951—Barbara Knick, 305-727-8071 • For use with Apple Macintosh 128k or 512k RAM, or LISA; Imagewriter or Laserwriter • Price: \$189; Updates: billable • Training: none available.

*Mac Perspective* permits architects, draftsmen and commercial artists to easily construct wire-frame perspective drawings of houses, buildings or other objects composed primarily of straight lines. The

drawing can be printed in any size up to 100 inches in width. Also, *MacPaint* copies can be created for rendering purposes.

#### 753 MACRO DESIGN

Holguin, 5822 Cromo Dr., El Paso, Tex. 79912—Fred T. Kaplan, 915-581-1171 • Turnkey system incorporates HP 1000 Series computers (See 708 above) • Price: \$10,000; Updates: included with service/maintenance contract • Training: seminar, on-site and manual.

*MACRO DESIGN* is a self-contained software product, highly complementary to *CEADS-CADD*. It provides macro capability, allowing the user to generate families of parts/drawings from a single command sequence and then transfer them directly to *CEADS-CADD* drawing workspace. The program is essentially a programming language that the user writes in to construct a command sequence to describe or draw a given geometry.

#### 754 MICROCAD

Imagimedia Technologies, Inc., 7650 Geary Blvd., San Francisco, Calif. 94121—Shelli Johnson, 415-387-0263 • For use with MS-DOS, PC-DOS, minimum 256K RAM; IBM/PC, PC-XT/AT and strict compatibles. Digitizers, plotters and mice-supported • Price: \$500-\$1,750; Updates: cost of postage and mailer • Training: seminar, on-site, in-house, and manual, videotape tutorial (cost \$100).

*MICROCAD* is a fully integrated 2- and 3-D design modeling and drafting system that facilitates developing and editing plans, elevations, isometrics and perspectives. Enhanced drafting features include layering, automatic dimensioning, rotatable crosshatching and programmable macros. *MICROCAD* calculates center of gravity and moment of inertia, and integrates with *MicroSpec* and *SAP-86*. Modules include 3-D rotatable character set, hidden line removal, volume calculations and bill of materials. Supports high resolution, color and many peripherals through the IDI standard.

#### 755 MINICAD 3-D DESIGNER

Diehl Graphsoft, Inc., 3246-K Normandy Woods Dr., Ellicott City, Md. 21043—Richard Diehl • For use with Apple Macintosh; requires 512k RAM, Imagewriter and Laserwriter printers or Houston Instruments, Apple and HP plotters • Price: \$395; Updates: free or nominal charge • Training: manual.

*Minicad 3-D Designer* is a computer-aided program to create objects with nine digits of precision in common units. Objects are created from line segments and polygons, and may be displayed as wire frame, hidden line or shaded drawings. Program transfers to *MacDraw* or *MacPaint*. Auto-dimensioning capabilities are included; user may read from or write to text files.

#### 756 MULTI-DRAW

Cymbol Cybernetics Corporation, 169 Colonnade Rd., Ottawa, Canada K2E 7J4—Peter MacMillan, director of Sales, 613-727-1880 • Turnkey CAD system includes enhanced IBM PC-AT; system supports any brand-name plotter; Unbundled software can run on DEC-VAX or MicroVAX II • Price: \$10,000 for MicroVAX software; \$20,000 for VAX software; \$23,500 for turnkey PC/AT package; Updates: \$400 per year for software maintenance includes free updates and consultation • Training: on-site, manual or computer-aided instruction.

*Multi-Draw* is a 2- and 3-D CAD package for preliminary, finished and working drawings. Complete take-off package and symbols library. Also, performs interior design, space planning and facilities management.

#### 757 NOTATION

EMA Management Associates, Inc., 1145 Gaskins Rd., Richmond, Va. 23233—Terri Connell, 804-740-8332 • For use with TRS 3/4, one disk drive and an 80- or 132-character printer with expanded letter capability • Price: \$95; Updates: free • Training: manual.

*Notation* permits the preparation and reuse of descriptive notes and titles for drawings by sending special instructions to an expanded-letter dot matrix printer. This package prints titles and the starting line for notes in large letters and automatically switches to normal letters for scale line and remaining notes. Notes can match computerized room finish and door schedules.

#### 758 NPS

NPS Automation Services, Inc., 202 Johnson Rd., Morris Plains, N. J. 07950—Paul Zeman, 201-455-1311 • Software available unbundled, as part of turnkey system and through service bureau or timesharing; no hardware required for services or system rental; for system purchase, hardware and peripheral requirements depend on application and processing volume • Price: depends on configuration; Updates: free with service/maintenance



# 6

## Architectural Engineering

sewers. User may select any combination of layers and line types, or specify separate layers for line and point notations. Different notation types create a very readable drawing.

### 808 COMPUTERVISION HVAC PACKAGE

Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Turnkey system operating on Computervision CDS 3000 stand-alone workstations, CDS 4000 host-based systems and IBM PCs. Basic systems include proprietary CADDS graphics software • Price: software only: from \$2,800 to \$45,000; turnkey system: from \$20,000 to \$65,000 per seat, depending on configuration; Updates: with service contract; billable • Training: in-house, on-site, manual and computer-aided instruction.

*Computervision hvac* provides programs for hvac load computation (ASHRAE 1981), duct calculations and round-to-rectangular duct equivalency conversion. Includes intelligent duct system schematics that can be converted automatically to double-line detail drawings.

### 809 CONTROL SCHEMATICS

Auto-trol Technology Corp., 12500 North Washington St., Denver, Colo. 80233—Betty Skatoff, 303-452-4919 • Turnkey system for use with Auto-trol's AGW under AEGIS, DEC-VAX/VMS, IBM PC/DOS • Price: contact vendor; Updates: with service contract • Training: in-house, on-site and manual.

*Control Schematics* facilitates the design, drafting and project management of relay diagrams, including both ladder and non-ladder diagrams. Input to the system is via a specialized menu, with project-wide control of all material input to the schematic even when many drawings are involved in the design. Output includes schematic drawings, "from-to" wire lists, coil/contact cross-referencing, schematic error checking and bills of material.

### 810 COOL

Syska & Hennessy, 11 W. 42nd St., New York, N. Y. 10036—Laheri Mehta, P. E., 212-556-3212 • For use with DEC-VAX; IBM PC/compatible; • Price: \$495 (IBM PC); Updates: billable • Training: in-house and on-site.

*Cool* performs cooling load calculation according to the 1981 ASHRAE Handbook. It will print the true peak load from the range of days and months specified by the user, and calculates the design

supply CFM (ventilation load included at user's option). All data and loads print on 8 1/2-by 11-in. format.

### 811 CPS-1/G

Radian Corporation, 8501 Mo-Pac Blvd., Austin, Tex. 78766—Carl Kurz, 713-686-8481 • For use with most mainframe computers • Price: \$35,000; Updates: included with service/maintenance contract • Training: seminars, on-site, in-house, manual and computer-aided instruction.

*CPS-1/G* is an interactive mapping system used either as a stand-alone software system or as an interface to batch program CPS-1 (see 812 below). The program provides interactive gridding, contouring, contour editing and control point editing.

### 812 CPS-1 (CONTOUR PLOTTING SYSTEM)

Radian Corporation, 8501 Mo-Pac Blvd., Austin, Tex. 78766—Carl Kurz, 713-686-8481 • For use with IBM PC-XT or any mainframe computer handling a 32-bit sized word or larger • Price: \$18,000 for base system; options are additional; Updates: free with service/maintenance contract • Training: seminars, in-house, manual, on-site and computer-aided instruction.

*CPS-1* is a computerized mapping system designed for use in the energy, engineering and cartographic industries for gridding, profiling, volumetrics, 3-D displays, multiple surface and fault handling and 3-D seismic migration in a batch environment.

### 813 CUSTOMER DIRECT SERVICE NETWORK SOFTWARE

The Trane Company, 3600 Pammel Creek Rd., LaCrosse, Wis. 54601—Tom Edwards, 608-787-3256 • For use with IBM PC-XT/AT, DEC Rainbow 100/100+, TRS-80 2/12/16 (Tandy 6000) and Apple II/IIe • Price: \$1,170; Updates: with service contract; \$330/year renewal • Training: seminar, in-house, on-site, manual and computer-aided instruction.

*Customer Direct Service Network Software* is a sophisticated hvac system design tool consisting of Ultra load design, duct design, coil, fan, rooftop, air-handling and VAV selection programs, piping design, fan system economics program, trace-energy analysis programs and specification writing programs. All applications are updated electronically via CDS communications.

### 814 D-PICT/CONTOUR

Dataplotting Services Inc., 225 Duncan Mill Rd., Don Mills, Ontario, Canada M3B 3K9—Brian Diamond, 416-441-4163 • For use with DEC-VAX, VAX/VMS, PRIME (PRIMOS), Data General AOS/VS, IBM 9000 (CSOS); requires 600k RAM; output devices must be capable of receiving graphic protocol instructions via RS232 communications • Price: \$11,500; Updates: with service/maintenance contract • Training: seminar, in-house, on-site, manual and computer-aided instruction.

*D-PICT/Contour* creates high-quality contour maps of 3-D data.

### 815 D-PICT/MESH

Dataplotting Services, Inc., 225 Duncan Mill Rd., Don Mills, Ontario, Canada M3B 3K9—Brian Diamond, 416-441-4163 • For use with DEC-VAX, VAX/VMS, PRIME (PRIMOS), Data General AOS/VS, IBM 9000 (CSOS); requires 600k RAM; output devices must be capable of receiving graphic protocol instructions via RS232 communications • Price: \$6,000; Updates: with service/maintenance contract • Training: seminar, in-house, on-site, manual and computer-aided instruction.

*D-PICT/Mesh* is a software package that displays a perspective or parallel view of 3-D data as a mesh surface. Views may be created interactively, using a menu system; through a command file, for batch jobs; and by calling a set of subroutines from within user's own applications software.

### 816 DAYLIGHT

Syska & Hennessy, 11 W. 42nd St., New York, N. Y. 10036—Laheri Mehta, P. E., 212-556-3212 • For use with DEC-VAX and IBM PC/compatibles; • Price: \$295 (IBM PC); Updates: billable • Training: in-house and on-site.

*Daylight* software uses calculations based on the IES "Recommended Practice of Daylighting" (1979) to determine the lighting energy savings that can be achieved as a result of using natural daylight through vertical windows. It calculates the hourly daylight inside the space being analyzed on both clear and overcast days for every month of the year.

### 817 THE DESIGNER SOFTWARE SERIES

Sheehan and Associates, 3509 Ocean Dr., Oxnard, Calif. 93030—Paul Sheehan, 805-985-5318 • For use with any Apple Macintosh with Multiplan (Microsoft) • Price: \$150 (Vol. I); \$125 (Vol. II);

Updates: n/a • Training: manual.

*The Designer Software Series* is a collection of structural analysis and design templates for wood-frame building projects. Volume I includes templates for determining gravity loading criteria (live and dead loads) and analyzing/design wood rafters, floor joists, various beam configurations and support posts. Volume II covers lateral loading criteria (wind and seismic) and horizontal diaphragms/shear wall design.

### 818 DIAFRAMS

J. J. Jordan, Architect-Engineer, 5236 Overbrook Way, Sacramento, Calif. 95841—Jim Jordan, 916-332-6610 • For use with IBM PC/PC-XT/AT/compatibles, one disk drive and a printer or TRS-80/2/3/4, one disk drive and a printer; requires 48k RAM; Apple IIe-IIc, 128k RAM, one disk drive, printer; Apple Macintosh, 128k RAM, printer • Price: \$96.96 (one-time license fee); Updates: \$8 • Training: manual and computer-aided instruction.

*Diaframs*, a module of Buildese, determines wind shear on walls and diaphragms, class, thickness, nail schedule and grade for plywood roof and floor diaphragms. Shear and direct loads analyzed, using a bank of data taken from the UBC.

### 819 DIGITRAK

Chempro Data Sciences Corp., 507 Southampton Rd., Westfield, Mass. 01085—Norman St. Martin, 413-562-2353 • For use with IBM PC-XT, color or monochrome monitors, Digitrak sonic digitizer; supports most plotters; requires 192k RAM and 320k disk storage • Price: \$5,470; Updates: free for first year, billable thereafter • Training: seminars, in-house, on-site, computer-aided instruction, manual and telephone support.

*Digitrak* is a design and drafting system with applications including mechanical, lighting, hvac and energy/solar. Among capabilities are axis, grid, snap with rubber band, layering, line, circle, arc, fillet, change, copy, move, text erase and plot.

### 820 DIMENSION III

GE Calma Company, 501 Sycamore Dr., Milpitas, Calif. 95035-7489—Contact Sales, 408-434-4000 • Turnkey system with 32-bit DEC-VAX or Apollo. • Price for system: varies according to hardware and software configuration, typically \$100,000; Updates: free with service/maintenance contract or billable • Training: seminar, in-house, on-site, manual and computer-aided instruction.



*Dimension III* is a core software system for design and drafting in architecture, engineering and construction that supports any of nearly a dozen specific application packages. These include civil-site preparation, steel layout and design, 2-D architectural drafting and facilities layout.

#### 821 E20-II

Carrier Air Conditioning Co., P. O. Box 4808, Syracuse, N.Y. 13221—Dennis E. Yaddow, 315-432-6838 • For use with TRS-DOS, Tandy 1000/1200 and 2000 MS-DOS; also available for IBM PC-XT • Price: \$985 for one-year license; Updates: free • Training: seminar.

*E20-II* is an hvac design tool that includes programs for residential load estimating, commercial load estimating, annual operating cost analysis, duct design, pipe design, life cycle cost analysis and equipment selection.

#### 822 EARTH 3

Sys Comp Corp., 2042 Broadway, Santa Monica, Calif. 90404—Doug Burnside, 213-829-9707 • For use with ECLIPSE MV/family, AOS/VIS; 16-bit ECLIPSE, AOS; desktop generation, AOS • Price: \$1,500-\$2,500; Updates: billable • Training: manual; installation available.

*EARTH 3-Road and General Earthwork Computations* functions include cross-section definition, with up to 100 points for each; ditch definition, with automatic insertion of ditches in cut condition; and tie-in slope definition. Also, moving cross sections; vertical profile definition; and computations. Related *Sys Comp* earthwork programs include *Profile Standards and Plotting*, *Cross Section Standards & Plotting*, and *DSECT-Contour Digitizing*.

#### 823 EEDO-ENERGY ECONOMICS OF DESIGN OPTIONS

Burt Hill Kosar Rittlemann Associates, 400 Morgan Center, Butler, Pa. 16001—Syed Faruq Ahmed, 412-285-4761 • For use with IBM PC with MS-DOS 2.0; requires two 5 1/4-in. double-sided, double-density disk drives, 80-column color or monochrome monitor, 132-column printer • Price: \$495 plus \$4.50 handling; \$20 for demo disk, applicable to purchase price • Training: manual.

*EEDO* is the IBM PC version of *CIRA*, providing economic analysis for residential design. Software includes climatic data for over 150 cities; automatic defaults; and thermal characteristics of building components, with installation and yearly maintenance costs. It can

perform energy analysis of new home designs, energy audits and retrofits analysis, active/passive solar and hvac system simulations, and can determine life-cycle costs, payback period, and return on investment.

#### 824 ELECTRICAL

Auto-trol Technology Corp., 12500 North Washington St., Denver, Colo. 80233—Betty Skatoff, 303-452-4919 • Turnkey system for use with Auto-trol's AGW under AEGIS, DEC-VAX/VMS, IBM PC/DOS • Price: depends on system configuration; Updates: with service contract • Training: in-house, on-site and manual.

*Electrical* application package is a design and drafting system used to accurately and rapidly create electrical construction documents. The user lays out electrical systems with comprehensive, dimensioned figures built to A/E standards. Power, lighting, fire and communications systems can easily be developed on floor plans created with Auto-trol's *PLAN* system.

#### 825 ELEVATOR

Syska & Hennessy, 11 W. 42nd St., New York, N. Y. 10036—Laheri Mehta, P. E., 212-556-3212 • For use with DEC-VAX, VAX/VMS; IBM PC/compatibles • Price: \$495 (IBM PC); Updates: billable • Training: in-house and on-site.

*Elevator* calculates service time and capacity of an elevator bank. It provides waiting interval and per cent population served in five minutes based on 10 per cent absenteeism. Input includes number of floors, floor-to-floor height, population per floor, number and speed of elevators.

#### 826 ENGINEERING MICROCOMPUTER PROGRAMS LIBRARY

Chempro Data Sciences Corp., 507 Southampton Rd., Westfield, Mass., 01085—Norman St. Martin, 413-562-2353 • For use with IBM PC-AT/XT/compatibles • Price: varies according to program; Updates: billable • Training: manual.

*Engineering Microcomputer Programs Library* contains over 300 specific, engineering-related computer programs. Major disciplines include architectural, civil, electrical and controls; facilities; fluid flow; heat transfer; hydraulics, etc. A section has been set up for programs that may be interfaced with CAD programs (*AutoCAD2*) to perform CAE routines.

#### 827 ESP II

APEC, Inc., Miami Valley Tower, Suite 2100, Dayton, Ohio 45402—

Doris J. Wallace, 513-228-2602 • For use with 16-bit micros running PC-DOS and MS-DOS • Price: software available to APEC member firms at a \$6,000 license fee. Membership costs \$250; annual dues of \$950 include service/maintenance contract for all programs; Updates: billable • Training: on-site (additional fee).

*ESP II* (Energy Simulation Program, Version II) provides an hourly building energy simulation for new or existing buildings using a floating temperature and loads-not-met concept to predict space comfort conditions. The program permits use of modern systems, including thermal storage, solar and on-site generation systems, with submetering of all system loads allowed.

#### 828 ESP-200 ENGINEERING SURVEY PACKAGE

PacSoft Inc., 330 4th St., Suite 200, Kirkland, Wash. 98033—Allison Fell, 206-827-0551 • For use with HP Series 200/300 with BASIC 2.0 or higher, 768k RAM, dual floppy drive or hard/floppy combination; requires plotter and printer • Price: Software only, four-volume set: \$8,700; volumes available separately; Updates: free • Training: in-house, on-site and self-training manual; additional training offered at extra cost.

*ESP-200* is a 4-volume set of integrated packages for surveying, site design and roadway/highway design. Volume 4 is a data collection/date transfer unit that permits transfer of data from a field data collector or total station to the other three volumes. All are compatible with *TOPOGRAPHY* software (see 877).

#### 829 EUCLID/BUILDING DESIGN

Matra Datavision, 30 Commerce Way, Woburn, Mass. 01888—Michel Theron, 617-938-1230 • For use with VAX running VMS or IBM running VM/CMS • Price: \$75,000 for base package, \$7,500 for one access to a workstation, \$5,000 for Building Design module; Updates: included with maintenance agreement • Training: in-house, on-site, manual and computer-aided instruction.

*Euclid/Building Design* computer software system performs solids modeling, design, drafting, analysis, numerical control output, database management and flexible visualization. The system is optimized for architecture with a "Building Design" module that enables users to create various types of models and then extract formwork drawings, data for

structures computations and quantities of parts or materials.

#### 830 F-CHART

Syska & Hennessy, 11 W. 42nd St., New York, N. Y. 10036—Laheri Mehta, P. E., 212-556-3212 • For use with DEC-VAX, IBM PC/compatibles; • Price: \$295 (IBM PC); Updates: billable • Training: in-and on-site.

*F-Chart* analyzes the long-term performance of a solar collector system for space heating and domestic hot water using the F-Chart method. Using the solar collector efficiency curve and the monthly average meteorological data, the program calculates the thermal performance of a given collector system.

#### 831 FCHART-4R

California Micro Utility, Inc., Fort Cronkhite, Bldg. 1065, Sausalito, Calif. 94965—Richard C. Rodgers, Jr., 415-331-3655 • For use with IBM PC, any MS-DOS or CP/M computer, 56k RAM, one disk drive; printer optional • Price: \$350; Updates: billable • Training: manual.

*FCHART-4R* provides a detailed thermal and economic analysis of active solar energy systems. Types include solar domestic hot water heaters and process heat systems. Output includes total solar radiation on plane of any orientation, collector output, solar fraction, delivery temperatures, total life cycle costs, simple and discounted cash flows, internal rate of return, payback time, and optimal area.

#### 832 FASER-ENERGY ACCOUNTING

Elite Software Development, Inc., P. O. Box 1194, Bryan, Tex. 77806—Terri J. King, 409-846-2340 • For use with all CP/M and MS-DOS; 56k RAM required on CP/M, 128k RAM on MS-DOS • Price: \$795 • Training: manual.

*FASER-Fast Accounting System* for Energy Reporting-tracks and analyzes energy consumption and costs for nonresidential buildings. By compiling a database of historical and current data, *FASER* can be used to analyze trends, spot potential problems, provide reports and graphs, calculate energy and dollar savings, and backup all energy management decisions.

#### 833 FATPACK-FRAME AND TRUSS PACKAGE

Structural Software Systems, 4440 Gateway Dr., Monroeville, Pa. 15146—John F. Fleming, 412-325-4117 • For use with IBM PC/ requires 64k RAM; graphics monitor optional • Price: \$249; Updates: corrections free, enhancements at shipping and handling charges • Training: manual.



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Description of program's function/applications (please check all that apply):

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Section 2: Project cost analysis and control

- Project cost accounting
- Job estimating, costing, and budgeting
- Bills of materials and materials take-offs
- Feasibility studies
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Section 3: Project scheduling and management

- Manpower utilization
- Resource management
- Job scheduling
- Construction management
- Other (write in) \_\_\_\_\_

Section 4: Space planning and facilities management

- Facilities management
- Space planning

Section 5: Computer-aided design and drafting

- Preliminary drawings, exploration of alternatives
- Production drawings
- Other (write in) \_\_\_\_\_

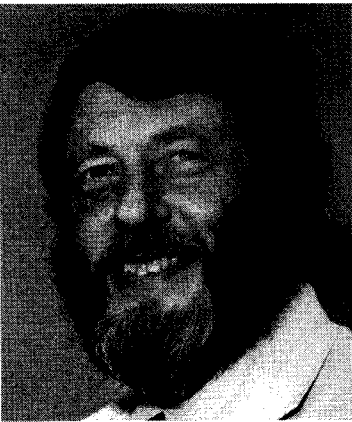
Section 6: Architectural engineering

- Site planning and mapping
- Energy analysis
- hvac design
- Structural design
- Other (write in) \_\_\_\_\_



# Architectural education: Notes on teaching design and practice at the University of Notre Dame du Lac

By Donald E. Sporleder



The intent of these notes is to share some personal experiences and the approaches I use in teaching professional practice and design at Notre Dame, and to underline the importance of practice to teaching architecture. My teaching is sharpened by my being in active practice and, I believe, reflects some of the small steps taken at Notre Dame to bridge the gap between academia and practice.

### Both city and region add architectural resources

The University of Notre Dame (founded in 1842—enrollment, 7,500 undergraduate and 2,000 graduate students) in South Bend, Indiana, with its pleasant campus ringed by two small lakes, is located in the heart of Michiana. Here the St. Joseph River makes its south bend and heads north some 30 miles to spill into Lake Michigan. The city of Chicago, with its rich architecture and heritage, is about 90 miles to the west. The South Shore Railroad, one of the last of the interurban lines, still links Chicago and South Bend (and is a great way to get to the Cub games and to its architectural and urban scene).

South Bend, too, has an interesting heritage. It marks a continental divide that was explored by La Salle in 1679 as he made the portage from the St. Joseph River to the Kankakee River, opening up the trading link from the Atlantic to the Gulf of Mexico. The river remains a vital resource and belatedly has become a focus for new city development. The opening of its old East Race in 1984 as a world class white-water way has brought new vitality to the downtown. The city also celebrates its industrial past and the richness of a range of ethnic communities that grew with it.

It has houses designed by Frank Lloyd Wright and some interesting recent works by Helmut Jahn, Johnson and Burgee, and a new library for Indiana University at South Bend just about under construction—designed by Ed Barnes. All in all these resources serve the School of Architecture at Notre Dame quite well and provide the basis for many studio design projects and community assistance opportunities.

**The architectural program is a basic and comprehensive one**  
The School of Architecture at Notre Dame is part of the College of Engineering, has about 200 to 250 students in the professional degree program (a fairly typical five-year program—162/164 semester hours, with a strong humanities base, and its third year abroad with studios in Rome). A new graduate program in

*From his extensive background of teaching, practice and work with registration boards and the NCARB, Donald Sporleder has developed an extremely interesting course on architectural practice for Notre Dame, which he describes here*

architecture starts this fall with a smaller number of students. The program is intended to provide opportunities for graduate study for those with professional degrees and experience in the field (with registration encouraged), to pursue specialized individual interests. Some of these students will be directly involved enriching the professional degree program as teaching graduate assistants, and will help in bridging the gap between school and practice.

As an architect/educator involved in active practice, in the regulatory tasks of the State, and in the National Council of Architectural Registration Boards, chairing the Education Evaluation Committee (re: the professional degree requirement), and as a professor of architecture, I see architecture as *architecture*. Its prime reference is humanity, and its main task is to act responsibly in making space for people. A combination of art, craft, science, and business.

### Practice realities are taught around a core of design

Knowledge, skills, and creative (inquisitive, explorative, responsible) behavior are required to do architecture. And it seems to me that the role of the professional schools of architecture is to assist the student of architecture to know architecture; to develop the necessary understanding, awareness, and abilities—that can be complemented and sharpened in internship development—to practice architecture; and to appreciate the responsibilities related to public health, safety, and welfare. That which is best learned in an office in the internship period need not be addressed in full detail in school (e.g., construction documents), but the realities that must be addressed in practice should not be overlooked in the school experience (e.g., costs, marketing, production, project economics, time accountability, business management and the law of the land).

The Notre Dame undergraduate curriculum, like most five-year programs, emphasizes creative design, history, theory, and supports background work on technical systems to augment the basic design core. This central core, the design sequence, has the initializing/integrating role in the program of studies. Through it the students learn to deal with the processes of analysis and synthesis and how to make value judgments regarding architecture as response to a specific need.

However, the core sequence provides little background to students in terms of cost, project finance and economics, production drawings and specifications, laws

and regulations, management, the business of architectural practice, marketing, the rules of professional conduct, the different forms or types of organization for practice and responsible project delivery. Yet all of these factors constitute the major emphasis in architectural practice and make creative design a reality. These are the issues, along with emphasis on professional responsibilities, that I address in my course in professional practice.

### A structured course covers all the basics of practice

The aim of this three-credit-hour course is to provide an informative base to help bridge the gap between academia and practice. With the limited time available, it does not cover all the issues in depth, but it endeavors to cover the subject of practice in a broad way so the student will have a basic idea of the exigencies of practice when entering the field after graduation. The course consists of lecture and discussion, in 75-minute periods, two days a week. It includes a series of office visits; workshops with visiting professionals; and a series of hands-on assignments of a practical nature.

Each student is asked to adopt an architect's office during the course of the semester. The office may be local, or anywhere the student may wish to visit, and requires at a minimum an interview with a principal to determine what's what in the practice of the firm. Such interviews may even become leads to future employment.

The course is structured as follows: internship and registration; business and management concerns ("running an office for fun and profit"); marketing architectural services; production ("architect's responsibility in project delivery process"); and architects and the law.

The course performance levels are clarified by including in the course introduction, the NCARB Education Standard, *NCARB Circular of Information #3*, pages 25-27. It groups the practice issues into the subject areas: process; project finance and economics; business and practice management; and laws and regulations; and serves as an effective guideline for the course.

The over-all course objective is to assist the student in understanding architectural practice, its organization and operation, and duties and responsibilities to one's clients and the public. Each student is required to form an "office" to accomplish the practical tasks that simulate those typically encountered in practice. The "organization" may be a sole  
*Continued*

Donald E. Sporleder, AIA, professor of architecture at the University of Notre Dame, is also a principal in Crumlish/Sporleder and Associates, Inc., architects of South Bend, Indiana. He teaches design and professional practice at the school of architecture and is in general practice with the firm, offering architecture, planning, urban design, and historic preservation services. Mr. Sporleder is chairman of the Indiana Board of Registration for Architects, treasurer of the National Council of Architectural Registration Boards, and chairman of the NCARB Education Evaluation Committee.



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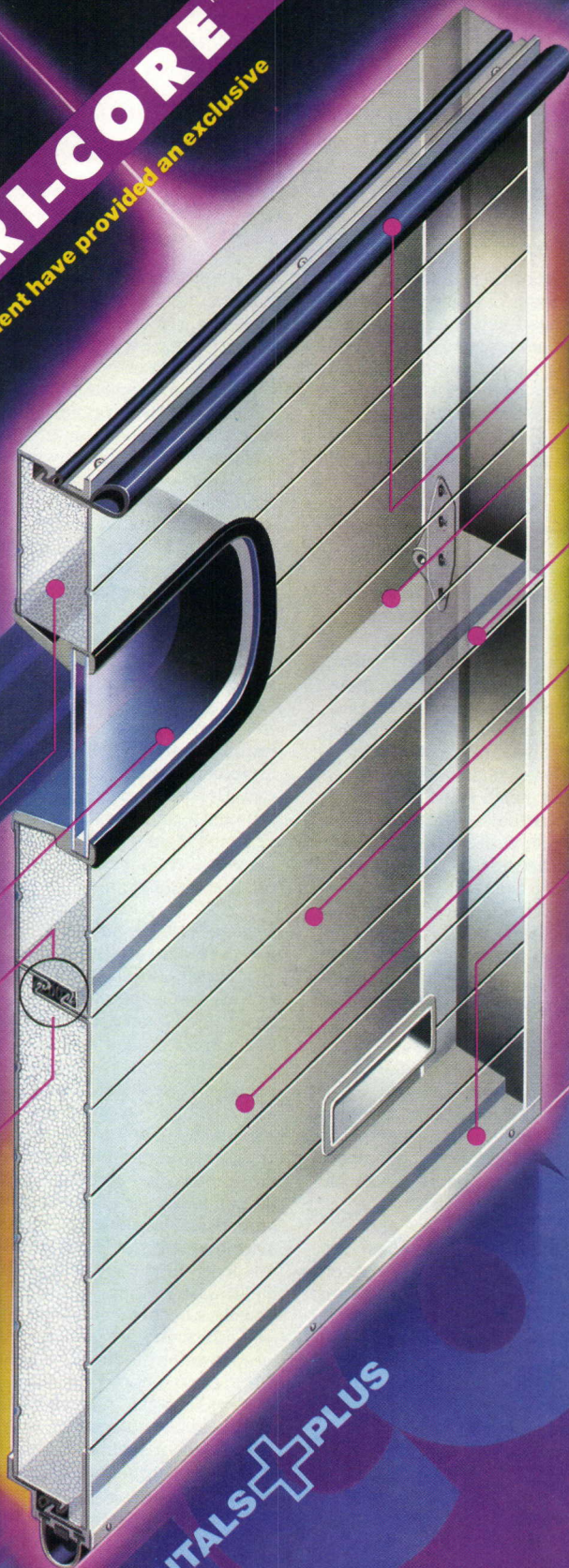
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proprietorship, or (in groups, four persons maximum) a partnership, professional corporation, or a general corporation (if allowed in the jurisdiction in which they plan to practice).

The first assignment is to organize the office, develop required office forms, select a name, design a logo, business cards, letterheads, time cards, and a complete individual resumé for each individual in the firm (valuable for use in their future job search, too). Each office is encouraged to function as a synergetic study group as well as to perform the series of jobs required during the course of the semester. All are to keep time cards, develop the needed office forms, resumé, response to a request for proposal, interview and be involved in the A/E selection process. All the "firms" are, of course, successful in their interviews, and thus are selected as "architects" for project carry-through. Other tasks include: owner-architect agreement; project budgeting and scheduling; presentation of the design scheme to a simulated "real client group" not connected with the university; project cost studies; the working drawings; and outline specifications including an advertisement for bids, bid form, general and supplementary conditions, plus one technical section or division of the standard specifications per office member.

All start the work of the semester by taking the previous year's NCARB Architect Registration Examination, Division C, the Building Design Test (12 hours on the first Saturday of the semester). The designs developed form the basis for many of the practical assignments, including design development of the exam solutions into an abridged, representative set of construction documents. In the future we plan to include Division B, the Site Planning Test, as well.

#### Computers, office visits, and visitors all play their parts

In carrying out the assignments the students are encouraged to use computer aid. Some students have made use of the CAD capabilities on the College's *Prime* minicomputer and others make good use of their *Macintosh's* programs: *Macwrite*, *Macdraw*, and/or *Macpaint*. The University is a member of the *Apple* university consortium, which makes it possible for the students to get this tool at a favorable price. Project financing and feasibility studies are addressed in a one- or two-day workshop, facilitated by a visiting professional and/or developer. In the past two years this material was well presented by James Canestaro, Virginia

Polytechnique Institute, and Lloyd Taylor, vice president of real estate development for St. Joseph Bank.

Office visits are an important part of the course. Two were made last semester. One visit—to Cole Associates, South Bend architects and engineers—included a presentation on the ins and outs of specification writing, and an overview of what really happens on the boards. The other—to Troyer and Associates, in Mishawaka—explored a computer and CAD system at work in the architect's office.

A highlight of the course is the involvement of many visiting professionals who share effectively their experiences and special knowledge. In the spring we were visited by Bill Moe, AIA, and Am Richardson, FAIA, who spoke on marketing and client relations; Am, again, on myriad office and interpersonal relations; Bill, again as IDP coordinator for the Northern Indiana Chapter, AIA, and James Boniface, AIA, Cleveland, IDP committee member, on the Intern Development Program; Bob Eberhart, AIA, on systems drafting; Leroy Troyer, AIA, past chairman of the AIA Practice Management task force group, on office organization and management; Dr. Marley, PE, our assistant dean, on construction management; and Joe Kuspan, of Karlsberger and Associates, illustrating the realities of the design process and design development in an office with case studies of their work under way. Also, A. Lewis Soens, professor of English at Notre Dame, effectively honed the writing skills of the class with his "do it, do it again, and again," hands-on writing workshop in the class.

#### Design studios also integrate practice considerations

At Notre Dame the educational program opportunities for learning, gaining awareness, and understanding of architectural practice/processes are also offered in the context of the design studio as well as in the professional practice classroom.

An introduction to architectural process is given in the *first year*, first semester, in design theory and the introduction to architecture course. And in the second semester, there is an architectural communications course, with its explorations of architectural case studies and initial exposure to limited studio work and design process investigations.

The *second year* continues the design process study in the studio context. Last year I taught in this series, and arranged for real sites and real projects to be included. This placed emphasis on direct

contact with site conditions, with architectural offices, and importantly, with clients as real people. For example, a successful early project used the program of the *Inland Architect* professional design competition given in the summer of 1984. It was modified to meet our objectives by limiting the variables to one-level courtyard houses, and was completed just after the actual competition was judged. We also profited by having the winner, Bill Gerstmeyer, some of his colleagues from Holabird & Root Associates, and two of the jurors of the competition—Ken Schroeder, Schroeder & Associates, Chicago, and John Tomassi, director of the Chicago Assistance Center—join us in the student project review.

Students in the second year are given a look at real-world concerns, too, with assistance given by the Masonry Institute on annual field trips to the Indiana limestone quarries and mills, brick plants, pre-cast operations, and a fine masonry workshop (which is also open to area professionals) early each spring (in 1986 this is scheduled to allow our visitors to attend the Notre Dame/DePaul basketball game).

The *third year* in Rome provides the opportunity to see and explore practice/process results on another continent.

The *fourth year* studio emphasizes contact with the architectural scene in Chicago and South Bend. Integral field trips include visits to significant offices and contact with city and other organizations concerned with urban development. The programmed design projects, allowing freedom of expression, nevertheless demand from the students a confrontation with the reality that could make them feasible. Meetings, interviews and specific programs are required as much as an assessment of the conditions that could make their projects architectural realities.

Work in the *fifth year* includes programming and design development in the thesis, or summary, project studio. Actual projects, real sites, and contact with client/user groups add much to the challenge. As previously noted, the project finance/economics, and business and practice management concerns are touched on in the professional practice course, given in the fifth year though also open to fourth-year students. In addition, two professional elective courses are available to the fifth-year students, *Business, Legal, and Professional Relations in Engineering*, and *Construction Management*, with emphasis on business, legal, and professional relations,

management, and economics.

Laws and regulations related to practice are addressed in the design studio sequence, and in the construction technology series, as well as in the practice course. Broad-brush coverage is given the wide variety of legal issues involved in architectural practice; registration/licensing requirements; legal aspects related to the various forms of business organizations; contractual relationships and responsibilities of the architect, client, consultants, and contractors; professional liability; and the relationships of various laws, codes, ordinances, and other regulations in protecting public health, safety, and welfare.

#### Professional courses are available beyond graduation

Another facet of the program at Notre Dame that helps bridge the gap between school and practice is our continuing education program. I have coordinated these offerings for the past several years, and fall and/or spring programs of one- or two-day sessions are generally offered. The courses are open to area professionals, and to interested alumni.

In May 1984, in conjunction with the State Board of Registration, a one-day session addressed *Professional Responsibility to the Public*. It covered rules of conduct, building failures, life, and fire safety, liability, and insurance. The session was videotaped and is available for continued use in the practice classroom; and with the help of the Indiana Society of Architects, AIA, is available to A/E design professionals throughout the State.

Other programs have covered various practice concerns—such as computers in architecture; financial management; marketing architectural services; management of the design process; etc. The resource people for the offerings have been in large measure graduates of the school and pacesetters in their varied fields.

Our fall program has been organized on the theme, *Architecture, Football, and You*. Piggybacking a football weekend has worked well for the program. The 1985 fall program, *State Energy Code Update*, in conjunction with the Center for Energy Research, Ball State University, was set for Friday, October 18, with the Army game following on Saturday. This all-day workshop also includes the annual dinner meeting at Notre Dame of the Northern Indiana Chapter, AIA.

All of these courses are available to interested upper-level students, in addition to serving the continuing



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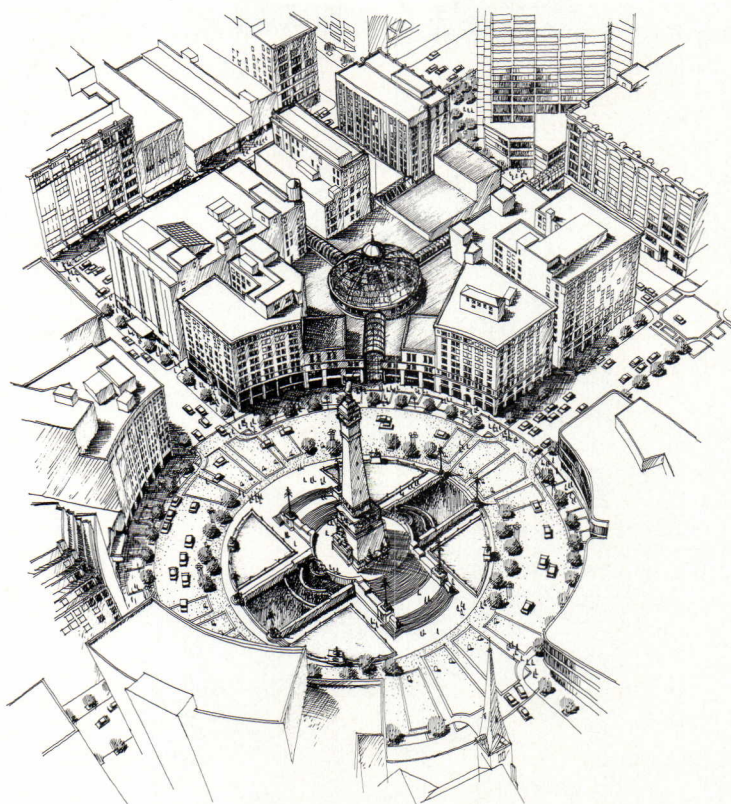
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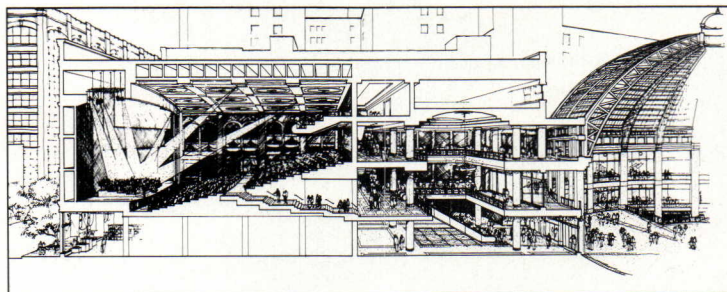
# United



## Downtown Indianapolis comes full circle



When Indianapolis was first plotted in 1821, surveyors embellished the Indiana capital's rigid grid of streets with four axial boulevards radiating from a central circle that was originally meant to house the governor's residence. Although Indianapolis now sprawls across 352 square miles, Monument Circle remains the physical and symbolic heart of the city. A current redevelopment proposal for a key block adjoining the circle is designed to preserve five National Register-listed commercial buildings on the site and provide the downtown area with significant new pedestrian space. Named Goodman Quad after the family that has operated a jewelry store on the circle since 1924, the project calls for a new network of shop-lined pedestrian passages that will converge on an 80-foot-high, 100-foot-wide rotunda located in the center of the block. Interestingly, the streets and rotunda will be covered but not climate-controlled, and thus are more in keeping with such historic urban spaces as the Milan Galleria than with contemporary shopping malls. A major component of the proposal is a new 800-seat concert hall (section left), which is situated just off the rotunda and designed mainly for chamber music. Project architects are Beyer Blinder Belle.



## One man's follies

The New York firm of Swid Powell has built up quite a business commissioning architects to design objects that eventually find their way into some of America's finer stores. Although best known for its line of architect-designed table settings (see page 174 for the latest collection), Swid Powell has branched out this year and is offering, through the Neiman-Marcus Christmas catalog, a pair of towers designed by Stanley Tigerman that the Dallas-based emporium says are "in the tradition of the folly—a type of fantasy structure built on the estates of European aristocracy as an adult's playhouse." While the inspiration for the 15- and 21-foot-high pieces of yard art may be medieval, the material (pink or blue painted steel) and the price (\$7,500 each, installation not included) are quite up-to-date.

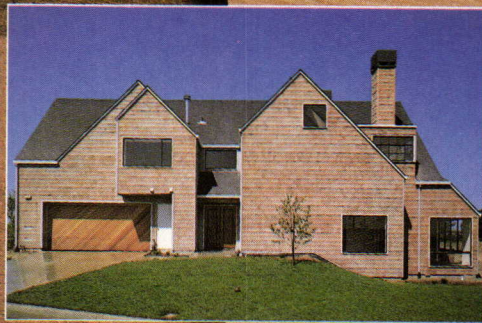




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Project: Waterfall Towers Office Park  
Photo: Karl H. Riek



Architect: Fisher-Friedman Associates  
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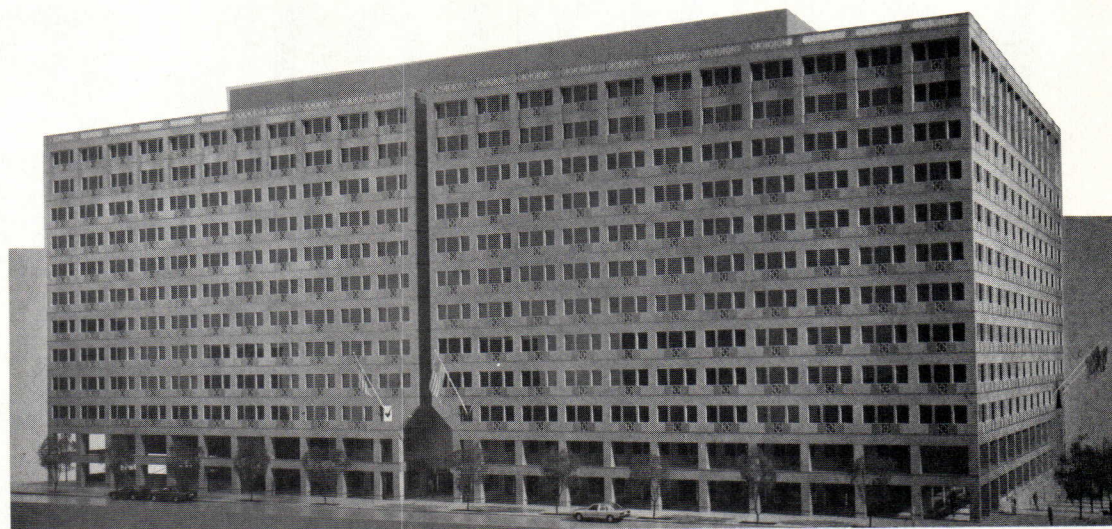
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Although the District of Columbia's strict building-height ordinance has created a remarkably homogeneous, light-filled city, it has also resulted in some decidedly leaden streetscapes comprising block after block of uninspired 12-story-plus-penthouse office buildings. A new proposal designed by I. M. Pei and Partners for Gerald D. Hines Interests reveals one firm's efforts to rise above the

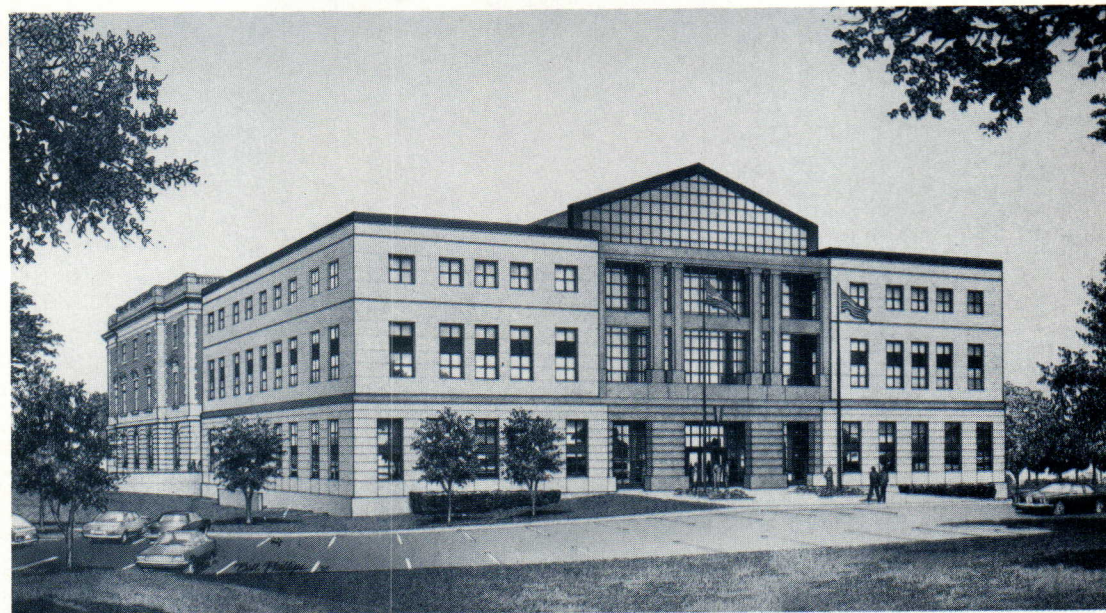
blandness that frequently characterizes commercial architecture in the nation's capital. Located at the corner of 13th and F streets, Columbia Square is a 620,000-square-foot office and retail structure that consists of two connected blocks, each with its own elevator and service core. If the project's boxy 13-story massing appears to be a predictable response to Washington's building code, look

again: the solidity of the street wall gives way inside to a full-height glass-sheathed atrium, and the building's pink and gray granite facade, embellished with a square-within-a-square motif and topped by an ornamental balustrade, is an unusually decorative backdrop that is perhaps more in keeping with the city's exuberant 19th-century architecture than with its somber contemporary brethren.

## Classically correct

The pediments and pilasters that have been cropping up on buildings large and small may be something of an architectural cliché, but there are times when a post-Modernist solution seems just right. Take, for example, the proposed 77,000-square-foot expansion of the U. S. Courthouse in downtown East St. Louis, Illinois. Plans by architects Holabird & Root call for a contextually sensitive, limestone-

clad structure that will boast a rusticated ground floor, marble belt courses, and a stylized colonnade—an historicist palette that refers to Beaux-Arts elements on the original 1906 courthouse. The old and new buildings will be joined by a central skylighted atrium created from the light court of the existing structure. A green reflective-glass curtain wall defining the entrance bay is a concession to orthodox Modernism.



## A Gropius retrospective at Harvard

The first major scholarly exhibition devoted to Walter Gropius will be on view through November 10 at the Busch-Reisinger Museum of Harvard University. The museum is the repository of the Gropius Archives, and it has just completed five years engaged in the conservation and study of its own holdings, the collection of Gropius correspondence at Harvard's Houghton Library, and Gropius

material in Berlin and elsewhere. The exhibition will comprise 150 photographs, drawings, blueprints, and models, including several seldom-seen drawings from Gropius's brief period in England. An illustrated catalog by exhibit curator Winfried Nerdinger will accompany the show, which is scheduled to be on view at the Bauhaus Archive in Berlin after it leaves Harvard.

**The Illinois Institute of Technology**, in one of the most bizarre architectural misunderstandings in memory, recently demolished a new steel canopy, part of a larger library renovation program, just one day before the refurbished facility was to be rededicated. It seems that faculty, administrators, and students at the venerable Chicago school felt that the brightly painted perforated steel canopy, designed by Robert Nevel of Mekus/Johnson, did not harmonize either with the rigorous Modernism of the library itself, designed in 1962 by Walter Netsch of SOM, or, more significantly, with the over-all campus design by Mies van der Rohe. The question in everyone's mind, of course, is how could *any* building project at an institution so closely associated with architecture get through the construction phase without a thorough design review?

**Bill N. Lacy**, president of The Cooper Union in New York, has been appointed to the three-member architectural advisory committee by the Office of Foreign Buildings Operations of the U. S. Department of State. The committee helps the office select architects for all federal buildings overseas, and it monitors the design of each project.

**Japanese architect Tadao Ando** has been named the fifth winner of the Alvar Aalto Medal, awarded in August at the international Alvar Aalto Symposium in Jyväskylä, Finland. The prize was established in 1967 "to recognize creative architectural work of international stature." Previous winners were Aalto himself (1967), Hakon Ahlberg (1973), James Stirling (1978), and Jorn Utzon (1982).

**A three-day conference** on architectural journalism, co-sponsored by Virginia Polytechnic Institute and the Washington, D. C. Chapter of the AIA, will be held November 15-17 at the VPI Washington-Alexandria Center. Open to architects, students, journalists, and others in the building professions, the conference will examine who decides what is published and how the press influences design. For information contact Susan Escherich, VPI Washington-Alexandria Center, 101 North Columbus St., Alexandria, Va. 22314 (703/548-0099).

**The Foundation for Architecture** in Philadelphia will hold its annual Beaux-Arts Ball on October 26 in the atrium of the Curtis Center. This year's theme is "True Blue Americana," and some 1,200 architects, artists, and their patrons are expected to attend.



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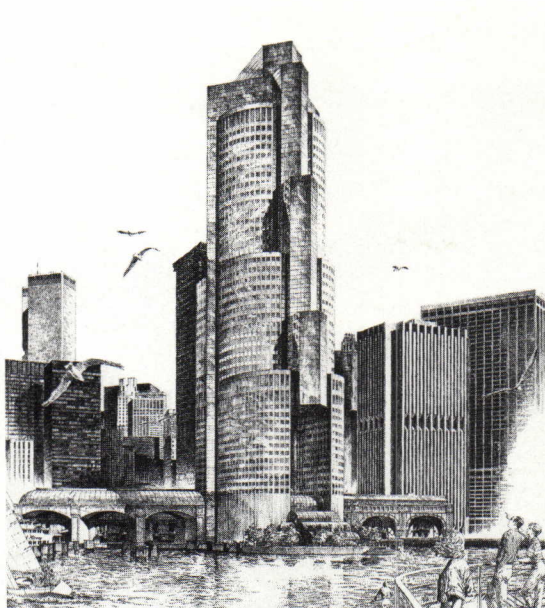
# South Ferry Plaza: More high-density development at Manhattan's gateway

1. Emery Roth & Sons, Hardy Holzman Pfeiffer Associates, and Hooker/Siskind Associates, joint venture architects.
2. Beyer Blinder Belle and Skidmore, Owings & Merrill, joint venture architects.
3. Fox & Fowle and Frank Williams and Associates, joint venture architects.
4. Arquitectonica, architects.

5. Clark Tribble Harris & Li, architects.
6. Murphy/Jahn, architects.
7. Davis, Brody & Associates, architects.
8. Cooper, Eckstut Associates and Kohn Pedersen Fox, joint venture architects.

Back in February the city of New York put up for grabs one of the world's most spectacular development sites—a 500,000-square-foot harborfront parcel of land curving around the southern tip of Manhattan that incorporates the current Staten Island Ferry Terminal and the historic Battery Maritime Building. The city's departments of Transportation and Ports and Terminals jointly issued a request for proposals seeking high-rise hotel and/or office development on the site, renovation or replacement of the ferry terminal, and restoration of the Battery Maritime Building, a neoclassical steel and sheet-metal landmark designed by Walker & Gillette in 1906. The RFP also required provisions for cultural facilities—exhibition space, possibly, or theaters—as well as a continuous public esplanade along the property's 800 feet of waterfront that would link the project with Battery Park on the west and South Street Seaport on the east.

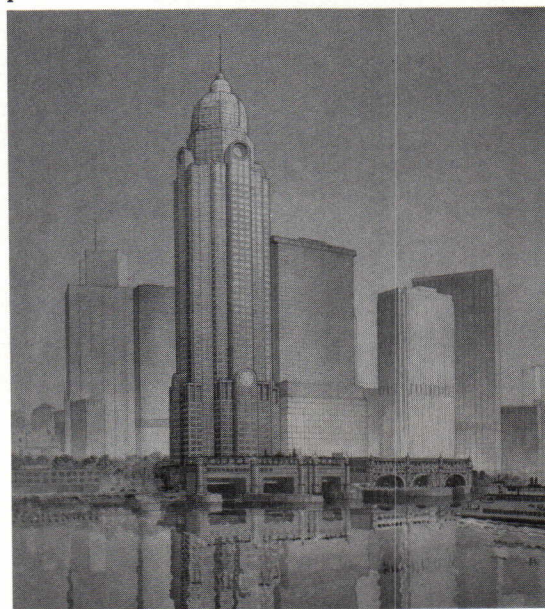
Dubbed South Ferry Plaza, the proposal has attracted seven private developers who have submitted for consideration the eight renderings shown here. The project has aroused the interest of the city's architectural community not just because of its scale (the cost is pegged at \$300-400 million) but also for its potential visual impact on lower Manhattan's famous skyline. Specifically, the tower segments of the eight proposals range in height from a modest 35 stories to a more imposing 68 stories, and some of the complexes would be built at least partially on platforms erected in the harbor. As a group, the entries make up an intriguing primer of current ideas in high-rise design, ranging from setback skyscrapers clearly meant to evoke downtown New York's legacy of early-20th-century commercial architecture to more idiosyncratic proposals by such out-of-town firms as Murphy/Jahn and Arquitectonica. Who will win this game of architectural one-upmanship? The city will reveal its intentions sometime this winter, but not without input from those who contend that *any* large development on this highly visible site, no matter how well designed, may not be in the city's best interest. *P. M. S.*



1



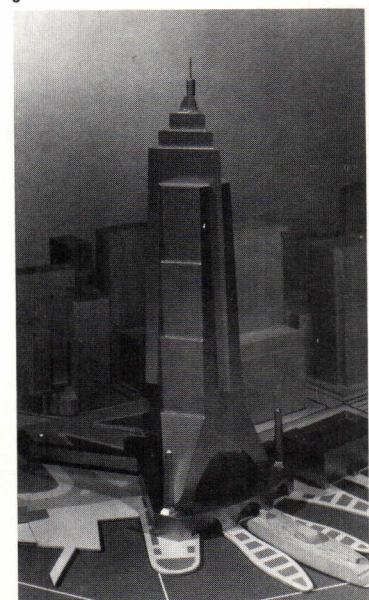
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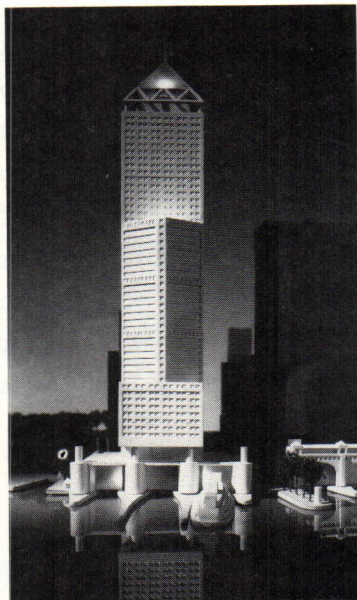
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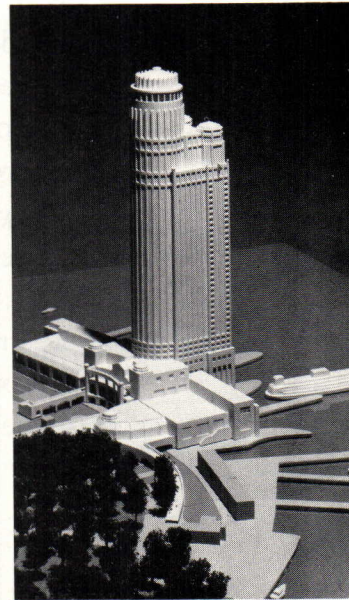
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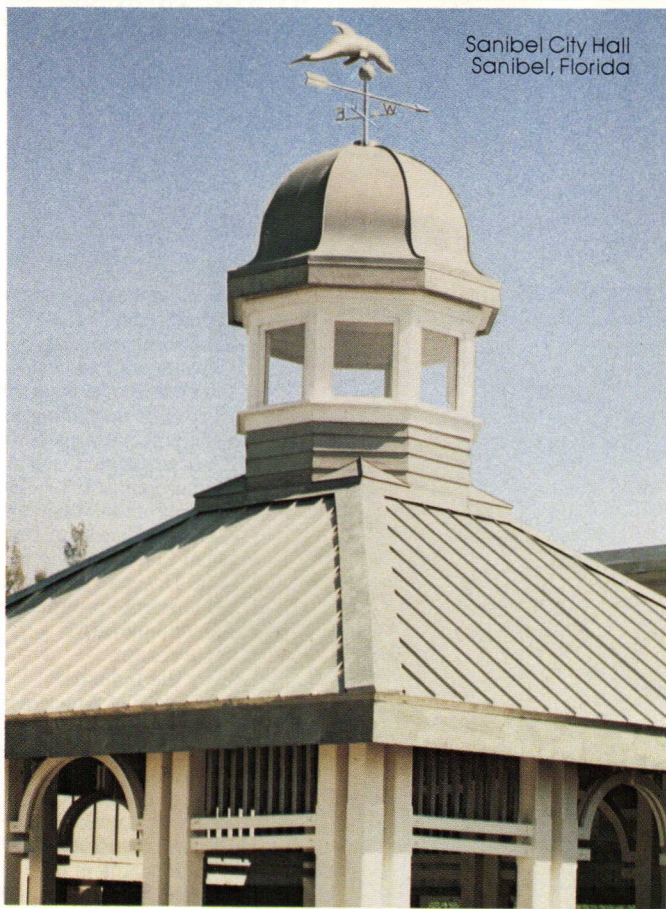
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views of the river and city.





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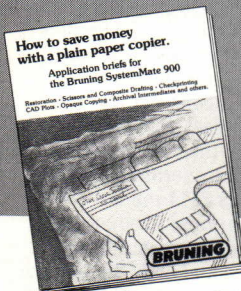
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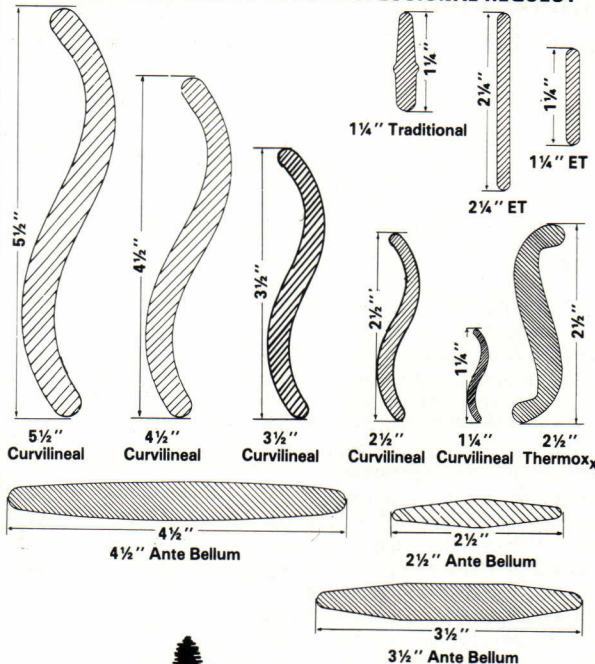
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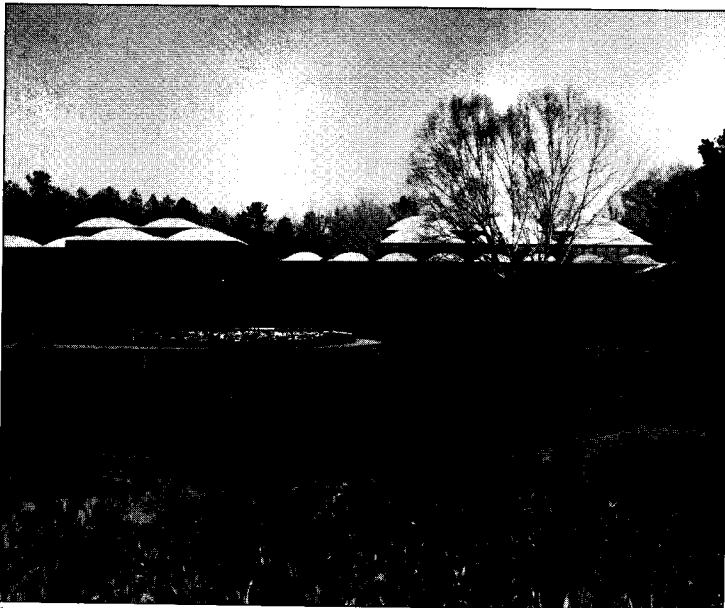
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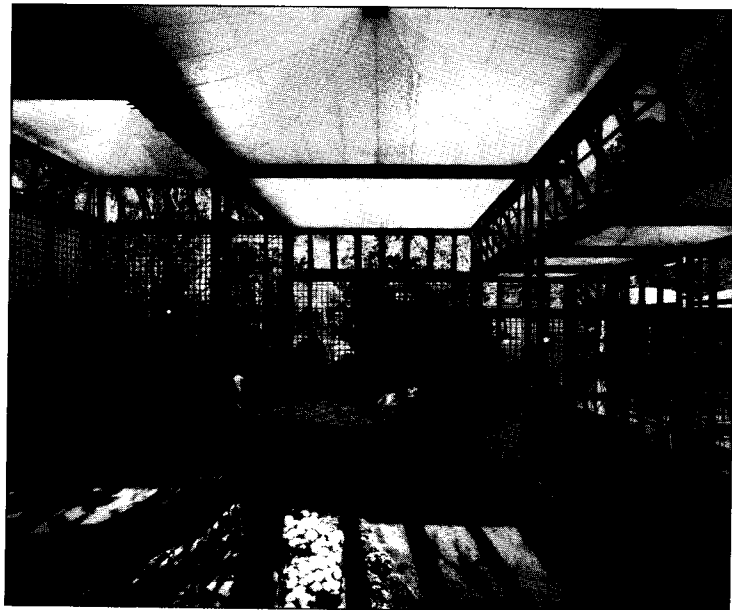


**Design awards/competitions:  
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1985 Architectural Awards of Excellence**

*The American Institute of Steel Construction sponsors two biennial design awards programs—one for architecture and a second for bridges. The stated purpose of the AISC's citations is "to recognize and honor outstanding architectural designs in steel and to encourage further exploration of the many esthetic possibilities inherent in steel construction." The 1985 AISC architectural program attracted 145 national entries, and the 11 award-winning projects illustrated below and on the following pages are characterized by diversity, both of building type and of structural*



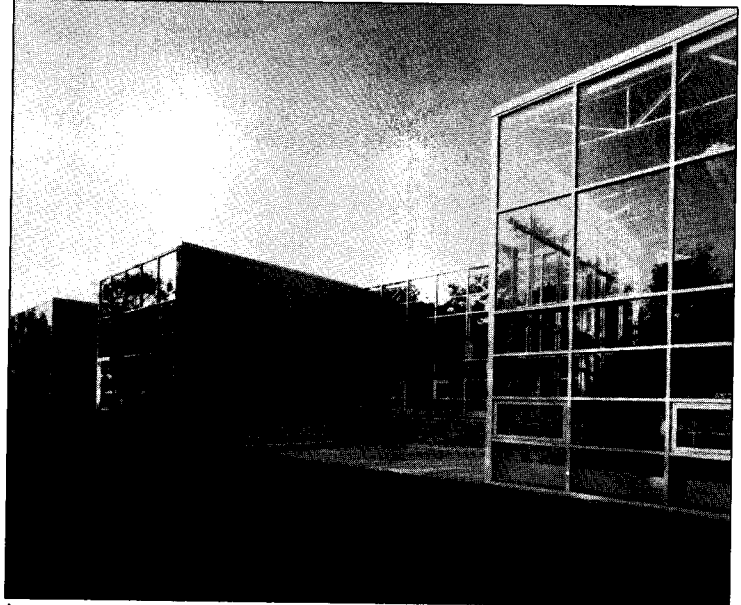
1 Paul Beswick



2 Paul Beswick



3 Hedrich-Blessing



4 Brenda L. Lewison

**1, 2. John A. Sibley Horticultural Center, Pine Mountain, Georgia;** Craig, Gauden and Davis, Architects; Horst Berger Partners, Structural Engineers. The challenge was to design an indoor/outdoor horticultural education center and greenhouse that would accommodate elaborate technical equipment needed to create six separate temperature/humidity environments—all without intruding on a picturesque setting in Georgia's Callaway Gardens. Toward that end the architects selected a structural frame of weathering steel whose permanent brown patina would be a sympathetic backdrop for interior

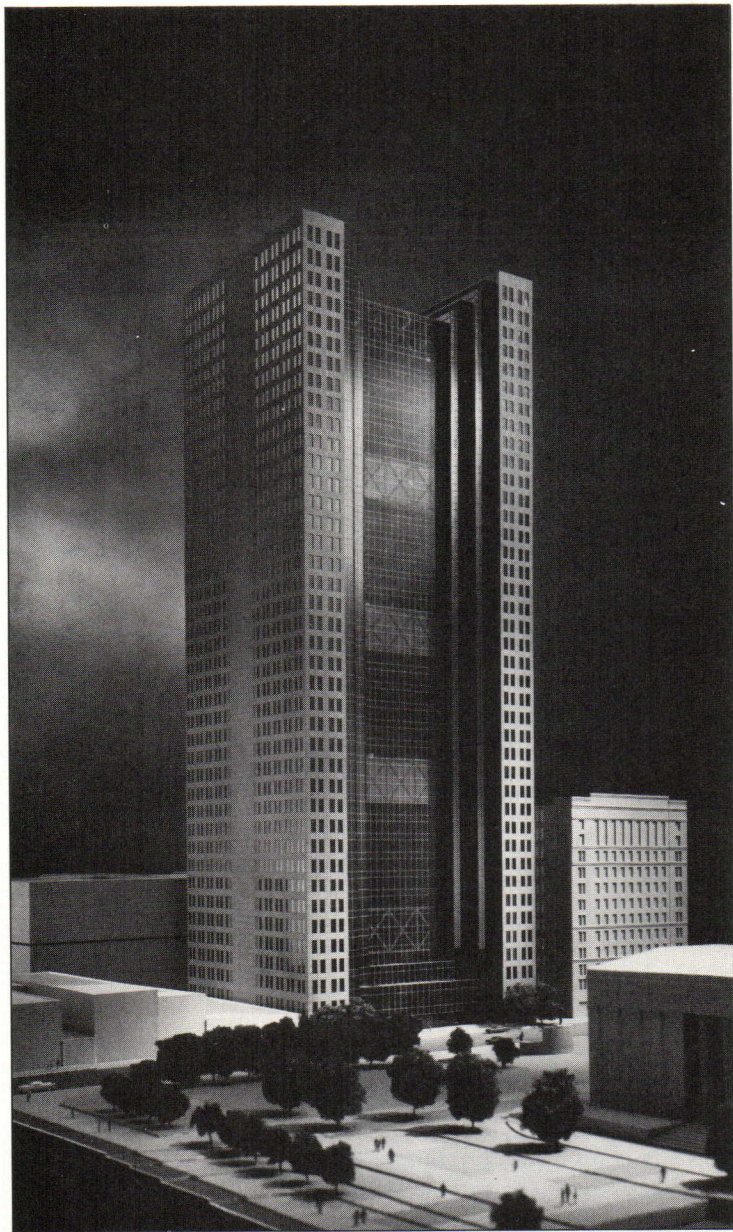
and exterior floral displays. One-foot-square clear glass block walls and a roof membrane of silicone-coated fiberglass on white steel arches permit natural illumination to enter the facility. (The roof is said to yield a visible light translucency of 45 per cent.) The jurors observed that the latticework steel columns seemed especially appropriate for a botanical building, and they called the structure "clean, straightforward, and elegant... the perfect match of architectural elements and natural open space.

**3. Hoekstra House, Homewood, Illinois;** David Hovey, Architect; Rittweger & Tokay, Structural Engineers (RECORD, mid-April 1985, pages 78-81). A 2,400-square-foot residence in a Chicago suburb was conceived as a prototype for a low-budget factory-made house that can be erected on a building site in just one day. The three-bedroom house comprises 11 welded-steel boxes—each measuring 10 feet wide by 24 feet long by nine feet high—that step down a steep hillside and rest on slim red-painted columns. "An incredibly simple but elegant solution to a factory-built modular house," observed the jury.

**4. Adult Training Center, Maple Heights, Ohio;** William A. Blunden, Robert A. Barclay Associates, Architects; Chacos & Associates, Structural Engineers. Simplicity, suitability, durability, and economy were the primary considerations for a new 43,000-square-foot vocational training center near Cleveland. Designed for 230 physically and mentally handicapped adults and a staff of 33, the facility is clad in split-face concrete block and aluminum storefront curtain walls. The exposed steel-framed interior was left largely open in order to facilitate natural ventilation, daylighting through clerestory windows, and visual supervision. The jury praised the building for its appropriate siting, clear circulation, and good detailing—qualities that seemed especially impressive given the project's modest budget.



solution. Jurors for this year's event were James C. Allen, senior vice-president and general manager of Perkins & Will in Chicago; Albert C. Martin, FAIA, partner of Albert C. Martin Associates in Los Angeles; R. Bruce Patty, FAIA, principal of Patty Berkebile Nelson Associates Architects in Kansas City, Missouri, and 1985 president of the American Institute of Architects; George W. Qualls, FAIA, principal of Geddes Brecher Qualls Cunningham Architects in Philadelphia; and Charles H. Thornton, Ph.D., P.E., president of Lev Zetlin Associates in New York City.



Caraban photo

**5. Huntington Center, Columbus, Ohio;** Skidmore, Owings & Merrill, Architects and Structural Engineers. Located next to the Ohio State Capitol, a 37-story office and retail complex consists of two slender end towers connected by a transparent glass-sheathed central section whose setbacks offer views of the city from 16 corner offices per floor. The structural steel system selected for the project, a small-scale version of the "super-frame" concept that has been developed for ultra-tall high-rise buildings, involved placing tubular frame components in the exterior corners of the building and connecting them with vertically spaced, multi-floor truss-type

elements. At the Huntington Center the visual potential of this system is revealed in four sets of diagonal trusses located on the first, 12th, 20th, and 28th floors. These trusses define four distinct 80- to 120-foot-high atrium zones designed to reduce the apparent scale of the one-million-square-foot complex. The jury liked the exterior articulation of the atriums—"they give a focal point for people working in the building that they can identify with"—and it praised the structure for its sympathetic relationship to the axis of the adjacent State Capitol.



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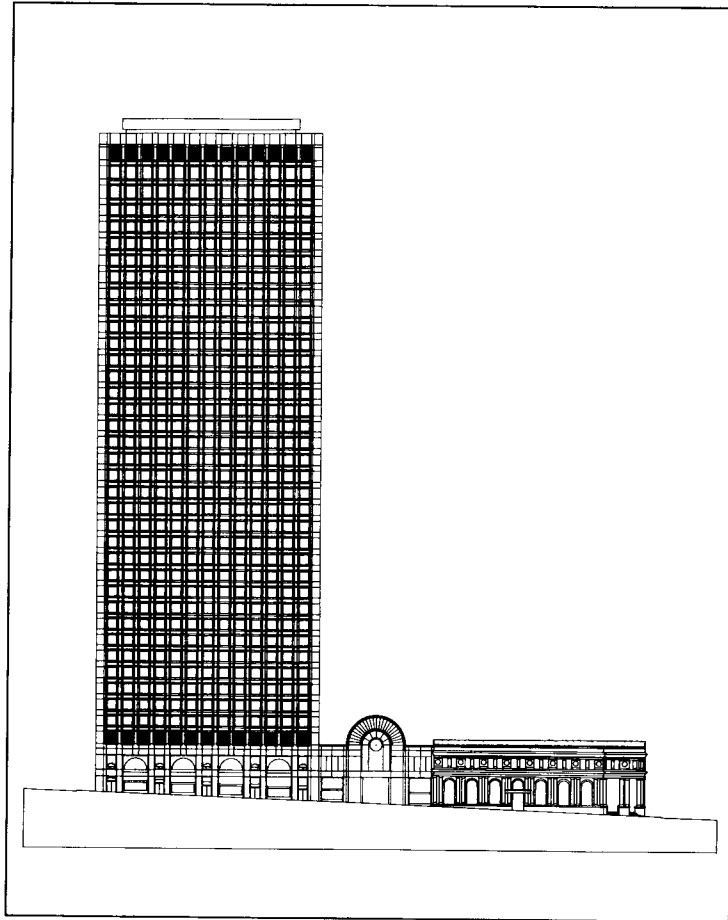
**6. LTV Center, Dallas, Texas;** Skidmore, Owings & Merrill, Architects and Structural Engineers. The jury called this 1.7-million-square-foot mixed-use tower "a building that absolutely changes the skyline [and] gives the city a new personality. As a modern version of the old skyscraper, it treats the crown, middle, and base in different manners. It is not just an extruded form that's sawed off at the top." The building's location in the pedestrian-oriented downtown Dallas Arts District influenced the architects' decision to place shops, restaurants, and exhibition space in a two-story street-level pavilion. The architects have likened the structure's

symmetrical cruciform plan and pyramidal glass top to a 686-foot-tall campanile symbolizing the cultural significance of the immediate area. The building shaft is sheathed in granite-and-glass curtain walls that are articulated by two-sided angular bays. Although esthetics and concern for flexible tenant layouts dictated the utilization of a structural steel framing system, cost considerations also played a role: according to the architects, total steel weight was about 21.5 pounds per square foot, or less than one-half the weight used for buildings of this height 20 years ago.

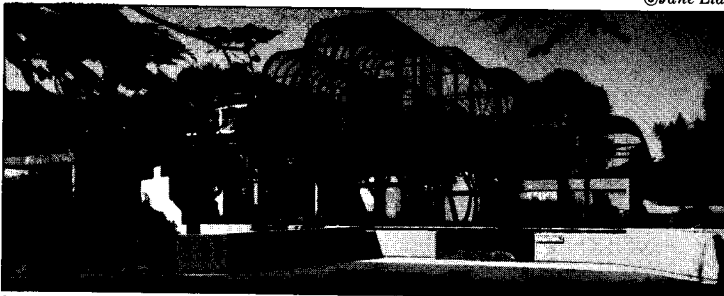




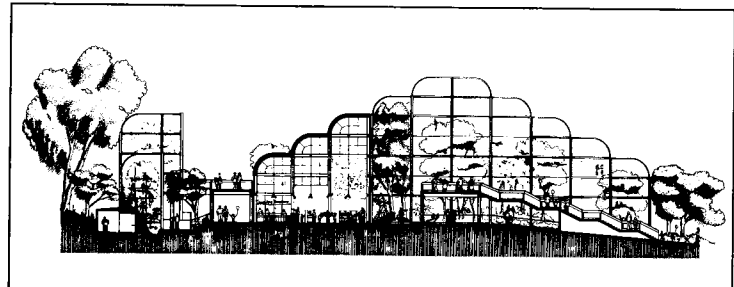
7 ©Jane Lidz



8



9 ©Kirk Gittings/Syntax



10

**7, 8. Crocker Center, San Francisco, California;** Skidmore, Owings & Merrill, Architects and Structural Engineers. A major commercial development project in San Francisco's downtown financial district incorporates a new 38-story office tower and three-story, block-through retail arcade, and the restoration of Crocker Bank's original early-20th-century headquarters. Clad in polished and flame-finished granite, the office building has a steel structural system composed of welded ductile space-framed tube, selected for its energy absorbency in the event of an earthquake. The floor system consists of a composite metal deck slab supported on steel beams and girders connecting the building core and exterior frame. The result is column-free lease space for flexible

tenant layouts. The semicircular arch of the barrel-vaulted galleria is also made up of welded steel beams. The jury observed that "the problem of developing new office space next to the original grand banking floor was beautifully handled by the introduction of the atrium as a long connecting unit between the old and new facilities. Moreover, the fenestration and skin of the building fit in well with the San Francisco environment." The jurors added that the arched main entrance to the galleria would probably become an instant pedestrian landmark within the city. "Very elegant, very successful," they concluded.

**9, 10. Primate Discovery Center, San Francisco, California;** Marquis Associates, Architects; Rutherford & Chekene, Structural Engineers. Mandrills, monkeys, and marmosets are among the 17 animal species sheltered in a new facility for small and medium-sized primates at the San Francisco Zoo. In addition to multi-level public viewing areas and an interpretive education center, the structure encompasses several distinctive landscaped animal habitats. The architects designed a variety of enclosure sizes and types, including 50-foot-high vaulted mesh cages, 20- to 40-foot-high berm cages, two

aviaries, a moat, and glassed-in viewing chambers. A two-level concrete walkway accommodates public access, while three stairways and a ramp provide vertical circulation. Trees penetrating the roof are meant to emphasize the link between men and monkeys. The jurors admired the way the facility's arched metal elements emerge from a masonry base: "It's a great reflection of the trees that surround it." They added that the center's glazed forms and open-mesh enclosures "give the structure a distinct personality that seems appropriate to its function."





11

**11. Transco Tower, Houston, Texas;** John Burgee Architects with Philip Johnson, in association with Morris/Aubry Architects; CBM Engineers, Structural Engineers. "A building of great class and quality," observed the jury. "Of the tall buildings we saw, this one was certainly in the first rank." Located in Houston's Galleria area, Transco Tower is, at 901 feet, the tallest building outside of a central business district in the United States. Its setback profile and faceted aluminum-and-glass curtain wall are meant to evoke the character of early-20th-century American skyscrapers.

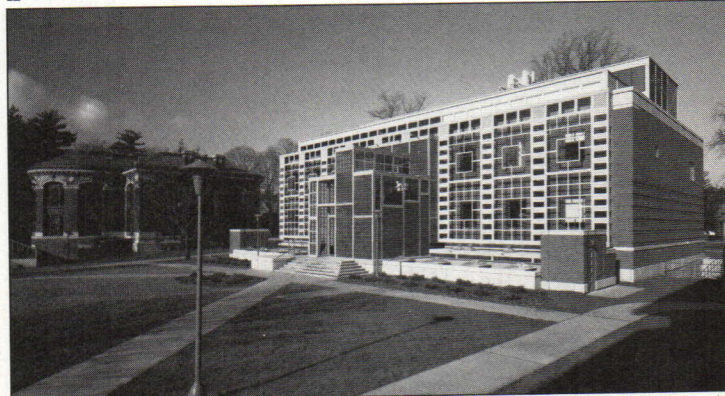
Ron Scott

**12. CIGNA South Office Building, Bloomfield, Connecticut;** The Architects Collaborative, Architects; LeMessurier Associates, Structural Engineers (RECORD, March 1985, pages 136-143). The client's need for extensive blocks of column-free office space and the possibility of future modifications dictated the use of structural steel for a 500,000-square-foot corporate expansion project outside Hartford. The granite-sheathed building centers on a four-story, 33,000-square-foot atrium that permits natural illumination of nearly every work station. "The building sits gracefully in the countryside," noted the jury, and "it seems to be a comfortable workplace."



12

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13

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14

Paul Warchol

**13. Seeley G. Mudd Chemistry Building, Vassar College, Poughkeepsie, New York;** Perry, Dean, Rogers & Partners, Architects; Zaldastani Associates, Structural Engineers. Situated near the center of an existing college campus, this three-level academic and research building forms the fourth leg of a science quadrangle. The architects took advantage of the structure's south-facing site by specifying solar collectors on the roof and by designing the main facade as a trombe wall that works with the building's mechanical system. The over-all massing is in keeping with the scale of existing college buildings, and brick walls, granite trim, and a copper roof are intended as abstract references to 19th-century academic architecture. "Excellent detailing," noted the jury.

**14. New Bogardus Building, New York City;** Beyer Blinder Belle, Architects; Stanley H. Goldstein, Structural Engineer (RECORD, January 1984, pages 102-103). Designed as the focal point of the restored South Street Seaport area in lower Manhattan, this four-story commercial building is essentially an updated steel version of a structure designed in 1849 by James Bogardus. Since the exterior facades form a steel bearing-wall structure, there are no interior columns to break up two floors of restaurant space and two floors of offices. The jurors praised the architects for closely replicating the cast-iron structures of the 1850s, and they called the structure "a good companion to the older loft buildings that it adjoins—perfect infill."





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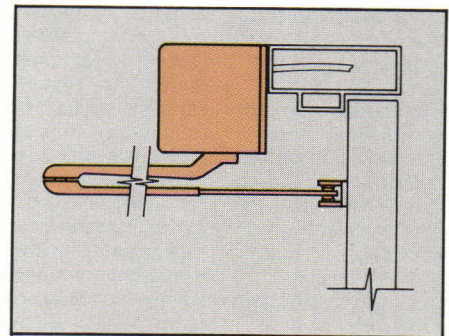
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**Les Promenades de Paris**, by Adolphe Alphand. First published in 1860; reprinted by Princeton Architectural Press, 1984, \$75.

**Edifices de Rome Moderne**, by Paul-Marie Letarouilly. First published in 1840; reprinted by Princeton Architectural Press, 1982, \$55.

**C. N. Ledoux: L'Architecture**, by Claude-Nicolas Ledoux. First published in 1847; reprinted by Princeton Architectural Press, 1983, \$55.

Reviewed by Christine Matheu

It is refreshing to note that there is still an opportunity for a new architectural press to emerge independent of any large corporation or academic institution. A new small press that found its beginnings on a back porch now exists in expanded quarters on Witherspoon Street in Princeton, New Jersey. By undertaking the reprinting of its fourth major work—Adolphe Alphand's *Les Promenades de Paris*—the Princeton Architectural Press has carved its own niche among such publishing giants as MIT and Rizzoli. Adding to its credit, the Press is preparing two more facsimile editions, including Hugh Ferriss's spectacular *Metropolis*, and it has expanded its sights over the past year to encompass such new titles as *Venezuelan Vernacular* by Federico Vegas, *The Writing of the Walls* by Anthony Vidler, *The Palladio Guide* by Caroline Constant, Thomas Schumacher's translation and analysis of Giuseppe Terragni's *Danteum*, and volumes one and two of the *Princeton Journal*. Forthcoming, too, are monographs of Steven Holl and Michael Graves.

Founded in 1980 by Princeton graduate Kevin Lippert, Princeton Architectural Press originally defined its role as a provider of fine out-of-print books to students at an affordable price. In its initial reprint of J. N. L. Durand's *Receuil et Parallèle des Edifices de Tout Genre Anciens et Modernes* (unfortunately no longer available) and in its subsequent publications, the Press has distinguished itself by utilizing such high-quality materials as acid-free paper, sewn bindings, and cloth covers. Moreover, with the aid of a special Kodak processing method whereby Lippert painstakingly hand-develops the negative for each plate, the Press can make precise reproductions of the original editions.

Christine Matheu practices architecture in Philadelphia and teaches at the University of Pennsylvania.

Following the precedent set by the publication of Durand's book, Princeton Architectural Press has made available three other distinguished books: Paul Letarouilly's *Edifices de Rome Moderne*, C. N. Ledoux: *L'Architecture*, and, most recently, Adolphe Alphand's *Les Promenades de Paris*. In choosing these works the Press has given us a survey of architecture books available in France in the 19th century and has provided a review of French design theory during the last century.

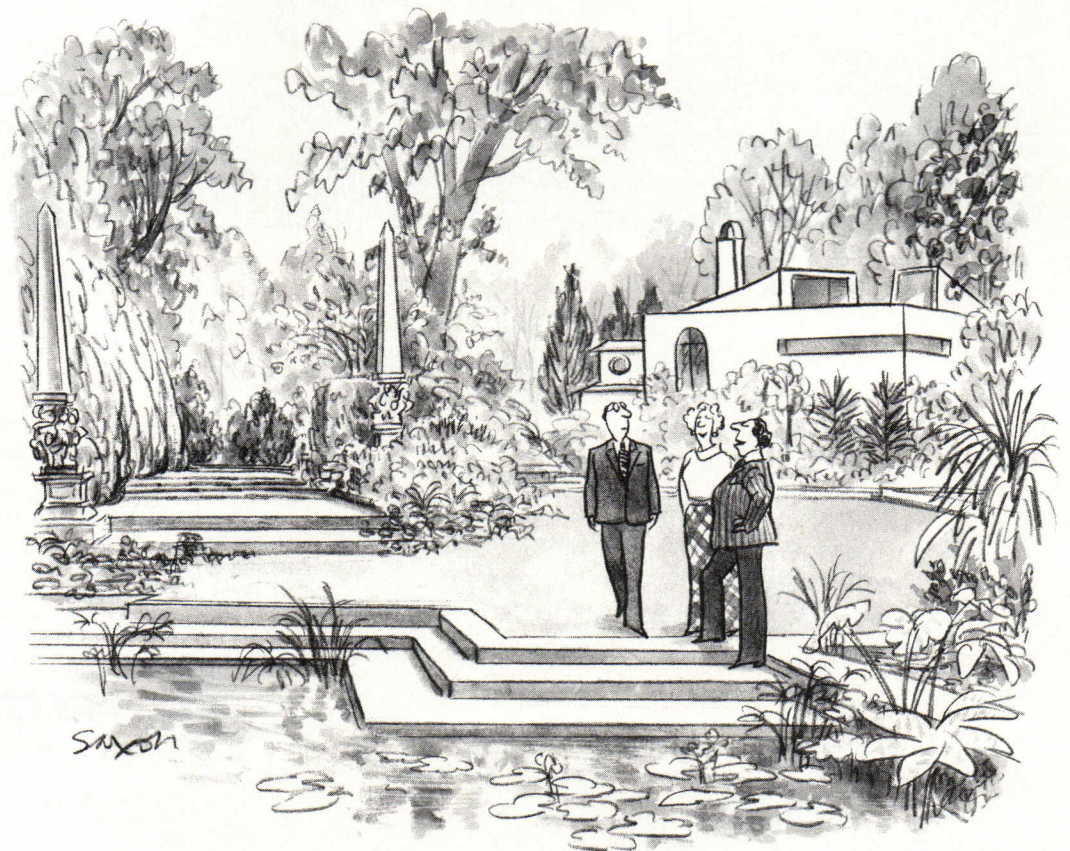
Despite his association with the *ancien régime*, Ledoux was able to publish in 1804 the first set of plates in a projected five volumes of *L'architecture considérée sous le rapport de l'art, des moeurs, et de la législation*. In 1847 Daniel Ramée gathered in two volumes the plates from this book, as well as 175 additional plates, and entitled the set *L'Architecture de C. N. Ledoux*. Princeton Architectural Press has reproduced exquisitely this definitive text of Ledoux's work into a single, smaller-format volume. In addition to presenting a theoretical context in his introductory essay, Anthony Vidler gives a short biography of Ledoux, outlining the architect's projects from his apprenticeship and professional periods, and he

describes the politics of design for the *Saline de Chaux* during Ledoux's years as *Inspecteur des salines*. In addition to Vidler's essay, the edition includes the first English translation of Ledoux's "Prospectus," the treatise that was to have accompanied the architect's *oeuvre complet* of 1802, and Ramée's introduction from the original Paris edition. The 300 plates in the two volumes illustrate not only the famous *Ideal City at Chaux* and the city gates of Paris, but also government buildings, theaters, libraries, city and country houses, and monuments.

Vidler points out that the collection, reviewed as an *encyclopédie architecturale* in Ledoux's time, brings together all the building types used in the social order. In this way *Architecture considered in relation to art, mores, and legislation* outlines the philosophic, scientific, and social climate of the 19th century. Ledoux finds his roots in J. J. Rousseau, anticipates such social design reformers as Fourier and Lequeu, and signals the final upstaging of the Baroque by the new Romantic Classicism. In his "Prospectus" Ledoux evokes a strong social morality through poetic imagery, and he gives architecture a mythological armature: "I direct the floating cities; the philosophy will

implant morality on these privileged lands; its productive energy will fertilize them . . . Here the city is built; it is the meeting place of desires." As Vidler states, the forms of Ledoux's designs are "calculated to the demands of a more or less strict *idéologie des signes*." This *architecture parlante*, a term first used in 1852 to describe Ledoux's narrative architecture of symbols, is particularly evident in Ledoux's designs for his first important public commission, the *Saline de Chaux*, which is included in the first volume of *L'Architecture*.

The next reprint produced by Princeton is Paul-Marie Letarouilly's *Edifices de Rome Moderne*, originally published as a three-volume set in 1840. It, too, is an *oeuvre complet* of one architect's work, but in this case it is not the illustration of Letarouilly's own designs but a record of his keen observation and immaculate skill in producing etchings of Renaissance architecture in Rome. In *Edifices de Rome Moderne* Letarouilly presents 354 etched plates of plans, sections, elevations, perspectives, and large-scale details of gardens, convents, palaces, and churches. Having devoted 35 years to the task of collecting information from architecture of the past, Letarouilly



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Top: View of the Piazza del Popolo, Rome, by Paul Letarouilly. From *Edifices de Rome Moderne*. Middle: Bois de Vincennes, Paris. From *Les Promenades de Paris*, by Adolphe Alphand. Bottom: Elevation of the *Batiment de la Direction*. From C. N. Ledoux: *L'Architecture*.

continues the French tradition of comparative typing of buildings, and in his choice of styles he helped popularize the Renaissance Revival movement that followed Ledoux's Romantic Classicism. In fact, with its wide distribution and at one time the fraudulent reproduction and sale of its plates, *Edifices de Rome Moderne* became the bible of the Renaissance Revival in France. Archaeological in its exactitude, the volume was used as a reference work not just by Europeans but also by American architects during the late-19th and early-20th centuries. McKim, Mead and White's Villard Houses, for example, were certainly influenced by Letarouilly's High Renaissance Italian palazzo model, and the same firm's Boston Public Library has a direct source from Letarouilly, even to the point of imitating Letarouilly's drawing style.

Princeton's most recent reprint publication is Adolphe Alphand's *Les Promenades de Paris*. This book is perhaps the least academic work of the group, drawing as much upon the social, industrial, and governmental position of Paris in 1860 as upon that period's design theory. For this aspect, and due to the fact that this book has never been easily available, the reprinting of *Les Promenades de Paris* comes as a delightful surprise. Although the original 1860 work was printed in two large-format volumes, the Princeton Architectural Press edition of *Les Promenades* condenses the work into one book. While some fineness of line is lost in the text section's black-and-white etchings, the individual plates, and particularly the handsome color lithographs of botanical specimens, faithfully reproduce the richness of the original volumes.

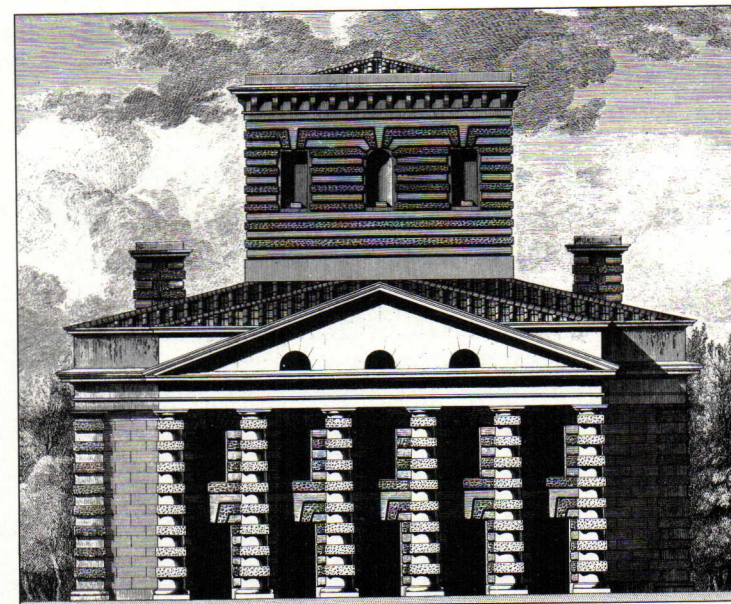
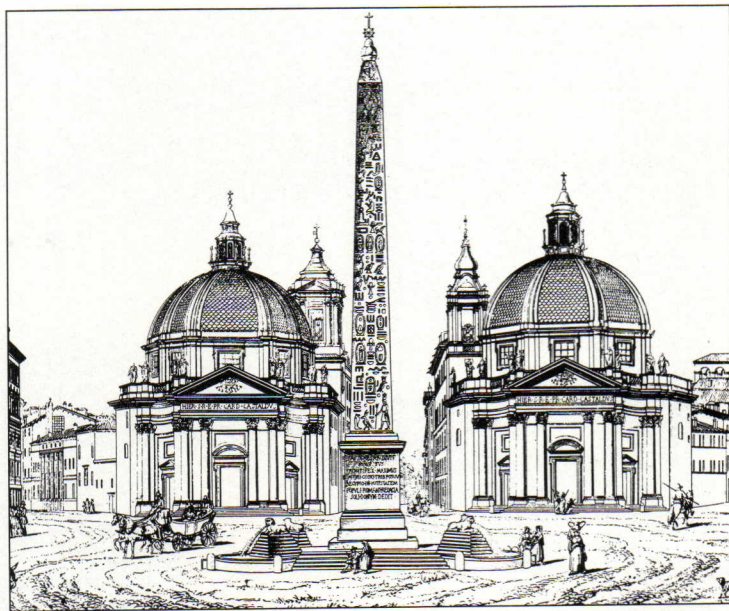
Constituting virtually a catalog of design standards for the new Paris park system executed under the Second Empire, *Les Promenades* is the masterwork of Adolphe Alphand, Director of the Public Way and of the Promenades and Plantings of Paris. A product of the re-ordering of Paris by Napoleon III and Baron Haussmann, the volume illustrates the discipline with which Alphand treated the green spaces left over after Haussmann had reconfigured Paris with grand boulevards and vistas. As *Les Promenades* makes evident, the ordering of these fragmentary *espaces verts* (or open spaces) by Alphand into a tight hierarchy refined the new plan of Paris and brought greenery, light, and air into the city. These last elements, beautifully depicted in the book's park vignettes, were particularly important in an age when hygiene and health preoccupied not only scientists and men of medicine, but

the general public as well. Moreover, by taking cues from such earlier park developments in London as Birkenhead, the new Paris parks attempted to equalize the French class system, and in so doing became a substantial political feather in Napoleon III's cap.

In *Les Promenades* Alphand divides the green spaces of Paris into five types based on their size and location. In ascending size these are the *promenades*, or linear green spaces formed by aligned trees along boulevards; the *places*, or pockets of green space that were truly the product of the remnants formed from the piercing of Paris; the *squares*, or the small parks, each of which had its own particular character reflecting the spirit of an individual neighborhood; the *parcs*, or intra-urban parks which were larger than *squares* but fewer in number; and the *bois*, or the large parks (e.g., the *Bois de Boulogne* and the *Bois de Vincennes*) situated at the edge of the city. These last are the least urban in character of all the green spaces and represent the suburban expansion of Paris at the time.

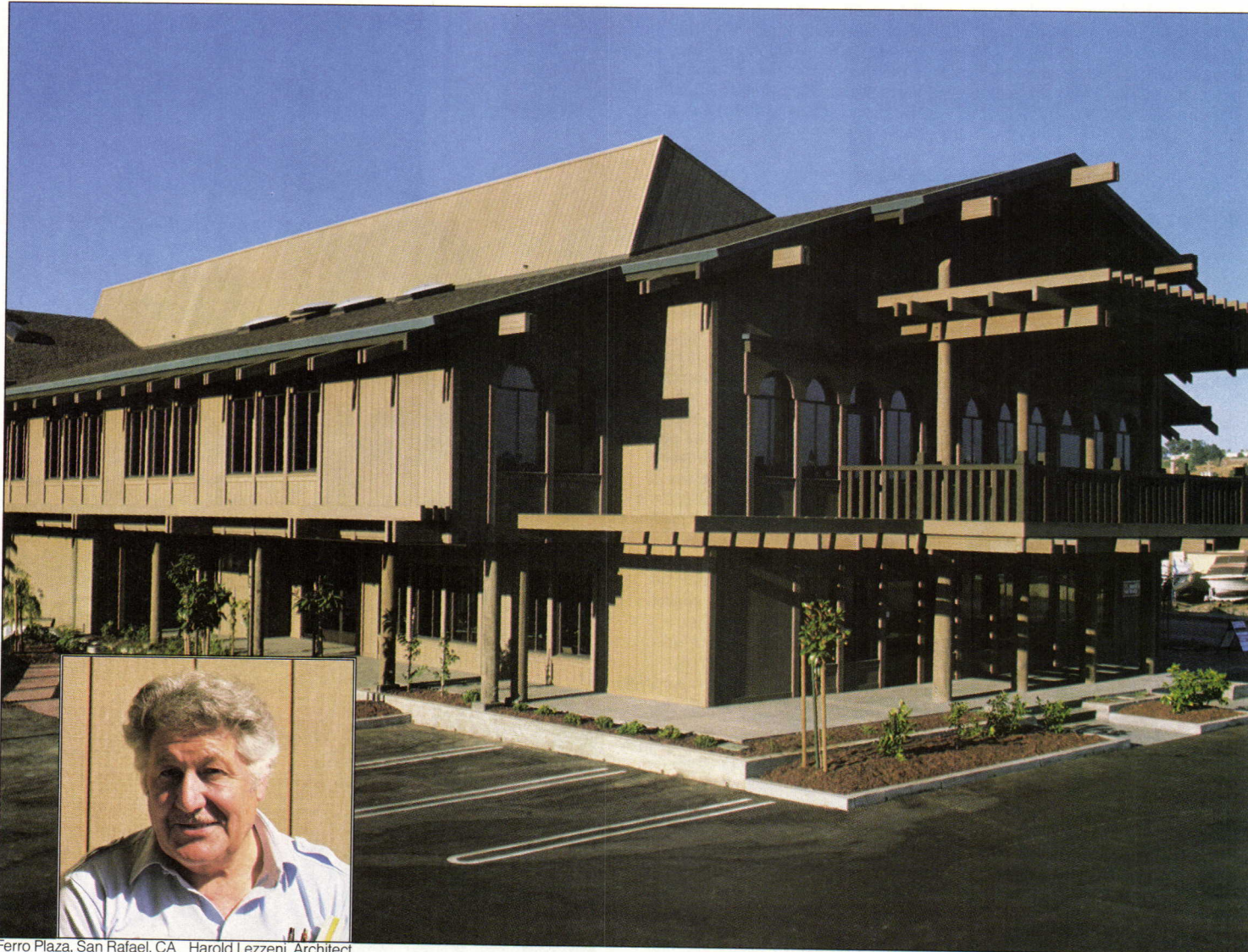
*Les Promenades de Paris*, illustrating the unique collaboration of engineer Alphand, architect Gabriel Davioud, and horticulturalist Barillet-Deschamps, formulates an authentic stylistic response to the park system established during the Second Empire. The new Paris parks are *efficient* in the Second Empire's new spirit of industrialism and in the spirit of the new government. They are *eclectic* stylistically, ranging from the naturalism advocated by J. J. Rousseau and Humphrey Repton to the Neoclassical that appealed to Napoleon III. Finally, the parks are *balanced* in a new "organicized" geometry that brings the disparate elements together with elegant order. The last quality is particularly evident in the mid-size intra-urban *parcs* of *Montsouris*, *Monceau*, and *Buttes Chaumont*.

Interestingly, *Les Promenades de Paris* is one of the few 19th-century landscape books distributed to large urban capitals around the world. New York City received a copy, and it is in fact known that Frederick Law Olmsted made a point of visiting Alphand's parks in the early stages of designing Central Park. It will be interesting to see if in our own time reference to Alphand's work, and to C. N. Ledoux: *L'Architecture* and *Edifices de Rome Moderne*, will significantly affect design. Rooted in Vitruvius and Palladio, the tradition of publishing's influence on architectural theory may continue with the help of Princeton Architectural Press.





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# Michael Graves tackles the Whitney

*The Whitney Museum's expansion plans incorporate Marcel Breuer's original 1966 building (left in model below and photo bottom) and a 10-story, 134,000-square-foot addition designed by Michael Graves.*

By Roger Kimball

It would be difficult indeed to have remained unaware of the controversy surrounding Michael Graves's proposed design for expanding the main branch of the Whitney Museum of American Art at Madison Avenue and East 75th Street in New York. As soon Graves's design was made public late last spring, it became something of a *cause célèbre*, attracting a host of avid supporters and equally vigorous critics. The design was of course noted in professional journals like *RECORD* (July 1985, page 65), but it has also been the subject of articles in publications as diverse as *House and Garden*, *New York*, *The Village Voice*, and *The New Criterion*. It drew caustic remarks from the architect Abraham Geller during a ceremony at which he received this year's Medal of Honor from the New York Chapter of the American Institute of Architects. And *The New York Times*, in an effort to chronicle the debate, has run at least half a dozen pieces on the subject.

The main point of contention is the fate of the current museum building, designed by Marcel Breuer and completed in 1966, which is widely regarded as epitomizing the stark, almost brooding seriousness of late Modernist architecture. Graves proposes to extend the museum south to 74th Street, connecting the addition to the original building by means of a cylindrical "hinge," and to bridge the two structures with five additional stories set back from the two main buildings.

Graves's post-Modernist design—full of the pastels and fanciful, historicizing ornamentation that his work has helped make so popular—is unabashedly at odds with the spirit and intention of Breuer's exercise in minimalist restraint. Supporters of the proposal argue that the design ingeniously incorporates and expands Breuer's building, rendering it less formidable and bringing it, as it were, up to date; critics charge that it trivializes the Whitney, transforming the commanding integrity of its inverted ziggurat into a piece of post-Modernist appliqué.

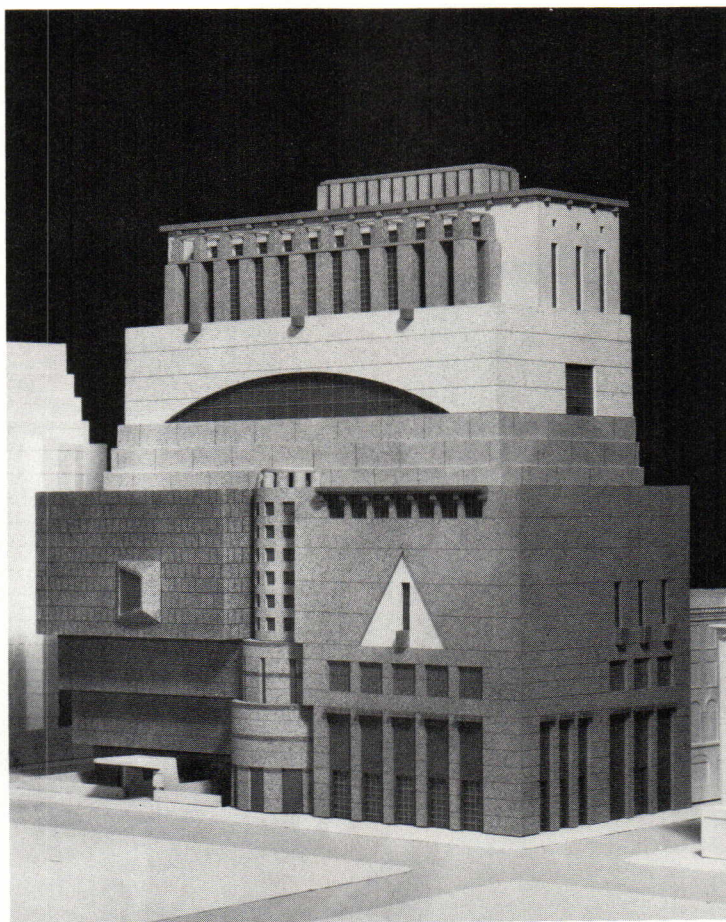
Feeling about the design became so intense this summer that the AIA took the unusual step of sponsoring a semi-public meeting about the proposal at which both Graves and Tom Armstrong, the director of the Whitney, were present to discuss the project and respond to questions from the audience. The meeting, which was intended primarily to be

"informational," was held on July 25th to a full house of some 300 architects, students, and journalists in the auditorium of the Donnell Library in midtown Manhattan. Armstrong explained that the museum had to expand if it were to fulfill its mandate as "the leading international institution devoted to American art," and he enthusiastically endorsed Graves's proposed design: "The client is very happy," he assured us.

For his part, Graves, with the aid of assistant Karen Wheeler, gave a detailed presentation that outlined the particulars of his design and attempted to justify the over-all conception of his proposal. He discussed the evolution of his thinking about the expansion and—in a telling analogy—compared his final proposal to Fra Angelico's *Annunciation*: like that famous painting, he explained, his design for the Whitney was essentially a diptych "mediated" by a column. Though Graves did not elaborate, it wasn't difficult to guess who was to play the savior in his scenario.

In addition to acquainting the audience with the details of the Whitney's plans for expansion, the meeting also provided interested parties, both proponents and opponents, with an opportunity to express their views about Graves's design. And while many voices, including several distinguished voices, spoke out to criticize the proposal, Graves's supporters would seem to have been the better organized in their lobbying efforts. The evening's moderator, Paul Segal, president of the New York Chapter of the AIA, began the meeting with a plea for pluralism in architecture and by reminiscing about the lasting impact that his classes with Graves at Princeton had on his thinking about architecture. Then Philip Johnson assumed the podium to read a testimonial penned for the occasion by Brendan Gill (who, incidentally, sits on the Whitney's building committee) and to confide his own support for the project. Over the course of the meeting, Ulrich Franzen (who himself designed a branch of the Whitney at the new Philip Morris Building) and other notable architects also expressed their admiration for Graves, his design, and the Whitney as an institution. And near the end of the event, Vincent Scully, the well-known professor of architectural history at Yale, embarked on a few moments of hermeneutical embroidery in an attempt to endow the proposal with an appropriate patina of academic sophistication.

No doubt one reason that supporters of the proposed expansion rallied so energetically to its aid that evening is that



Roger Kimball, a frequent contributor to *RECORD*, also writes for *The New Criterion* and other journals.



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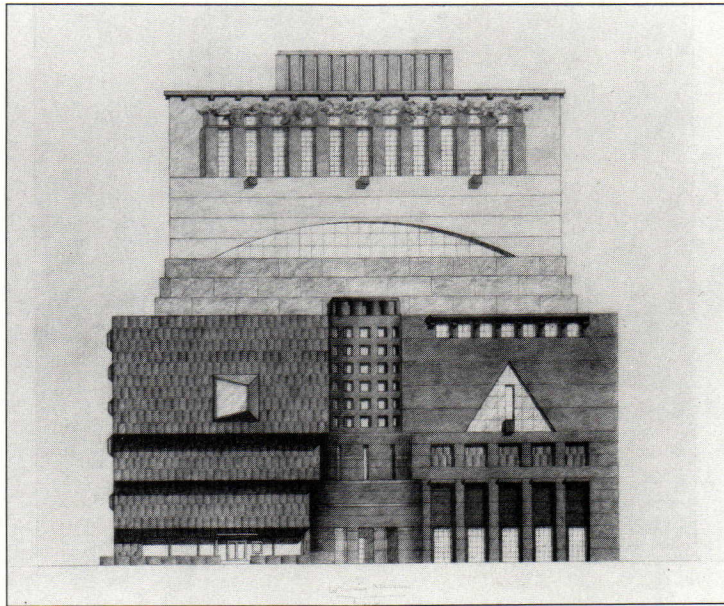
Shown: Seaspray.



applicable city regulations pose a serious threat to the project. For while the Breuer building in itself is too young to merit landmark status, it is located in the Upper East Side Historic District. And since Graves plans to raze the row of brownstones from the south wall of the Whitney to 74th Street, his proposal requires the approval of the Landmarks Preservation Commission. As of this writing, no decision has been made on the Whitney's request for the certificate of appropriateness that would allow construction of the proposed expansion.

Whatever one thinks of Mr. Graves's design, one must also consider the quite separate question of the ambitious scope of the Whitney's building program. Clearly, what is planned is no mere addition. The current program calls for expanding the museum from some 83,000 square feet to some 217,000 square feet—an expansion of 134,000 square feet that will nearly treble the museum's floor space. Much of this—40,000 square feet—is to be given over to new exhibition space, especially to space for exhibiting the permanent collection, only a small fraction of which can presently be shown. Plans also call for the addition of 15,000 square feet of new office space, 13,500 square feet of commercial space along Madison Avenue, a 250-seat theater below grade, an expanded library, archives, a study center for works on paper, and a new restaurant situated at the top of the building. The total cost for the proposed expansion is estimated at \$37.5 million, almost all of which, apparently, has yet to be raised.

The Whitney's plan thus calls for mammoth expansion. It is easy to understand the institutional imperatives that demand such expansion and aggrandizement. But one may, I think, be forgiven for asking whether the museum would gain or lose from so great an enlargement. The Whitney is not the Museum of Modern Art, nor was it meant to be. More space for exhibiting its permanent collection may in fact be desirable. But does the Whitney need a new restaurant? A theater? A library? A study center for works on paper? Is Armstrong right that the latter are needed because "American art has not yet entered into the academic framework"? (What services would he say were provided by the National Museum of American Art or the Archives of American Art in Washington, D. C.? And, supposing Armstrong were correct, is the flight of American art into the "academic framework" something one would necessarily want to encourage?)



Bigger is not always better, and the case can be made that part of what gives the Whitney its distinctive appeal is precisely its smallness, its easily negotiated galleries and relatively modest exhibitions. It is also worth noting that even in Mr. Graves's scheme the most flexible, engaging exhibition space remains the great fourth-floor gallery of Breuer's building, long recognized as one of the premier exhibition spaces in New York. The current Whitney, if not exactly intimate, is at least manageable. And given the notorious failure of some of its more ambitious exhibitions—think only of the most recent biennial—one may want to question a plan that calls for so great an expansion.

But the controversy over the Whitney has naturally tended to focus on the merits and appropriateness of Graves's bold design rather than on the Whitney's building program. Graves is obviously alert to the concern over the fate of Breuer's building. In a statement included with the press kit for the meeting at the Donnell Library, he declared that "the overall composition of the addition attempts to establish a reciprocity with the original Breuer museum . . . We have used a combination of grays, reds, and pinks to infuse the addition with a somewhat more lively expression and yet to be compatible with Breuer's original." Does Graves's addition establish "reciprocity" with Breuer's building? Is the color scheme he has proposed really "compatible" with the spirit of the current Whitney? Admittedly, "reciprocity" and "compatibility" are slippery ideas in architectural criticism; but if the integrity of Breuer's building is paramount, then it seems clear that Graves's

design can be said to be "reciprocal" or "compatible" only in a very elastic sense of those words.

Supporters of Graves's design complain that the Whitney is being singled out for special scrutiny, that buildings, including of course museum buildings, are routinely added to, often forming an agglomerate of wildly different styles; the Metropolitan Museum is a case in point. Further, they assert that the proposed expansion not only fulfills the demanding requirements of the Whitney's building program, but that it also manages to do so in a way that preserves the essential features of the original museum, especially in the interior, where the galleries are to remain essentially unchanged. The Breuer-Graves ensemble, it is said, constitutes a new architectural unity that enlivens yet "respects" Breuer's building.

In this context, champions of the new design point to the way in which the pink granite facing of Graves's proposed addition would "complement" the sterner gray tones of Breuer's granite facing; they adduce the cylindrical "hinge," which is said to bind the two structures without violating Breuer's facade or the famous Breuer stairway; they like to describe the "eyebrow" window on the seventh floor as a bridge that yokes the two halves, bringing the apparently disparate buildings into a higher unity. Graves himself claimed that the upper stories of his proposed addition would give the original building "a reason for its strength," and he called attention to numerous ornamental "echoes" of Breuer's building that his design incorporates, such as the triangular alabaster window, which plays off the triangular windows and over-all form of the present museum.

The problem is, however, that the notion of architectural unity at work here is a completely abstract, "paper" unity. It is compelling only as an interpretive gesture, not as an expression of lived experience. Indeed, the rhetoric of Graves and his supporters forcefully reminds us that it is one thing to assert architectural unity, quite another to establish it in a way that can be immediately experienced. Yet just this is the real challenge of architectural design.

In response to the objection that Breuer's building would in effect be swallowed by his design, Graves pointed out that his plan would preserve virtually the whole of Breuer's facade intact. And so it would. But the meaning, the feel of Breuer's building would be transformed utterly. The truth is, in Graves's design Breuer's building would lose its architectural autonomy, becoming little more than a facade, little more than a picture, a representation of its former self. (Perhaps this is the real significance of his invocation of Fra Angelico's painting: not that the proposed design reconstitutes Breuer's building as one-half of a diptych but that it *pictorializes* the building, turning architecture into a decorated surface.) The cool, rational elegance of Breuer's Whitney, the feeling of mass, of solidity, of sculptural integrity that it communicates—these are essential to its architectural identity. And this identity is simply not preserved by a top full of classicizing details, by a "complementary" structure faced in pink granite, by the attachment of elements that are drastically at odds with Breuer's architectural idiom. For example, by occluding the view of the street from Breuer's stairway, Graves's cylindrical "hinge" would reduce an architectural tour-de-force to an ordinary flight of stairs; we would have the same steps but a different stairway: the freshness and mystery of Breuer's original would be totally eclipsed.

For better or worse, effective unity in architecture is not primarily a cerebral matter; it is not accomplished by piling up allusions to other buildings or styles, or by devising witty connective elements whose significance can be understood but not felt. Sadly, by ignoring this truth, Graves's design offers us not so much a plan for the expansion as for the usurpation of the Whitney Museum.





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# Reinventing the hospital

Earlier "revolutions" in the purveyance of health care—the introduction of private health insurance plans in the '20s and '30s; the expansion of the community hospital system fed by Hill-Burton grants and loans from the mid-'40s through the mid-'70s; the advent of medicare and medicaid in the '60s—were sparked largely by liberal injections of money, with the not surprising outcome of costs spiraling at a rate that rapidly assumed the dimensions of a public crisis in the making. The radical restructuring now under way was triggered by the evident need for belt-tightening and the federal government's consequent shift from direct and automatic reimbursement for costs incurred in treating medicare patients to prospective reimbursement with price ceilings based on average regional treatment costs for diagnostically related groups of illnesses (DRGs)—a shift being eyed as well by many states and private insurers.

As a result hospitals are feeling not only internal pressure to better manage costs and improve efficiency but competitive pressure to attract the patient census they need to do so. At the same time a growing oversupply of both doctors and hospital beds is weakening the once-symbiotic relationship between hospitals and their medical staffs: as both compete for patients, doctors are offering more services once the province of institutions and the institutions more ambulatory care. Reinforcing these trends are advances in medical technology that make it feasible to provide on an outpatient basis, and at less cost, many diagnostic, medical, and surgical procedures formerly requiring hospitalization.

As the quest for cost control points ever more directly to decentralization, "unbundling" is fast becoming in the jargon of health-care providers a buzzword heard only slightly less often than "DRGs." Following the lead of independent physician-entrepreneurs and the burgeoning investor-owned chains, hospitals are transferring selected wares from the traditional inpatient treatment supermarket to specialized ambulatory-care boutiques offering accessible, lower cost services on-campus or in satellite centers. They are also unbundling internally by reexamining those soft-services—e.g., administration, public areas, warehousing—that in isolation can be provided under building codes less stringent than acute-care hospital standards. And despite the uncertainties that have brought construction of new inpatient beds to a virtual standstill except in those services—long-term, pediatric, psychiatric, and rehabilitative care—exempt from the prospective pricing system, they are embarking on a spate of replacement, reorganization, and upgrading of outmoded existing buildings in order to increase efficiency and maintain a competitive edge.

If there is irony in the ability of market forces and the bottom line to urge on the health-care community an overdue concern for the comfort and convenience of both patients and staff, along with a belated recognition of the value of such tools as long-range planning and life-cycle costing, there is opportunity too. The emergence of alternative systems for providing health care implies the invention of new programs, new settings, new images. And that is what architects do. *Margaret Gaskie*



Shriners Hospital for Crippled Children/  
The Los Angeles Unit  
Los Angeles, California  
Bobrow/Thomas and Associates, Architects

## The hospital as school



It is a tenet of the Shriners Hospitals for Crippled Children—and one eagerly embraced by the designers of the new and renewed Los Angeles Unit—that their young charges are not “sick” children but rather youngsters with, as Bobrow/Thomas principal-in-charge Jack MacAllister suggests, “mechanical problems.” Although remedying these may require relatively lengthy periods of hospital care, with average stays of ten days often stretching to much more, most of the children for most of the time are not bedridden, and the place of treatment demands the quality less of a hospital than of what BTA president Michael Bobrow characterizes as “a boarding school with medical components.” With this in mind, the architects diligently sifted through the building program, isolating its hospital and nonhospital functions so that the latter could be warmed by nonhospital forms and finishes permitted under the less onerous codes applicable to schools.

First commissioned to design a wholly new facility on another site, Bobrow/Thomas subsequently determined that despite functional and organizational flaws the existing hospital could be upgraded and expanded in place, without unduly raising the properly low profile it had kept in its hilltop setting of stucco bungalows and modest apartment houses. To accomplish this, the south end of the building was demolished to make way for a new 60-bed hospital and underground garage, while the remaining U-shaped structure was remodeled to house outpatient services, administrative offices, the surgical suite, and guest quarters for visiting parents (see plans page 126). Linking the two and bridging an open courtyard is the hospital’s living room and principal point of orientation, a 4,000-square-foot atrium tented by three skylight-capped pyramids that rise above the colorfully furnished, oak-accented “schoolrooms” where the children gather for study, play, and meals.

The scheme, which depended heavily on discrete zoning and circulation paths, was abetted by site slopes that encouraged placement of the auto entry (photo right) below the main level, with elevator access to the upper lobby and the adjacent complex of quasi-public spaces for patients, visitors, and staff—including in addition to the multipurpose gathering rooms a skylit auditorium, therapy rooms, a cafeteria, lounge areas, and outdoor terraces. These not only exploit the more lenient codes, bursting conventional spatial bounds, but extend their benefits to the patient-room floor above through visual interconnections as well as actual balconies and bridges. Even in the true “hospital” spaces, any institutional taint is minimized by the handling of four-bed rooms as miniature dormitories, supplemented by indoor and outdoor lounges and play areas. *M. G.*







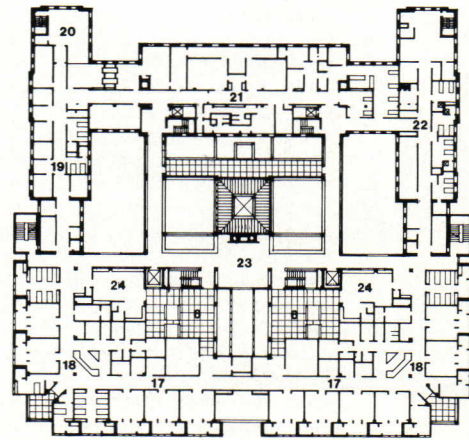
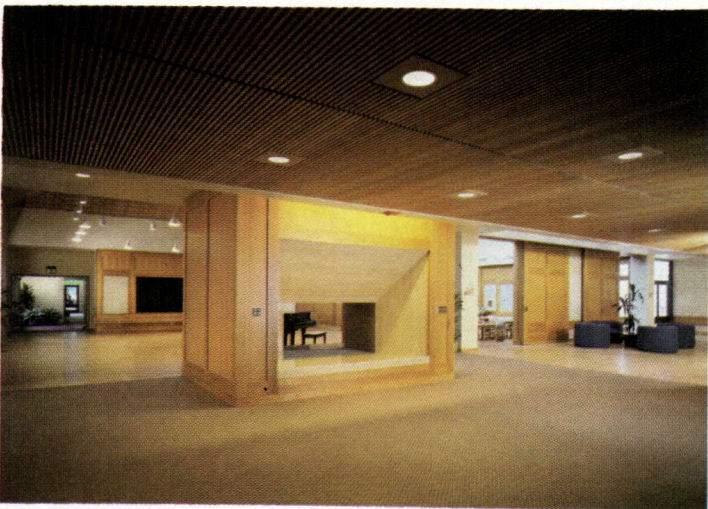
SHRINERS HOSPITAL *for* CRIPPLED CHILDREN



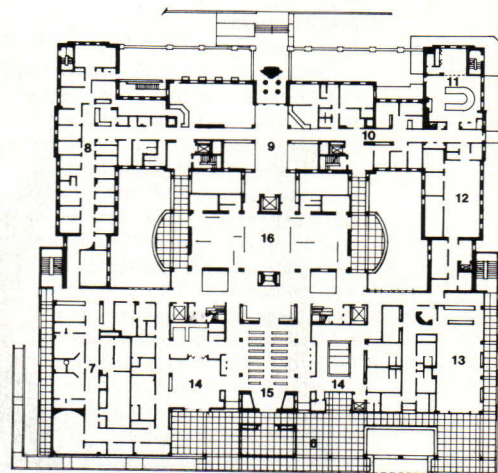
The bonuses accruing from functional separation of interior spaces according to governing codes included not only the use of materials rarely seen in hospital settings—oak paneling and parquet, closely set oak slats lining the ceilings of the two-story gathering rooms (photo opposite), a two-sided travertine fireplace dividing the central atrium from more sheltered sitting areas beyond—but an

unusual degree of freedom in shaping interlocking spaces of varied heights and configurations. In addition to the overhead bridges joining the old and new buildings, for example, the library perches on an upper-level south balcony (right in top photo below) convenient to patient rooms and indoor and outdoor activity areas but open to the airy atrium. The four-bed suites (bottom photo), divisible by privacy

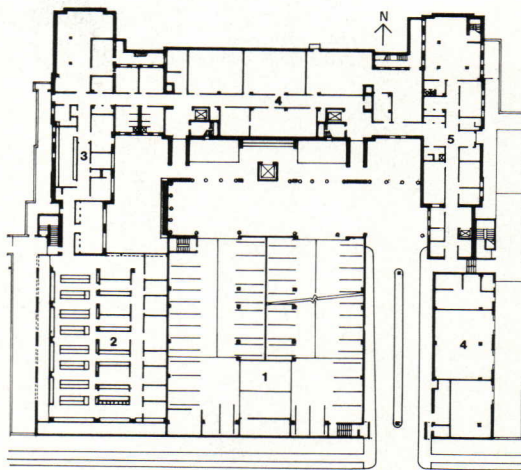
curtains, include a desk and interior "window" for each occupant, as well as the shared skylit bath and a south-facing sitting room that can double as a visitor's sleeping space. From their corner positions, two nursing stations can easily oversee the 60-bed wing, which is flexibly halved into units for older and younger patients.



SECOND LEVEL



FIRST LEVEL



ENTRY LEVEL

1. Parking
2. Laboratory
3. Staff/records
4. Storage/mechanical
5. Housekeeping
6. Terrace
7. Radiology
8. Outpatient treatment
9. Lobby/waiting
10. Administration
11. Boardroom
12. Food preparation
13. Cafeteria
14. Therapy
15. Auditorium
16. Multipurpose
17. Inpatient treatment
18. Nurses station
19. Staff
20. Medical library
21. Surgical suite
22. Visitors suite
23. Patient library
24. Lounge/play

*Shriners Hospital for Crippled Children/The Los Angeles Unit*  
Los Angeles, California

**Owner:**  
Shriners Hospitals of  
North America

**Architects:**  
Bobrow/Thomas and Associates—  
Julia Thomas, chairman; Michael L.  
Bobrow, design partner; John E.  
MacAllister, principal-in-charge;  
David Rinehart, senior designer;

Peter Stazicker, project architect;  
Ines Gomez-Chessum, designer; BTA  
Interiors/Patricia Ford, interior  
design

**Engineers:**  
CYGNA (structural); Hayakawa  
Associates (mechanical/electrical);  
Rogoway/Borkovetz Associates  
(civil); Bolt, Baranek and Newman,  
Inc. (acoustical)

**Consultants:**  
Clevenger Associates (food service);

Cannell-Heumann and Associates  
(interior design); Emmet L. Wemple  
& Associates (landscape)

**General contractor:**  
Pozzo Construction













As does the exterior, so does the interior calmly mix old and new motifs. The black and white parquet floors, though composed of simple asphalt tile, convincingly evoke cool marble. In the middle of the waiting room (opposite page and top left), an antebellum-type column supports a screen whose neon-haloed square holes mimic dentils on an illusory pediment. The nurses' station (bottom left), from which the waiting room can be seen through an interior window, commands a central position to control the entire facility.

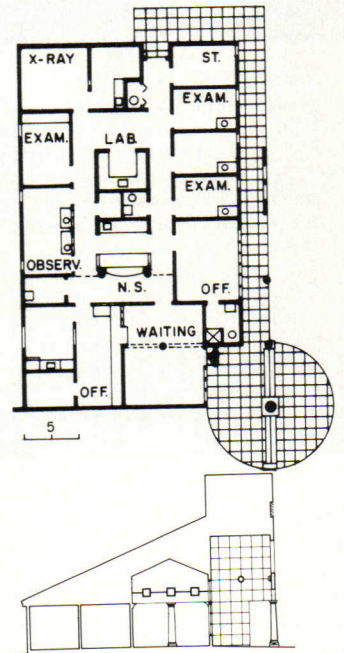
**Treatment Center**  
Jackson, Mississippi

**Owners:**  
Dr. Randy Dishongh  
and Dr. David Richardson

**Architects:**  
Goodman Architects—Thomas E. Goodman, project architect; Ken Tate and John Gaudet, project designers; Tim Muzzi, project administrator

**Engineers:**  
Post & Witty (structural); Bowron & Butler (mechanical); Windsor Jones (electrical)

**General contractor:**  
Campbell Construction Co.





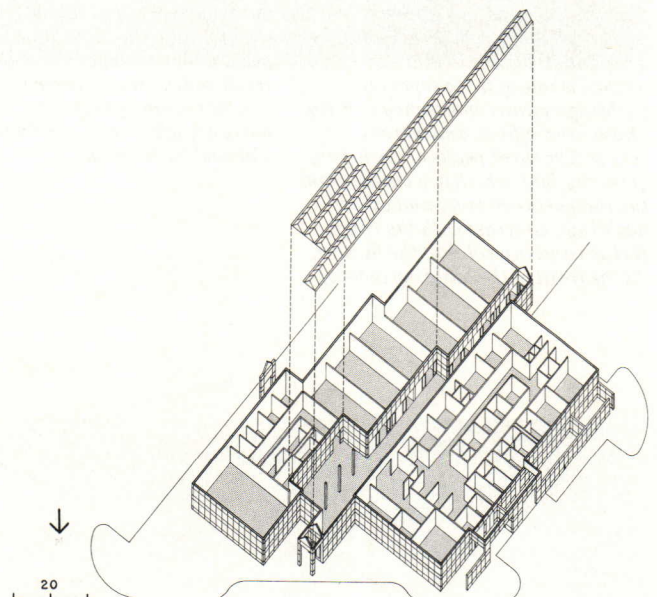
Holy Family Hospital Ambulatory  
Care Center  
Wheeling, Illinois  
Holabird & Root, Architects

## Clinic plus community center

*The "outdoor" waiting room (below), which creates a "park" at one end of the internal "street" (opposite), serves all three buildings-within-a-building—the main door of the community center can be seen behind the potted tree, and the receptionist for both clinic and physicians has a windowed counter on the wall at the left (see plan opposite at bottom). The skylight consists of reflective dark gray glass*

*on the diagonal panels facing northwest and spandrel glass toward the southeast; even on overcast days, the skylight renders unnecessary the use of lamps recessed in the structural grid overhead. Through a glass window in the corridor that separates emergency facility from clinic rooms, the nurse's station commands a view of both the waiting room and the front door.*

Howard Kaplan



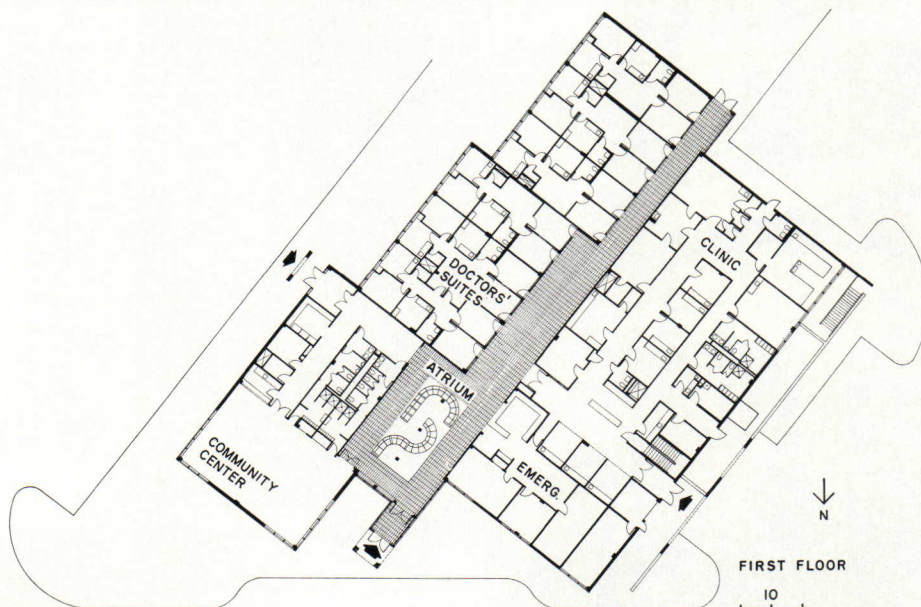


Holy Family Hospital Ambulatory  
Care Center  
Wheeling, Illinois

**Owner:**  
Holy Family Hospital  
**Architects and engineers:**  
Holabird & Root—Roy J. Solisburg,  
partner-in-charge; Tom Loftus,  
project architect; Khatija Hashmy,  
Ernest Wagner, Don Mihalko,  
architects

**Consultants:**  
Amherst Associates, Inc. (medical  
facility programming); Novak,  
Carlson, Elkin & Wick, Inc.,  
(landscape)  
**General contractor:**  
J. S. Adams, Inc.

Howard Kaplan





INTELSAT Headquarters Building  
Washington, D. C.  
John Andrews International Pty Ltd., Architects

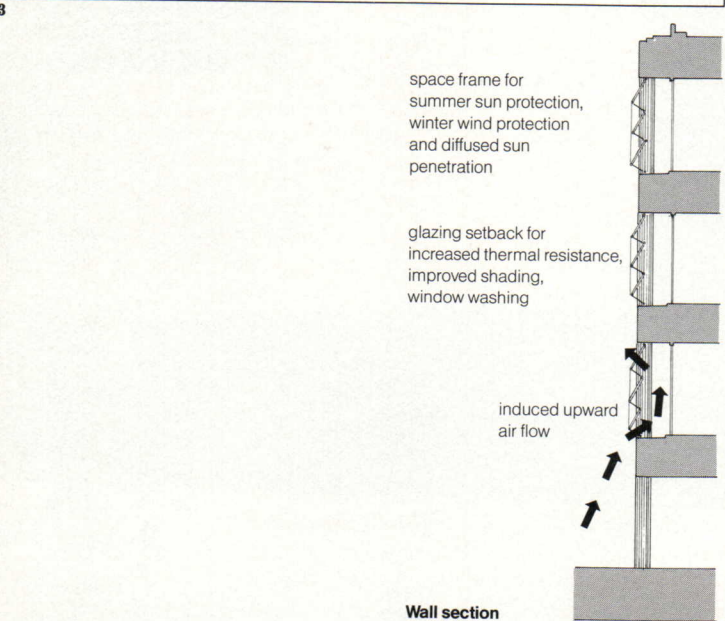
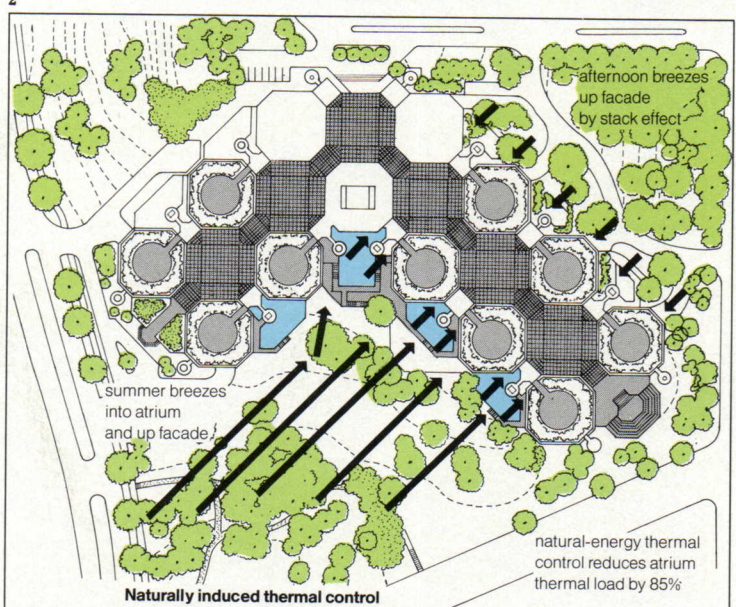
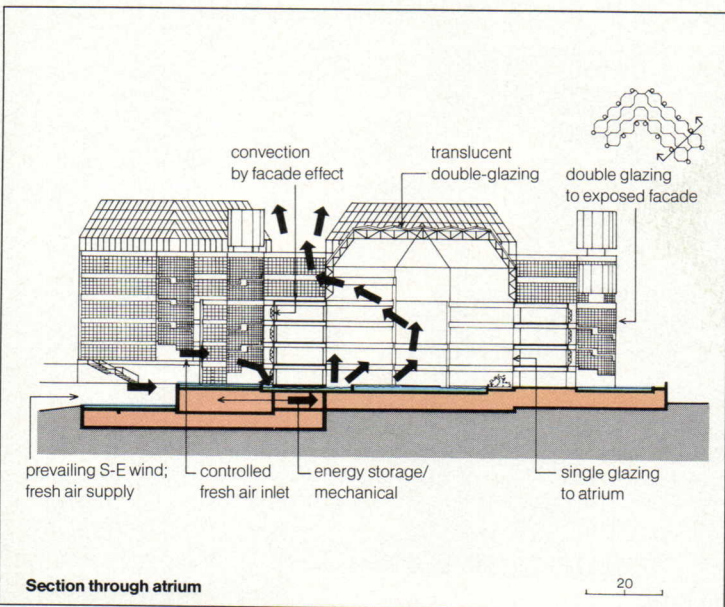
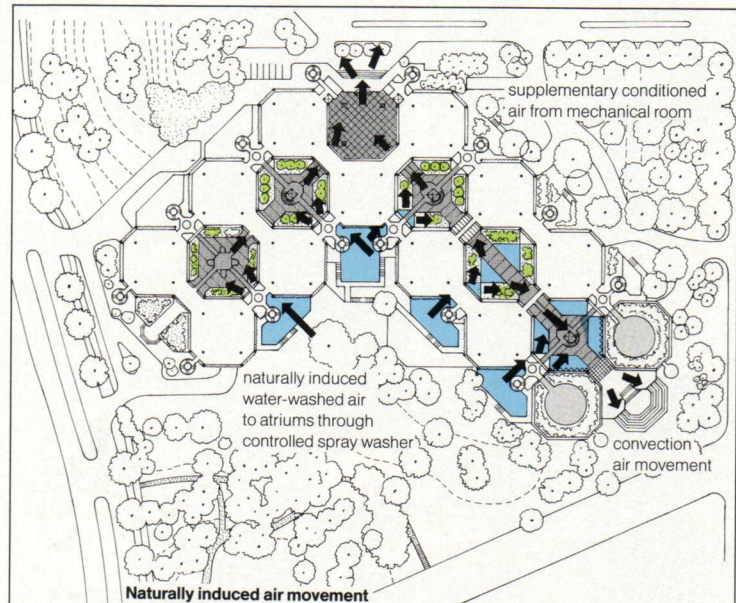
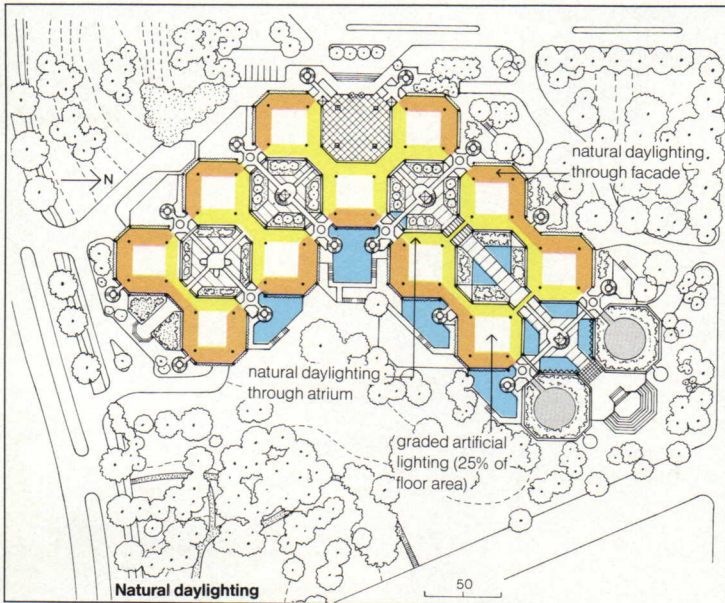




# Uncommon sense







**4** *INTELSAT's energy efficiency is being widely trumpeted as a marvel of technology—and an owner whose utility bill for 29,240 Btu/sq ft covers only 42 percent of the building's total 69,740-Btu/sq ft energy use, less than 40 percent of the norm for comparable Washington buildings, can hardly fail to agree—but the marvel is not precisely one of technology. Though the active mechanical systems and controls are sophisticated, they are not cutting-edge, and the bulk of the savings derive from passive structural features Andrews first proposed for an unbuilt new town and later used in his own farmhouse at Eugowra, in each case drawing on the grassroots tradition of tempering natural energy sources by natural means. For INTELSAT, the conservation key is the spine of linked atriums (photo opposite). In addition to acting as light wells (1), with seasonal sun penetration controlled by the location of clear, tinted, or reflective glazing over the geodesic space-framed roof, the atriums self-modulate their internal climate through solar gain and venting, freeing half of the perimeter from extremes of ambient temperature. Moreover, air entering the atrium runs a gauntlet of passive controls before it gets there (2, 4). Placing the building diagonally on the sun-facing slope opened its long facades to the prevailing southeast wind and to northwest afternoon breezes induced by stack effect, both pre-cooled as they sweep through large stands of trees that also edge close enough to shade the facades. Nearer the building perimeter, breezes flow over roof decks and terraces tightly planted with ivy—and insulated with a foot of soil—before climbing the facades. The gambit is taken a move farther on*





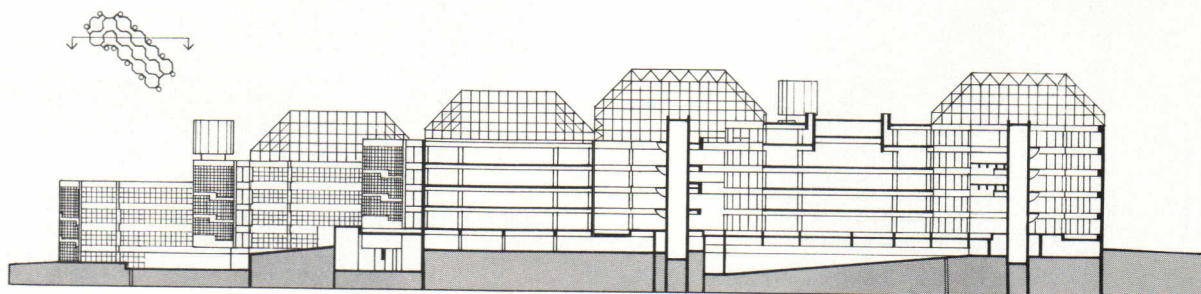
the southeast, where planted terraces give way to cooling ponds (3). Air drawn over the water into niches at the bases of service cores between pods is spray-washed and mixed with conditioned air before entering the atriums by way of interior pools and finally exiting through high vents. At the building face, full-height glazing is opened to light and vision, but shielded from heat and glare, by see-through sunscreens (detail left) with solar-gray reflective glass awnings set in a sinuously curved space frame of 1-in. stainless-steel tubing. To augment shading and give access for window washing, glass panels are set well back from the screen, forming pockets that induce air flow over the facade in summer and trap heat in winter. The integrated active mechanical systems emphasize low-cost energy production and the recovery and reuse of waste heat. Individual hvac

plants—heat pump refrigeration, thermal storage, and variable-volume air-handling units—serve each pod, while similar independent units are dedicated to such 24-hour operations as the computer and satellite control centers. The large amount of waste heat these generate is stored and made available to the general office heat pump systems. For added savings, cogeneration using emergency and standby equipment supplants utility-supplied power during hours of peak demand. Veiled by sunscreens on the exterior, the building's skin and bones are bared within the 90- by 90-ft atriums: the concrete base walling adjacent parking and mechanical spaces, the fully glazed steel-framed office floors, and the crowning space-frame. Peripheral tube columns project 15 to 20 ft from the 50- by 50-ft interior grid to provide flexibility of

partitioning and accommodate spans needed for such special use areas as the control center and conference facilities as well as for general office space. The uncluttered sweep of the perimeter walls is maintained by a system, devised by the architects and now on the market, of butt-joined glazing that replaces the usual mullions between panels with slim glass braces. Spectrometer readings batched the clear-anodized aluminum spandrels by "invisible" color variations to assure a perfect match within each wall plane—a refinement somewhat vitiated by shifting light and reflections that render the natural metal finish in grays ranging from not-quite white to not-quite blue. [Plans shown opposite include 150,000 sq ft of second-phase construction (now under way) comprising the southernmost atrium and four adjacent pods.]



Robert C. Lautman photos



*Having cast the chain of atriums as the building's axial street and source of interior daylighting and climate control, Andrews added to its multiple roles vertical and lateral circulation. In each atrium but one (photo opposite), which is bridged at its borders with neighboring courts, a central elevator shaft rises from the garage to the topmost floor, encircled by a spiral stair offering an alternate floor-to-floor route, with bridges spoking from the*

*landings as needed to forge cross-spine links (photos above). Contributing both variety and identity, the atriums are comprehensible nodes within the larger building, as well as foci for movement and for reciprocal views of activities in and around them. Nor is their appeal only visual: The copious landscaping includes scented plants, and the fountains, falls, and pools sound subtly different notes.*







Tenacre Foundation  
Dining Room  
Princeton, New Jersey  
Jeffrey Hildner, Architect

# A roseate premiere

For his debut as a young, practicing architect, Princeton-graduate Jeffrey Hildner has designed this unabashedly romantic little addition and renovation as an appealing hub for a Christian Science nursing home and nurses' training center. In spite of its name—Tenacre Foundation—the private retreat now has a sprawl of construction on some 35 wooded acres, and this—its most “public” building—is the focus of a mid-point crossroads.

Hildner says this “first commission” started as a “paint and wallpaper job” to tidy-up the front end of a prosaic, utilitarian structure housing central food service and housekeeping facilities. Its middle, gabled portion was an old wood-frame-and-stucco farm building, used for storage. It had been flanked by shed-roofed, concrete-block wings in the 1950s—one for offices, the other for a cafeteria. Backing all this was a big central kitchen, a circular dining room, a nurse's apartment, and a linked *mélange* of shops, car wash, laundry and the like (see plans).

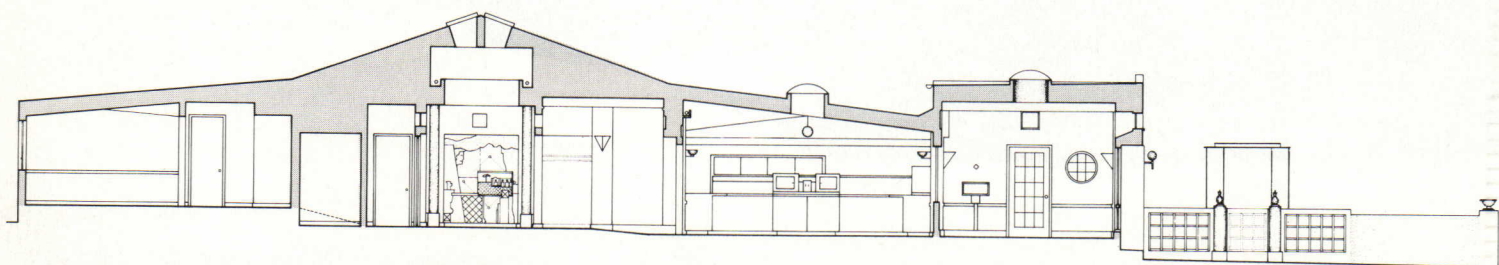
As discussions about the “face-lift” for the front portion progressed, a real need surfaced for an ample coat room, washrooms, more space for tables, and—perhaps above all—the desire for an optimistic, serene ambience.

The commission was expanded, and the rose- and lilac-gray-hued result adds a lot of amenities, and is chock-full of allusions and recall. A welcoming new entrance portico and foyer were created, and a new dining room plus a garden room alongside a little stream were added—and the whole thing melded into a stylistic entity. A prime reference for this was a barn, directly across the road, that had been remodeled in the 1950s into a stuccoed, neo-Colonial, nurses' residence. Hildner comments that “the juxtaposition of scales, the elision of planes, the suggestion of a second story, the pilasters, lintels, and medallions, the segmental pediment and round window. . . were all inspired by motifs of the barn.”

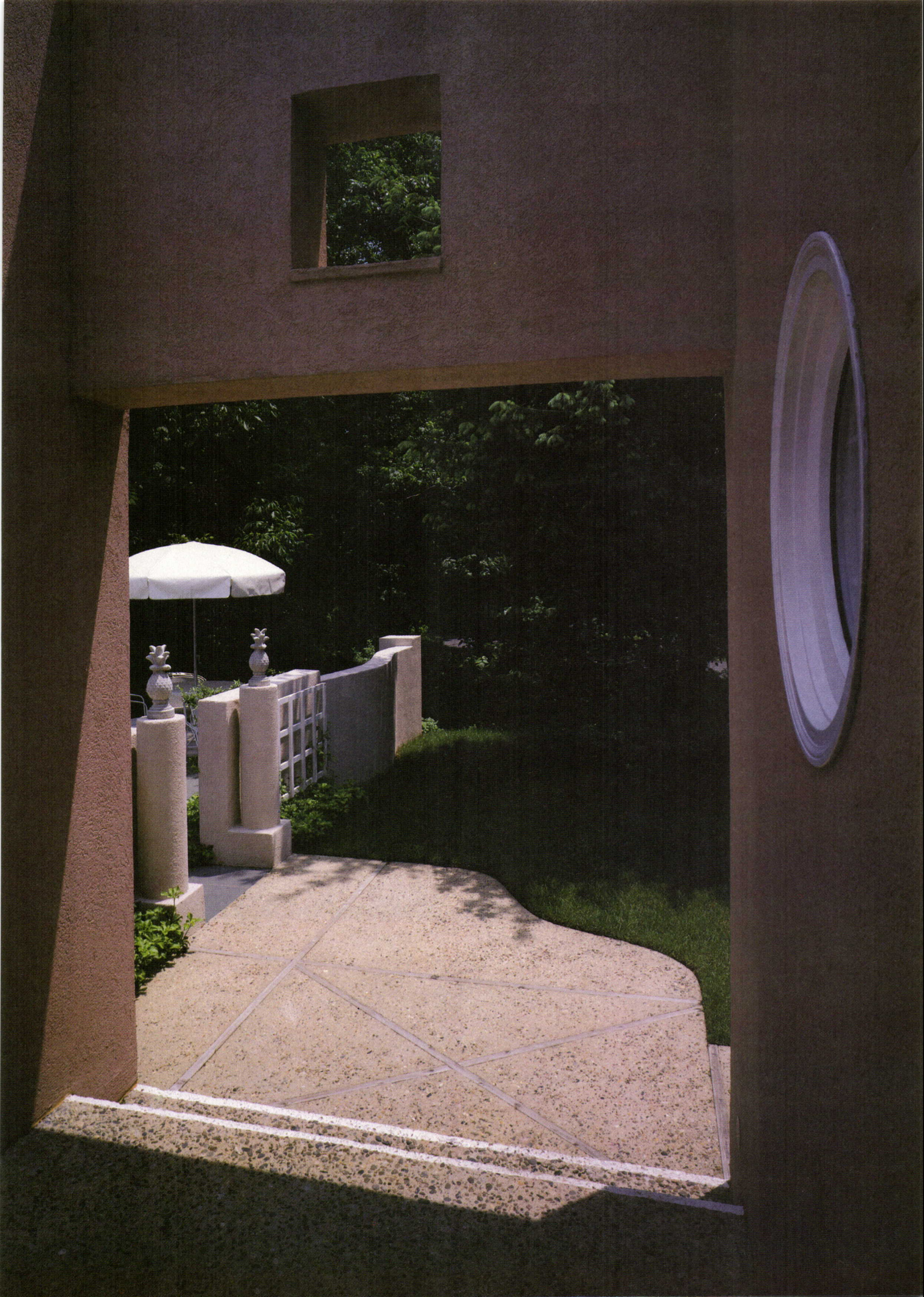
As fate—or chance—would have it, Hildner now has a new commission; the “barn” burned recently, and he is rebuilding it using *this* job as a design reference. *Herbert L. Smith, Jr.*



John A. Wysocki photos



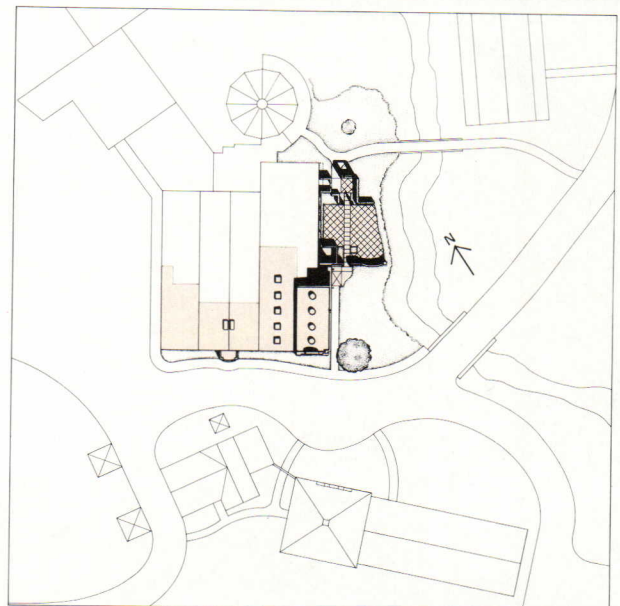






The areas of the sprawling complex that have been added or remodeled are shown shaded in the plot, below, and in the plan, bottom right. A cheerful brightness has been assured in all spaces by big windows, skylights, and hand-crafted, wood wall-sconces. To "denote entrance" everywhere, a motif of flanking columns is used—at the front portico, garden gate, and in the new foyer (photo below left). Though far

from austere or "institutional," all materials and furnishings were chosen for ease of maintenance—including the synthetic-stucco finish on the exterior. Interior walls and ceilings are painted gypsum board; floors are black slate or nylon carpet; table tops are "butcher block" plastic laminate. Food service is by cafeteria serving line at the back of the original dining area.





Tenacre Foundation Dining Room  
Princeton, New Jersey

**Owner:**  
Tenacre Foundation

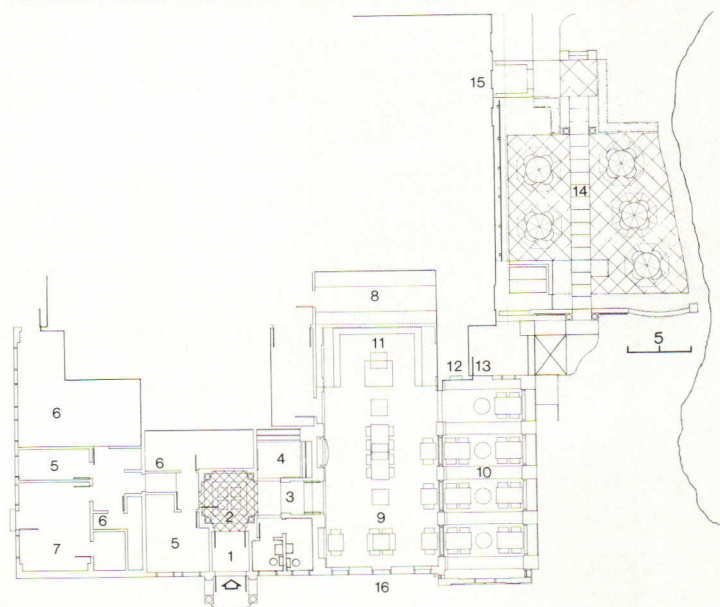
**Architect:**  
Jeffrey Hildner

**Engineer:**  
John Harrison (structural)

**Consultants:**  
Harley Kemmerer (landscape);  
William Tanchak (mechanical);  
Joe Williamson (electrical)

**General contractor:**  
Tenacre Foundation

**Special crafts:**  
Leon Barth, Herman Beger, Frank  
Citro, Jim Eisenmann, Harvey  
Hutchinson, Robert Hutchinson,  
Blair Neilsen, Thomas Perks,  
Richard Pocino, Kocher Yingling



1. Entrance
2. Foyer
3. Hall
4. Coat room
5. Housekeeping office
6. Storage
7. Housekeeping lounge
8. Existing kitchen
9. Original dining room
10. New dining room
11. Service line
12. Tray return
13. To outdoor dining room
14. Outdoor dining room
15. Existing apartment
16. Former entrance



Diplomatic reception rooms  
U. S. Department of State  
Washington, D. C.  
Allan Greenberg, Architect





# Design for diplomacy





Dean Acheson once said that the Secretary of State's suite "looks like the second-class dining saloon on the *Europa*." He was speaking of the reception, dining, meeting, and executive offices in which the Department of State was then conducting diplomacy. Today, business goes on as usual in the building whose rooms Acheson once deplored—an undistinguished Late-Modern structure completed in 1961. Most of its interiors, including the main reception area on the ground floor, have not been renovated, and are unpleasant reminders of how badly "mediocre modern" holds up over time. Almost all of the spaces to which Acheson was referring, however, are now elegantly designed and detailed Federal-style rooms built within a Modernist shell. George Shultz has met with Anatoly Dobrynin in rooms that Thomas Jefferson would have considered suitable.

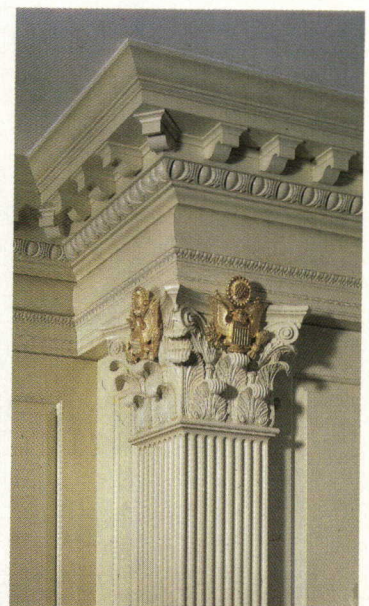
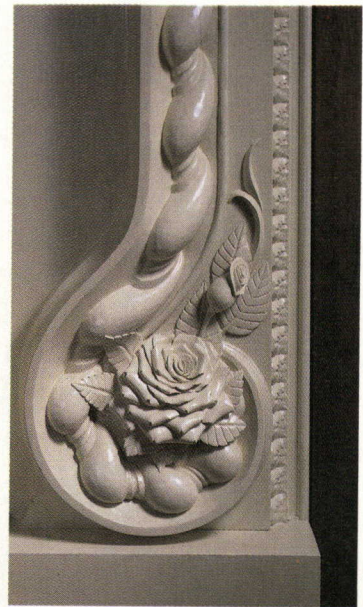
It all began in 1961 when Mrs. Christian Herter, the wife of President Eisenhower's Secretary of State, burst into tears when shown the room in which she was expected to hold a dinner party for the Queen of Greece. Encouraged by succeeding presidents, the State Department's protocol officer, Clement E. Conger, began to improve the more ceremonial interiors by launching a bold program to assemble the best furniture, paintings, china, and silver he could find circa 1740-1825, the period coinciding with the early years of our Republic. Today the collection, created entirely by citizens seeking tax deductions who have donated works of art or the money to buy them, is said to rival Winterthur and comparable accumulations in the American Wing of New York's Metropolitan Museum of Art.

As the collecting went on, under the auspices of Conger and the Fine Arts Committee of the Department of State, so did the remodeling of the major spaces, also paid for by wealthy citizens seeking tax deductions. There were not many classical architects of the first rank to choose from to do these rooms, such skills and training having become virtually obsolete, but Clement Conger knew the men who were still doing it well, usually for private house clients. Walter M. Macomber, John Blatteau, and the late Edward Vason Jones have completed distinguished public rooms, and now Allan Greenberg has recreated the Secretary's inner sanctum, shown on these pages. His work includes two reception rooms for dignitaries visiting the Secretary or the Deputy Secretary named, respectively, for former Secretary of State George C. Marshall and John Jay, second minister of foreign affairs under the Continental Congress. He has also transformed a large conference room, the Secretary's office and study, a gallery and foyers.

The view of the office of the Secretary of State (overleaf) reveals the magnificence of the collection in Greenberg's masterful setting. In the foreground are American Chippendale wing chairs, Pembroke tables, a three-shell block-front chest of drawers from Newport, Rhode Island (circa 1765), an antique Heriz-Serapi rug, a fine 18th-century chandelier in the style of Robert Adam, and important paintings and china. In the background is Greenberg's architecture, based on the theme of paired Corinthian pilasters. The mantel carving (opposite page) is derived from 18th-century Philadelphia interiors and furniture. Fluted Corinthian pilasters in the Great Seal Order (which Greenberg invented) frame the mantel and overmantel. The firebox opening is framed with King of Prussia marble and has a double keystone in the center. The consoles that support the mantel have a traditional acanthus leaf decoration on their faces.

Greenberg, like Classical masters before him, re-invents the Classical tradition to serve the purposes of his own time, both functional and symbolic. For him, expanding the boundaries of Classicism, as he has done in these rooms, has a significance beyond meeting the Department of State's present eclectic criteria. He believes that the Classic legacy of our past not only "challenges us to create a fitting architecture for our times," but can teach us how. Many would agree with him, including art historian George L. Hersey, whose essay "Allan Greenberg and the classical game" begins on page 160. *Mildred F. Schmertz*

Richard Cheek photos



*The door architrave and jamb detail (top) has as its principal feature a carved American Beauty Rose, the flower of Washington, D. C. The cabling is a Romanesque motif, also used in England during the 18th-century. The carving on the inner edge is a traditional Greek water leaf motif. Corinthian capitals (above) incorporate the Great Seal of the United States. This follows both ancient and modern precedents, in using symbols to enhance architectural order. Benjamin Latrobe's beautiful corn and tobacco leaf capitals at the U. S. Capitol, are examples of this approach. The corner modillion above the corner pilaster projects at a 45-degree angle from the chimney breast. Setting corner modillions on the diagonal is a device for articulating a change in the direction of the entablature which architect Greenberg has added to the Classical idiom.*





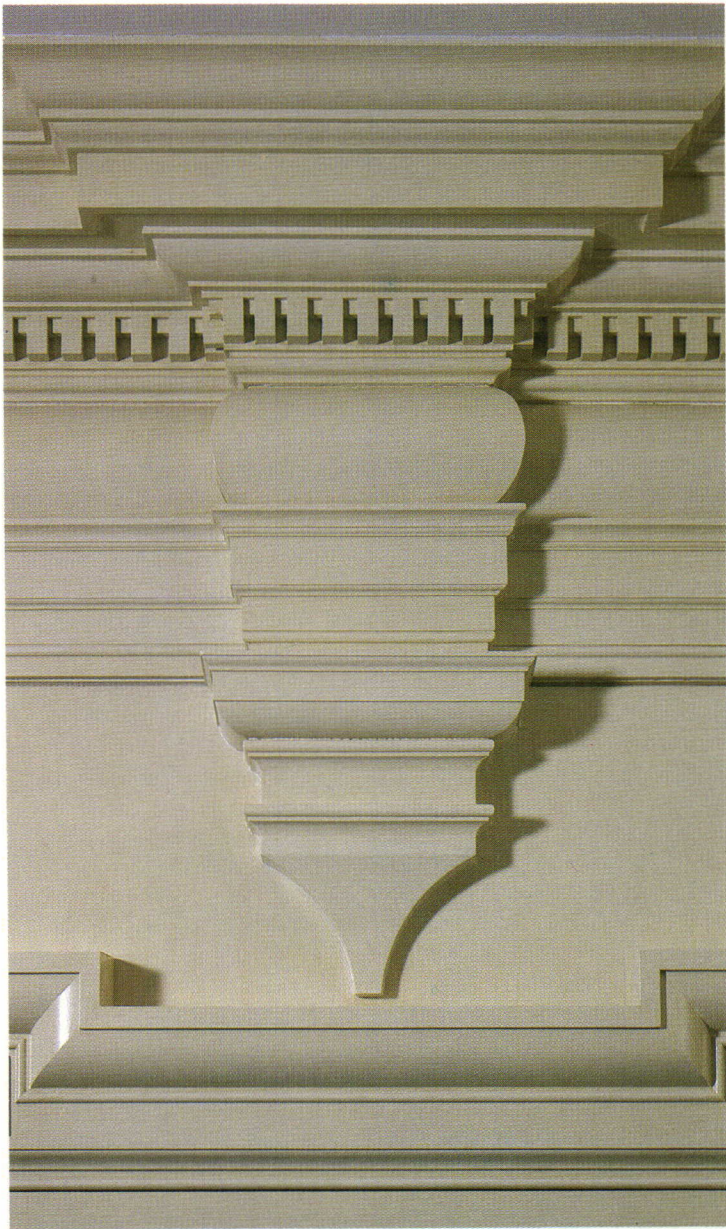




*The John Jay reception room (above) was inspired by the great hall of Stratford Hall in Virginia. Fluted Doric pilasters on pedestals frame raised paneling and carry a cornice which breaks forward over each pilaster. The furniture is of the Federal period in Hepplewhite and Sheraton styles dating from 1790 to 1815. A set of six Hepplewhite shield-back side chairs, said to have belonged to George*

*Washington, are placed around the room. Above the New York Sheraton sofa is a 19th-century girandole looking glass. Colored engravings, dated 1816, hang on either side of a portrait of John Jay. The rug is an Isfahan, the chandelier a reproduction. Especially noteworthy are the Hepplewhite eagle-inlaid mahogany secretary and a pair of inlaid card tables.*





*The pendant molding or console (top left and cover) is placed above a door lintel in the George C. Marshall reception room. The walls of this room are divided into bays by regularly spaced pilasters on pedestals, and the door occupies a space that would otherwise be the location of a pilaster. The pendant maintains the rhythm of the cornice which breaks forward over each of the pilasters. The corner cupboard*



*detail (above right) has a keystone and a shell carving as the dominant components. The simple curved geometry of the shell-shaped niche contrasts with the intricacy of the central shell, the shaped shelves, and the curving muntins of the arched glass doors. A miniature Chinese export porcelain tea service (circa 1800) is displayed in the cupboard along with examples of 18th-century American and English silver.*



The archway (top right) has a heavy keystone and an architrave which relate in form to other archways in the Secretary of State's suite. Inspired by the ideas of Thomas Jefferson, architect Greenberg has used stone ratios rather than those of wood for baseboard, wainscot and arch designs in the suite. The sides and underside of the archway are canted in so as to reduce the height of the arched opening on the corridor side where the ceiling is lower. Blind doors in the archway paneling open to provide storage and a coat closet. The main foyer (bottom right) connects the two major reception areas and the executive secretariat. A Roman Doric colonnade frames the entrance to the secretariat. The approach on axis to the George C. Marshall reception room from the reception room opposite (facing page) reveals through the archway and vaulted vestibule the hand carved architrave framing double doors. The cornice breaks forward over the pilasters creating a rich interplay of light and shadow. Coffers in the vaulted ceiling of the vestibule are painted blue to suggest the sky. Throughout the suite of offices random-width pegged mahogany boards have been used for the flooring. A late-18th-century 12-light cut-glass chandelier hangs above the modern Indo-Joshaghan rug in the foyer. The Chippendale side chair was made in Philadelphia circa 1770.



**Renovation of offices of the Secretary of State, U. S. Department of State, Washington, D. C.**  
**Owner:**  
 The Fine Arts Committee, U. S. Department of State;  
 Clement E. Conger, chairman  
**Architect:**  
 Allan Greenberg—  
 project staff: Allan Greenberg,  
 Richard N. Wies, Robert Orr,  
 Marisol Ramon, Daniel Parady,  
 Thomas Noble  
**Consultants:**  
 Karl Hansen (structural);  
 Smith & Faass (mechanical/  
 electrical)  
**General contractor:**  
 William R. Lipscomb Inc.





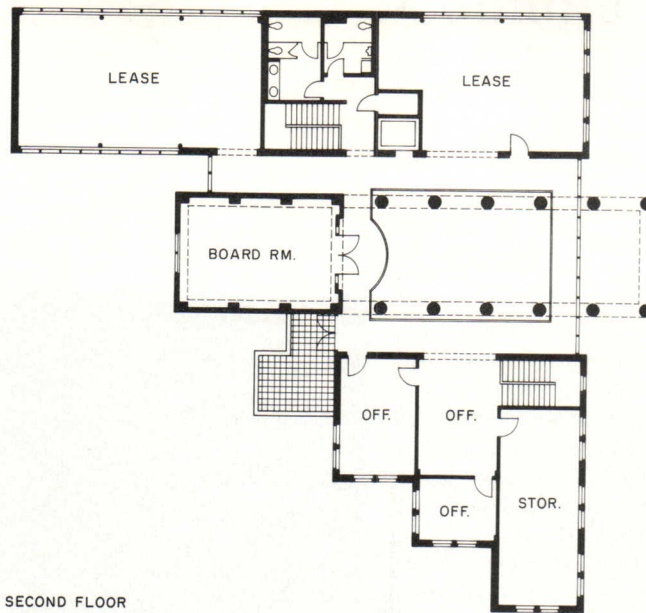


came in 1979 when he was asked to design a large farmhouse, based on George Washington's Mount

Palaces, High Victorian Gothic, and Architecture, Poetry and Number in the Royal Palace at Caserta.



# Allan Greenberg



SECOND FLOOR

Since the new town of The Woodlands is not expected to achieve its projected population of 250,000 for a decade, 50 per cent of the Water Resources Building is leased out to community-related agencies. The 10,500-square-foot structure currently serves as a town hall in addition to accommodating various public information, bill paying, and tax offices specified in the program. To ensure that the building have a public character Taft introduced a double-height gallery; integral-color concrete floors and textured masonry walls and columns imbue the central spine with a sense of permanence and textural, if not material, richness. Community leaders preside at a board room desk (right) designed by Taft.

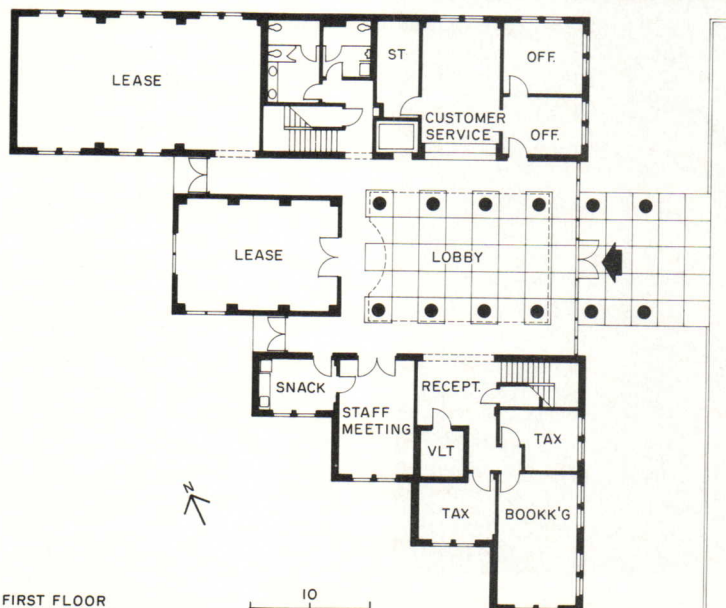
**Water Resources Building**  
The Woodlands, Texas

**Owner:**  
The Woodlands Joint Powers Agency

**Architects:**  
Taft Architects—John J. Casbarian, Danny Samuels, Robert Timme, partners; Larry Dailey, project manager; Suzanne Labarthe, Robert Bruckner, support team

**Engineers:**  
Cunningham Associates (structural); Joe E. Lee & Associates (mechanical/electrical/plumbing)

**Contractor:**  
Strata-Build, Inc.



FIRST FLOOR





WARD ROOM







# Restoring pattern

Peter Wentz Farmstead  
Montgomery County,  
Pennsylvania  
John Milner Associates,  
Architects

The 18th-century Peter Wentz Farmstead once again sports the vibrant patterns and colors of its early history. The commissioners of Montgomery County now care for the farmstead as an historic park. At the time they acquired the estate, their intention was to restore the house, outbuildings, and landscape to their original mid-18th-century appearance as an exhibit of the life and agricultural practices of early Pennsylvania settlers. John Milner Associates were retained to prepare a master plan for the restoration of the site, and as architects for the restoration of the main house and outbuildings. The house was built in 1758 by Peter Wentz, Jr., the son of a German privateer.

Architecturally unique for its combination of idiosyncratic German elements with Georgian form and William and Mary detailing, the house is historically significant since it served as General George Washington's headquarters in 1777 just prior to and following the Battle of Germantown. In 1794, Wentz sold the farmstead to the Schultz family, who then owned the property until 1969. Although no radical alteration had been made to the house during the 200 years since Washington slept there, no one was prepared for the striking wall surfaces that were discovered during the restoration process.

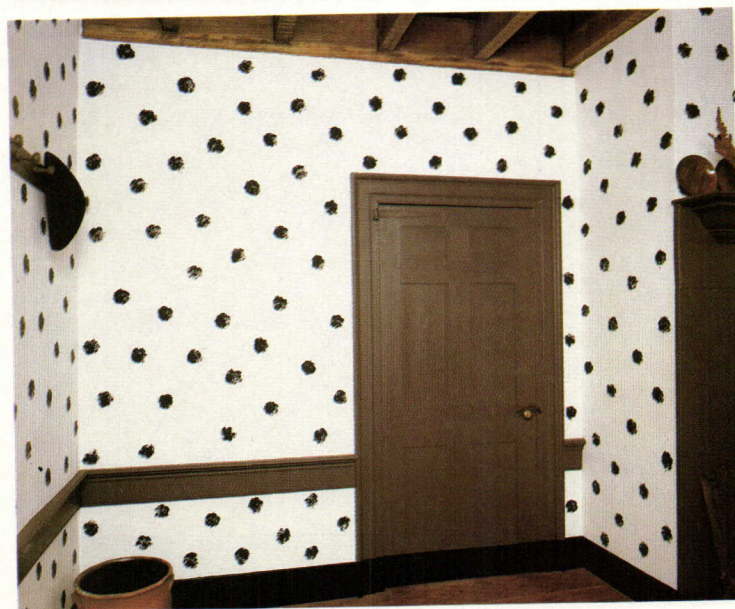
Frank S. Welsh, one of America's few technical consultants specializing in historic architectural paint and coating analysis, had been called in to examine the house. Upon removing sample areas of superimposed wallpaper and paint, bold patterning began to emerge. Further investigation using microchemical analysis and polarized light microscopy revealed that the decorations dated from between 1758 to 1770. Each pattern was carefully traced at full size and photographically recorded. Exact colors and the materials and methods of application were analyzed and noted.

As was typical in 18th-century domestic architecture, walls were plastered; doors and window openings were framed with wood. Wood trim was used for cornices, chair rails, and baseboards. Originally, all wood trim was given a finish coat of a lead in oil-base paint colored with pigments commonly available during the period: for example, lamp black, yellow ochre, Prussian blue, red lead. Lime whitewashes were used above the chair rails. The dado designs were all done in distemper (a water-base, calcium carbonate, animal-glue paint).

It was the intention of the commissioners to restore the house to the appearance it would have had when Washington was headquartered there. Welsh's findings were, however, a bit disconcerting. The commissioners assumed that the muted Colonial colors associated with Williamsburg would surface. When the house's true scheme of vivid colors and whimsical patterns was presented, they at first were reluctant to restore. But eventually they did engage Welsh to repaint all surfaces, leaving plexiglass-covered areas of the original surfaces visible at several locations as a visible historic record (see bottom photo, page 169). The technique originally used for the house—freehand applications combining brush and sponge work—was followed by Welsh in the restoration. The paint type (i.e., water or oil base), color, gloss, and texture were also maintained; however, the chemistry of the original paint was not replicated. Oil-base lead paints, used extensively for the wood trim because lead was both a white pigment and an agent to quicken drying, are now outlawed. These paints were replaced with titanium dioxide oil paint. Most background areas for decorative motifs were painted with Japan color rather than distemper. Decorative figures were also executed with Japan color (a pure-pigment, fast-drying oil paint).

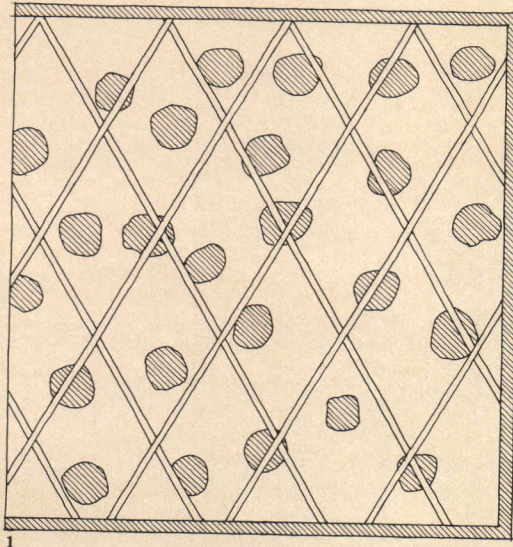
The final effect of the paint restoration, which is of course the initial effect, is exuberant. The historic park's many visitors are, almost without exception, surprised but thoroughly delighted by the walls. History offers many lessons: the restored Peter Wentz Farmstead is a superb object lesson on the variety of decorative effects that can be achieved with simply a sponge, brush, paint, and the ingenuity of the painter. *Darl Rastorfer*

© Fred Forbes photos

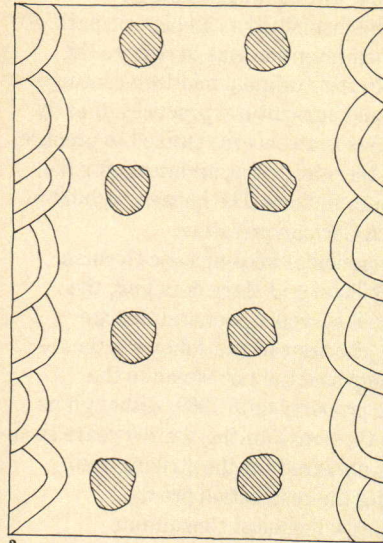


*The house was given two distinct outward expressions: a formal entry facade that faces the road; and a more casual rear elevation that serves as a backdrop to the kitchen garden (top photo). An exuberant play of color and pattern works itself throughout the interior. The kitchen (above) has sponged-on dots from floor to ceiling. In most other rooms, such as the living room (see facing page), pattern is confined to the dado between chair rail and baseboard. The black band at the baseboards runs everywhere, even across jambs and doors, to hide scuff marks.*

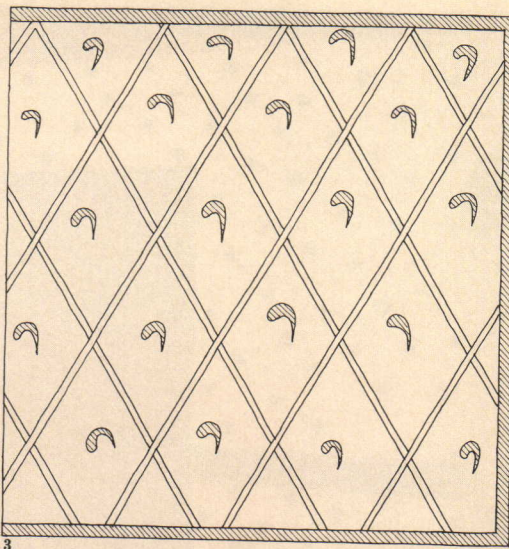




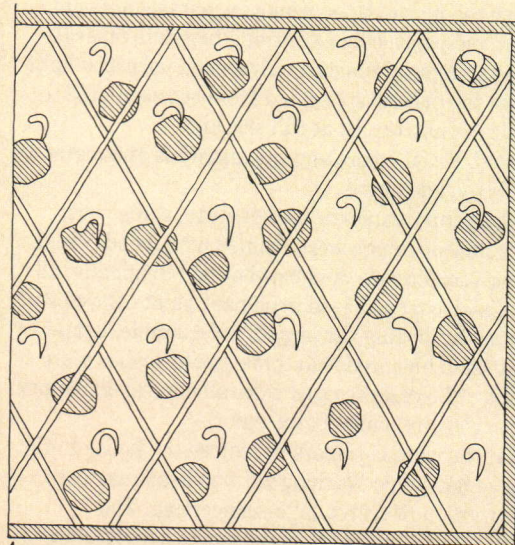
1



2



3



4

The original mid-18th-century patterns, restored in 1975 by Frank S. Welsh, were simple enough to have been executed by the residents themselves. Each room's handling is different, though all schemes are derived from a vocabulary of dots, diagonal lines, comma-like brush strokes, and a limited color palette. The dado patterns illustrated above are described below as they were originally painted (microscopic paint analysis was conducted to substantiate this determination).

In each room of the house, and on the exterior, the color, gloss, texture, and patterns were restored; however, the chemistry of paint was changed, replacing lead oil-base paint with titanium dioxide paint and distemper with Japan color or latex paint.

1. Plaster dado decoration, second-floor hallway. The original plaster dado was first prime painted with

black distemper, then finish painted in white distemper (glue, Spanish whiting, water, colorants). The black distemper dots were then applied with a sponge using a dab and circular twist. The 1/4-in. black distemper diagonal lines and the 1/2-in. border stripes were subsequently painted. The plaster above the chair rail and the ceiling were painted in white with no decoration. Baseboards were black (oil), and the chair rail and other wood trim were yellow, also oil base.

2. Plaster dado, first-floor hallway. This dado was primed with black distemper, and finished in red. The white whitewash sponge painting and brushed-on corner swirls were then applied. Plaster along the chair rail, including the ceiling, was whitewash left undecorated. Baseboards (as throughout) were painted with black oil paint. The

chair rail and other wood trim were yellow oil.

3. Plaster dado decoration, second floor, southeast room. This dado was first prime painted with whitewash, then finish painted in red distemper. The 1/4-in. white distemper diagonal lines, white comma-like brush strokes, and the 1/2-in. border stripes were painted on subsequently. Surfaces above the chair rail were whitewashed, baseboards were black, and the chair rail and other wood trim were blue oil paint.

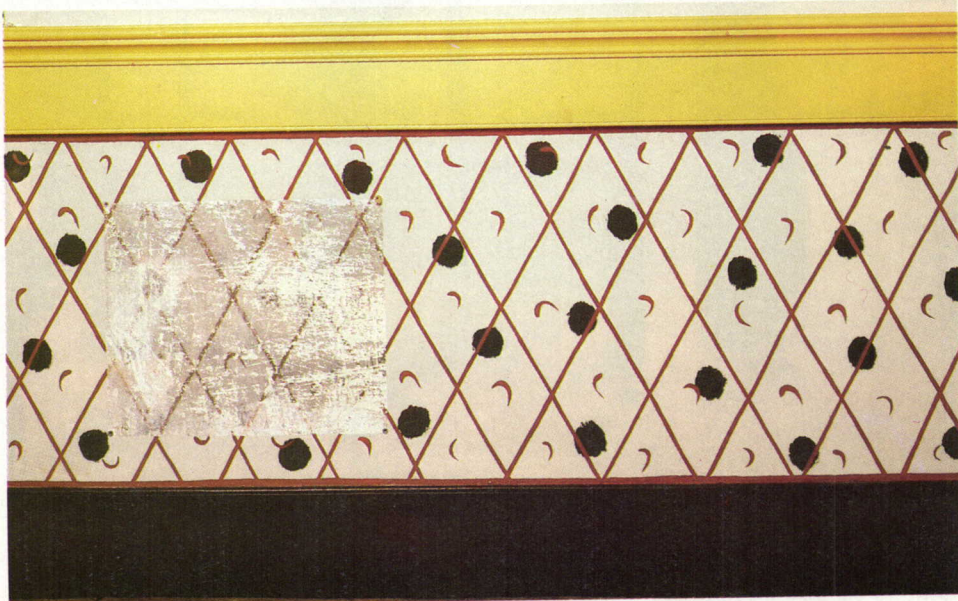
4. Plaster dado decoration, second floor, northeast room. This plaster dado was prime painted with whitewash, then finish painted in gray distemper. The black distemper sponge marks were then applied followed by the application of 1/4-in. brushed red distemper diagonal lines, red "comma" brushstrokes, and the 1/2-in. border

stripes. The plaster above the chair rail and the ceiling was also painted in gray with no decoration. Baseboards were black (oil). The chair rail and other wood trim in this room were yellow.

*Peter Wentz Farmstead  
(Built 1758, restored 1976)  
Montgomery County, Pennsylvania*

**Owner:**  
*Commissioners of  
Montgomery County*  
**Restoration architects:**  
*John Milner Associates*  
**Architectural paint conservator:**  
*Frank S. Welsh*











# Shaping sound

Izenour House  
Stony Creek, Connecticut  
Steven Izenour of  
Venturi, Rauch and Scott Brown, Architects

By George C. Izenour

*The residence in Stony Creek, designed by Steven Izenour of Venturi, Rauch and Scott Brown, is remarkable in many ways (see Record Houses, mid-April 1984). But arguably, the most inspired space in the house is the living room, which is an electronically excitable acoustical environment specifically designed and engineered for the maximum enjoyment of stereophonically recorded and broadcast music. George C. Izenour, owner of the house and father of the architect, served as consultant for the acoustical as well as the lighting design. The senior Izenour is among this country's leading theater consultants. He is Professor of Theater Design, and Technology Director Emeritus of the Electro-Mechanical Laboratory at the Yale School of Drama. He has recently completed a forthcoming second volume to his earlier book, Theater Design.*

The dream was to shape a technically superb listening/living room for recorded sound. Therefore, it was paramount that the volume of the room have sufficient cubage to prevent overdrive of acoustical energy from an infinite baffled, stereophonic sound system when played at concert hall and/or opera house level. Architecturally, this would require two large perforated surfaces facing each other, backed by a large infinite baffle cavity. Since Steven was set on vaults, which for the most part are anathema to good room acoustics of any kind, it was up to me to provide a "fix"—every good technician knows that rules can be broken if they are thoroughly known.

First, the radius of the upper vault, distinct from the perforated vault (see section on following page), which is the focus and the crossover for acoustical energy, was placed 27 ft above the floor so that residual reflected energy reaching the listener would be evenly diffused. Second, the segments of the broken vault were perforated so that their surfaces were rendered 60 per cent reflective and 40 per cent absorptive. This took care of acoustical focus and an excess of room reverberation, both of which would have accrued if these surfaces were left contiguous and hard. Third, the standing wave problem between the two high parallel end walls was solved with an oversized convex, wall-engaged fireplace column and capital. The measured reverberation time of the room in the mid-frequencies is 1.1 sec, which is just right for conversation and the stereophonic reproduction of recorded music. The room volume cannot be overdriven, there are no standing waves, and an even distribution of energy accrues.

Each infinite baffle constitutes a segment of the broken barrel vault. The transducers (loudspeakers) are mounted in the volume between the

perforated surface of the broken vault and the roof. (A good description of what we have here is the sending end of a concert hall rotated 90 deg and standing on end.) The infinite baffle system of stereophonic reproduction works something like this: The middle low-frequency transducer in each cavity is bolted directly to a 1 1/2-in.-thick plywood frame that in turn is bolted directly to the primary and secondary structures (roof and perforated vaults). This causes the entire vaulted structure to radiate acoustical energy. The high-frequency horns are mounted directly behind the large diamond cutouts in the halves of the broken barrel vault and are directed at a large, square 1-in.-thick glass-topped coffee table in the center of the room. The glass provides a reflective surface for a portion of the high-frequency energy, bouncing it about the room so it is not entirely absorbed by the carpet and the room furnishings. The effect of all this on the listeners is an even dispersal of the stereophonic field so that no one has to sit in front of or between loudspeakers.

The electronics that drive the system are perfectly straightforward linear amplifiers (100 watts each) with frequency dividing networks on the outputs and multiple inputs from compact and long-playing records, AM and FM radio, and the stereo signals from cable television. The amplifiers are installed in a bleached-oak travertine-marble-topped console in the corner of the room (top photo, page 173).

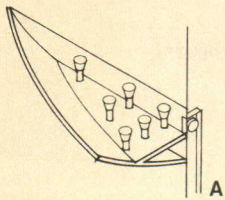
It is of particular importance to understand the state-of-the-art where digital recording and laser playback on compact disks is concerned. Up until now, when recordings were analogue and dual-needle traces of the stereo track impressed into vinyl long-playing records, it was not possible to include either the extremes of dynamic range or the reverberant field created by an orchestra playing in a concert hall. The dynamic range had to be compressed so as not to overcut the needle traces, and reverberation was virtually eliminated by recordings made in a studio where these conditions could be tightly controlled by a recording engineer "riding gain." This is now no longer necessary. With the combination of digital recording and laser playback, the reality of recording a performance by one of the world's great orchestras in one of the world's great concert halls is now possible. It is the prime purpose of the acoustical design of this room to get as close to concert hall and opera house reality as possible by making sure that the room acoustics reproduce with fidelity the recorded dynamic range; and that the room acoustics do not in any way interfere with the recorded reverberation of the concert hall or opera house in which the recording was made. This room accomplishes both of these criteria in a way that is quite startling.



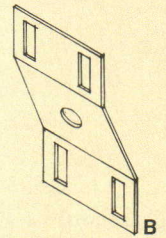
Tom Bernard

*This eclectic, dockside bungalow (photo at left) gives no clues from the outside of the sophisticated sound chamber it envelopes (facing page). The room was shaped, perforated, furnished, and outfitted with state-of-the-art audio/visual equipment to make a truly unique home-listening environment.*

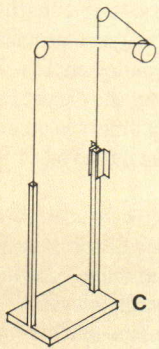
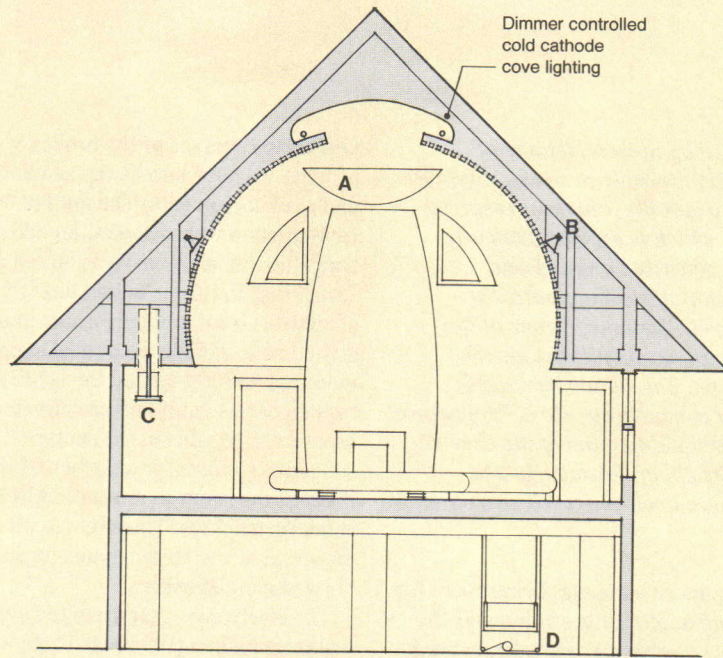




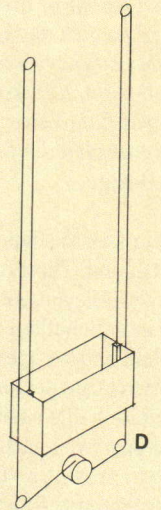
1800 Watts of incandescent dimmer controlled by light



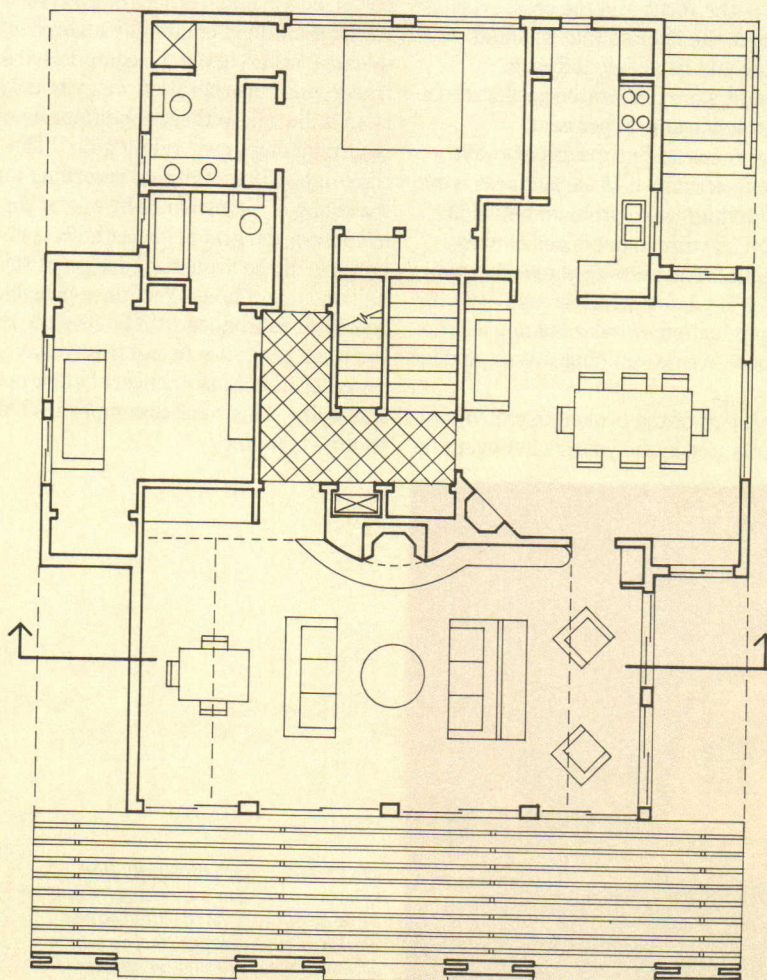
Speaker mounting structure for infinite baffle



Electro-mechanical video monitor lift



Electro-mechanical log lift





The Izenour House has, in addition to its architectural eclecticism, an eclectic mixture of traditional electrical and mechanical engineering, high-tech electronics, and acoustical engineering. The basic lighting design throughout utilizes a type of indirect cove lighting that is reminiscent of late '20s, early '30s Art Deco. The lighting scheme, essentially indirect rather than direct, was chosen for several reasons. Light-colored vaulted ceilings, of which there are four—living room, dining room, kitchen, and entrance stair—yield a soft, natural, diffused light when lit from continuous peripheral coves located at the spring line of the vaults. The ambience of light reflected from these non-specular, flat-painted surfaces is “easy” on the eyes and “kind” to both people and works of art. The light source employed in the coves is continuous, intensity controlled by dimmers installed in the walls. General illumination for those rooms that do not have vaulted ceilings—study, bedroom, and walk-through gallery/hallway—is likewise lighted by dimmer-controlled continuous cove lighting mounted either on one wall or directed at the ceiling from the center of the space.

The living room demanded special attention because of the unusual architectural design and the engineering requirements for both lighting and room acoustics. In transverse section the room is circumscribed above by a flat upper vault and two flanking segments of a broken barrel vault. Each segment is terminated at the bottom by a deep soffited room extension and at the top by a lighting cove. The upper vault, painted sky blue, is lighted by two cold cathode tubes within these flanking coves. A more powerful incandescent uplight to the vault is built into the capital of the wall-engaged fireplace column.

Manipulation of the separate dimmers controlling the cold cathode coves and the incandescent capital uplight determines both the over-all intensity and the variable mix from cool to warm. The reflected light from the surface of the upper vault is muted, gently washing both the flanking

segments of the broken barrel vault and the artworks attached to the walls, i.e., the mask sculptures of the fireplace wall and the Piranesi engravings on the opposite wall, creating the ideal ambience for both conversation and listening to music.

Since the living quarters of the house are on the second floor, electromechanical means for three different kinds of vertical transport are included as integral to the design (section at left). First, a two-passenger, cable-rigged, electric winch-driven elevator operates between the laundry room at grade and the second-floor hallway. Second, the two wood-burning fireplaces, one in the living room and one in the dining room, are serviced by a cable-rigged, winch-driven lift. This lift delivers logs from storage at grade to a hinged chamber provided as an extension to the living-room fireplace nosing. Lastly, a remote-controlled video monitor in the living room is raised and lowered by an elevator from its storage position in the soffit. This allows the Izenours to enjoy “Live from Lincoln Center,” both the Met and the Philharmonic, without leaving Stony Creek, Connecticut.

Topping all this off, the house is heated by a “quiet” propane-fired flash boiler driving hot-water peripheral radiators. Wouldn't it be a shame to have all this striving for acoustical perfection marred by the high background ambient of a fan driven hot-air heating system? George and Steven Izenour would never have let that happen.

*Izenour House  
Stony Creek, Connecticut*

**Owners:**

*Mr. and Mrs. George C. Izenour*

**Architects:**

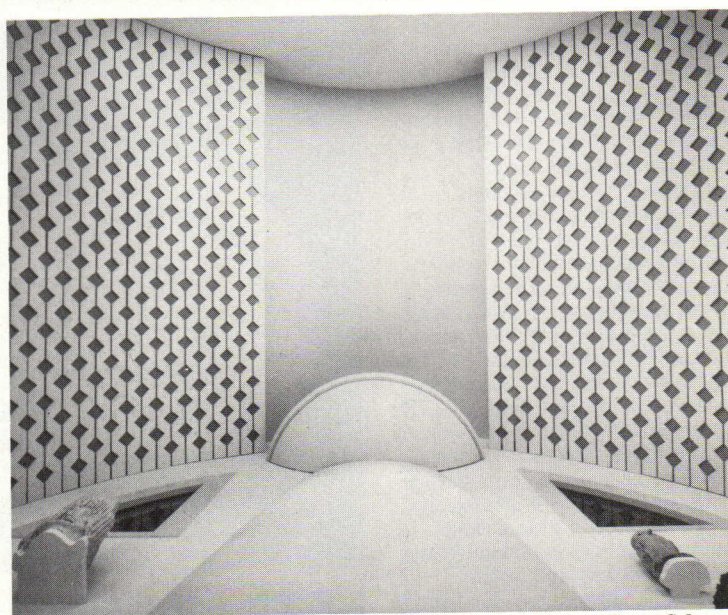
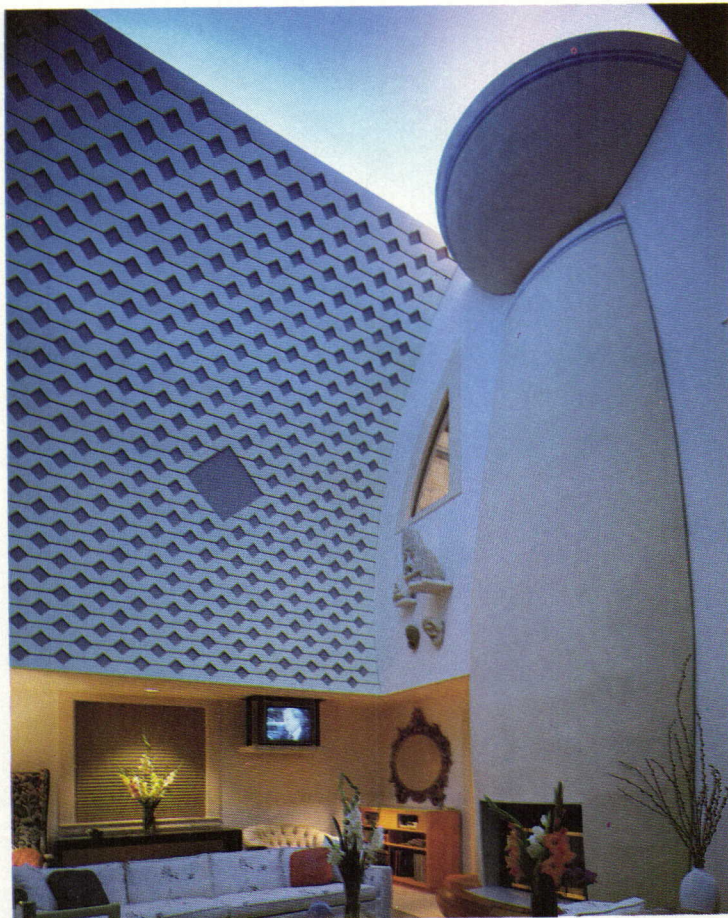
*Venturi, Rauch and Scott Brown—  
Steve Izenour, designer; Christine  
Matheu, assistant*

**Acoustical and lighting consultant:**

*George C. Izenour*

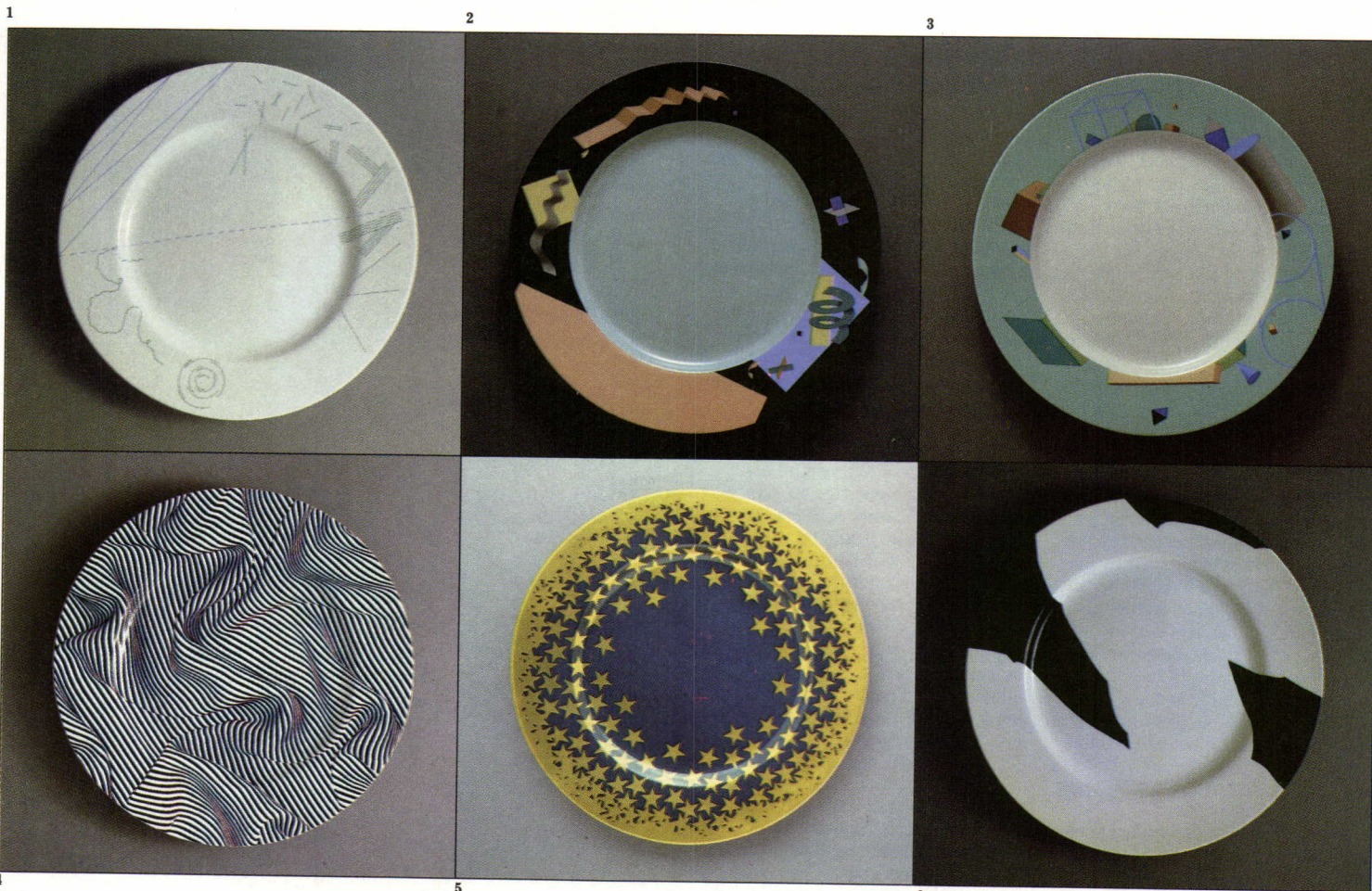
**Contractor:**

*Built by Eric Stone and  
George C. Izenour*



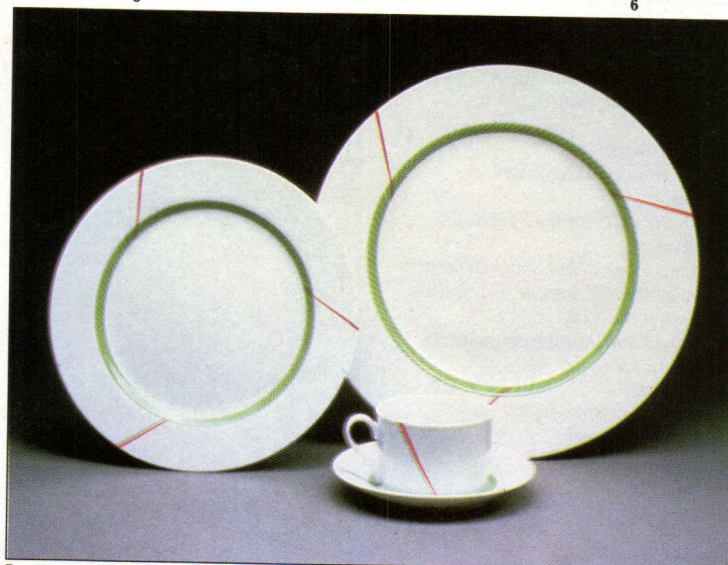
George C. Izenour





## Second course

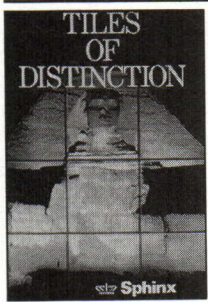
Oliver Twist was barely brave enough to ask for a second helping of porridge, and he'd never have thought, much less dared, to ask for it in a different dish. But that is just what architecturally aware gourmets may soon be doing (although their fare is likely to be less spartan) in response to Swid Powell's recent additions to their line of architect-designed china, silver, and glassware. Before long, veteran collectors may be trading in their soiled Robert Venturi *Notebook* dinner plate (RECORD, mid-September 1984, pages 172-173) for a second helping on, say, one of Steven Holl's three explorations into dimensional composition, each of which exhibits a progressively greater degree of graphic and mathematical freedom. Holl, Hans Hollein, and Trix and Robert Haussmann have joined Venturi, Richard Meier, Arata Isozaki, Gwathmey Siegel, and Robert A. M. Stern—to name a few—on the list of contributors to the expanding collection of household accoutrements. Nan Swid and Addie Powell became interested in mass-producing tableware as an extension of architect-designed furniture following 15 years of experience between them in design and sales respectively at Knoll International. Consequently, the



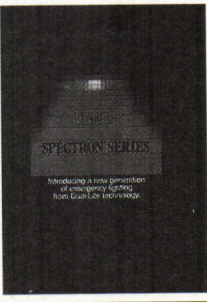
pair challenged a select group of designers who were "thrilled at the prospect of getting their work out across the country," according to Swid. From reams of drawings Swid Powell chose 60 pieces for the inaugural collection, which became available in major department stores last fall, and at the same time commissioned other items for subsequent production. The partners have no trouble convincing initiates to participate in the program; in fact, Swid and Powell report that the architects are not just eagerly detailing new china patterns, they "are waiting in line to come stand at the stores with us." And if Oliver Twist's timid request is any hint, the less diffident designers and customers alike will soon be asking for "more." K. D. S. Swid Powell, New York City. Circle 300 on reader service card

1. Steven Holl: "Linear"
2. Steven Holl: "Planar"
3. Steven Holl: "Volumetric"
4. Trix and Robert Haussmann: "Stripes"
5. Trix and Robert Haussmann: "Stars"
6. Trix and Robert Haussmann: "Broken"
7. Hans Hollein: "Festival"
8. Richard Meier: picture frame
9. Robert A. M. Stern: salt and pepper shakers

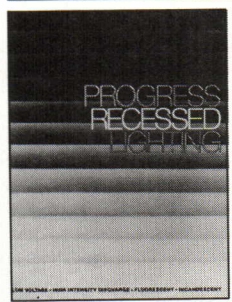




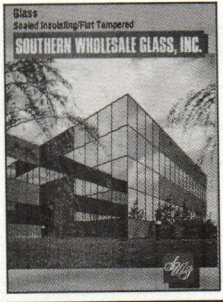
**Ceramic tile**  
A 24-page brochure features a line of glazed ceramic wall and floor tiles. Color photographs show a variety of decorative applications. The dimensions and available colors of each product are listed in the literature. Sphinx Tiles (U. S. A.) Ltd., Lincoln Park, N. J.  
*Circle 400 on reader service card*



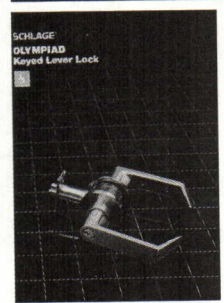
**Emergency lighting**  
The *Spectron Series* of emergency lighting products is described and illustrated in a 16-page color brochure. The system's integrated circuitry, said to be capable of indicating battery malfunction, is reviewed in the literature. A variety of emergency units and exit signs is shown. Dual-Lite, Inc., Newton, Conn.  
*Circle 406 on reader service card*



**Recessed lighting**  
A 48-page color catalog features a newly expanded selection of recessed lighting fixtures, including low-voltage accent lights, high-intensity discharge units, fluorescents, and incandescents. A selector guide intended to facilitate proper selection is included in the literature. Progress Lighting, Philadelphia.  
*Circle 401 on reader service card*



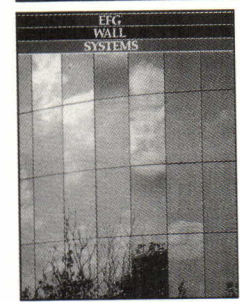
**Glass**  
The manufacturer's line of clear, tinted, reflective, tempered, laminated, acrylic, mirror, insulated, and wire glass is reviewed in a 10-page color brochure. The available thicknesses of each product are listed in the literature. Southern Wholesale Glass, Inc., Marietta, Ga.  
*Circle 407 on reader service card*



**Lock**  
The *D-Series Olympiad* keyed lever lock is featured in a 4-page color brochure. A diagram of the lock, which is designed to meet handicapped codes, is included in the literature. Dimensions and available finishes are listed. Schlage Lock Co., San Francisco.  
*Circle 402 on reader service card*



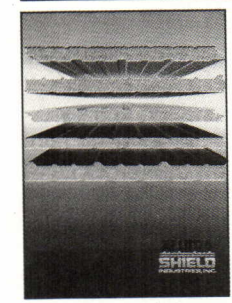
**Lighting**  
The manufacturer's *Spec-3* recessed, low-voltage lighting is featured in a 16-page color brochure. Lamp sizes, beam control, available beam patterns, and color rendition of the fixtures are reviewed in the literature. Staff Lighting, Corp., Highland, N. Y.  
*Circle 408 on reader service card*



**Glazing systems**  
The *EFG 711* and *712* curtain-wall glazing systems with four-sided structural silicone support are featured in a 24-page color brochure. Cladding systems for new or existing buildings are also shown and described in the literature. Diagrams of construction details are included. PPG Industries, Inc., Pittsburgh.  
*Circle 403 on reader service card*



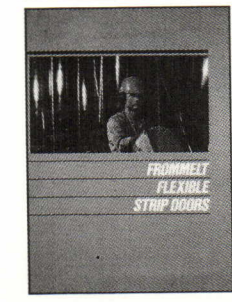
**Service doors**  
A 32-page catalog features the *Enermaster* insulated metal rolling door, which has 1 1/2-in. of foamed-in insulation between two metal sheets. Specifications on other rolling service doors, grilles, fire doors, and side coiling doors and grilles are included in the literature. Atlas Door Corp., Edison, N. J.  
*Circle 409 on reader service card*



**Wall and roof panels**  
An 8-page color brochure describes the manufacturer's line of roof and wall panels insulated with foamed-in-place urethane. Dimensions and specifications of the panels are included in the literature. Aluma Shield Industries, Inc., Daytona Beach, Fla.  
*Circle 404 on reader service card*



**Air purifier**  
The *SmokeBuster* line of indoor air purifiers intended for commercial applications is described in a 4-page color brochure. Five models with replaceable or electronic filters are reviewed in the literature. In-ceiling and ceiling-hung installations are shown. Aercology Commercial Products, Inc., Old Saybrook, Conn.  
*Circle 410 on reader service card*



**Strip doors**  
The manufacturer's custom-made PVC strip doors are illustrated and described in a 4-page color brochure. Diagrams show sliding, two-way swinging, piano-hinge, and inside overhead mounts. Energy conservation information is reviewed in the literature. Frommelt Industries, Inc., Dubuque, Iowa.  
*Circle 405 on reader service card*



**Track lighting**  
A 36-page catalog features a newly expanded track lighting system. Color photographs of single circuit tracks and compatible light fixtures are included in the literature. Mounting accessories are also shown. Marco/Marvin Electric, Los Angeles.  
*Circle 411 on reader service card*  
*Continued on page 181*





**ONE...**



**TWO...**



**THREE...**



**...GO!**

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It's as easy as 1, 2, 3.

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2. It meets all barrier-free codes.
3. It's a real cost saver—saving water and energy with each use, saving time and trouble with minimal maintenance through the years.

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Leg and toe clearances, and required reach to the push buttons and water streams, are well within existing barrier-free codes as well as ANSI A117.1-1980 standards. Less than five pounds of pressure activates a safe, tempered flow of water which shuts off automatically. Optional backplash—mounted soap valves are available, too. Concealed spray formers, recessed push buttons, and a gage access

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For more information, call your Bradley representative or contact Bradley Corporation, P.O. Box 309, Menomonee Falls, WI 53051. Phone 1 414 251-6000.



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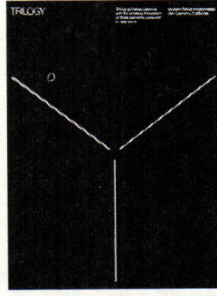
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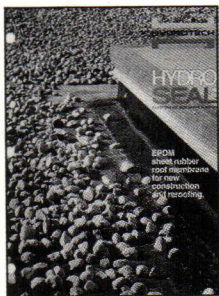
**Partitions**

The manufacturer's line of movable walls and folding partitions is featured in a 24-page color brochure. The weight, size, and available finishes of the different panels, and the acoustical performance of the wall system are reviewed in the literature. Modernfold, Div. of American-Standard Co., New Castle, Ind.  
*Circle 412 on reader service card*



**Conference tables**

*TrilogY* conference tables designed by Norman Cherner are featured in a 6-page color brochure. Three different table styles are illustrated with round, rectangular, and racetrack tops. A variety of wood and lacquer finishes is shown. Modern Mode, Inc., San Leandro, Calif.  
*Circle 418 on reader service card*



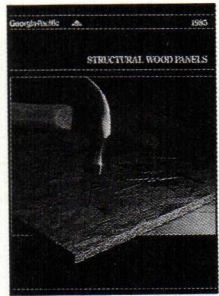
**Roof membrane**

A 4-page color brochure features the *Hydro-Seal* single-ply sheet intended for new construction and reroofing applications. The installation and weatherability of the membrane is described in the literature. American Hydrotech, Inc., Chicago.  
*Circle 413 on reader service card*



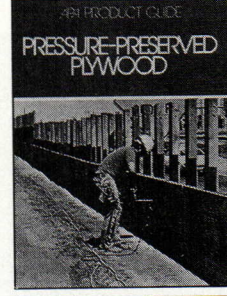
**Bathroom fixtures**

A 4-page color brochure features the new *Galleria* line of faceted bathroom fixtures. Photographs of the acrylic bathtub and the vitreous china sink, bidet, and toilet are included in the literature. Dimensions of each item are given. American Standard, New Brunswick, N.J.  
*Circle 419 on reader service card*



**Wood panels**

Structural wood panels, including plywood, waferboard, particle board, and the manufacturer's *Comply* composite panel, are described and illustrated in an 8-page color brochure. A guide to plywood uses and grades is included in the literature. Georgia-Pacific, Atlanta.  
*Circle 414 on reader service card*



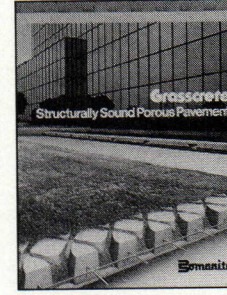
**Wood preservation**

Specifications, applications, and finishing suggestions for pressure-preserved plywood are reviewed in a 6-page brochure. The literature includes technical data on creosote, pentachlorophenol, and water-borne preservatives. American Plywood Association, Tacoma, Wash.  
*Circle 420 on reader service card*



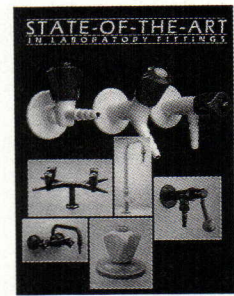
**Plan files**

*Archive Files*, said to hold up to 4,000 42- by 60-in. sheets, are described in a 4-page brochure. Color photographs show how documents can be inserted and retrieved from the 3- by 6-ft cabinets. Lift and roll tops are shown. Plan Hold, Irvine, Calif.  
*Circle 415 on reader service card*



**Pavement**

*Grasscrete* cast-in-place concrete pavement is featured in a 4-page color brochure. Several applications, including erosion control, are described in the literature. Installation techniques are reviewed. Bomanite Corp., Palo Alto, Calif.  
*Circle 421 on reader service card*



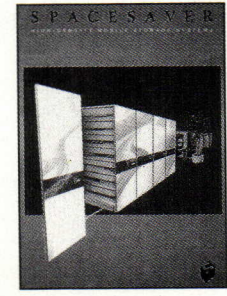
**Laboratory fittings**

A 2-page color insert describes and illustrates the manufacturer's line of laboratory fittings. The fittings, which are made of brass with a synthetic thermoplastic coating, are shown in a variety of colors. GAM Laboratory Fittings, Inc., Saxonburg, Pa.  
*Circle 416 on reader service card*



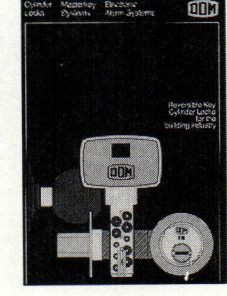
**Sealants**

The manufacturer's line of sealant products for glazing and construction joints is reviewed in an 8-page color brochure. The composition, basic uses, durability, and cure time of each product is described. Installation suggestions are provided in the literature. Protective Treatments, Inc., Dayton, Ohio.  
*Circle 422 on reader service card*



**Storage systems**

The manufacturer's hand-controlled and electrically operated storage shelving systems are featured in an 8-page color brochure. Diagrams of suggested shelving configurations are included in the literature. The storage units are available in lengths of 3 to 30 ft. Spacesaver Corp., Fort Atkinson, Wis.  
*Circle 417 on reader service card*



**Locks**

A 40-page catalog reviews the manufacturer's line of cylinders, deadbolts, and padlocks. Photographs of each product are accompanied by a listing of features, dimensions, and standard accessories. DOM Security Locks, Inc., Maspeth, N.Y.  
*Circle 423 on reader service card*



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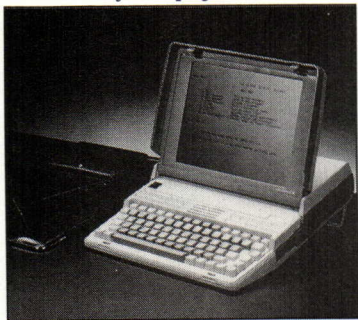
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**Portable computer**

The *Data General/One* portable computer weighs 9 lb and operates from standard AC power or from an optional internal battery pack. The system features 256 kb main memory (with 80 kb reserve), expandable to 512 kb; flat liquid crystal display, 640 by 256 pixels; 3.5-in. diskette drive (with optional second drive); and two ports for printer, modem, or other devices. The unit comes with a full-size keyboard. Data General Corp., Westboro, Mass.

Circle 301 on reader service card



**Expandable CAD system**

Although *System 25* has a 32-bit central processing unit that features distributed processing, it can also be configured into a single-user stand-alone, multiuser, or mainframe system as necessary. The Motorola 68000-based system has 1 mb of memory for calculations, a 20-mb disk drive for

drawing and software storage, and a 1 mb floppy disk unit for data backup. A standard design station includes a 12-in. alphanumeric screen, a 20-in. monochrome or 19-in. color graphics screen, a digitizing tablet, and a stylus. CalComp, Anaheim, Calif.

Circle 304 on reader service card



**Digitizer**

The *SK-1010* scans engineering drawings and converts them into digital format for use in CAD/CAE and document storage and retrieval systems. The unit scans graphite and plastic lead and ink on paper, vellum, mylar, and film in sizes up to 40 in. wide. SKANTEK Corp., Warren, N. J.

Circle 305 on reader service card  
Continued on page 185



**Contact registration printer**

The *RM 1640* contact registration printer can duplicate drawings and produce composites and screen overlays. The printer has a 40-in. by 50-in. plexiglass exposure area, two cooling fans, a control panel that regulates exposure time, a rubber blanket to secure drawings, 16 blue lamps, and lift rods that keep the cover in the open position when necessary. Design Mates, Lombard, Ill.

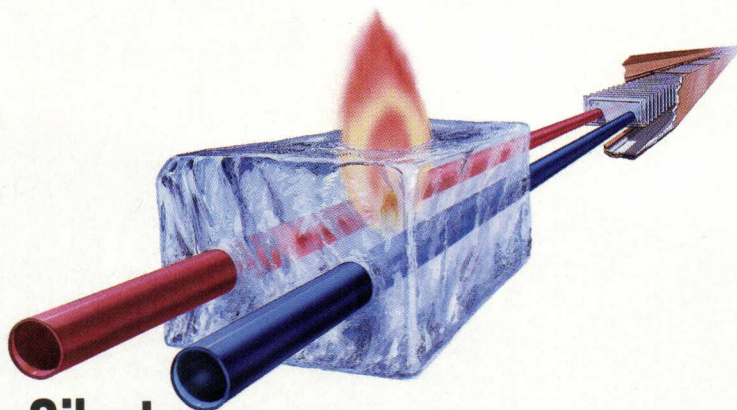
Circle 302 on reader service card



**Printer**

The manufacturer's *7500* printer can produce full- or reduced-size paper, vellum, and film copies up to 24- by 49 in. from translucent or opaque A through E size originals and from roll drawings up to 8 ft long. The printer can be pre-programmed and prints can be produced unfolded or folded into one of three sizes. Océ-Industries, Inc., Chicago.

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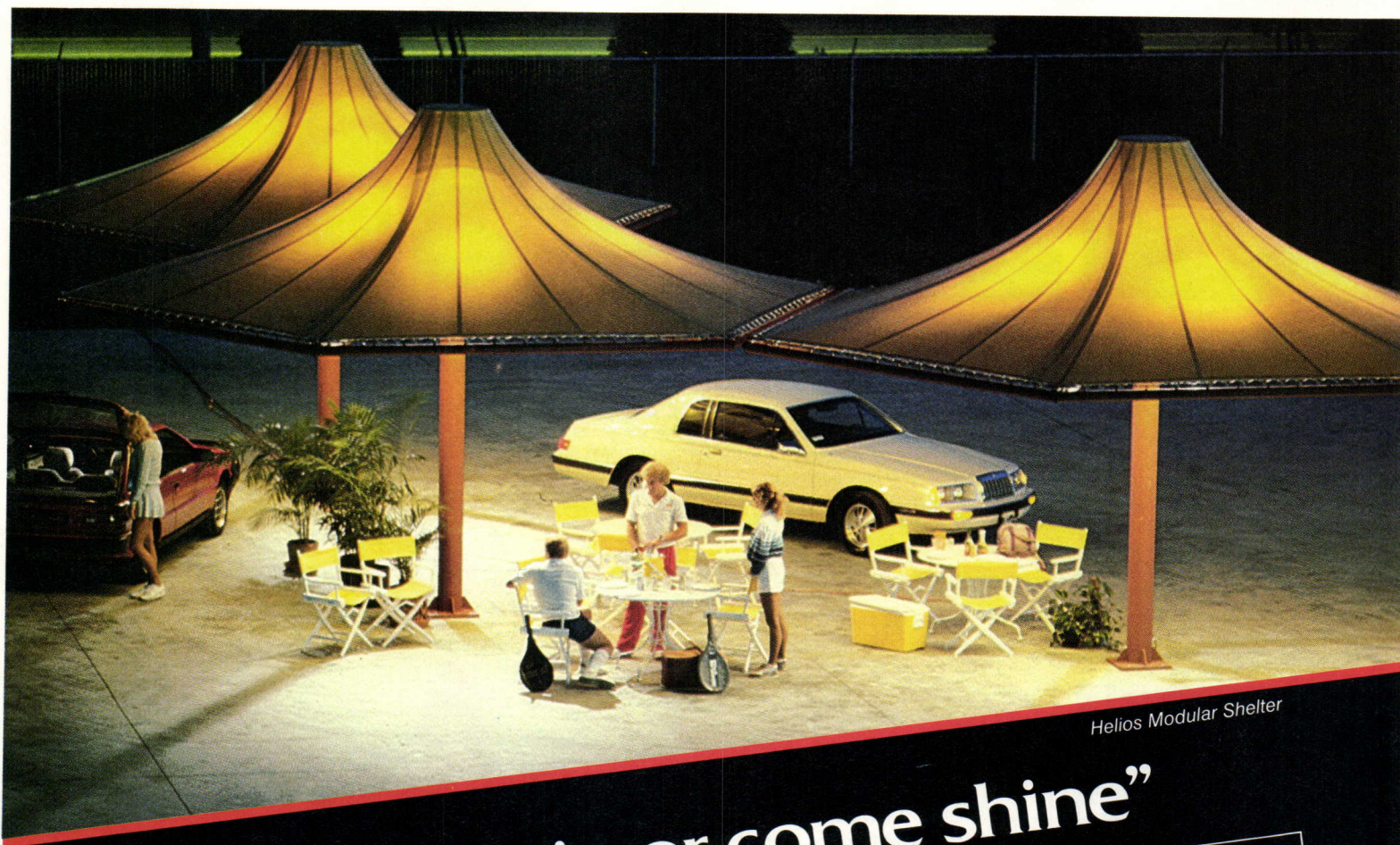
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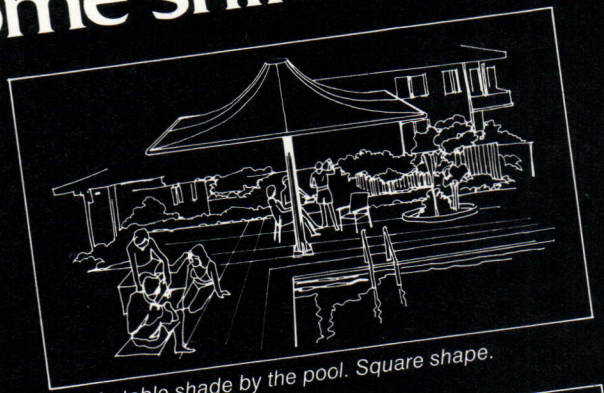
The pre-engineered steel frame and membrane are shipped ready to install in less than a day. The membrane is warranted for ten years; snow and wind loading statistics are impressive, meeting many model building code requirements.

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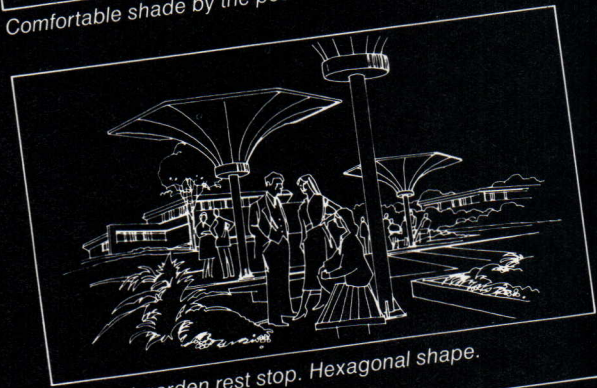
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Tel. (415) 887-4800 Telex 176226



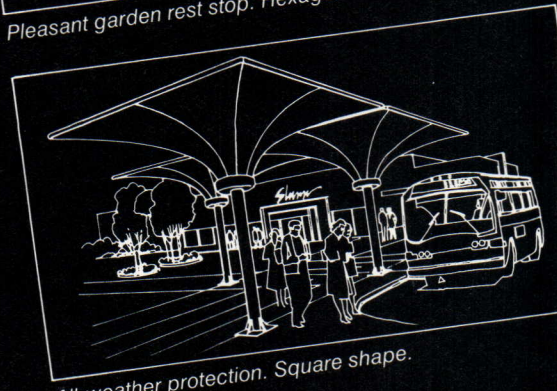
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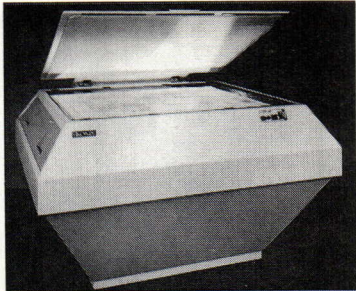
All-weather protection. Square shape.





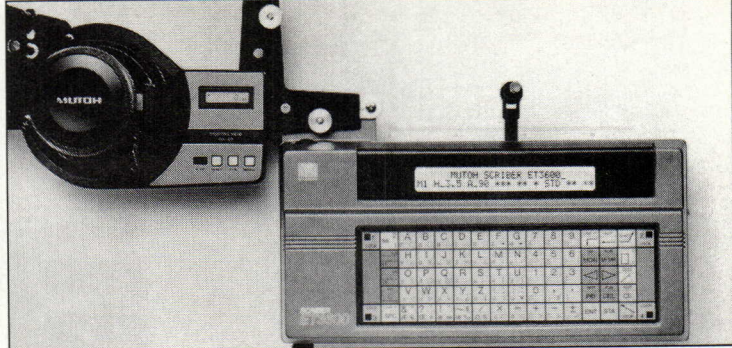
**Document management system**

*DocuDraft* is an integrated computer-aided drafting, illustration, and word-processing system that allows the user to create drawings, modify previously generated plans and specifications, and list estimation information. The system's hardware consists of the Motorola 68010 microprocessor, a 17-in. monochromatic display screen, a single-button mouse, a detachable keyboard, 15 mb Winchester memory (40 mb memory optional), and 2 mb memory (additional memory optional). DocuGraphix, Inc., San Jose, Calif.  
 Circle 306 on reader service card



**Large-format scanner**

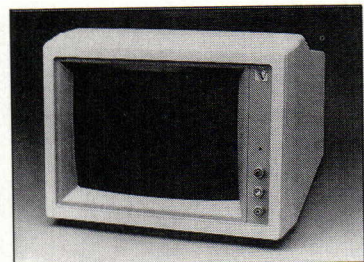
The *E-Z Scan Model 4434* digitizing scanner converts original drawings and maps into digital form for computerized storage and retrieval. The scanner digitizes drawings up to 36 in. by 46 in. and is said to distinguish 64 levels of gray. EIKONIX Corp., Bedford, Mass.  
 Circle 309 on reader service card



**Lettering device**

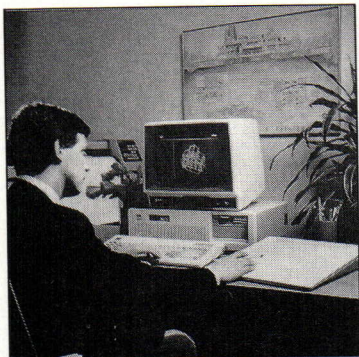
The *ET3600 Scriber* is a 210-character lettering device that can also accommodate custom-made cassettes. A liquid-crystal display allows the user to check work before lettering begins. Additional features include a permanent

memory that stores up to 1500 characters, editing capability, equal-spaced lettering, settable letter and line spacing, and simultaneous plotting of dimension lines and dimensions. MUTOH, Industries Ltd., Tokyo.  
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**Graphics controllers**

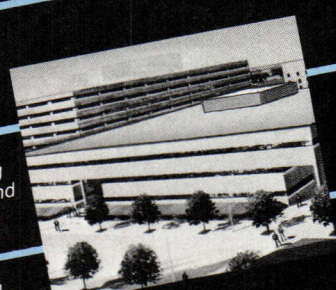
The *M-16* and *M-256* graphics controllers can draw images at 1 million pixels per second, and provide 16 and 256 colors respectively. The plug-in controllers are powered by a two-micron graphics controller chip set with an on-board Motorola 68000 central processing unit, and are compatible with the IBM PC. Verticom, Inc., Sunnyvale, Calif.  
 Circle 307 on reader service card



**CAD/office management system**

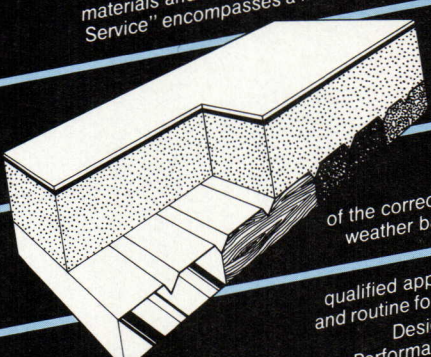
The *Personal Architect* is a PC-based system that provides both computer-aided drafting and office management capabilities. Five software packages are currently available, including two- and three-dimensional drafting, three-dimensional urban design, and CFMS-based payroll and accounting systems. Computervision Corp., Bedford, Mass.  
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# Manufacturer sources

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

## Pages 122-127

Shriners Hospital for Crippled Children by Bobrow/Thomas and Associates

**Pages 122-124**—Brick masonry: Pacific Clay Building Products. Fixed glazing units: Carmel Steel Products. Operable windows: UnitSpan. Glazing: Golden State Glass Co. Sunshade framing and railings: Washington Iron Works. Canvas: Canvas Specialties. Globe light fixtures: Lightolier. Pavers: Structural Stoneware Inc. GFRP panels: Lafayette Mfg. Co. Metal roofing: Metcoe Metal Products Co. Skylight: Dur-Red Products.

**Pages 125-126**—Wall wash fixtures: Omega. Track and downlighting fixtures: Lightolier. Carpeting: Charleston Carpets. Ceiling tile: Armstrong (Crossgate). Wood ceiling: Howard Mfg. Co.

**Page 126**—(bottom) Beds: Hill-Rom. Ceiling tile: Armstrong (Gallery). Nurse call console: Douglas-Roeche.

**Page 127**—Tables and chairs: Tuohy. Hanging light fixtures: Lightolier. Air diffusers: Anemostat Products. Wood paneling: Quality Architectural Products.

## Pages 128-131

Emergency Clinic, Jackson, Miss. by Goodman Architects

**Pages 128-129**—Exterior siding: Masonite Corp.

Light fixtures: Lightolier.

**Pages 130-131**—Flooring: Armstrong. Paints: Benjamin Moore. Plastic laminate: Formica. Seating: Thonet. Low table: Metropolitan.

## Pages 132-133

Merritt Island Medical Center by Hansen Lind Meyer

Vinyl siding: Mastic Corp. Exterior plaster: U.S. Gypsum. Windows: Anderson. Roof insulation: Zonolite.

Entrance doors: Steelercraft. Bollards: Prescolite. Locksets: Sargent. Flooring and acoustical ceiling: Armstrong. Wallcovering: J. M. Lynne. Wood doors: Weyerhaeuser.

## Pages 134-137

Holy Family Ambulatory Care Center by Holabird & Root

**Pages 134-135**—Curtain wall, glazing: Kawneer. Skylights, entrance canopy: IBG.

**Pages 136-137**—Paving: Sloan Tile. Carpet: Interface. Ceiling tile: Armstrong.

## Pages 138-147

INTELSAT Building by John Andrews International

**Pages 138-141**—Aluminum panels:

Conspic. Curtain wall and glazing: Ampat.

Space frame facade: Gichner Iron Works. Glass block: Pittsburgh Corning. Entrance: Ampat. Built-up roofing: W. R. Grace.

**Page 140** (top): Entrance: Pilkington Bros. Ltd.

**Page 143**—Atrium glazing: Lord & Burnham (Canada).

**Pages 144-145**—Metal interior doors: Loughman. Elevator: Montgomery. Recessed downlights: Lightolier. Cylindrical downlights: A. W. Pistol. Steel railings: A. F. Jorss. Atrium flooring: B. Satterwaite. **Page 146**—Metallic wall treatment: Forms & Surfaces.

## Pages 148-151

Cafeteria, Tenacre Foundation by Jeffrey Hildner

**Pages 148-149**—Stucco and colorant: Dryvit Systems, Inc. Skylights: APC Corp. Cast stone gate ornaments: Kenneth Lynch. Globe lights: Prescolite. Umbrellas: California Umbrellas. Tables: Lee Woodard & Sons. Windows: Marvin;

custom.

Locksets: Schlage.

**Page 150**—Paints: Pratt & Lambert; Benjamin Moore (throughout). Spotlight: Prescolite.

Wood and glass doors: Morgan. Drywall: U.S. Gypsum. Pyramid-shaped wall lights: custom by architect, fabricated by Leon Barth. Recessed downlight: Lightolier. Wall fixtures: Kurt Versen. Glass block: Pittsburgh Corning.

**Page 151**—Tables: Shelby Williams, fabricated by Caldwell Inc.

Chairs: Shelby Williams.

Upholstery: Naugahide. Plastic laminate: Formica. Air grilles: Titus. Carpet fabric: Badische.

## Pages 162-165

Woodlands Municipal Offices by Taft Architects

**Pages 162-163**—Brick: Tri State. CMU: Eagle Lake. Windows and entrance: Kawneer.

Polymer finish: Glidden (Nubelar). Pre-finished metal roof: Engineered Components Inc.

**Page 164**—Globe light: Holophane. Air diffusers: Krueger. Paints: Pittsburgh Paint; Fuller O'Brian.

**Page 165**—Integral-colored concrete: Scofield (Chromix). Signage: Andco Industries. Locksets: Yale. Skylights: Plasteco. Wood and glass doors: Buell Door Co.



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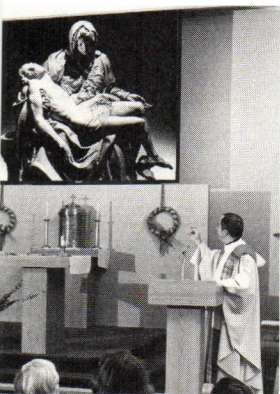


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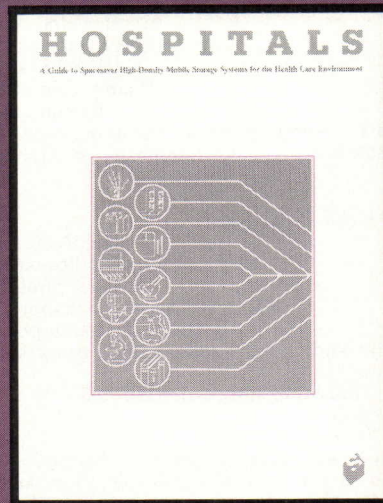
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## OFFICIAL PROPOSALS

City of Gatlinburg  
Office of the City Manager  
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### Request For Qualifications

The City of Gatlinburg, Tennessee, the premier resort of and the host City for the Great Smoky Mountains National Park, is planning improvements to or replacement of its Convention Center. In the fall, they will request proposals from Pre-Qualified Firms for Design and Contract Administration.

The project is tentatively estimated at \$20,000,000.00. A feasibility study is currently under way which will determine the scope of the work.

Firms interested in pre-qualifying to receive the Request For Proposals should submit for consideration, the following:

1. Resume of professional Credentials and Experience.
2. Client References, including names, titles and telephone numbers of specific individuals in responsible charge of the project along with a description of the project and its exact name and location.
3. Names and Qualifications of principal professionals, including those of all associated professionals.
4. Short descriptive Summary (500 words or less) of similar work performed. The specific involvement of the qualifying firm in the project is to be spelled out in this descriptive summary. Each project which is summarized should be accompanied by photographs which demonstrate a design philosophy which reflects an understanding and appreciation for the environment in general and for the specific characteristics of the area in which the project is located.

Qualifications must include, but not be limited to,

1. Suitable professional experience and credentials. Experience must be direct involvement in convention centers and facilities.
2. The following professional qualifications and/or associated professional individuals or firms.
  - 2.1. Design and Engineering.
  - 2.2. Operational analysis and budget requirements, including personnel, maintenance and utilities, of the finished product.
  - 2.3. Furnishings and equipment.
  - 2.4. Landscaping.
  - 2.5. Climate control.
  - 2.6. Acoustics.
  - 2.7. Parking and street improvements.
  - 2.8. Contract administration, inspection and expediting.

No firm will be considered unless they can demonstrate experience in projects of this type and scope.

Qualifications are to be submitted to  
Cindy Cameron  
City Manager  
P.O. Box 5  
Gatlinburg, TN 37738

Qualifications will be received until at least November 15, 1985. It is anticipated that the results of the feasibility study will be approved and the Request For Proposals can be issued shortly thereafter.

## CONTRACTORS WATCH THIS SECTION

Publish your announcements thru the "Proposal Section" of Architectural Record and get their bids.

## POSITIONS VACANT

**Directing Of Marketing — Jaffe Acoustics, the** leading acoustical consultant in America, is seeking an accomplished marketing professional to coordinate all aspects of its marketing program. Knowledge of the architectural field is essential. Strong organizational skills required. Salary commensurate with experience. Benefits include profit-sharing program. Previous applicants need not reapply. Please send resume with salary requirements, in confidence, to: Director of Administration, Jaffe Acoustics, Incorporated, 114A Washington Street, Norwalk, Connecticut 06854. (203) 838-4167. Equal Opportunity Affirmative Action Employer.

**Associate, Partnership potential, established** small office. Diversified architectural practice. Principal approaching retirement. Need capable person for design and complete project management. Pleasant Upstate New York community. Near winter and summer recreational activities. P-2388, Architectural Record.

## FACULTY POSITIONS VACANT

**Faculty Position-Ferris State College Open** Dec. 1985. Responsibility for courses in basis drafting, architectural presentation, working drawings and related subjects in established associate degree program. Assist in development of baccalaureate programming in Facilities management. Professional degree in Architecture with architectural office experience essential. Familiarity with computer graphics required. Information and application instructions may be obtained from James B. Shane, AIA-Head, Construction Dept., Ferris State College, Big Rapids, MI 49307, (616) 796-0461 ex 3763. Affirmative Action/Equal Opportunity Employer. FSC is a major Michigan State College and is located in the heart of a year round recreational and scenic area, an hour's drive North of the State's second largest city.

**Carnegie-Mellon University, Department of** Architecture, is seeking persons for full-time, tenure track faculty positions for 1985-86 with substantial theoretical knowledge that is integrated with architectural design, persons with a focused pedagogy for design studio and/or management or computer aided design. In addition to teaching, successful candidates will be expected to supervise students in graduate and undergraduate programs, conduct research and participate in committee work. Salary and rank will be commensurate with qualifications. Send resume and list of references to Omer Akin, Head, Department of Architecture, Carnegie-Mellon University, Pittsburgh, PA 15213. Carnegie-Mellon is an EO/AA employer.

**The University of North Carolina at Charlotte** seeks faculty to work together in developing program to address major architectural issues and to provide innovative, holistic and rigorous architectural education. Two positions for Visiting Assistant/Associate Professors to teach architectural history and upper year studio are available for Spring 1986 Semester beginning January. Two multi-year, tenure track positions at the rank of Assistant or Associate Professor are available beginning Spring 1986 Semester to teach first/second and third/fourth year studios and a course in urban design, interiors, energy design, man-environment, construction design, life cycle building analysis, graphics or computer aided design. Masters in Architecture or equivalent required; teaching and practice experience preferred. Salary and rank commensurate with qualifications. Forward letter describing approach to teaching architecture with vitae to: Dean Charles C. Hight, College of Architecture, UNCC, Charlotte, N.C. 28223. Affirmative Action/Equal Opportunity Employer. Deadline for receipt of applications is November 1, 1985.

## Architectural Opportunities

Leading national firm has opportunities for the following positions in St. Louis, Atlanta or Windsor, Connecticut (Hartford area).

### Project Architect

Degree in Architecture, plus 5 years' recent experience in architectural design, construction documents and building construction. Registration required. Responsible for the professional execution of all architectural and engineering work on assigned projects including meeting project schedules, budget and regulatory requirements and required project profitability.

### Designer/ Planner

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### Job Captain

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## POSITIONS VACANT

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**Project Architect req. by growing firm in Conn.** Degree and reg. along with 5+ yrs. exp. schematic dev. and proj. production phases is essential. Ability to effectively take charge of proj. development and production, provide client liaison and coord. projects through completion req. Long term growth position and competitive comp. is offered. Contact our reps with conf. resume at: G. Marshall Assoc.-P.O. Box 66083, Chicago, IL 60666.

## MATERIALS WANTED

**Wanted: Photographs or perspective rendering houses that can be made available for plan sales.** 500,000 circulation offers good royalty to architect. Write Country Living Magazine, Box 622, Princeton, New Jersey 08540, 609/ 924-9655.

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## Design news continued

Emilio Ambasz, and Massimo and Lella Vignelli. While not showing or telling anything new, these multidisciplinary role-models helped counterbalance all the business talk. Their collective conclusion was that good industrial design is only possible when a designer assumes an adversary role outside marketing pressures as in Europe, rather than becoming part of a corporate team as in America.

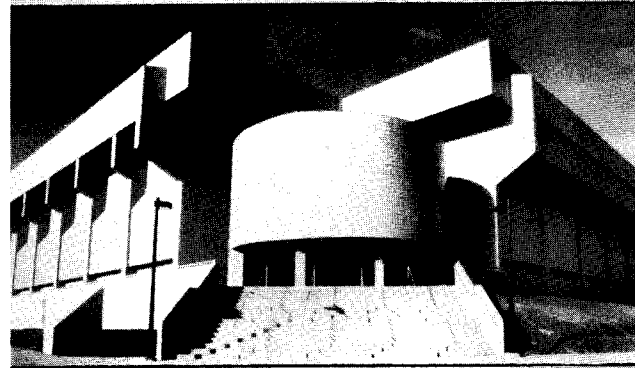
The star of the show, however, turned out to embrace marketing as much as design. German designer Harmut Esslinger, head of the California-based firm called "frogdesign," presented some of the most striking industrial designs seen during the conference, including the Sony *Walkman*, and Apple's *Iic* and *Macintosh* computers. His advice to industrial designers creating products for the "triad" market included warnings about Japanese management ("slow to reach a decision"), European markets ("strong in furniture and luxury items; the rest is terrible"), and American corporate taste ("self-oriented designs not accepted in Europe or Japan").

Lacking from the remaining sessions was any critical analysis of current product designs, comparison of regional differences, or dialogue among designers. However, presentations by Bill Moggridge and Robert Worrell and an afternoon session devoted to product semantics emphasized the need to address the values conveyed by the choice of metaphors in product design. As Michael McCoy, chairman of design at Cranbrook, pointed out: "Industrial design lags behind architecture in discussion of design vocabularies and theory." This absence of debate within the industrial design profession is especially disappointing given the potentially fertile ground for innovation that exists in the burgeoning consumer electronics and computer markets.

As for the products on display, the freshest ideas came from Cranbrook design students, and one of the most practical from the London firm of Seymour Powell, whose design for a bicycle engine was an ingenious piece of retrofit. The most poignant presentation was by Patricia Moore, a New York industrial designer who disguised herself as an 85-year-old woman and over a three-year period intermittently toured 116 North American cities in order to gain an elderly person's perspective on product design.

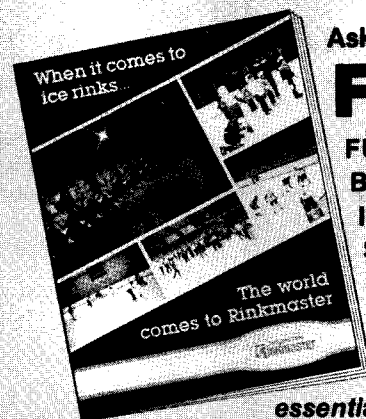
In the end, what those attending WORLDESIGN 85 gained from its lengthy and uneven proceedings was best summarized in Esslinger's remarks that "making design is fun, listening to design can be very boring, and talking over design can be very difficult." *Deborah Dietsch*

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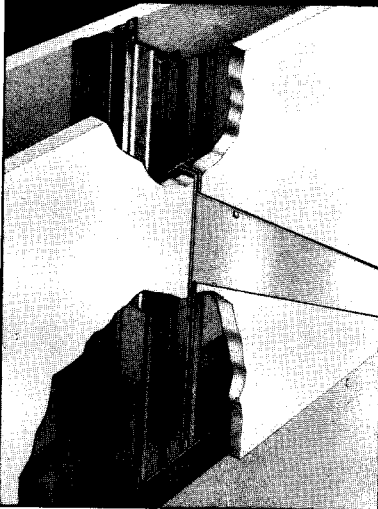
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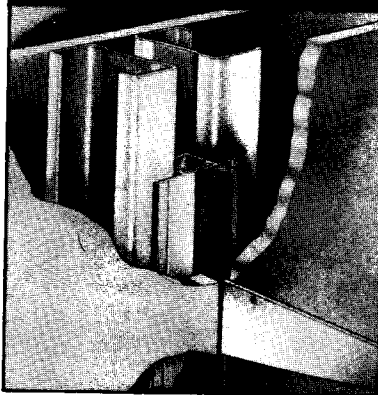
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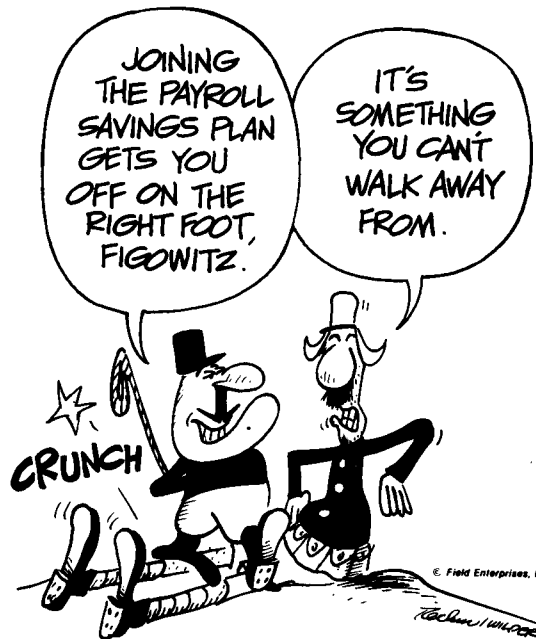


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