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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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ON THE INFORMATION FRONTIER
The article by Theodore L. Mularz on architectural education and the NCARB [page 108, August 1985, page 58 et seq.] was a comprehensive statement of the progress being made in the national examinations for architectural licensing.

Boils who issue building codes for education standards and the examination content reflect a concern to monitor the skills, abilities and competence of educated, trained, examined and to the public's health, safety and welfare are protected to the highest degree possible.

Unfortunately, all of these fine efforts by Mr. Mularz and many of the 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 reported 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 limited requirements for education, examination and licensing of architects established by NCARB in many cases go unrecognized by the officials who are charged with enforcing the statutes 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 vigorous program of education of building officials to provide for the enforcement of state architectural statutes must be undertaken if we are truly concerned for the health, safety and welfare of the public.

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

As I look through the August 1985 issue of ARCHITECTURAL RECORD following 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 we 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 imagination for Louisville in two years than the Kentucky Derby has in 108 years.

George Ruckriegel
Ruckriegel Engineering
Louisville, Kentucky

Leaving through RECORD's July 1985 issue, I came upon the Whitney expansion designed by Michael Graves [page 65]. It brought a 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-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, revitalism 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 remove to follow the principles of architecture and to apply those principles to a more creative and imaginative movement.

Photograph by Zacher, Inc.
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 McNear Hall, St. Paul, Minn. 55108.

October 16-18
Annual meeting, Professional Services Management Association; at San Francisco. For information: FSM, 1213 Prince St., Alexandria, Va. 22314 (703/684-3956).

October 16-18
Three-day seminar on "Computer-Aided Facilities Planning and Design," sponsored by the Institute of Management Engineers; at San Antonio, Tex. The program will be repeated December 6-8 in Chicago. For information: Stephanie Starr, Institute of Industrial Engineers, 25 Toronto, For Park/IF, Norcross, Ga. 30092 (404/449-0460).

October 18-20
Annual convention, celebrating 50 years of New York State architecture and architects; New York State Association of Architects; at Rochester Plaza, Rochester, N. Y. For information: Barbara J. Rodriguez, NYSA, 235 Lark St., Albany, N. Y. 12210 (518/449-3834).

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 Meridien Hotel, New York City. For information: Joseph Durocher, Center for the Study of Foodservice Management, 567 East Building, Washington Sq., New York, N. Y. 10003 (212/668-2843).

November 13-15

November 21-24
INDEX 85, the International Interior Design Exposition, with displays and seminars on the theme "Perfecting Professionalism," in Toronto. For information: IDEX/ARIDO, 166 Bedford Rd, Toronto, Ont. M5R 2K9.


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Putting it all together—comprehensively

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

Architectural Record October 1985 9
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A floor that floats on Enkasonic® matting protects the people below from the noise of those above. See Sweets 13.10/An1.
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 charrette 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 address 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 (904/388-5244).

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 Guingirger, 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

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 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."

For subscription information, contact Richard DiVecchio (212/512-3442) and, for advertising information, contact Camille Padula (212/512-8585).

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 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.
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. That’s why it pays to spend a little extra up front to avoid bigger costs later.

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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. Herein...

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 answers 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 the computer? 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 to 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 will depend on 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 your firm 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 there is an understanding within the firm about developing computer capability will certainly be beneficial. And an awareness of the level of support for computers, with proper massage, help to make the introduction of computers a positive experience for all.

* Information flow: Since the tasks will be 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 in a large, complex organization, the 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, you might want to go 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 enhance that information.

* Your firm's future: Chances are your firm will grow and change over time, entering new markets, working with new building types, etc. You may want to know if your system is capable of accommodating this change. You certainly cannot predict the future Continued
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Circle 41 on inquiry card
Computers continued

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 sell. We need 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.

• 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.
  Employers may ask you for 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 anticipated.

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.

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
Integration unifies complex pieces into a simple whole. HOK/CSC has designed a series of integrated computer software and hardware for architects, facility managers, engineers, planners, interior designers, and space programmers. Our systems provide flexible tools for design, production, and management tasks. They are proven and tested on actual projects, and are competitively priced.

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St. Louis, Missouri 63102
314 421 2000
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 untrained.

Material costs in other geographic areas were stable—resulting in an overall 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.

Costs: Steady prospects for the rest of '85

Cost Information Systems McGraw-Hill Information Systems Company

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Historical Building Costs Indexes

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Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other: the index for a city for one period (1960) divided by the index for a second period (1960) equals 100%. The costs in the one period are 100% higher than the costs in the other. Also, second period costs are 5% of those in the first period (1960) divided by 1960 or they are 25% lower in the second period.
EVEN AFTER 20 YEARS, THIS IDEA STILL HOLDS WATER.

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The waterproofing system engineered to keep water out. Once and for all.

Twenty years ago, we introduced a bold way of guarding structures from the ravages of water and time — Bituthene. And it has been preserving the integrity of foundations, plaza and parking decks, subways and tunnels ever since. Now more than 2 billion square feet of Bituthene protection have been installed around the world.

Once it's in place, it's in for good. A rugged, pliable, self-adhering membrane system that was built to go in once. To go in easily. To stay put. Resist cracking. And never stop working. No matter what the climate.

And it comes to you armed with Grace technical expertise and engineering experience. Protect your structures with a watertight idea. Bituthene — the waterproofing system with a proven past.
Marketing:
Daring scores high in 1985 SMPS awards

By Rolf A. Fuesler 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. Last year's award winner was more in many of the award-winning submissions, which produced—particularly for narrowly targeted audiences—fiercely tuned messages. Very few of the winners included simple catalogs of projects. Instead, the winners relied on making good, graphic statements about the firm, its offerings and capabilities.

Many more high-quality entries were served 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 stood out would hold the short attention spans of busy decision makers.

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

Mr. Fuesler heads Fuesler 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 outsized runner-up New York City, which had four winners. Other winners came from such diverse localities 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. Almost twice as many entries as the previous year were submitted in the program—annual reports and communications programs. The two audio-visual categories were combined into one category, and an entirely new category was added—trade show programs.


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 product designs. Such expensive calling cards arrived in the SMPS headquarters by the dozens. While some were truly unique, most formed a middle ground of competent products that, like dutiful children, were married 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 idiomsyncratic. 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.

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 high-end, sophisticated developers, each spread had one color photograph with a surreal appearance, and one and only one. Each spread was self-contained. The overall effect was, in the various words of the judges, "engaging, wacky, challenging, irresistible." It seemed important to achieve what we would like to achieve, if we dared.

Hill Pinckert'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, engineer magazine, New York City, placed second with a handsome three-part brochure. The parts cover the firm's corporate statement, specific clients, and works in progress. Whether 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.

Hill Pinckert's brochures went to Morris Aubry, Houston, and Calcaire Duffenback Foss Manlove Inc., Kansas City. In particular, the Aubry firm seemed to have formed a middle ground of competent products that, like dutiful children, were married by predictable sameness.

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

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 FX30 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, requisition, drawing, final ordering, installation, up to product management or inventory control.

501 CONSTRUCTION MARKET

Tecton Media, Inc., 310 Madison Ave., New York, N.Y. 10017— Randy Lerner, 212-867-0820 • For use with IBM PC, PCXT/compatible with 128k RAM; 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 projects, clients and vendor 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., 394 Pearl Mall, Suite C, Boulder, Colo. 80302—Thomas B. Cross • For use with any IBM machines, AT&T and compatibles • Price: $150; Updates: training- online.

Cross/Point is an interactive multimedia networking system with electronic mail, conferences (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, coursework, software documentation, sales/marketing and management.

503 CROSSWORD

Data Processing Design, Inc., 1400 N. Brasher, Anchorage, Calif. 99207— Karen Ackland, 714-970-1515 • For use with Digital VAX/VMS, MAC System 34; VAX basic, requires Reg terminal, RP plotter HP 7500 and 7470; Digital LYP-16 • Price: $2,000 to $3,500; Updates: with service contract • Training: in-house or 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 two 256k RAM, two floppy drives and monitor • Price: $655; 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 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 K. Russe, P. E., 707-529-1600 • Runs on all CP/M, MS-DOS or CP/M-86, MS-DOS or BRS/DOS/ compatible • Price: $195; Updates: billable • Training: manual.

Disco-Specs is an architectural specification-writing data package compatible with Spellbinder, WordStar, Perfect Writer, Scripsoft, Super Scripsoft 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 can build into a package to produce the final operating specifications.

506 GRAPHICS II

Data Processing Design, Inc., 1400 N. Brasher, Anchorage, Calif. 99207— Karen Ackland, 714-970-1515 • For use with Digital VAX/VMS, MAC System 34/36, VAX basic requires Reg terminal, HP plotter HP 7500 and 7470; Digital LYP-16 • Price: $2,000 to $3,500; Updates: with service contract • Training: in-house or 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 resolution desired. Output is to plotters, printers or 35mm slides.

507 HOK DATABASE

HOK Computer Service Corp., 2501 Cedar Springs, Dallas, Texas 75230—Ken Herold, 214-742-7000 • For use with any DEC VAX using DEC VT300 or Tektronix display terminals and DEC laser printers • Price: consult 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 form 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, Texas 75230— Ken Herold, 214-742-7000 • For use with any DEC VAX using DEC VT300 or Tektronix display terminals and DEC laser printers • Price: consult 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, Anchorage, Calif. 99207— Gus Mauritis, 714-970-1515 • For use with DEC VAX, MicroVAX, 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 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—Lahari 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 hospitals 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, 1-800-242-5060 • Diskettes are available for almost all types of computer equipment • Price: yearly subscription fees vary from $420 to $825 depending upon version selected. 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 Northup Way, Box 97250, Bellevue, Wash. 98009—1-800-228-4400 • 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: $675; Updates: available at nominal charge • Training: manual.

Microsoft Word, for complex word processing 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. 20041-0320—Rob Mainor, 703-747-1177 • For use with IBM System 34/36 and IBM PCXT/AT/compatible; requires 256k RAM • Price: $2,500 per contract, up to $3,000 per year • Training: in-house, on-site and manual.

Lease/purchase plans available for 1, 2, or 3 years; Updates: free first year, 15 percent of contract 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:

Business development
Database management
Simple graphics
Specification writing
Spreadsheets
Word processing
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, 409-849-2430 • For use with CP/M and MS-DOS-based microcomputers; requires 66K 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, 309-388-5812 • For use with Wang 2200 System (SVP/LVP/MVP) and Wang PC; requires 66K 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 invoices. User modules are projects (Standard Form 254/255), contact information, personnel/company data, calendars and labels.

517 RF file
Contel Information Systems, 4380 East West Highway, Suite 200, Bethesda, Md. 20814—Judith C. Mangels, 301-654-9120 • For use with DEC-VAX, PDP-11, LSI-11, PRO/30 and IBM PC; requires 64K RAM • Price: $500 to $5,000, depending on the operating system; Updates: billable • Training: computer-aided instruction.

Rfile 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, 212-888-9130 • For use with MASSCOMP Supermicrocomputer; turns key 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 the "backbone," designed for use in a database system, which serves as the base technology for a growing number of facilities management application templates for block and staff planning, lease management, and maintenance scheduling.

519 SPEC-WRITER
ACCI Business Systems, Inc., 1207 N. Freeway, Suite 140, Houston, Texas 77060—Paul Piner, 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 Memorote software • Price: $750; Updates: billable • Training: manual.

Spec-Writer works with a text editor to help architects prepare camera-ready specifications. Automatically renumbers and realphabets specification items. Translates MasterSpec II files into the CSI format.

520 SPECTEXT-ON-MAGNETIC
Bowne Information Systems, 400 Oser Ave., Hauppauge, N. Y. 11788—Robert A. Cohn, 516-231-0393 • For use with 5-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 $900 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, Displaywriter 2/3 and Scriptor.

521 SPOTLIGHT
Lotus Development Corp., 55 Cambridge Parkway, Cambridge, Mass. 02142—Atlantic Service, 617-229-9150 • For use with IBM PC, PCXT or Compaq Portable Computer; requires DOS 2.0 and 64K memory • Price: $75; Updates: billable or free, 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, PCXT and Compaq computers. Provides a flexible appointment book with personal organizer, "alarm clock," on-screen calculator, telephone and address book, index card file for organizing notes, note pad for writing messages, and a DOS file for using the operating system while still in another program.

522 WIPS EDITOR
Datacorp 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 Datacorp image files down to the picture element level. Images can be edited using a set of graphic tools that will allow, flip, airbrush, erase, rotate, 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 create a falsified picture element clearly visible.

523 WIPS JR.
Datacorp Corp., 1215 Terra Bella Ave., Mountain View, Calif. 94043—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 format. 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
Datacorp 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—Copy form an outside file, $105 per year, 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, footnoteing, automatic creation of table of contents and indexes, automatic paragraph and page number generation, utility program, word processing and laser printer support.

526 WORDMARC AUTHOR
MARC Software International, Inc., 290 Sheridan Ave., Suite 200, Palo Alto, Calif. 94306—Sheb Heffley, 800-835-2400 • For use with MS-DOS, PC/DOS 286kb, Apollo under AEGIS, AT& T/88 and many others • Price: From $295, on microcomputers with multituser 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; copyform an outside file, zoom, erase, and move text from words to blocks.
532 ACCOUNTING FOR DESIGN PROFESSIONALS

Yeakel Electronic Software, Inc., 185 El Camino Real, Suite 350, Belmont, Calif. 94002—Fred Yeakel, 714-832-9877 • For use with IBM System 36/38, PC-36 or PCXT/AT; Price: $5,000 (includes source code) PCXT/AT $5,000 (no source code); Updates: billable—at $85 per month includes hotline support, off-site, general, 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. With this software you can perform the following functions: (1) calculations and phase, invoice, and other charges; (2) project management; (3) maintenance; (4) financial control and reporting; (5) project and accounting data analysis; (6) time tracking; and (7) integration with other software systems. This software is also useful for quality control, cost analysis, and project evaluation.

533 ACCOUNTING FOR ENGINEERS AND ARCHITECTS (AEA-I)


AEA-I is a fully integrated menu-driven job-cost accounting system for small- to medium-size 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, 212-752-6881 • For use with any micro under PC-DOS or XENIX, and mainframe operating systems; Price: micro: $6,955; mini: $14,950. Updates: free with maintenance contract • Training: seminar, in-house, on-site, manual, and on computer-aided instruction.

ACE is an integrated job control and accounting system for either a single- or multiuser environment. Special features include browse, zoom, audited print, on-line help and multilevel security. Real flexibility gained through user-defined parameters includes invoice and financial statement formats; unlimited number of projects; accounts receivable/payable are available.

535 AEDB BASIC SYSTEMS L, LTD.

Halford A/E Systems Corp., 5207 McKinney Ave., Suite 24, Dallas, Tex. 75205—Bob Halford, 214-528-9352 • For use with microcomputers (CP/M-80 or 86, MP/M-48 or 86, PC/DOS or TURBORDOS); 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.

AEDB Basic Systems is a fully integrated practice management systems that use a shared database of information to service project, personnel, and personal personnel. AEDB includes the following features: (1) job-costing; (2) payroll and check writing; (3) invoicing; and (4) a wide range of financial statements and reports. AEDB is a flexible program that can be customized to meet the needs of any firm.

536 AEDB LTD. SYSTEM

Halford A/E Systems Corp., 5207 McKinney Ave., Suite 24, Dallas, Tex. 75205—Bob Halford, 214-628-9352 • 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: installation, tutorial programs and manual.

AEDB 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 upgrade to AEDB Basic System.

537 A/E MULTIPURPOSE

Pico Renovation, Inc., 2782 Queen City Ave., Cincinnati, Ohio 45256—Pietro Contin, 513-622-8377 • For use with IBM PC/compatibles. Requires two disk drives, 250k 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, acoustics 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: $20,000-22,000 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 tracking and work breakdown methods. Automated project invoicing provides company-tailored invoice formats and fee compensation methods. A payroll/ personnel module is also available.

539 APEX

Timberline Systems, Inc., 7180 S. W. FIr Loop, Portland, Ore. 97223—Scott Drushella, 503-884-3660 • For use with IBM PC/XT/AT, TI PC, DEC Rainbow and AT&T 3000; new version of Apexe supports 32-bit networks; Price: $5,790 for PC; Updates: billable • Training: seminars and manual.

Apexe, 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. 93517—Donald J. Haulman, AIA, 209-251-0823 • For use with IBM PC and MS-DOS with two disks and printer; requires 128k RAM • Price: $450; 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 sections. Works top-down or bottom-up pricing with on-screen and printout of project plan data.

541 ANAREAL

The Anareal Corporation, 3310 West End Ave., Nashville, Tenn. 37203—Richard Fletcher, 615-833-8225 • Timesharing software accessed via various makes of microcomputers and CRT terminals; requires a 1200-baud modem; Price: $37 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 a complete source and application of funds projected for the construction period, rent-up period and 10 years of stabilized operation.

542 ARCHITECTS BUSINESS MANAGER

Architectural Computer Software, P. O. Box 4811, Santa Barbara, Calif. 93108—Marissa Knodel, 805-962-4962 • For use with IBM PC/XT/AT • 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 and balance sheets and more. Standard modules are job-cost, payroll, accounts payable and general ledger.

543 ARCHITECTS OFFICE MANAGER

Facility Design Group Inc., One South Main St., Wilkes-Barre, Pa. 18701—John Cowdier, 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 as 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—

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

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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 TES 86/10/14/16 (Tandy 600); IBM PC, MS-DOS 1.1; requires a 48K RAM and 250K disk storage. Price: $390; 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. The user makes one entry for each transaction, similar to a check register. The program posts entry to payables, receivables, and all other records automatically.

545 ARCHITECTURAL COSTING

Architectural Costing converts material takeoffs into a complete construction cost estimate, based on the quantities of the Architectural Production package (see 680, below). The Costing database would contain the material and labor cost of each component, as specified 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

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

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

Autobid II provides detailed estimating for architects and contractors. It features direct take-off from plans or design of 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

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, line, and summary bill of materials, "where used," and manufacturer's cross-reference.

550 CAMS

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 used via a 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: $1,895 plus $1,995; Updates: billable. Training: in-house and on-site.

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

552 CMS COST MANAGEMENT SYSTEM
Educom, Inc., P.O. Box 726, San Luis Obispo, Calif. 93406—Dr. Jens Pohl, 608-489-0806. For use with Alpha Micro AM-100/100T/100L/100C, requires 256K RAM and 2MB disk storage. Price: $1,695; Updates: billable. Training: in-house, 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, above).

553 CARD READER SYSTEM
National Information Consultants, Inc., 408 S. Cheyenne, Tulsa, Okla. 74106—Sales, 918-584-2665. For use with IBM PC/XT/AT, Radio Shack 2/12/16.

For more information on any software program, circle the item number on special Reader Service card following this Guide.
Project cost analysis and control

556 CONSTRUCTION COST ESTIMATING SYSTEM

Computer Services, P. O. Box 702, Atkinson Mill Rd., Fairmont, N. C. 28340-0702. [Tel: 919-682-5727. * For use with IBM 3080/11/111 or IBM PC; requires 64k RAM and 250k disk storage. * Price: $800 (licensed basis). * Shipping cost to 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 takeoff of materials. Pricing program; Bidday compiler; Quantity takeoff program.

557 COSTPAK


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

558 CV/CFS BILLING


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

559 DESIGN ESTIMATOR


Design estimator produces a preliminary design estimate to project the construction cost of a building using preliminary design sketches. 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


Dodge System 1 assists in the development of detailed cost estimates that can be used to evaluate a 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


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


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 provides prevailing labor and material costs for the zip-code area in which a proposed building is to be built.

563 ESPRIT


Esprit 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 updates 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


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

565 ESTIMATEPAK


Estimatepak uses a database of products proprietary to perform detailed estimating and budgeting. Bills of materials are automatically generated together with a summary of resources; results of "what-if" designs change 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


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 associated with MRP systems, its user-oriented approach to data entry and report generation greatly shortens the MRP implementation cycle.

567 FINANCIAL MANAGEMENT SYSTEM


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

568 FULLY INTEGRATED A/E PROJECT MANAGEMENT/GENERAL ACCOUNTING


Fully Integrated A/E Project Management/General Accounting is a combination of four integrated modules that emulate the structure of the CFSM/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.
IMS Management System provides office and construction job cost control, estimating, scheduling, payroll, accounts receivable, accounts payable, general ledger and project design information management. It also performs word- and list-processing functions.

Galaxy is an automated quantity take-off and pricing system that enables a user to do both the quantity survey and cost estimating 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 C/G CUE
Gilbert Services, Inc., P. O. Box 1488, P. O. Box 31270—Paul Demo, 215-775-2600. For use with Hewlett-Packard 3000, Prime, DEC-VAX and IBM 370/300X/43XX computers. Price: from $39,500 depending on hardware and software configuration. Updates: free year, billable thereafter. Training: seminars, on-site, in-house and manual.

G/C Cue is a comprehensive micromini computer 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

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
Edeute, Inc., P. O. Box 728, San Luis Obispo, Calif. 93406-0728—Dr. Jens Pohl, 805-489-6086. For use with AMOS; requires 250k RAM. Price: $6,000; Updates: with service contract. Training: in-house and manual.

573 INCOME PROPERTY ANALYSIS

Income Property Analysis produces a complete financial feasibility study on a project for a prospective income property developer to take to the mortgage banker. User's architects to sell their design services to developer. Also used by property development firms and commercial real estate owners. 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 Hendricks for use with IBM PC/XT/AT, AT&T 4330/7800/3820, DEC Rainbows 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 user'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 AIA Guide to Cost Estimating.

575 JOB CAPTAIN

Job Captain calculates net and gross square footage of buildings and probable construction-cost budgets. Prints reports for programming, space planning and adjacencies. Prints door and room-finish schedules and remembers all doors, jams and frame material. Manages and prints complete shop drawing files. Uses fill-in-the-blank multiple screens for inputs.

576 JOB COST ACCOUNTING PROGRAM
Elite Software Development, Inc., P. O. Drawer 1194, Bryan, Tex. 77803—Terri J. King. For use with CP/M, MS-DOS and CP/M and MS-DOS; requires 64k RAM for CP/M and 128k RAM. Price: $895; Updates: billable. Manual.

Job Cost Accounting tracks job costs for up to 700 active projects and 75 employees on a perpetual-time basis. Up to 15 hours of disk 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, Inc. P. O. Box 702, Fairmont, N. C. 28340—James C. Atkinson, 919-628-5872. For use with TRS-80/12/8/4/12/16 or IBM PC, MS-DOS. Requires 64k RAM minimum; two disk drives; printer; price: $390; Updates: billable. 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 job costs and other costs as well as budget to the phase and task levels. "Snapshots" project status and status by time from employee. Output from job estimates 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 delimited files.

578 JUSTIFY

JUSTIFY helps firms plan and cost justify computer-aided design/drafting projects. It evaluates the present system and provides 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 needed.

579 KERR COST
Kerr Associates, Inc., 1324 Irving Ave. S., Minneapolis, Minn. 55405—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: $855; (IBM), $1,156 (CP/M, others). Updates: $125 per year. Manual and computer-aided instruction.

Kerr Cost speeds cost estimate or bid preparation for landscape construction. Supports work and landscape cost database; 16 standard reports range from full detail to brief client summaries by job. Prepares bill of materials and labor, justification factors or customizes the spreadsheet interface.

580 KEYSTONE PROJECT MANAGEMENT ACCOUNTING SYSTEM
Information Engineering Corp., 1155 Louisiana Ave., Suite 200, Winter Park, Fla. 32789—Gail Marcum, 1-800-452-3444. For use with CP/M-86, MS-DOS and IBM PM-68; requires 128k RAM per workstation; single- or multi-user system and may run on Novell, PC-Net, and Com (Ether) systems. Price: $5,000 (4,000 without optional general ledger); Updates: billable. Training: seminar, in-house and on-site.

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 status by time from 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 delimited files.

581 LIFE CYCLE COSTING PROGRAM
Elite Software Development, Inc., P. O. Drawer 1194, Bryan, Tex. 77803—Terri J. King. For use with CP/M, MS-DOS, PC/IBM and CP/M and MS-DOS; requires 64k RAM for CP/M and 128k for MS-DOS. Price: $895; Updates: billable; Training: manual.

Life Cycle Costing Program is a multi-phased life-cycle economics program that uses the net present value method to determine the...
lowest cost among project alternatives. Analyzes both current and potential 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 financing arrangements. Accommodates up to four phases with 40 years useful life per project.

585 MANAGEMENT INFORMATION SYSTEM FOR DESIGN FIRMS
BST Consultants, Inc., P. O. Box 23425, Tampa, Fla. 33623—Chris Meyers, 813-961-5202 • 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 project 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, 509-928-3206 • For use with Prime and National Instruments; 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

NIC General Accounting is a fully integrated accounting system with general ledger, accounts payable, accounts receivable and disk storage. 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 725, San Luis Obispo, Calif. 93406—Debra Pohl, 805-489-0806 • For use with Alpha Micro AM-100/1007/100/1/000 computers; requires 32K RAM and 10MB disk storage • Price: $9,000; 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
Minta Monica, Calif. 90404—Michael Francis, 213-829-3707 • For use with IBM PC, Compaq, Altos, Vector, Televideo CP/M or MS-DOS; requires 64K RAM and 130K disk storage • Price: $13,995; 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 features, which includes business features and site and special outside work. Cost figures are based on Dodge, Means, and Marshall figures.

587 PROCAS-PROJECT CONTROL ACCOUNTING SYSTEM
Sys Corp Corp., 2042 Broadway, Santa Monica, Calif. 90404—Michael Francis, 213-289-9707 • For use with Eclipse Mv family; AOS/VS; 16-bit Eclipse AOS; micro/MS-DOS • Price: $15,000-$80,000, 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 an on-line interface with 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
Heininger, Morton, Ill. 61506—Jim Heininger, 309-266-5812 • For use with Wang 2200 System (SVP/LVP/MVP) and Wang PC • requires 512K RAM • Price: $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 work 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/PROJECT MANAGEMENT SYSTEM
Architectural Computer Software, P. O. Box 4811, Santa Barbara, Calif. 93140—Marliessa Knoles, 805-969-2011 • For use with DEC VAX/hard disk/compatibles and DOS 2.1 or greater; requires 256K RAM • Price: $4,500; Updates: billable yearly; first year free • Training: seminar and on-site.

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

590 PROJECT CONTROL MANAGEMENT SYSTEM
Creative Software Systems, 359 Sherman Ave. Suite 11, Palo Alto, Calif. 94306—David Bennett, 415-328-9305 • 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 $3,500-$25,000; 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, general ledger and payroll. One entry updates all files. Optional systems are PERT (scheduling), library distribution, employee scheduling, file manager, 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. Braisher, Anaheim, Calif. 92805—Chris 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 provides 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., 405 S. Cheyenne, Suite 600, Tulsa, Okla. 74110—Jeet costing, 918-584-2365 • For use with IBM PC/AT/XT, Radio Shack 2/12/16 (Tandy 6000) with CP/M, Intersect AAS; requires 64K RAM, hard disk reconditioning, file manager, DELTRAN generator and a report writer. All source codes are provided; invoice and report formats are flexible.

593 PROJECT MGR.
Applied Digital Communications, 214 Flynn Ave, Moorestown, N. J. 08057—Thomas Connovan, 609-224-
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.

584 PROJECT TIME MANAGEMENT
Alpine Datasystems, Inc., 111 S. W. Fifth Ave., Suite 1550, Portland, Ore., 97204—Steve Judd, 503-241-1958 • 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-
scale 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, related consultant expenses and direct costs.

585 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.

586 RAPIDCOST-C
Chemapro Data Sciences Corp., 507 Southampton Rd., Westfield, Mass. 01085—Norman St. Martin, 413-562-2553 • For use with IBM PC XT with monochrome monitor, Compaq portable and IBM portable; supports Digital synch 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.

587 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 588-13/12/16 (Tandy 6000), IBM PC/compatibles, AT/AT; 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.

588 SSD/ESTIMATING SOFTWARE
Small System Design, Inc., 1120 Oakdale Place, Boulder, Colo. 80302—Susan Penny, 303-422-9454 • For use with IBM PC XT and dot matrix printer • Price: $995; Updates: free with continuous 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.

589 SEMAY PROFESSIONAL ACCOUNTING SERIES
Semanpro, Inc., 135 E. 42nd St., Suite 883, New York, N. Y. 10165—Lynn King, 212-607-1196 • For use with IBM PC XT/AT/compatible; DEC Rainbow, PC-DOS, MS-DOS, CP/M or DPC/M, requires 128k RAM; hard disk; printer • Price: $2,000; Updates: with service contract • Training: on-site, manual and hotline support.

Seman Professional Accounting Series is described as a user-friendly, integrated accounting system intended for the four- to 100-person firm. It has general ledger, open-item accounts receivable plus aging, 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., 367 Great Valley Parkway, Malvern, Pa. 19355—Bill Freedman, 215-644-3544 • For use with IBM PC XT and TI Professional; requires 300k RAM • Price: $395; additional modules priced from $150 to $950; 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., 4906 Mt. Laurel, San Antonio, Tex. 78240—Bill Henderson, 512-541-2205 • For use with IBM PC, Compaq, Televideo, Altos, CP/M or MS-DOS; requires 64k RAM and 340k 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. 30305—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 515, Ft. Collins, Colo. 80521—Kathryn S. Kurtz, 303-482-7145 • For use with MS-DOS with at least 64k RAM, two disk drives (with 390k 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.
Space planning and facilities management

637 ARCHITECTURAL COMPUTERIZED DRAFTING SERVICES, SYSTEM RENTAL AND SYSTEM SALES
NFS Automation Services, Inc., 202 Johnson Rd., Morris Plains, N. J. 07930—Paul Zeman, president, 201-453-2000 • 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, manual and computer-aided instruction.

640 CALMA-DRAFT FACILITIES LAYOUT
GE Calma Co., 501 Sycamore Dr., Milpitas, Calif. 95035-6288—Steve Lukrowski, 408-434-4663 • Turnkey system for use on either the 32-bit DEC VAX or Apollo workstation. It offers 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.

643 FACILITIES MANAGEMENT PACKAGE
Computervision Corporation, 100 Crosby Drive, Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Software runs on Computervision CADS 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.

644 FACILITIES MANAGEMENT SYSTEM
Facilities Management Systems, Inc., 774 Post Rd., Scarsdale, N.Y. 10583—Pat Hayward, 914-472-7114 • For use with IBM PC and lower • Price: $25,000; Updates: $10,000 • Training: manual and computer-aided instruction.

645 FACILITIES PERSONNEL/SPACE REQUIREMENTS
ACC1 Business Systems, Inc., 1207 N. Freeway, Suite 140, Houston, Tex. 77009—Paul M. Pamer, 713-872-4348 • For use with PC and 128 k RAM; requires 132-column printer • Price: $1,000; Updates: billable • Training: manual.

Building Area Calculations has been designed to facilitate the collection, manipulation and analysis of floor space data according to the BOMA standard.

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

646 FACILITIES REQUIREMENTS PROGRAM
The Computer-Aided Design Group, 4215 Glencoe Ave., Marina del Rey, Calif. 90292—213-821-2100 • For use with IBM 303X/43XX, under MS or VAX 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 building's 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 usage, management requirements, 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 303X/43XX, under MS or VAX and DEC VAX/VMS • Price: $5,000; Updates: with service contract • Training: in-house, on-site, manual and computer-aided instruction.

Facility Drafting Coordinator is an interface between the CADD/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 303X/43XX, under MS or VAX 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, assignee 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

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 PC/XT/AT. Under MS/DOS or VM and DEC VAX/VMS. Price: $15,000;

Facility Location & Layout Planner locates organizational units and activities onto sites, building and floors simultaneously; provides location plans with assignments to sites, facilities, 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 PC/XT/AT. Under MS/DOS or VM and DEC VAX/VMS. Price: $15,000; Updates: with service contract. Training: in-house, on-site, 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 PC/XT/AT. Under MS/DOS or VM and DEC VAX/VMS. Price: $15,000; Updates: with service contract. Training: in-house, on-site, manual and computer-aided instruction.

Facility System 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 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 of ownership, occupancy status and location. It has a relational database, will generate custom reports, and allows users to define measurement factors.

654 LAYOUT

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, 21265 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 Programs 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

Plan is an architectural drafting and documentation system that speeds the creation of floor plans. A part of a turnkey system, this software provides enough drafting capabilities to easily produce construction drawings for use in architecture, engineering and leasing layouts and facility management applications.

657 RD1/PC

RD1/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, scheduling of personnel and space management. RD1/PC also communicates with such personal CAD systems as AutoCAD and CADPLAN, and with the CAD system of electronic furniture catalogs and furniture specification software.

658 RD1/FP&M
Resource Dynamics, Inc., 150 E. 55th St., Suite 2500, New York, N. Y. 10015—Matthew A. Clark, 212-486-9150. For use with IBM PC/XT/AT; peripherals require 125MB, hard disk standard; requires C1, 1MB RAM, 50mb disk; "C" language. Price: $4,000 to $27,000, for software only. Updates: free. Training: in-house, on-site and seminar.

RD1/FP&M 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.

For more information on any software program, circle the item number on special Reader Service card following this Guide.

659 SPACE PLANNING AND FACILITIES MANAGEMENT
Micro-Vector, Inc., 1 Byarm Brook Place, Armonk, N. Y. 10504—Judith Ulrich, 914-273-8700. For use with IBM PC/XT/AT compatibles; requires printer and graphics card. Price: $1,500 and up. Updates: billable or included with service/maintenance contract; consulting and customization available. Training: seminar, in-house and on-site.

Space Planning and Facilities Management is a series of software packages designed to aid in the planning of space and resources requirements, building alternatives, furniture budgets and overall project costs. 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

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 32 workstations. Price: $95,000. Updates: with service/maintenance contract. Training: in-house, on-site implementation plan, computer-aided instruction and manual.

Space Planning/ Facility Management includes space planning, facility management, systems planning and transition management.
Space Planning/Facility Management provides facility for development of design drawings 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.

669 ADVANCED ARCHITECTURAL DRAFTING
Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Philip Chischporthic, 617-275-1800 • For use on IBM PC/AT/XT; requires 512k RAM, math co-processor (8087/8287), graphics card (Tekmar, IBM PC, Photoshop, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, $19,900; software only, $4,500; Updates: billing training: in-house, on-site and manual.

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

670 AECADD
Autodesk Inc., 2230 Marinship Way, Sausalito, Calif. 94965—Dealer Sales, 415-354-0656 • For use on IBM PC/AT—Price: $1,000; Updates: billing • Training: seminar, on-site and manual.

A/E/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 AEC CADD 200
ECOM, 8834 West Brown Deer Rd., Milwaukee, Wis. 53224—Ellen Henson, 414-354-0243 • For use with HP series 200 and series 300 math co-processor peripheral • Price: from $22,500 for turnkey system; ECOM software modules from $1,000; Updates: billing • 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 CADD WORKSTATION
Artech Software, 2340 South 2700 West, Salt Lake City, Utah 84119—J. Hawkins, 801-973-6503 • 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, multichannel 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 adjacent layers for dimensioning and pattern fills.

673 ARBASE
SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-666-6003 • For use with Artech Datastation comprising HP series 200;基于谈 sional O/S, 512K RAM, memory, 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 and manual.

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

674 ARCHITECTURAL CADD FOR MICROCOMPUTERS
Charette 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: billing • Training: on-site in the New York-New England area and manual.

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

675 ARCHITECTURAL DESIGN
Computervision Corp., 100 Crosby Dr., Bedford, Mass. 01730—Philip Chischporthic, 617-275-1800 • For use on IBM PC/AT/XT; requires 512k RAM, math co-processor (8087/8287), graphics card (Tekmar, IBM PC, Photoshop, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, $19,900; software only, $6,000; Updates: billing • Training: on-site, in-house and manual.

Architectural Design software supports the creation of 3-D architectural masses modeling. Software includes a standard symbolic 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 Chischporthic, 617-275-1800 • For use on IBM PC/AT/XT; requires 512k RAM, math co-processor (8087/8287), graphics card (Tekmar, IBM PC, Photoshop, or Computervision), color monitor, Kurta tablet; supports HP and CalComp plotters • Price: Turnkey system, $19,900; software only, $2,800; Updates: billing • 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., up to 128 drawing information layers.

678 ARCHITECTURAL INTERACTIVE DESIGN SYSTEM
SDK, Inc., Box 176, 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 engineering disciplines, including 3D 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.

687 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: $55,000; 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 view dynamic solutions visually, replacing the task of drafting 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.

688 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
• A drafting system consisting of processor, two fixed media disk drives, tape drive and one workstation, with core and application software • Price: $55,000; 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 packages are part of an integrated system, allowing the user to create and change drawings as new data is received. Architectural production drawings include 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 DMIS database (included in the basic turnkey package) are readily extracted and printed out as computer code 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 400 host-based systems and IBM PCs. Basic systems include CADIS 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 accessories 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, 617-886-6003 • 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 analytic instructions, and data transfer to the ARBASE relational database product (see 864 and 873).

684 ARPLAN

SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-886-6003 • For use with Artech Designstation comprising HP 9820 APU, 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, in-house, on-site, 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 ARPOINT

SKOK Systems, Inc., 222 Third St., Cambridge, Mass. 02142—Neal David, 617-886-6003 • For use with Artech Designstation comprising HP 9820 APU, 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.

ARPOINT is an off-line plotting product that allows files to be plotted independently of the Artech Designstation. A low-cost Artech Designation is used 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 model manipulation and viewing of the model is available. This option also includes smooth shading and on-screen editing of the color palette.

686 ASP STAIR PROGRAM

Architectural Software Products, Inc., 13974 Westheimer, Suite 200, Houston, Texas 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 a alphanumeric terminal. Once specified, the program generates the drawing 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., 1001 Pittsford-Victor Rd., Pittsford, N.Y. 14534—Michael D. Sohn, 716-385-9500 • Turnkey workstation includes AT&T

For more information on any software program, circle the item number on special Reader Service card following this Guide.
Computer-aided design and drafting

graphics subroutines and utilities for the creation of device independent graphics software applications. Written in FORTRAN, it progresses over 220 subroutines.

712 DATACAD 2
Microtutorial, 215 Main St., Charlottesville, Va. 22901—Stuart G. Burgh, 804-925-2900 • For use with IBM PC/XT/AT & PC/XT/XT
Compaq DeskPro; Mouse Systems and MicroSoft mouse; supports Houston Instruments and CalComp digitizers and plotters; requires 512k RAM • Price: $4,956; 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 zooms are standard features. Drawings are easily plotted at any time.

713 DATACAD 3
Microtutorial, 215 West Main St., Charlottesville, Va. 22901—Stuart G. Burgh, 804-295-2900 • For use with IBM PC/XT/AT & PC/XT/AT
Compaq DeskPro; 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/XT/AT/compatible, 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) 1.5 versions above) as true 3-D CAD system that is capable of layering, colors and symbol and pattern libraries, global editing, bill of materials, macro-programming and more.

715 DESIGN BOARD PROFESSIONAL
MEGA CADD, Inc., 401 Second Ave. South, Seattle, Wash. 98104—Karen Kershaw, 206-223-3175 • For use with IBM PC/XT/AT/compatible 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/3000/30 PDP11/LSI-11, MicroVAX, VAX/VMS, AT&T, MicroCAD, 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 (DOGXS) 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
Orocheck, 20 Steacie Dr., Kanata, Ontario K2K 2A9—Mark Milinkovich, 613-992-7650 • 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: $88,000 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 CADD 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 designizing tablet and expandable memory.

719 DGS-2000
Data Automation, 125 W. Mission St., Suite 202, Escondido, Calif. 92025—Rick Hackworth, 619-743-3534 • For use with HP 9000/250 Series computers; supports digitizers and plotters including HP 911A graphics tablet, HP digitizer, Houston Instruments Series 700, CalComp and Tektronix; plotters include any HP plotter, CalComp drum plotter or HI DPI 41/45 or 52; requires 768k user RAM after boot-up • Price: $2,495 for base package; Updates: billable • Training: on-site, manual, telephone support ($45 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, splicing and user-created or ANSI symbols library.

720 THE DIGITAL PAINTBRUSH SYSTEM
Jandel Corp., 2656 Bridgeway, Sausalito, Calif. 94965—David Hollie, 415-831-9222 • For use with IBM DOS 2.0 and above, IBM PC/XT/AT/ compatible; outputs to dot matrix and color ink jet printers, plotters and Polaroid Palette. Requires 256k RAM and game control adapter card (Ø80) • Price: $495 (digitizing pad and software); $1,295 (digitizing pad and software) • Updated: 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 Digitrax 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, fill, change, copy, move, text erase and plot.

722 DIMENSION III
GE Calma Co., 501 Sycamore Dr., Milpitas, Calif. 95081—Steve Lukofka, 408-534-4463 • 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 DOCUGRAPH
DocuGraph, Inc., 1340 Saratoga-Sunnyvale Rd., San Jose, Calif. 95128—Ray Hilken, 408-446-9700 • Turnkey system consists of 6800 processor, 2.5 mb internal memory, 40 mb Winchester disk, floppy disk drive, 17-in. monochromatic display, detached keyboard, and one-button mouse. Includes digital controller & printer • Price: $35,900; leasing available; Updates: with service contract • Training: manual and on-site.

DocuGraph 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, 717-824-1224—MBase 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 requirements. Printouts can be applied to drawing sheets or included in contract specifications.

725 DRAWING PROCESSOR II

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, 315-432-8688 • For use with HP Series 9000; requires 1mb RAM, floating point, mouse and/or digitizer; peripherals include 19-in. color CRT, alpha/graph maps printer, power adjustable 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, 213-629-9707 • For use with ECLIPSER/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 MASTER, 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. Steidle, 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 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 design, analysis and print 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 application software • Price: $85,000; 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 drafting 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 320k 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 line visibility. EXECADD’s integrated 2-D drafting includes auto- dimensioning, window and overlay commands, text and crosshatching. Optional conversion permissions allow interface to AutoCAD and CADPLAN. A SolidShape option colors 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, 605-757-8777 • For use with UNIX or VMS systems 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 W106 or W1415 graphic workstation with digitizer D1, D2 or DI • 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, text, dimensioning, column strings and standard symbols.

733 GENERAL DRAFTING SYSTEM (GDS)
McDonnell Douglas AEC Information Systems Co., Box 516, St. Louis, Mo. 63166, Marketing Services—(303) 325-1551 • For use with Prime 50 series, DEC-VAX micro series CalComp, HP plotters; Tektronix terminals, Tektronix hard copy units; requires 600K RAM • Available as part of turnkey package or software license • Price: turnkey system from $88,000; 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 architectural firms. A highly productive, user-oriented system, GDS features include unlimited drawing creation and viewing through object intelligence, associative data, database and object-oriented database. The software comes with a large number of complex drawings, automatic geometric constructions and unrestricted selection of drawing content. Additional software license is available. GDS is compatible with BDS (694, above).

734 GENERAL BUILDING DESIGN
Computervision Corp. 100 Crosby Dr., Bedford, Mass. 01730—Carolyn Bostick, 617-275-1800 • Software operates on Computers Vision CADD 3000 stand-alone workstations, CDS 4000 host-based systems and IBM PCs. Basic systems include CADDIS graphics software • Price: $8500; Software only, from $2800 to $4500; Additional software, from $2000 to $6500 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 production 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. 98006—O. Langstroth, 1-800-228-3601 • For use with MS-DOS, PC-DOS; For more information on any software program, circle the item number on special Reader Service card following this Guide
requires mouse or digitizer, plotter, 8067 math co-processor, 256K RAM • Price: $90,556; Updated: billed • Training: none offered.

Generic CAD is a fully functional 2-D drafting package with over lays, combined 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 Asse., Architects, P. O. Box 186, Pound Ridge, N. Y. 10576—Rudolph Horowitz, 914-764-7401. Works 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 systems; 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 800 symbols and macros-routines addressable from a digitizer menu. Based on the usual plan-view drafts, 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 Cambriagdepark Dr., Cambridge, Mass. 02139—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 for the computer; 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. DRAF/3S2-P for graphic 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. 78758—Carl Kurz, 713-698-8481 • 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 graphic terminal. For program interfaces with CFS-I and CFS-II (see 711 and 812 in Division 6) to edit points, polylines, text and objects.

739 GRAPHICS TOOL KIT
Demco Electronics, 10516 Grevillea Ave., Inglewood, Calif. 90304—Darrel Hobbins, 213-677-6801 • For use with Apple II/11e; 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 584 lines. This resolution yields a picture of 8 3/4-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 minimalized. 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, 241-742-7000 • 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 CAD system capable of producing a wide range of 2-D and 3-D drawings. Drawing types include plans, elevations, sections, perspectives, parallel projections and axometrics. DRAWM has wall, contour and surface generation capability. It allows user defined patterns, fill patterns, 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, on-site, in-house and manual.

HOK TRANSLATE converts HOK DRAW information into and out of generic industry-standard formats. This data may then be read into other CAD systems. This system enables HOK 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, 203-384-1044 • Turnkey system consists of DEC General Desktop Generation computer, 19-in. black-and-white graphic display; alpha/numeric display, fiberglass workstation and built-in 20-by-20-dot color digitizer tablet; and color display optional • Price: $49,000 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 overall 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 4000 Series workstations with eight planes of memory; VT100 Retrographics, CalComp, HP, Benson, Versatec plotters; Prime, C. Roh, DEC printers, requires minimum • Price: $5,600 license per
workstation; Updates: with service contract • Training: on-site and in-house.

IMAGE 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 locate 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, 212-354-8087 • Turnkey system with IBM AT or compatibles with 512K RAM, printer, digitizer, and mouse; high-resolution color monitor • Price: first workstation $20,250; add-on stations $11,400; Updates: with service contract; in-house and on-site (in metropolitan New York, five days included in price).

Integrated Cad System can be networked to 108 workstations to share plotters and systems. Basic software includes CADVANCE (CAD/Comp) 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 Graphics'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. 80226 -Kelly Walker • Turnkey system with IBM at 640K RAM; training; IBM color monitor and AMTRON high-resolution monitor allowing dual pictures; 20 mb removable hard disk CalComp 8-pen plotter, 17-25-in.

digitizer with 16-button cursor and voice recognizer • Price: $89,900; 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, 603-883-4950 • For use with 128K Apple IIe and IBM PC 128K/compatibles • Price: $1,995; Updates: billable; Training: seminar, on-site, and 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 MACD

Challenger Software, 18350 Kedzie Ave., Homewood, Ill. 60430—312-957-3475 • For use with 512K RAM Apple Macintosh with an external drive • Price: $1,195; 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 degree 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 Martin 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: none available; 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, 915-851-1711 • Turnkey system incorporates HP 100 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

Imagmedia Technologies, Inc., 7650 Geary Blvd., San Francisco, Calif. 94121—Sheilah Johnson, 415-887-0283 • 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 I/I standard.

755 MINICAD 3-D DESIGNER

Diehl Graphics, Inc. 4444 23233-Territ Rd., Lakeville, Minn. 55356—Bob Diehl, 612-689-6754 • For use with Apple Macintosh; requires 512K RAM; Laserwriter and Apple & Mac plotters; Price: $385; 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 contour. Objects are created from line segments and polygons, and may be displayed as wire frame, hidden line or shaded drawings. Program transfers to MacPaint or MacWrite. Auto-dimensioning capabilities are included; user may read from or write to text files.

756 MULTI-DRAW

Cymol Computernetics Corporation, 169 Colonade 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. Unhanded software can run on IBM/VAX or MicroVAX II • Price: $10,000 for MicroVAX software; $20,000 for VAX software; $25,000 for turnkey FT/AT package; Updates: included with 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 drawing. Complete take-off package and symbols library. Also, performs interior design, space planning and facilities management.

757 NOTATION


Notification permits the preparation and posting of reconfiguration updates and titles for drawings by sending special instructions to an expanded-letter dot matrix printer. This package prints the notations and the tentative time 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. 07960—Paul Zeman, 201-455-1311 • Software is part of turnkey system and can be a part of turnkey system or sold as a stand-alone product. Software is used for system purchase, hardware and peripheral requirements depend on application and processing volume • Price: depends on configuration; Updates: free with service/maintenance.

For more information on any software program, circle the item number on the special Reader Service card following this Guide.
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supply CFM (ventilation load included at user’s option). All data and loads print on 8 1/2-by-11-in. format.

811 CPS-1/2
Radial Corporation, 8501 Mo-Pac Blvd., Austin, Tex. 78756—Carl Kurz, 512-666-8461, For use with mainframe computers; Price: $85,000; Updates: included with service/maintenance contract • Training: seminars, on-site, in-house, manual and computer-aided instruction.

CPS-1/0 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 gridling, contouring, contour editing and control point editing.

812 CPS-1 (CONTOUR PLOTTING SYSTEM)
Radial Corporation, 8501 Mo-Pac Blvd., Austin, Tex. 78756—Carl Kurz, 512-666-8461, For use with IBM PC XT or any mainframe computer handling a 32-bit signed word or larger • Price: $18,000 for base system; options are additional; Updates: free with service/maintenance contract • Training: seminars, in-house, on-site and computer-aided instruction.

CPS-1 is a computerized mapping system designed for use in the energy, engineering and cartographic industries for gridling, 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, 608-767-2256, For use with IBM PC XT or any mainframe computer; $380/year renewal • Training: in-house, on-site and computer-aided instruction.

Customer Direct Service Network Software is a sophisticated HVAC system design tool consisting of Ultra load design, design control, coil, fan, rooftop, air-handling and YAV 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 M8B 3K9—Brian Diamond, 416-441-4163, For use with DEC-VAX, VAX/VMS, PRIME, PRIMOS, Data General AOS/VS, IBM 9000 (COSOS); 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.
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-engineer preparation, steel layout and design, 2-D architectural drafting and facilities layout.

821 ESP-II Carrier Air Conditioning Co., P.O. Box 4968, Syracuse, N.Y. 13221—Dennis E. Yaddow, 315-432-6888. For use with TRS-DOS, Tandy 1000, 1200 and 300 MS-DOS' also available for IBM PC XT. Price: $985 for one-year license; Updates: free. Training: seminar.


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


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 1184, Bryan, Tex. 77801—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.

Please use this form to tell us about architect- or engineer-specific software not listed in the 1985 Guide to Computer Software for Architects and Engineers

(Simply photocopy a copy of this form for each program you want us to list and give us the vendor's name and address so that we can put it on the list to receive next year's Software Guide questionnaire.)

Program name: ________________________________
Vendor: ______________________________________
Address: ______________________________________

Telephone: area code ( ) number

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

Section 1: Office management
- [ ] Business development
- [ ] Simple graphics (charts, graphs)
- [ ] Word processing
- [ ] Specification writing
- [ ] Database management
- [ ] Other (write in)

Section 2: Project cost analysis and control
- [ ] Project cost accounting
- [ ] Job estimating, costing, and budgeting
- [ ] Bills of materials and materials take-offs
- [ ] Feasibility studies
- [ ] Other (write in)

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, to continue, 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 two small lakes, is located in the heart of Michiana. 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 south. 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 1673 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 in 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 whitewater facility 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 90 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 three years abroad with studios in Rome). A new graduate program in 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, if requested), and to continue 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 and requirements) 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 the student must be addressed in the internship period need not be addressed in full detail in school (e.g., construction documents, but the reality 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 a background work on technical systems to augment the basic design core. This central core, the design sequence, has the intent of integrating the other courses 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, as architects, those of us in professional practice, must institute 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 schematics 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, with practice, 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 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 National Council of Architectural Registration Boards, 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 overall course objective is to assist the student in understanding architectural practice, its organization and operation, and duties and responsibilities to the client's profession. 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

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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 video-taped seminar on architectural practice. Required office forms are included 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, resumés, 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 future growth" through. Other tasks include: owner-architect agreement; project management through contract; 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 and conditions and supplementary conditions, plus one technical section or division of the standard specifications per office member.

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

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 Apple microcomputer, Macintosh, Amstrad, 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 development specialist. In the past two years this material was well presented by James Canestaro, Virginia Polytechnic 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—visiting the Group 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 Moore, AIA, and Am Richardson, P.A., who spoke on marketing and client relations; Am, again, on myriad office and interpersonal relations; Bill, again as an "architect for future growth" through. "You are electricians," he said in the Southern 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 introduction to 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 "Please don't write this. 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 introduction to 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 site 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 Gerstner, some of his colleagues from Holabird & Root Associates, and two of the jurors of the competition—Ken Schroeder, Schroeber & 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 quarries and kilns, and,in the spring of 1985, this was 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 real, with the real, with the real, making 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 courses are also 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 specific 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 professional 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 course titled "Professional Responsibility to the Public." It covered rules of conduct, building failures, life, and fire safety, liability, and insurance. The seminar video has been available for continuing education credit and has been used with the help of the Indiana Society of Architects, AIA, to available A/E design professionals throughout the State.

Other programs have covered various practice concerns—such as computer-assisted drafting; 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 education needs of area professionals.
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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.
This is the panel of experts.

Architect: Lawrence Simons & Associates
Project: Waterfall Towers Office Park
Photo: Karl H. Reik

Architect: Fisher-Friedman Associates
Project: Hilltop-Meadowcrest Residential Park
Photo: Charles Cahill, Jr.

Architect: Peter Witter Architects
Project: Custom Home
Photo: T.S. Gordon

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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 refurbishment 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 Noyes of Meeks/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 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 (703/548-0689).

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.

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

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 & Gillett 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-upsmanship? 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.
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Design awards/competitions:
American Institute of Steel Construction
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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 aesthetic 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, 2. John A. Sibley Horticultural Center, Pine Mountain, Georgia; Craig, Gaulden 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 55 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 48,000-square-foot vocational training center near Cleveland. Designed for 250 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.

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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 Leu Zettlin Associates in New York City.

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 90-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.

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 saved 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.
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.

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 aviariums, 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. 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.

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.”

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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Books


Reviewed by Christine Matheu

It is refreshing to note that there is still room on this planet for an 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 Recueil et Parallèle des Edifices du Gout Anciens et Modernes (unfortunately no longer available) and in its subsequent publications, the Press has distinguished itself by utilizing 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.

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 Rameé 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 reprinted 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, moeurs, 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 imaculatel energy 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.

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continues the French tradition of comparative typinig 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, Édifices 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 Letourneur's High Renaissance Italian palazzo model, and the same firm's Boston Public Library has a direct source from Letourneur, even to the point of imitating Letourneur's drawing style.

Princeton's most recent reprint publication is Adolphe Alphand's Les Promenades de Paris. This book, 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 engravings, 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 (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 Daviou, and horticulturist 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 "organized" 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 Édifices 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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“Remodeling this turn-of-the-century granary into a modern office mall presented some conflicting challenges. Its original wood beam members were aging gracefully, but the years had not been kind to the rest of the place.

“It called for materials and a design that would give it new life in the 20th century without covering up the history. I chose CedarPly T1-11 to simulate cedar boards. Unlike redwood, Western Red Cedar has a warm, honey-tone character that enhances the intrinsic old-world charm of the original project.

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Michael Graves tackles the Whitney

By Roger Kimball

By expanding the main branch, 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 to 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 350 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 reminding 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...
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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 raise 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, and a study center. All of this work on paper, and a new restaurant situated at the top of the building. The total cost for the proposed expansion is estimated at $87.5 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 imperative 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 National Gallery 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 "contretemps" 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 argument 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 treatment, that buildings, including of course museum buildings, are routinely added to, often forming an agglomerate of wildly different styles; the Metropollis 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 incarnated and experienced. The fact just this is the real challenge of architectural design.

In response to the objection that Breuer's building would in effect be swallowed up, 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 not 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 decorative object.) The cool, rational elegance of Breuer's Whitney, the feeling of mass, of solidity, of sculptural integrity that it communicates—these are essentially a part of 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, with all its juxtaposition 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 be fresher and more mysterious than Breuer's original would be totally eclipsed.

For better or worse, effective unity in architecture is not primarily a cerebral matter but an accomplishment 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.

Architecture Record October 1985. 115
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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
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.
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 80-bed wing, which is flexibly halved into units for older and younger patients.
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 & Wittig (structural); Bowron & Butler (mechanical); Windsor Jones (electrical)

General contractor:
Campbell Construction Co.
Merritt Island Medical Center
Merritt Island, Florida

Holy Family Hospital Ambulatory Care Center
Wheeling, Illinois
Holabird & Root, Architects

Clinic plus doctor's office
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.
Holy Family Hospital Ambulatory Care Center
Wheeling, Illinois
Owner: Holy Family Hospital
Architects and engineers: Holabird & Root—Roy J. Solfisburg, 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.
Uncommon sense
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 62 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 ventilation, 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 northeast afternoon breezes induced by stack effect, both precooled 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 more farther on...
the southeast, where planted terraces give way to cooling ponds. 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 pumps. For added savings, cogeneration using emergency and standby equipment 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 30- by 30-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 panel 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.
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.
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 crossroad.

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 melange 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.
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 Tonchak (mechanical); Joe Williamson (electrical)

General contractor:
Tenacre Foundation

Special crafts:
Leon Barth, Herman Beger, Frank Citro, Jim Eisenmann, Harvey Hutchinson, Robert Hutchinson, Blair Neilson, 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. Trays 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
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 19th-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 rather than wood for baseboard, wainscot, and arch designs in the suite. The sides and underside of the archway are cant 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, Maresol Ramon, Daniel Purdy, Thomas Noble

Consultants: Karl Hansen (structural); Smith & Fasas (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.
Since the new town of The Woodlands is not expected to achieve its projected population of 250,000 for a decade, 50 percent 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 has 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:
Strato-Build, Inc.
Restoring pattern

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
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 cloo, 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 1738, restored 1976) Montgomery County, Pennsylvania
Owner: Commissioners of Montgomery County
Restoration architect: John Milner Associates
Architectural paint conservator: Frank S. Welsh
Shaping sound

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% reflective and 40% 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.

This eclectic, dockside bungalow (photo at left) gives no clues from the outside of the sophisticated sound chamber it envelopes (fac¬ce 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

Dimmer controlled cold cathode cove lighting

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 upright 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 upright determines both the overall 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-passerenger, 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
New products

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
**Product literature**

**Tiles of Distinction**
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*

**Ceramic**
The dimensions of Ltd., A receised A receised Circle A24,-paEe fluorescents. intensity low-voltage literature. proper Lock The lock, which is color brochure. Handicapped codes, is available finishes Glazing The glazing systems brochure. Cladding systems featured in or Diagrams and described are Wall Pittsburgh. the wall included in the specifications Shield The manufacturer's Ship Circle the manufacturer's described PVC two-way swinging, conservation reviewed in the literature. Frommelt Industries, Inc., Dubuque, Iowa. 

*Circle 405 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*

**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*

**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*

**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*

**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*

**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*

**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*

**Service doors**
A 32-page catalog features the Enertia door, which has 1 1/2-in. of foam-in insulation between two metal sheets. Specifications on other rolling service doors, grilles, fire doors, and side ceiling doors and grilles are included in the literature. Atlas Door Corp., Edison, N. J. 

*Circle 409 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. Aerology Commercial Products, Inc., Old Saybrook, Conn. 

*Circle 410 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
The Tri-Fount™ Washfountain – the best way yet to move traffic through a washroom.

It's as easy as 1, 2, 3.
1. It can wash one or two or three people at once.
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.

Each of the three independent spray nozzles is controlled by its own push button, so each user activates a single metered .5 GPM flow of preblended water. It really cuts down on waste and waiting time.

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 backsplash—mounted soap valves are available, too.

Concealed spray formers, recessed push buttons, and a rugged access panel provide unsurpassed vandal-resistance.

The Tri-Fount™ Washfountain is also easy to maintain, with front access to all supplies and stops. The unit's metering valve assemblies employ the same basic design as Bradley's field-proven 90-75 metering faucet. Timing can be adjusted from five to twenty seconds by turning a screw—without turning off the water. And if the metering cartridge should ever fail, it can be replaced quickly and easily.

For more information, call your Bradley representative or contact Bradley Corporation, P.O. Box 309, Menomonee Falls, WI 53051. Phone 1 414 251-6000.
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

Roof membranes
A 4-page color brochure features the Hydro-Stop 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

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

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

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

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

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

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 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-born preservatives. American Plywood Association, Tacoma, Wash. Circle 420 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

Sealants
The manufacturer's line of sealant products for glazing and construction joints is reviewed in an 8-page color brochure. The composition, 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

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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Circle 69 on inquiry card
**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, multituser, 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. color graphics screen, a digitizing tablet, and a stylus. CalComp, Anaheim, Calif. Circle 365 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 films and ink on paper, vellum, mylar, and film in sizes up to 40 in. wide. SKANTEK Corp., Warren, N. J. Circle 365 on reader service card Continued on page 183

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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.

Graphics controllers

The M-16 and M-356 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-micrographics 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.

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. Circle 310 on reader service card.

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Circle 72 on inquiry card
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Manufacturer sources

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

Pages 122-127
Shriners Hospital for Crippled Children by Bohr and Thomas and Associates


Pages 128-131
Emergency Clinic, Jackson, Miss. by Goodman Architects


Pages 132-133
Merritt Island Medical Center by Hansen Lind Meyer


Pages 134-137
Holy Family Ambulatory Care Center by Holabird & Root

Pages 134-135—Curtain wall, glazing: Kawneer. Skylights, entrance canopy: IBG.


Pages 138-147
INTELSAT Building by John Andrews International


Page 140 (top): Entrance: Pilkington Bros. Ltd.

Page 143—Atrium glazing: Lord & Burnham (Canada).


Atrium flooring: B. Satterwaite.

Page 146—Metallic wall treatment: Forms & Surfaces.

Pages 148-151
Cafeteria, Tenacre Foundation by Jeffrey Hildner


Pages 162-165
Woodlands Municipal Offices by Taft Architects


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The College of Environmental Design is seeking applications for faculty positions for the academic year 1986-87, starting from September 1, 1986, in the following areas of specialization:

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POSITIONS VACANT

The University of Florida invites applications and nominations for the position of Chair, Department of Interior Design in the College of Architecture. The Department offers programs leading to the professional degree of Bachelor of Design in Interior Design. The Department has 10 faculty and approximately 100 students. Responsibilities will include administration, leadership of faculty and students, and development of a proposed graduate program. Candidates should have demonstrated competence in professional practice, administration, research, and teaching. Qualifications should include Master's Degree or higher in Interior Design, Interior Architecture, or another allied design field. Appointment will be made at rank and salary consistent with qualifications and experience. The College of Architecture also includes programs in Architecture, Landscape Architecture, Urban and Regional Planning, and Building Construction. Applicants should send a letter of interest, current resume, and three letters of recommendation. A portfolio of projects and philosophy statement may be requested at a later date. Since the position will be available as early as January, 1986, applications should be received no later than November 1, 1985. If a satisfactory candidate is not identified by that date, the search may be extended. Send applications to: John M. McRae, Chairman, Interior Design Search Committee, College of Architecture, 331 ARCH University of Florida, Gainesville, FL 32611. Equal Opportunity/Affirmative Action Employer.

Specifications Writer — John Milner Associates is seeking an experienced specifications writer to conduct product/materials research and prepare specifications for a variety of renovation and new construction projects. Candidates must have a minimum of 5 years experience in construction specifications writing. Submit resumes only to: John Milner Associates, Inc., 309 N. Mattieck Street, West Chester, PA 19380.

Theatres, Concert Halls, Opera Houses, Facilities For Drama and Music Education. If you are interested in working on architecture for performing arts facilities, write or phone Richard Snyder, ARTEC Consultants Inc, 245 7th Ave., New York, New York 10001, (212) 342-0120.

Positions available for senior level lighting designers and recent architectural/engineering graduates. Send resume or contact: Ms. D. Dimitroff, Lighting Design Collaborative, 1518 Walnut Street, Philadelphia, PA 19103. (215) 733-3024.

Vice President/Director of Architecture for medium size health facilities planning and architecture firm. Must be thoroughly familiar with the entire architectural process and possess managerial and marketing experience. Professional registration required. Contact in writing Hans H. Finne, Inc., 23 Concord St., Wilmington, MA 01887.

Architect for growth oriented Fla. design firm req. Degree and 2-4 yrs. exp. in schematic dev., contract doc., and spec. prep. is essential; along with ability to assume increasing proj. responsibilities in a professionally challenging environment. Firm has excellent comp. and long term advancement oppor. For consideration contact our reps in conf. at: G. Marshall Assoc. P.O. Box 66083, Chicago, IL 60666.

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Faculty Position-Ferris State College Open Dec. 1985. Responsibilities for courses in basis drafting, architectural presentation, working drawings and related subjects. Qualifications of principal applicant to include an architectural degree program. Assist in development of baccalaureate program 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 A. Shume, 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 of 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 EOA 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 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 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.

OFFICIAL REQUEST FOR PROPOSALS

City of Gatlinburg
Office of the City Manager
P.O. Box 5
Gatlinburg, Tennessee 37738
(615) 436-7803

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. 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:
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 deciding.

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, Tennessee 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.

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SPECIAL SERVICES


Design news continued

Emilio Ambasz, and Massimo and Lella Vignelli. While not showing or telling anything new, these multi-disciplinary role-models helped countervailing 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 be embracing marketing as much as design. German designer Hartmut Esslinger, head of the California-based firm called "frogdesign," presented one of the most striking industrial designs seen during the conference, including the Sony Walkman, and Apple's IIe 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 vocabulary." 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 WORLDDESIGN II gained from its lengthly 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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