



Progressive Architecture

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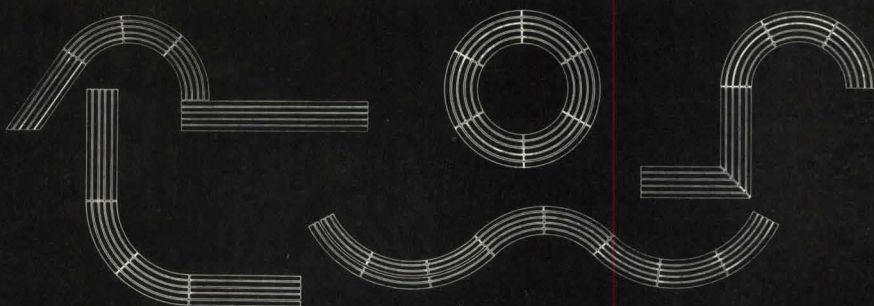
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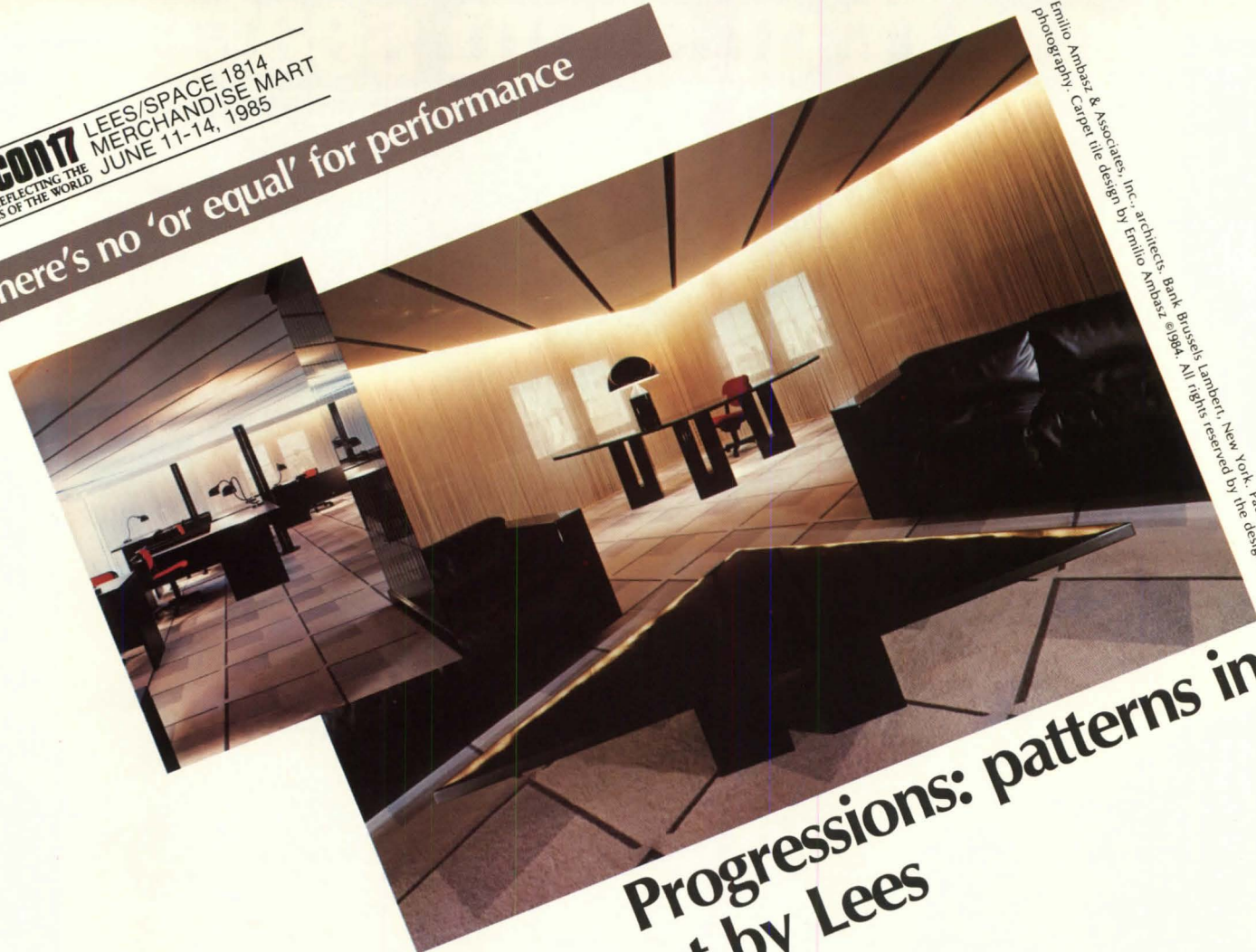
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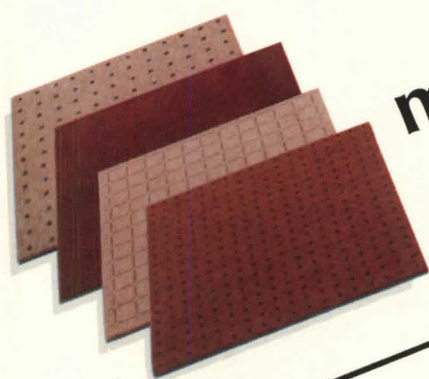
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Architects and the Bottom Line

A few months ago, I took part in a state AIA Convention, at which a corporate chief presented the client's view of architecture. He was a thoughtful and articulate speaker on the subject, and a well-qualified one, since he was then building his own company's new headquarters building while serving on the building committee for the local museum expansion. For the corporate building, he reported, a large, businesslike firm, seldom honored for design as such, had been chosen; for the museum, an internationally known design star. Under questioning by the assembled architects, he defended these role distinctions with conviction. For the offices, he said, it was essential to meet complex user needs precisely, on time and on budget; for the museum, on the other hand, he expected a personal design statement, to be completed behind schedule and over budget.

Understandably, the local architects bristled at this type-casting, particularly since its effect was to give both of these choice commissions to out-of-state firms. I found the distinctions between the chosen firms questionable; I knew that the star architect was already working on a comparable corporate headquarters in another city, and I could imagine the businesslike firm turning out a respectable museum if it tried.

Were the criteria for selecting these architects based on real differences in the two commissions, or were they conditioned as much by the places these commissions held in the lives of people like our speaker? As a corporate executive, this man seemed to see efficiency and economy as his principal obligations; when he switched to a volunteer role in a cultural project, his commitment seemed to shift to advancing the art of architecture, even while anticipating inefficiencies. I wondered whether the museum administrators, who make their living delivering culture,

weren't taking a tougher stance on the architect's responsibilities.

None of this is to say that this museum architect is failing to meet schedule or budget—or that the corporate-office architect is succeeding at it. The point is that differing degrees of artistry and practicality are *wanted* in these contrasting situations. The relationship of architects to such concerns as budget and schedule is, in fact, ambiguous in several respects.

The architect's real responsibility is not, except in rare instances, to meet the client's narrowest objectives at the minimum cost. As an advocate of sound architecture, the professional should point out what can be gained by spending *more*.

There is certainly reason to question the recent preoccupation of American business with the Bottom Line. As Adriano Olivetti pointed out many years ago, profit appears on the *cost* side of the ledger; it is what the corporation *pays* to its stockholders. Today, big profits may make an enterprise a more attractive candidate for acquisition—or an executive a more attractive prospect for head-hunters—but they may be hurting the capacity for future profits. (Concentration on the bottom line may also produce a blind spot in considering nonprofit institutions such as museums; without a bottom line to measure by, trustees may fall for economic fantasies and tarnish their architects' names by association.)

We should also be skeptical about references to projects that are "over budget" or "behind schedule." Often clients decide to expand, upgrade, or otherwise alter projects after initial budgets and schedules are set. It is all too easy for the architects to be unjustifiably blamed for this by outsiders—other architects among them—who don't have all the facts.

With encouragement from a design pro-

fessional, many a client has looked beyond the immediate profit statement and taken the longer view. In a recent *New York Times* article on the new Esprit store in Los Angeles, by designer Joseph D'Urso, there is a telling quote from the owners: "We didn't plan on spending so much money. We sort of got caught up in the enthusiasm of it all." There are risks in this sort of escalation, for both owner and designer. Higher building goals, nevertheless, can pay long-term dividends. Just consider what Wright produced for Johnson's Wax or Mies and Johnson for Seagram.

A larger building budget can yield such practical benefits as durability, delayed functional obsolescence, and potential for orderly adaptation or expansion. And it can buy such intangibles as superior marketability, greater user satisfaction, and improved public recognition for the client. Similarly, money wisely invested in institutional buildings can generate public enthusiasm, encourage gifts, and so on.

These, I believe, are the kinds of benefits that the AIA had in mind when it applied the ultrasuccinct label "Value Architecture" to its 1985 programs. Delivering such benefits, effectively, should justify more generous fees, as well as more favorable public recognition, for architects. And that is a perfectly valid half of the underlying strategy: deliver more valuable buildings, earn more generous fees. ■

John Morris Diefen

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Views

Opinion: "Why Architects Earn Less"

Although Jusuck Koh's statements ("Why architects earn less," P/A, Jan. 1985, p. 71) may apply to a number of architects, his denouncement of architecture schools is rather harsh. It must be realized that architecture is both an art and a science and in my view art deserves to precede science, for the art (design) in architecture is what makes our profession distinct from engineering.

I think the reason why architects earn less is because of the value that society and governments place on architecture; not because of poor training by architecture schools. Architecture encompasses many disciplines; hence architects should be specialists and generalists—specialists as designers, ergo artists.

It is time we stop self-flagellation and raise our professional banner to the public in order to ensure respect. There is always room for improvement, however, as indicated by Mr. Koh's prescription.

Alexis Felix, Architect

Total Design

Lucia, W.I.

C.M. McReynolds wished to place blame for low fees on an Oversupply of Architects (P/A, June 1984, p. 55). Mr. Koh seeks to place responsibility on what he sees as a misguided architectural education ("... Few architectural educators with a Ph.D."—So what?) and on some weakly defined professional "... ineffectiveness and irrelevancy."

The reasons which contribute to low fees are, I am sure, varied, complex, and numerous. However, it seems that the *main reason we earn less than other professionals is that we charge less* and exacerbate the situation by giving far too much free advice. We look the other way at situations which, not altogether legally, circumvent architectural services. Peripherally, certainly architectural education can be improved. (I don't see any benefit in "... organized education in teaching." None of the other professions do this and it seems not to have hurt their pay or proficiency.)

Improvement of professional effectiveness continues in many of the areas which he lists. If I understand [Mr. Koh] correctly, and I am not sure that I do, I think much has been happening in these areas for a good while. I can't see any relationship to fees. I think the motivation for any such undertaking should be in areas other than compensation.

I strongly disagree that architects are not now relevant and are headed for obsolescence. Obviously, he and I know a different set of professionals. What [Mr. Koh] states would make us more relevant, we did or are

doing (with the exceptions of point #3 where I am confused by what he says and #5 with which I disagree). I see no evidence that we are greatly different from other architects currently practicing.

I most emphatically disagree that "... anything less than changing the structure of our profession and its belief system will result in architects as dispensable professionals." I do think that we will continue to seek and force improvement in our profession as do any professionals. I don't see obsolescence. I see expanding significance and a willingness by our society to seek out and make the fullest possible use of our skills. I admit to only one slight fear: Will we shy away from demanding that we be adequately paid for our willingness to provide the service and take on the liability?

Bert Sayfarth, architect

East Lansing, Mich.

Chicago tower: homage misplaced

The project for the 190 South LaSalle Street office tower in Chicago, by John Burgee Architects with Philip Johnson, is hardly in "homage to Louis S." (P/A, "In progress," Feb. 1985); it has, instead, all too much to do with Burnham & Root's long demolished Masonic Temple of 1890-92, which stood 20 stories tall on the northeast corner of State and Randolph, Chicago. The ornamented gables of the old building made a lot more sense. They expressed the fraternal lodge rooms in a mammoth building of many functions—highrise shops as well as offices, public restaurants and a public observation deck at the top. Some day, the profession is going to have to admit that skyscrapers of the 1880s and 1890s were far more interesting than those of today, in every way.

Donald Hoffmann

Kansas City, Mo.

Credit correction

A write-up for Jason Industrial's Pirelli Rubber Flooring (Feb. 1985, p. 177) miscredited the design. The product item should have said, "first introduced in 1932 in the Maison de Verre, designed by Pierre Chareau and Bernard Bijvoet ..."

Photo credit correction

The name of the photographer for the article on the Thomas Gordon Smith house (P/A, March 1985, pp. 86-90) was misspelled. It should have said "Photographs: Henry Bowles."

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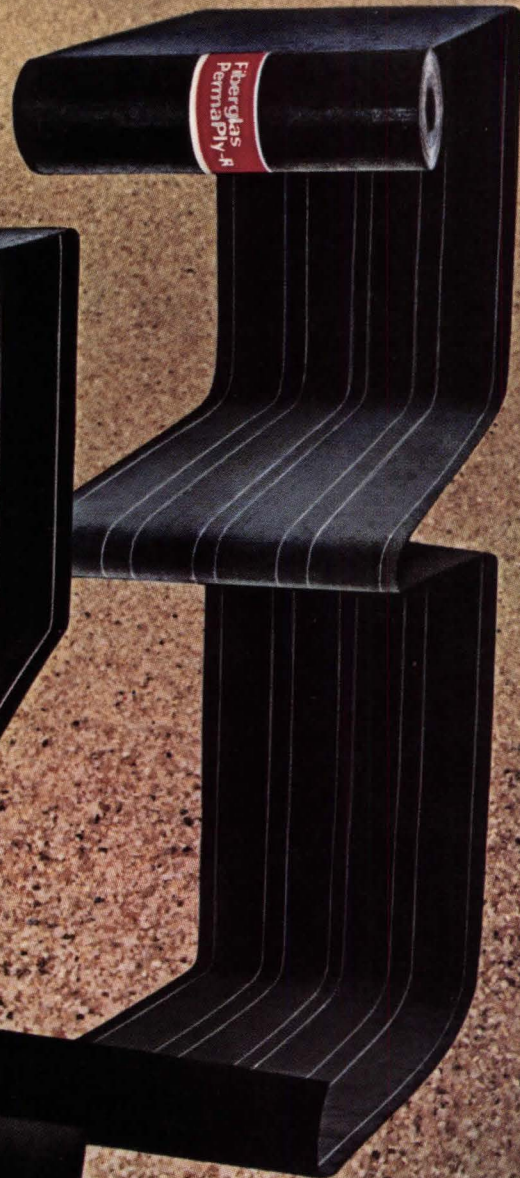
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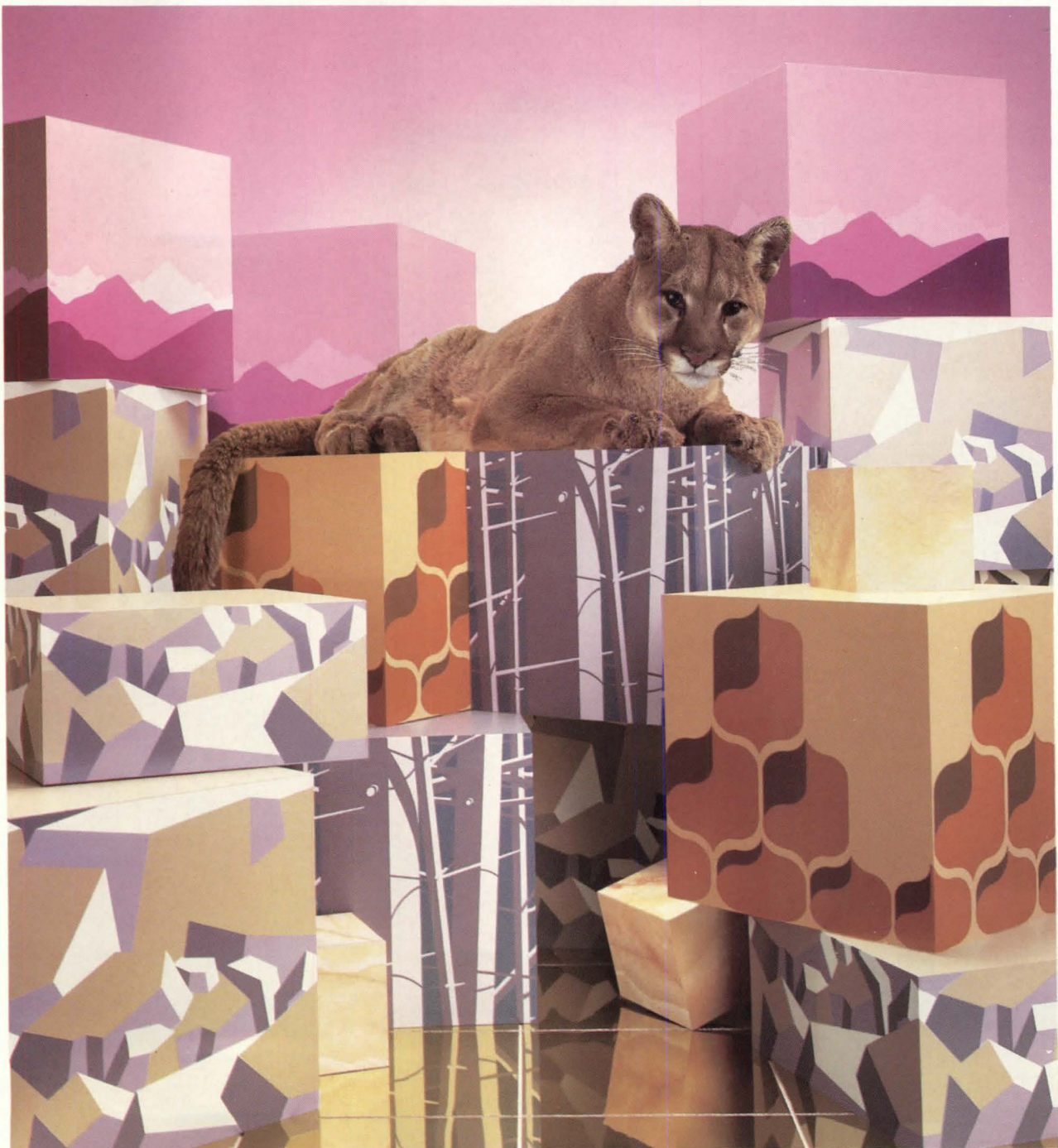
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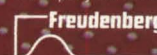
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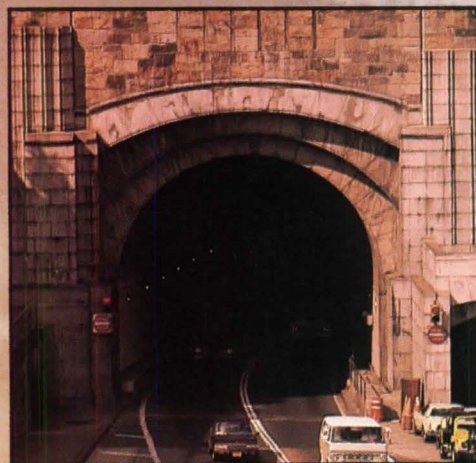
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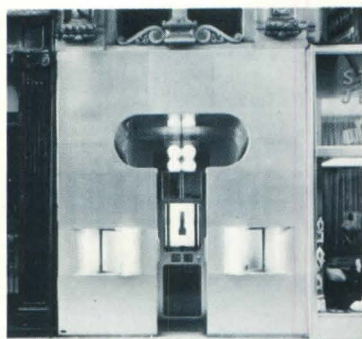
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P/A News report

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Retti Candleshop, Vienna, 1965.



Schullin Jewelry Store I, Vienna, 1974.



Schullin Jewelry Store II, Vienna, 1982.



Ludwig Beck, New York, 1983.

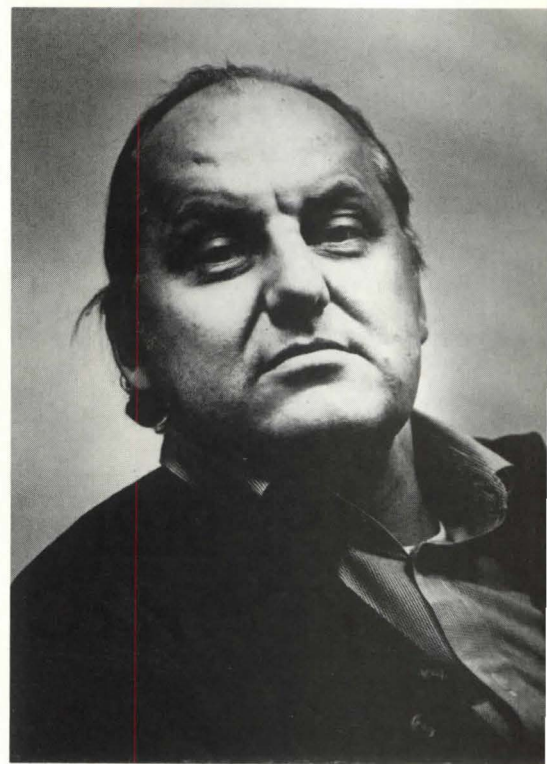
Pritzker 85: Hans Hollein

After selecting a string of mainstream or high modernists, the jury for this year's Pritzker Prize has opted for a lesser known and certainly more eccentric choice. Hans Hollein, an Austrian architect, is the seventh laureate but only the third from outside the States.

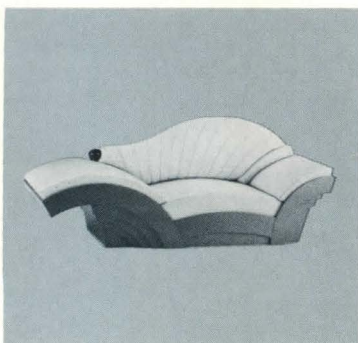
Like the first foreign laureate, Luis Barragán, and the second, James Stirling, Hollein is a provocative selection that departs from the Pritzker laureate profile of recent years in several ways. While well known in architectural circles, his is not a household name with the widespread lay public recognition accorded Philip Johnson, I.M. Pei, or more recently Richard Meier. His built oeuvre is smaller and quirkier. Although Hollein has a masters from Berkeley and did graduate work with Mies at IIT, the architect has only two completed commissions in this country—the 1969 Feigen Gallery, and the 1983 Ludwig Beck shop in the Trump Tower, both in New York. His work abroad, however, including the Austrian Travel Agency Offices (1982, P/A, Dec. 1979, pp. 76–79), the Schul-

lin Jewelry shops (1974 and 1982, P/A, June 1983, pp. 76–79) in Vienna, and his Municipal Museum Abteiberg in Mönchengladbach (1982, P/A, March 1975, p. 34) have been published extensively. The 51-year-old architect is also known for furniture and products designed for Memphis, Alessi, Swid Powell, Knoll, M.I.D. Austria, and other manufacturers. His exhibition on Viennese culture entitled "Dream and Reality" opened in Vienna in March of this year.

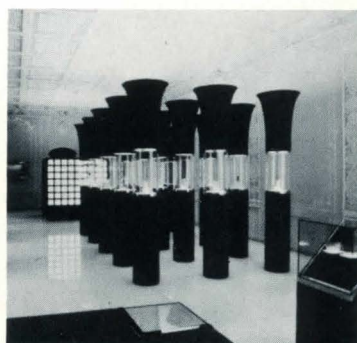
Several promising projects now underway also justify the jury's selection. Hollein captured the prestigious commissions for Frankfurt's Museum of Modern Art (P/A, Aug. 1983, pp. 94–95) and Berlin's Cultural Forum (P/A, March 1984, p. 28), both awarded through international competitions. He is also building an apartment house in Berlin for IBA 87. Cited by Pritzker jury secretary Brendan Gill as "that comparatively rare thing in contemporary architecture, an artist-architect," Hollein was also praised for his teaching—at Yale, Washington University in St. Louis, Düsseldorf, and Vienna. He receives the \$100,000 prize and a bronze replica of a sculpture by Henry Moore from prize sponsors, The Hyatt Foundation. *Daralice D. Boles*



Austrian Tourist Office, Vienna, 1978.



Sofa.



Museum of Glass and Ceramics, Tehran.



Municipal Museum, Mönchengladbach.

Pencil points

Frank Lloyd Wright's friends and relations are outraged by the FLW Foundation's move to exhume, cremate, and relocate the body of the architect.

- Acting on the verbal last wishes of Wright's widow Olgivanna, the Foundation transferred the ashes from one Taliesin (Spring Green, Wisc.) to the other (Scottsdale, Ariz.).

The FLW Foundation has also selected four manufacturers to produce and market authenticated reproductions of Wright's designs. Participants in the program's first phase include: Cassina S.p.A. of Milan, Italy (distributed through Atelier International in the U.S.) for furniture; Tiffany & Co. for china, crystal, and silver; Schumacher for fabrics and wallcoverings, and V'Soske for rug designs.

- First offerings are due in early 1986.

Less than 10,000 riders a day use Miami's new Metrorail, a figure barely one-fifth the original projections for the first year of operations. That number will rise when an airport extension and downtown spur are completed, but Federal funds for the project—as for all mass transit—are on the chopping block.

Twentieth-Century American decorative and industrial design is to be the subject of a fall show at the Whitney Museum of American Art (Sept. 19 through Jan. 5, 1986). Five scholars and critics are selecting the objects: David Hanks (Philadelphia Museum of Art) for 1900–1915; David Gebhard (U.C. Santa Barbara) for 1915–1930; Rosemarie Haag Bletter (NYU) for 1930–1945; critic Esther McCoy for 1945–1965; and House & Garden editor Martin Filler for 1960–1975.

- Venturi Rauch & Scott Brown are designing the installation. A catalog and symposium are also planned.

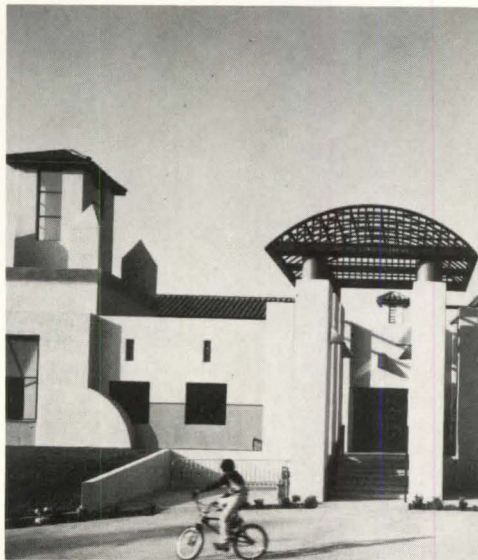
And the Cooper-Hewitt Museum, New York, is hosting a show on illustrated design books (May 21–Oct. 6) from the 16th to the 20th Centuries. Pattern books, perspectives, manuals, trade catalogs, and illustrated manuals fill out the survey.

London's Trafalgar Square is once again the site of a design competition. The program: redevelopment of the "Grand Buildings" (former Grand Hotel), the bowed-front block catty corner from the National Gallery, whose competition controversy has yet to be resolved.

[Pencil points continued on p. 39]

AIA Honor Awards: Another All-Star Group

Again this year, AIA's Honor Awards for completed works of architecture are going largely to well-known buildings by established firms. As we said last year at this time (P/A, May 1984, p. 22), we can hardly quibble if work already recognized by the major magazines also wins the AIA jury's approval. It may confirm that the press and the profession are sharing valid standards—or it may mean we are letting success breed success.

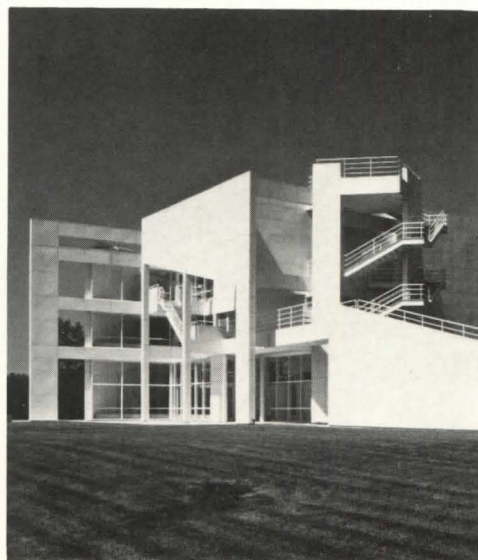


San Juan Capistrano



Chilmark Residence.

June 1984, pp. 69–79); Middlebury Elementary School, Middlebury, Conn., by Tai Soo Kim/Hartford Design Group (P/A, Dec. 1983, pp. 58–63); The Athenaeum, New Harmony, Ind., by Richard Meier & Partners (P/A, Feb. 1980, pp. 67–75); Volvo Corporate Headquarters, Gothenburg, Sweden, by Mitchell/Giurgola Architects (P/A, March 1985, pp. 65–77); Payson Building, Portland Museum of Art, Portland, Maine, by I.M. Pei & Partners (P/A, Aug. 1983, p. 100); Pacific Townhouses, Santa Monica, Calif., by Rebecca L. Binder and James Stafford; House, Eastern Shore of Maryland, by Hugh Newell



The Athenaeum.



Pacific Townhouses.

This year, 12 projects were honored out of more than 600 submitted. Two of these involve reworking of existing buildings—a welcome advance over one per year for the past couple of years. They are the Church Court Condominiums in Boston, by Graham Gund Associates (P/A, Feb. 1985, pp. 88–93) and the restored Pike Place Market in Seattle, by George Bartholick; the jury deserves extra credit for recognizing the latter, the great virtue of which is that it doesn't look restored at all.

P/A's enthusiasm for several of the other winners is indicated by the notes below on their publication in this magazine: San Juan Capistrano Library, San Juan Capistrano, Calif., by Michael Graves, Architect (P/A,

Jacobsen; Roosevelt Solar Village, Roosevelt, N.J., by Kelbaugh & Lee (P/A, July 1984, pp. 66–68); Weyerhaeuser Technology Center, Tacoma, Wash., by SOM, San Francisco; Chilmark Residence, Martha's Vineyard, Mass., by Robert A.M. Stern Architects, New York.

Jurors for this year's Honor Awards competition were James Stewart Polshek, FAIA, New York (chairman); Thomas L. Bosworth, FAIA, Seattle; Robert Campbell, Cambridge, Mass.; William H. Grover, AIA, Essex, Conn.; O. Jack Mitchell, FAIA, Houston; Roger Schluntz, AIA, Tempe, Ariz.; Harry Weese, FAIA, Chicago; Alejandro Barberena, AIA associate member, Austin, Texas; James Kalsbeek, student member, Cincinnati, Ohio. **John Morris Dixon**

West Week

There was something for every one of the 12,000 architects and designers who attended West Week, held March 27–29 at the Pacific Design Center in Los Angeles. This year's market event, entitled "Form and Purpose," presented a number of noted figures from a variety of fields. Dr. Jonas Salk, the conference's keynote speaker, stressed the need for developing "an evolutionary approach to survival" based on interdependence, cooperation, and a "both/and" attitude toward problem solving. Speaking of "both/and," architect Robert Venturi offered an overview of Venturi Rauch & Scott Brown's work to a packed house, and architect Moshe Safdie gave a presentation of his own work, also to standing-room-only crowds. A West Week highlight was William F. Buckley, Jr.'s keynote address to the PDC 2's Business Conference; his remarks on the current economic and political scene delighted and founded equal portions of the audience.

The integration of art and design was a major topic of PDC 2-sponsored seminars. Internationally-known art collector Count Giuseppe Panza di Biumo showed slides of the site-specific works installed at his villa in Varese, Italy, while James Turrell, one of the artists whose work Panza collects, presented recent work, including his monumental Roden Crater project in Arizona. James Wines of SITE and Los Angeles architect Jon Jerde offered provocative insights on the subject of urban design, and the week ended with a huge party at the Temporary Contemporary of The Museum of Contemporary Art, which recently received a \$4 million grant from ARCO to keep the immensely popular, Frank Gehry-designed temporary museum open even after MOCA's permanent home, designed by Arata Isozaki and taking shape quickly and beautifully, opens late in 1986.

Several new showrooms were unveiled at West Week, the most dramatic of which was the elegant 14,000-square-foot space for Steelcase, designed by Orlando Diaz-Azcuy of Gensler and Associates. The showroom's white terrazzo floors, white lacquered walls and vast amounts of natural light made it, by all accounts, the hit of the week. Other new and noteworthy spaces are the Maharam showroom, designed by Kaneko Ford Design, and the Shaw-Walker showroom, by Andrew Dennis of Planned Business Environments. Herman Miller showed off its Ethospace system in a sophisticated installation designed by Don Chadwick and Jayme Odgers, while Formica Corporation presented the executive office designed for company president Gordon Sterling by Michael and Katherine McCoy, cochairmen of Cranbrook's design department. Haworth exhibited the results of a program it sponsored at Pasadena's Art Center College of Design, in which students offered new ideas for office space design; the program was conceived to foster "blue-sky" research in the field.

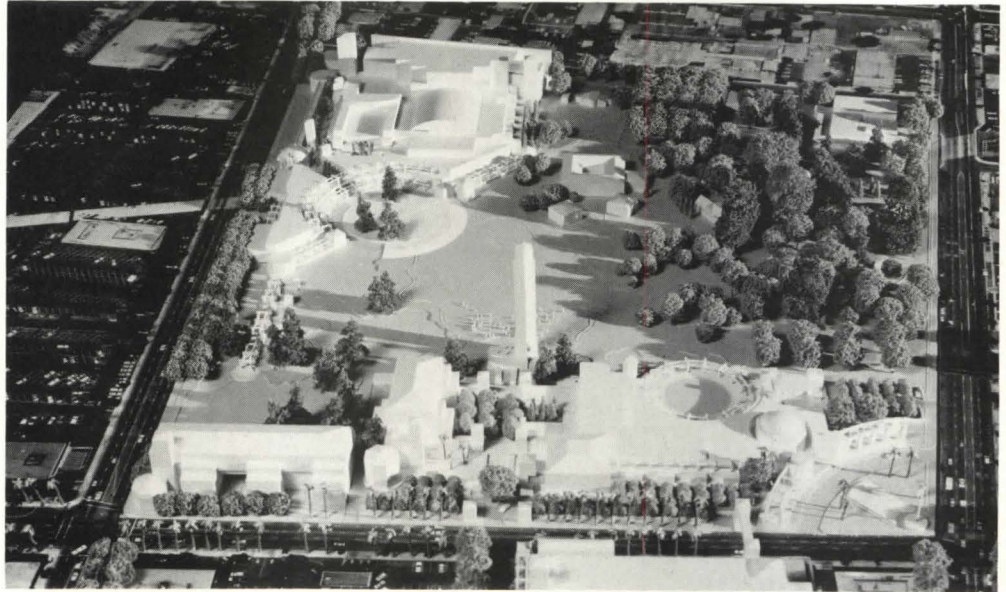
In the PDC, which was filled with the colorful balloon installations of Israeli artist Doron Gazit (whose balloon designs were such a hit at last summer's Olympic Games), crafts artists offered on-the-spot demonstra-

tions of their work, and P/A exhibited the winners of the Fifth Annual International Furniture Competition. The exhibit coincided with the American introduction—at West Week—of the first P/A furniture award winner to go into mass production, Haigh Space's Tux chair, manufactured by Bieffe.

PDC Executive Director Murray Feldman and Public Relations Director James Goodwin spoke like proud godparents of architect Cesar Pelli's proposed PDC addition. The design, which is still under wraps, promises to be every bit as dramatic as Pelli's original 1971 Blue Whale. *Pilar Viladas*



PDC decked out for West Week.



Starting from Scratch: Escondido, Calif.

The four-year-old firm Pacific Associates Planners Architects, Inc., of San Diego, Calif., has been awarded the prestigious commission for a civic and cultural center in Escondido, Calif. Winners of a two-stage national competition, sponsored by the National Endowment for the Arts to the tune of \$85,000, the firm outflanked four other semifinalists: Lord & Sargent, Inc., Atlanta, Ga.; Tim Vreeland of Albert C. Martin & Associates, Los Angeles, Calif.; Tamarkin & Techler, Boston, Mass.; and Robert Cain, Asheville, N.C., each of whom received a

\$7500 honorarium (PAPA was also awarded the \$10,000 first prize). Five additional awards of merit were issued to Steve Luoni, Columbus, Ohio; A/L Design, New York; Richard Friedson, San Diego, Calif.; de Brer, Ahlers, Brachet, Hixon, Roger, San Francisco, Calif.; and Greg Izor, Escondido, Calif.

PAPA principals Charles Slert and Richard Dalrymple, joined by DMJM for the competition's second phase, expect to see their 84,000-square-foot city hall under construction next year. The city had saved up the \$8 million required for that portion of the project; phase two—a comprehensive package that includes a 160,000-square-foot regional government office building, a 25,000-square-foot conference center, a 500-seat civic center, and a 25,000-square-foot fine arts museum priced at \$48 million—goes to the voters this November. This inflated program will serve a growing constituency: Population in the Escondido area, 100 miles south of L.A., is projected to jump from 350,000 to 1.5 million in 20 years.

PAPA's scheme appealed for several reasons. The professional jury cited its careful separation of civic and cultural facilities, confusingly combined in other schemes, and the integration of the new 13-acre complex with the existing 16-acre Grape Day Park. But it was the scheme's Mediterranean overtones—its arcades, fountains, trellises, and courtyards, all rendered in seductive watercolors—that the local press praised as providing an image and architecture for the would-be regional capital. *Daralice D. Boles*



Top and above: PAPA's winning scheme for Escondido's civic and cultural center.

Wood Council Awards

Thirteen renovations ranging from the adaptive reuse of old warehouses to the remodeling of a World War II USO Hall have been recognized by the American Wood Council. Jurors Joan E. Goody of Goody, Clancy & Associates; Joseph Escherick of Escherick Homsey Dodge & Davis; and E. Jay Jones of Fay Jones & Associates selected twelve projects for awards, including the Hidden Harbor Restaurant, Pompano Beach, Fla. (The Architects Inc., Cleveland, Ohio); RPI Playhouse, Troy, N.Y. (Bohlin Powell Larkin Cywinski, Pittsburgh, Pa.); Mary Lyon Hall, Norton, Mass. (CBT/Childs Bertman Tseckares & Casendino, Boston, Mass.); 402 North Main, Randolph, Mass. (Charles T. Stifter Architects, Boston, Mass.); William Temple House addition, Portland, Ore. (Fletcher Finch Farr Ayotte, Portland, Ore.); HCDA offices, Coral Gables, Fla. (HCDA, Inc.); Hospital renovation and Building 12 reconstruction, Fort Humboldt, Eureka, Calif. (Office of the State Architect, Sacramento, Calif.); The Athenaeum Hotel, Chautauqua, N.Y. (Robert C. Caede Architects, Cleveland, Ohio); Simpson Hall, Nyack, N.Y. (Schofield Colgan, Nyack, N.Y.); City Hall & Davis Buildings, St. Marys, Ga. (The Spriggs Group, Savannah, Ga.) and Cakebread Cellars, Rutherford, Calif. (William Turnbull Associates, San Francisco, Calif.). A special citation was awarded to Guy L. Rando & Associates, Reston, Va., for the National Country Garden at the U.S. National Arboretum, Washington, D.C. ■



Rob Super

Cakebread Cellars.



Otto Baitz

RPI Playhouse.



Memphis on 34th Street.

Macy's Goes Memphis

The spirit of an Italian design group that once aimed to outrage good taste now pervades the consumer mainstream. A year ago, artists' furniture could only be found in SoHo showcases. These days, pieces like Bob Trotman's Dancing Table and Steve Ditch's Bugatti Stool appear in model rooms on the sixth floor of Macy's New York, part of a new housewares section the store calls Modern Living. The model rooms are slightly unusual in that they contain nothing offered for sale by the store; for this purpose, the store has built some stage-set Memphisoid chairs and tables as display for its new housewares items that include numerous place mats, bath towels, plates, cups, and a sheet pattern from Cannon Mills called—what else?—"Memphis." *Joanna Wissinger* ■

Biltmore Bungles: Who's to Blame?

The Biltmore Hotel, one of the most opulent buildings in downtown Los Angeles, is being remodeled for the second time in ten years. Designed by Schultze and Weaver in 1923, the Beaux Arts building, with its lavish Churrigueresque public spaces, was sensitively restored by Phyllis Lambert and Gene Summers in 1978 (P/A, Nov. 1978, pp. 66-71).

Last year, the hotel was sold to Westgroup. The developers plan to reduce the number of hotel rooms from over 1000 to 728, remodel some of the restaurant areas, and—most significant—add a 27-story parking and office tower to the northwest rear corner of the hotel. While the remodeling seems to be in good hands under the supervision of Barnett Schorr of Seattle, the tower addition designed by Landau Associates of Santa Monica poses some serious questions.

Whether by architectural design or client's desire, the new building will completely reorganize the Biltmore's entry sequence. The addition rests atop a suburban-style automobile court, co-opting a grand ballroom as the new reception area and relocating the main entrance to the former end of a secondary cross axis. While the developers argue that the original grand lobby will be transformed into a palm court in the manner of New York's Plaza Hotel, it will hardly survive as a living room off Pershing Square.

Landau's proposed tower is awkward, at best. Attempts to match the materials and style of the original building fail dismally. The first ten stories of the structure, reserved for parking, butt a nearly blank brick wall against the side facade of the Biltmore. No attempt was made to replicate the original fenestration pattern through blind windows, or to find a more elegant solution to the parking problem. The porte-cochere is sheltered by a completely inappropriate contemporary glass canopy. The fancy gable roof owes more to Philip Johnson than Schultze and Weaver.

It is a pity that Westgroup is so oblivious to the value of its investment as to add onto the hotel in this insensitive manner. Still more discouraging is the fact that the Community Redevelopment Agency and the Central City Association, both of which profess an interest in revitalizing Pershing Square, could allow this travesty to take place.

Barbara Goldstein ■



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Erickson Under Glass

"She searched through long-forgotten files," says Arthur Erickson of researcher and curator Barbara E. Shapiro, "and found scratches I didn't remember existed." The scratches—the important ones, that is—as well as working models, working drawings, photographs, and material samples, make up the exhibition *Arthur Erickson, Selected Projects 1971–85* (through June 6) at the Center for Inter-American Relations in New York,

The exhibition treats Erickson's work in a particularly thoughtful way, and applies an approach unusual in architectural exhibits. Shapiro utilizes, as far as feasible, the art historical methods of Harvard Art Professor and Fogg Curator of Drawings Konrad Oberhuber. Each artifact is examined both as an art object in its own right, and as a document of a historical process. For the Erickson show, several years in the making, she chose only objects produced in the normal routine of the office, commissioning no presentation drawings or models especially for the event. Many of the models, then, are

chitects work, as well as for respected architects and critics who haven't given him thorough attention, this type of exposition can reveal his intelligence and can permit proper discussion of his work."

This is true, up to a point. Erickson's development—from linear to perspectival to curvilinear (compare Wright, says Shapiro)—is made evident even in the category Single Family Houses alone. But what is also evident is Erickson's overindulgence and overeclecticism—one could say his promiscuity. He is widely traveled, and cannot resist injecting too many rich and exotic motifs, in the Chen house, and in the Chancery, for example. His taste for luxurious or shiny materials oversweetens the rigors of his modernist training—as in Roy Thomson Hall.

His work may have been subjected to "process" investigation in this exhibition, but it comes off best, in fact, in the most sophisticated drawings in the show. The viewer is drawn to the beautiful watercolor renderings by Michael McCann, illustrating Bunker Hill and Abu Nuwas, Baghdad. These bring out the best of Erickson: tony, refined, seamless.

Nevertheless, Shapiro's approach, deeply researched, carefully selected, meaningfully organized, should be remembered, and be repeated in future architecture exhibitions—next time, with a more suitable subject.

Susan Doubilet

Expo 86: Retardataire Fair?

Plans for Expo 86 in Vancouver, B.C., are proceeding apace. New York firm SITE has just unveiled its competition-winning scheme for the main plaza. Highway 86 is a madcap, 711-foot-long undulating, four-lane highway flanked by corporate and national pavilions and covered with every conceivable transportation mode (this Expo's theme), from tennis shoes to lunar modules, all rendered in a monochromatic gray. This motley phalanx emerges from False Creek, heads north, and ends in an upended off ramp over the real highway.

It's conceived, say its creators, "as a commentary on people's ambivalent relationship with technology in the 1980s, when this theme can be perceived as leading to either utopia or apocalypse. Also, since the roadway emerges from the sea like a primordial creature, it can be interpreted as a humorous view of Darwin's Theory of Evolution."

Highway 86, in the best expo tradition, is



Erickson's Robson Square, Vancouver.

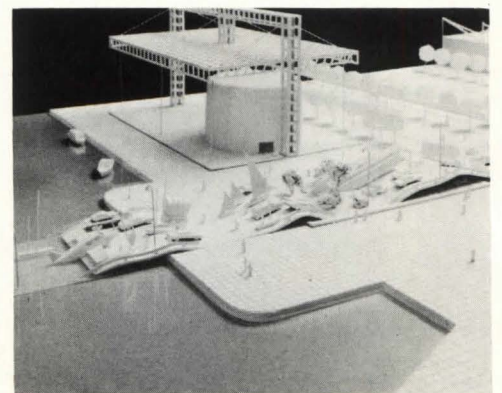
Dick Busher

traveling thereafter to Montreal, Vancouver, London, England, and London, Ontario. Nineteen projects, several of them built, are organized chronologically within categories: Single-family housing; Museums and Theaters (including the Museum of Anthropology of 1971–76, and Roy Thomson Hall, Toronto, of 1976–82); Commercial buildings (including two projects for New York—one for developer Donald Trump); Massive urban development projects (including Bunker Hill and three fascinating conservation/development schemes, now on hold, for Baghdad); and Government projects (including Robson Square, 1973–83, and the planned Canadian Chancery in D.C.).

rough; even telecopier prints are included when they reveal an important stage in the design process, or when the original is lost.

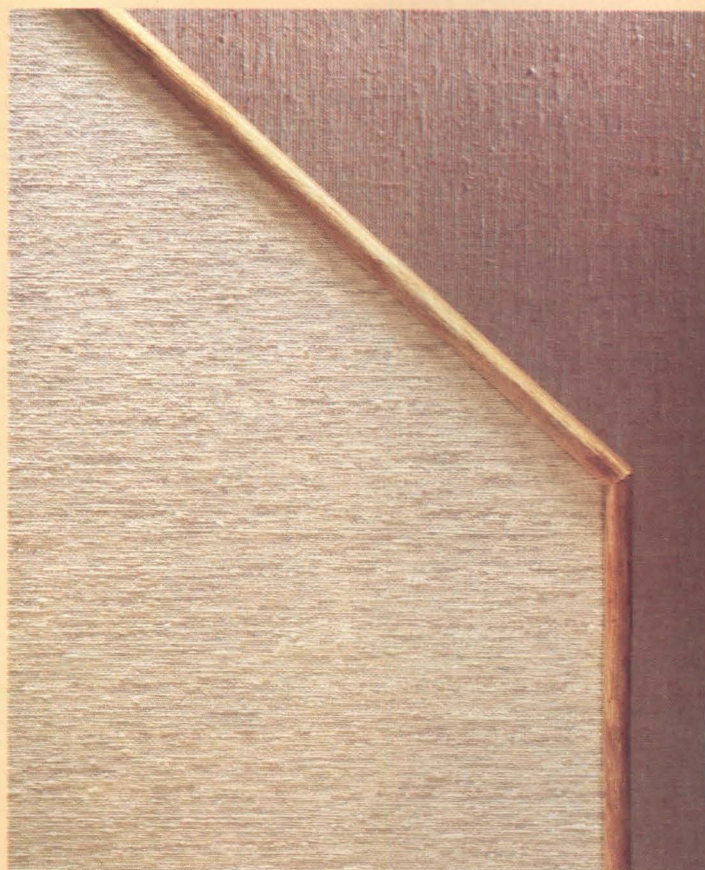
This "process" method, exciting as it is, conceptually, for architectural subjects, provokes two questions with regard to the present exhibition. If action is implied, why not go further and tack up the working artifacts as they would be in an office, rather than freezing them in prissy frames? And, more important, why choose Arthur Erickson, the very embodiment of smoothness and overripe elegance, for a rough-edged exposé?

To the latter question, Shapiro responds, "Erickson has not been properly understood. For the layman who does not know how ar-



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to be dismantled after the fair when the site becomes a Vancouver version of the new town in town (P/A, July 1983, p. 32). Wines hopes some other home can be found for his highway. All but four of the tubular steel corporate and national temples will also come down. Last year's L.A. Olympics, for all the hype, found a far more original way to deal with the temporary nature and tight economics of contemporary mega-events. This expo promises no such innovation.

Daralice D. Boles

Modern Living in Le Mondrian

When Cesar Pelli tried to turn the Museum of Modern Art Tower into Piet Mondrian's "Broadway Boogie Woogie," he ultimately toned down a red, yellow, and blue pattern to the more sedate palette of gray, brown, and blue. West Hollywood, on the other hand, welcomed Le Mondrian, a new hotel whose 100,000-square-foot surface has been painted in an "interpretation" of the artist's late work.

The hotel is the latest in a chain of hosteleries owned by the Ashkenazy brothers, who make it their business to take drab apartment buildings, with as few distinguishing architectural features as possible, and turn them into "hotels de grande classe" through the addition of such luxury touches as telephones in the toilets, provincial masters on the walls, and French furniture in the lobbies. Each hotel in the line appeals to a dis-



Agam's Mondrian.

tinct market through a carefully chosen image, from the High French (high society) L'Ermitage to the more "contemporary" businessman's Bel Age. For Le Mondrian, the Ashkenazys called in Israeli artist Yaacov Agam to do no less than rescue a mass of L-shaped floors from banality with no more than a paintbrush. Agam trained for the commission in Miami, where he transformed the Villa Regina, a 27-story condominium building cowering between two Arquitectonica extravaganzas, into a "kinetic" assemblage employing thousands of colors. Le Mondrian is (comparatively) more subdued, boasting only a series of stripes of alternating

colors running up the façade and along the pool area.

Le Mondrian has already drawn an MTV-crowd of rock stars and their entourages. The hotel is art (or architecture, or advertising) at its easiest and flashiest, geared for architecture, in the words of frequent guest Madonna, "in the material world."

Aaron Betsky

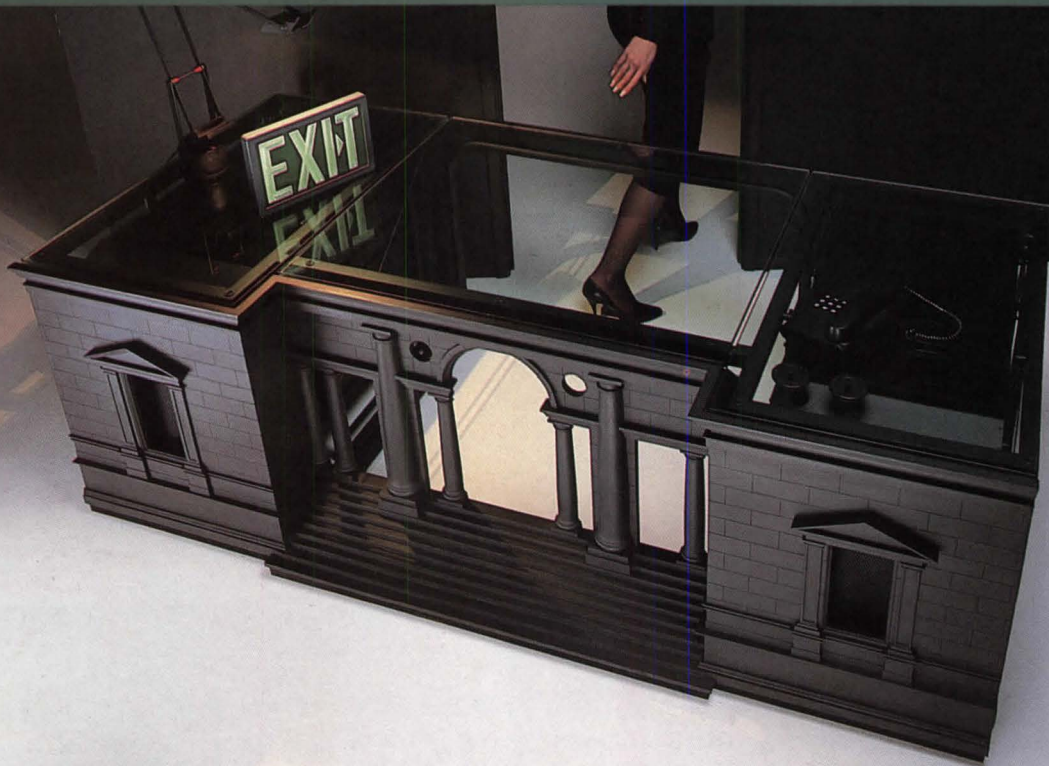
The author is Director of the Center for the Study of the History and Theory of Interior Design at the University of Cincinnati.

First AIA Research Conference

There's growing sentiment that the architectural profession must become more research-based (as well as more businesslike) if it is to thrive. There are forces that give that sentiment credence: the example of more successful research-oriented professions, such as medicine for instance, and the growing expectation in the courts that architects keep abreast of pertinent research.

In March, the AIA, with support from Otis Elevator, made that sentiment official, holding its first research conference. The event focused on four topics considered among the most pressing by the Architectural Research Council: energy, life safety and codes, building redesign, and the design of specialized facilities. With over 450 conference registrants, the presentations were well attended, although concurrent sessions made the hearing of all but a fraction of the papers impos-

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sible. And with some of the country's leading architectural researchers present, the quality of information was quite high, although that information might have been made more accessible to nonspecialists through overview presentations in each research area.

The conference did bring out differences within the research community, ranging from the interpretation of research findings (life-safety experts, for instance, strongly disagreed over the results of research conducted on the sprinklering of buildings) to the definition of what constitutes architectural research—one camp advocating a rigorous scientific method complete with control groups, another relying on the compilation of on-site observations. The conference also highlighted differences between architects and researchers. Researchers, in the opinion of some architects in the audience, too often study irrelevant questions or draw obvious conclusions, while more than one researcher remarked that architects sometimes seem to care only about research that helps their business. The resolution of those differences—and the placing of the profession on a firmer research base—will only come through more such conferences. Although the AIA's commitment to research is not as firm as might be desired or expected, the Institute does plan to make this conference an annual event. **Thomas Fisher** ■

The Indefatigable Charlotte Perriand

Thanks to the recent exhibition of her work at the Musée des Arts Décoratifs in Paris and the accompanying monograph entitled *Un art de vivre*, Charlotte Perriand's contribution to contemporary architecture is at last acknowledged, free of Le Corbusier's shadow. Perriand brought a specific expertise in the field of furniture, acquired at the École des Arts Décoratifs, to the "patient search workshop" of Le Corbusier and Pierre Jeanneret, which she joined in 1927.

After directing the construction of the 1937 Temps Nouveaux pavilion, Perriand left Corb's workshop to focus on the design of compact environments, including bathrooms or portable mountain shelters, work influenced by her fascination for Alpine cultures. With the outbreak of World War II, Perriand sailed for Japan where she spent several years working for the Takashimaya Department Stores, exploring the techniques of lightweight wood furniture.

Returning to France in 1946, she put together a catalog of wood tables and chairs that reflected fully both the Japanese experience and the Alpine inspiration. These components were sold in the 1950s, with the designs of Jean Prouvé and Isamu Noguchi, at the Galerie Steph Simon in Paris.

Over the last two decades, the tireless Perriand has proceeded to transform her ideal, minimal environment into reality, at Les Arcs



Perriand, pivot seat, 1927.

ski resort in the Alps. More concerned with the vision of a fluid, if restrained, living space than with any fetish for industrial materials, Perriand has avoided the febrile pulsations of French fashion. She remains a major influence on French design.

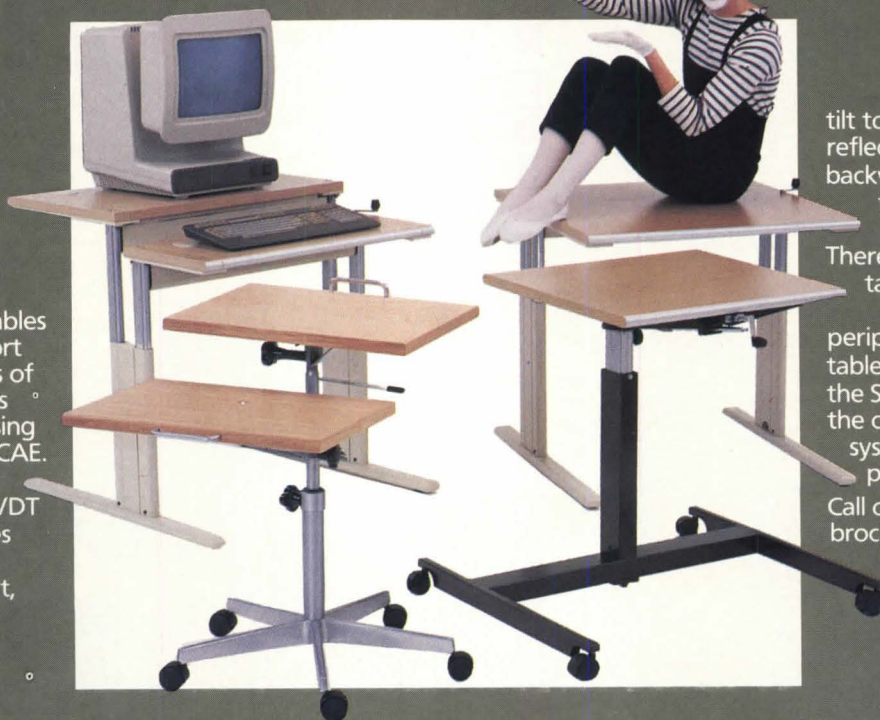
This spring's exhibition highlighted the most impressive moments of this journey through modern architecture, accompanied by Perriand's own commentary, in which she underlines the significance of life-long friendships with Jeanneret, Prouvé, and Sakakura. Unfortunately, this warm presence was not evident in some of the exhibits, which showed not the original pieces but more recent replicas, and too few original drawings. **Jean-Louis Cohen** ■

The author is an architectural historian teaching in Paris.

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Tax and Budget Proposals: The Impact on Architects

Ronald Reagan's domestic agenda for his second term aims at two targets: tax reform and deficit reduction. The President's budget for Fiscal Year 1986 is on the table; his tax plan is still in the pocket. In summarizing both the tax and budget plans here, particular emphasis is given to those aspects affecting the building industry, together with the responses registered (or *not* registered) by the American Institute of Architects and the National Trust for Historic Preservation.

The Budget

What's on this year's hit list? David Stockman's triage scenario schedules some 125 Federal programs for elimination, ranging from Amtrak to the Job Corps, from civil service retirement to urban development grants. Briefly, those proposals affecting the related fields of construction, preservation, and urban development include:

- Zero funding for the National Trust for Historic Preservation
- Elimination of the Center for Building Technology, in the National Bureau of Standards
- Elimination of the Center for Fire Research, NBS
- Zero funding for Urban Development Action Grants
- Ten percent reduction in Community Development Block Grants

- Two-year moratorium for Rental Rehabilitation Grants, Rental Housing Development Grants, and Rehabilitation Loan Fund Grants
- Zero contribution to the International Council on Monuments and Sites
- \$19.2 million reduction in the budget of the National Endowment for the Arts
- One-third reduction in the staff of the Advisory Council on Historic Preservation

The Treasury's Tax Reform Proposal

Donald Reagan's "Tax Reform for Fairness, Simplicity, and Economic Growth: the Treasury Department Report to the President," the probable basis for a Reagan plan, is "revenue-neutral," by the President's request. That is, it keeps income constant while redistributing the tab. Some aspects of the plan, such as the elimination of investment tax credits and the Accelerated Cost Recovery System (ACRS), would have a direct impact on the building industry, reducing investment in plants and equipment. Others are more insidious. The elimination of all deductions for charitable contributions totaling less than two percent of gross income hits such civic organizations as the National Trust or New York's Municipal Arts Society (not to mention the legions of museums, universities, etc.) where it hurts. Many would also be adversely affected by the stricter rules proposed for property donations and easements.

A sampling of other provisions shows how pervasive the plan would be: all tax incentives

for historic preservation and rehabilitation would be eliminated; credits for alternative fuel use repealed; rapid amortization for low income housing repealed; ITCs for reforestation repealed; five-year amortization for pollution control repealed. The potential side effects are far-ranging: one analysis postulates major migrations from high to low tax states; another predicts a shift from rental to owner-occupied housing, based on an anticipated decline in interest rates and a rent rise.

The plan would also inevitably change the way architects—and all Americans—do business. Although individual taxes would drop, corporate taxes would rise overall. Depreciation allowances for equipment—computers included—would be scratched. Health insurance, and all other "fringes," could be taxed. The three-martini lunch gets hit, along with the United Way.

Few political savants predict that the Treasury plan will fly; but they do point to philosophical similarities between the proposal and two Congressional bills: the Bradley-Gephardt (Democratic) and Kemp-Kasten (Republican). There is at the very least a growing consensus that the time is right for tax reform.

The Trust and the AIA Respond

Faced with the Administration's proposed zero funding for FY 1986, the Trust has restricted its request of Congress to a *freeze* on allocations for the Trust and State Preservation offices at FY 1985 levels.

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Peter Gumpel and Ray Gunther of the Gruzen Partnership ...

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The Treasury plan is a more sensitive issue for the Trust. Some of the staunchest supporters of historic preservation in Congress also support the principle of tax reform. Chief among those with divided loyalties is none other than the President himself, who claims credit for the tax credits his henchmen would eliminate. The Trust, while citing his philosophical support, is also busy providing hard proof that tax incentives are necessary.

However, not all tax incentives have the Trust's unqualified support. A key position paper issued in April documents the efficacy of the 25 percent ITC for historic structures but makes no mention at all of the 15 and 20 percent credits for 30- and 40-year-old buildings. This omission is significant: the paper, by its very silence on the subject, suggests that the Trust is prepared to sacrifice credits for noncertified rehabilitation and adaptive reuse in order to save the ITC for certified preservation projects. The Trust is evidently relying on developers and architects to speak up; but no focused constituency exists to defend the credits nor is there adequate documentation of their economic impact. The AIA, accustomed to following the Trust's lead on preservation issues, has failed to separately identify the issue, and the credits are in real danger of falling through the cracks.

Paradoxically FY 1986 marks the first year the Reagan administration has *not* tried to eliminate or sharply reduce the Department of Energy's budget on conservation and solar programs for buildings, but proposed funding for these programs at last year's levels (which represent reductions of about 40 percent from preceding years). As a consequence, this year's battle concerns not how to save these programs but how best to use the few dollars allotted. The AIA's testimony recommended emphasis on technology transfer, stressing programs that will put new design tools and performance information into the hands of design practitioners.

While vocal and quite successful on the energy front, the AIA was—surprisingly to many—mute on the now perennial question of eliminating the Centers for Building Technology and Fire Research at the National Bureau of Standards. Yet these are the only elements of the federal government exclusively concerned with buildings-related research, producing information that is vital to the building community.

The AIA also recommended a freeze in funding for Urban Development Action Grants (UDAGs) at the 1985 level of \$440 million and urged maintaining Community Development Block Grants (CDBGs) at 1985 levels. The Administration's proposed moratorium on low-income housing assistance programs drew sharp criticism from the AIA, too. Finally, the AIA urged greater expenditures for emergency aid to the homeless, stressing the need to fund acquisition and rehabilitation of housing facilities.

There's little in the way of civilian bricks and mortar in the Reagan budget, and even less in the tax reform plans. Most observers believe that the hard choices forced by unprecedented federal deficits, coupled with a "funny mood in Congress," bode ill for the budgetary interests of architects in fiscal year 1986, and beyond.

Thomas Vonier, Daralice Boles



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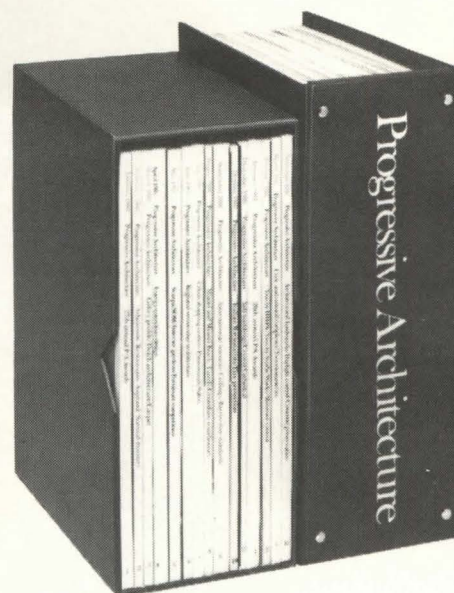
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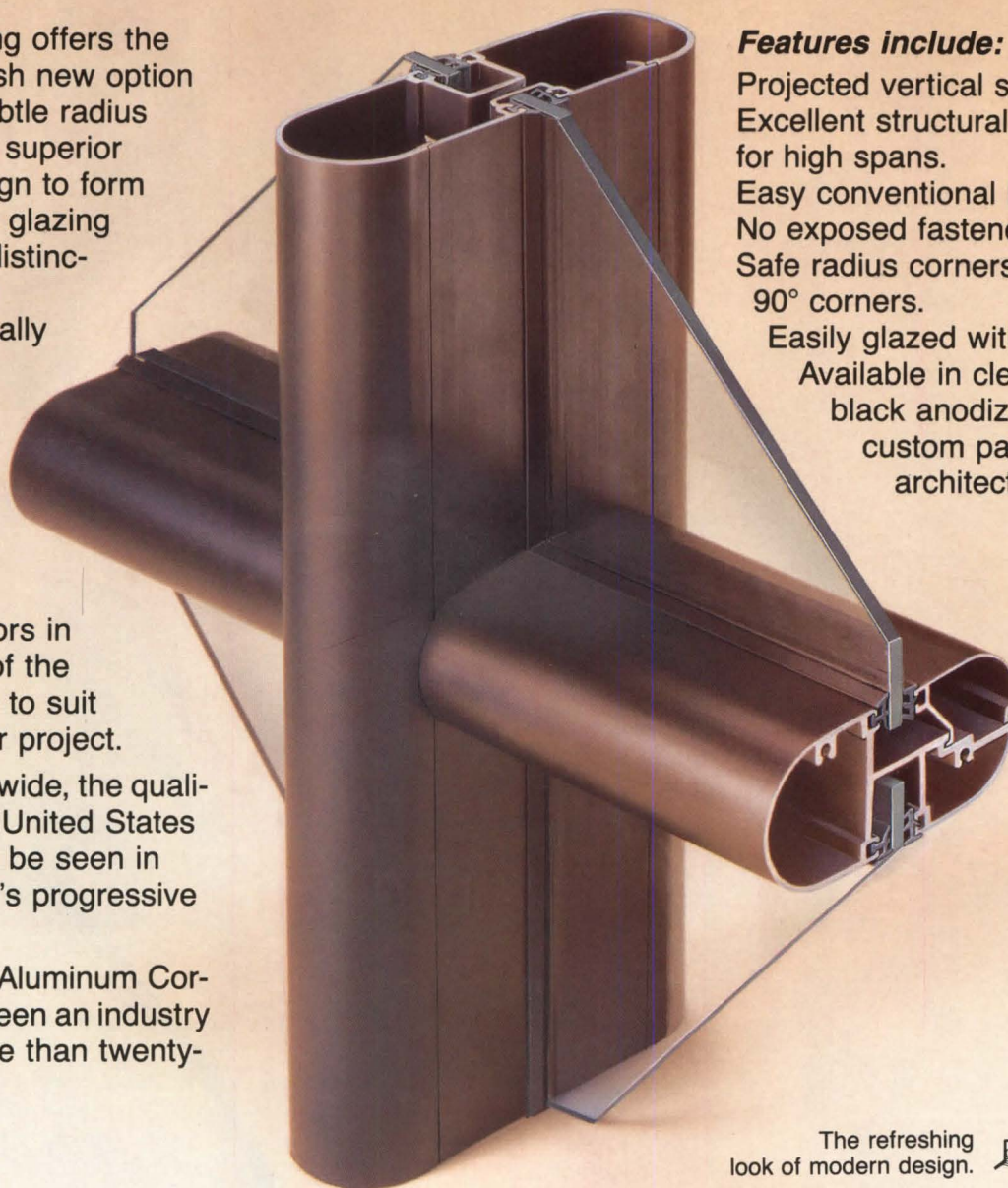
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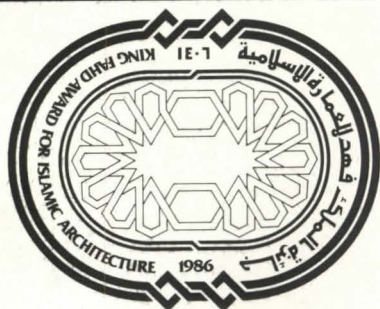
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The competition will be held every three years. A total of US\$100,000 has been allocated for the Awards of the First Competition: \$50,000 for Architectural Design divided into 10 prizes for the authors and 10 prizes for their tutors; the other \$50,000 will be distributed for architectural research entries with the same conditions.

The call date for the questions of clarification of the First competition is July 1st 1985. Registration closes on December 30th, 1985. The submission date is July 1st, 1986.

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Charging gross negligence on the part of the Federal Railroad Administration, Stamford, Conn., Mayor Thom Serrani has called for a Congressional investigation into the design and construction of the flawed Stamford train station (P/A, April 1985, p. 28).

● Serrani claims remedial work will cost an additional \$5 to \$10 million. City consultants won't even allow a load-testing of the garage, marred by multiple hairline cracks.

Main Street is the theme for Preservation Week 1985 (May 12-18). The National Trust is promoting a four-point program for downtown revitalization, focusing on civic organization, promotion, design, and economic diversification.

TAC is to renovate the Egyptian Museum in Cairo, in joint venture with the Arab Bureau for Design and Technical Consultation. The Museum, which houses the Tutankhamen collection will gain a new gallery and offices, new lighting and signage.

Eight projects have been awarded the 1985 Tucker Awards by the Building Stone Institute. Winners in the nonresidential building category include the WCCO-TV headquarters, Minneapolis, Minn. (Hardy Holzman, Pfeiffer Associates, New York); Dallas Museum of Art (Edward Larrabee Barnes Associates, New York); San Felipe Plaza, Houston, Texas (SOM, Houston); J.B. Speed Art Museum, Louisville, Ky. (Geddes Brecher Qualls Cunningham, Princeton, N.J.). In renovation or restoration: Austin Block, Charlestown, Mass. (Ann Beha Associates, Boston, Mass.) and Fraunces Tavern Restaurant, New York (Stinchcomb & Markelson, Jersey City, N.J.; Fan, Rongved & Erickson, New York). The Thomas Jefferson Memorial, Washington, D.C., won the 25-year-plus award; special recognition for craftsmanship was given to the Seat of the Universal House of Justice, Haifa, Israel (Hossein Amanat, ARC, Design International, West Vancouver, Canada, architect).

After nearly thirty years in the Seagram Building, Philip Johnson is moving his office. The new venue is Johnson's own 53rd at Third, a 34-story tower he designed with John Burgee Architects for developer Gerald Hines, across the street. The reason? Rent.

Carnegie Hall is about to be cleaned. Restoration of the 94-year-old façades is to be supervised by James Stewart Polshek & Partners, with Robert Silman Associates, structural engineers, and the Center for Building Conservation.

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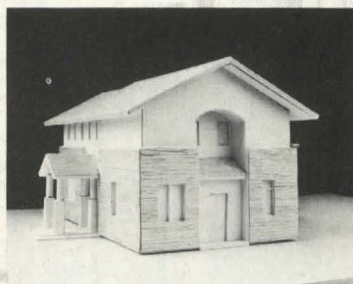
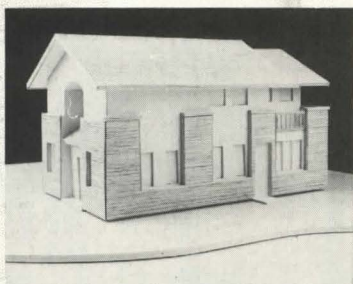


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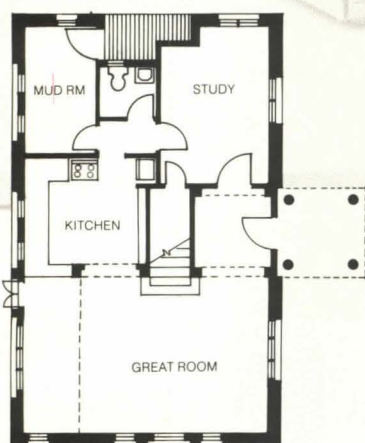
In progress

The six projects shown on these pages range from a diagnostic center in Rockwell, Texas, to a Sportsplex in New York.

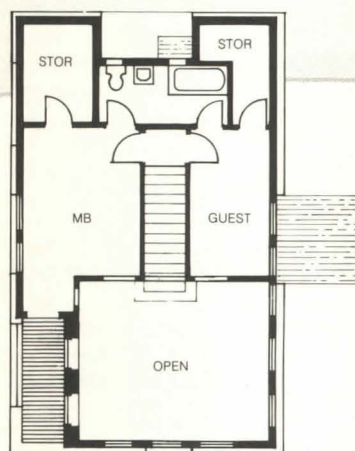


1 Cottage, Issaquah, Wash. Architect: Wyatt Stapper Architects, Seattle, Wash. This 1500-square-foot residence for two landscape architects is located in the Cascade Range foothills east of Seattle. The main interior feature is a two-story "great hall," lighted by clerestory windows. The cot-

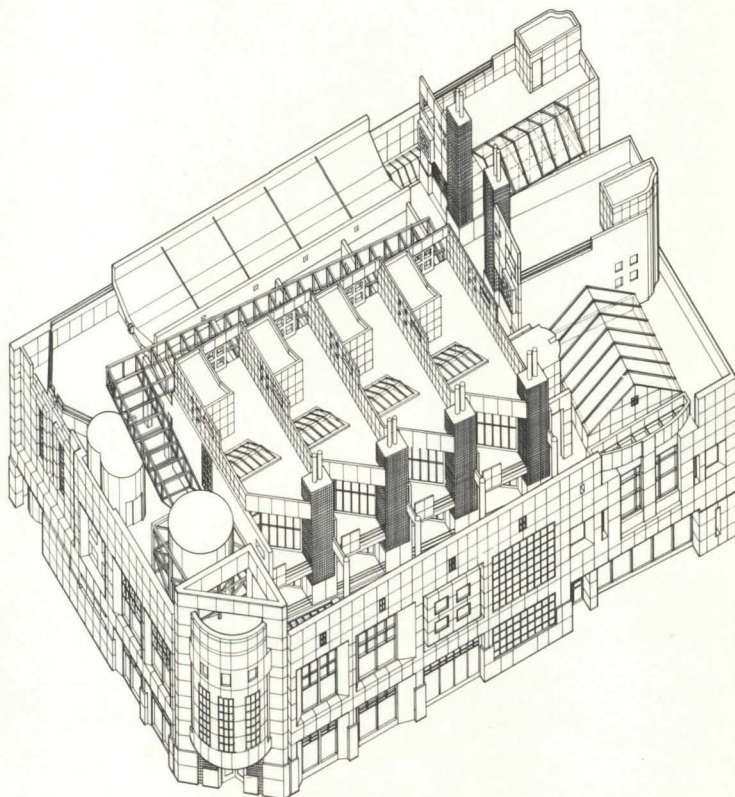
tage is sited on the edge of a clearing, for the best views and for preserving open land for future gardens. The exterior is of plywood with shingle wainscoting, cut away on the south side to form pilasters, alluding to Wright and regional styles, on a shoestring.



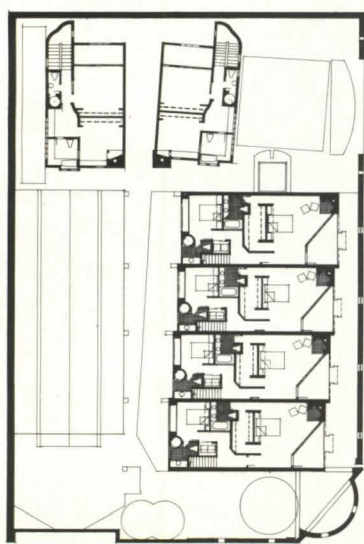
FIRST FLOOR



SECOND FLOOR



2 Park Avenue Athletic Club, Portland, Oreg. Thompson Vaidova & Associates Architects, Portland. This mixed-use complex, an adaptive use of two former industrial buildings, contains a fitness center, offices, a restaurant, and rooftop residential units. The restaurant and residences have a separate entrance on the side, created by a skewed glass wall, which also forms a series of light wells. The main entry to the offices and athletic club is on the corner, beneath a round bay, which serves as both signpost and pedestrian shelter.



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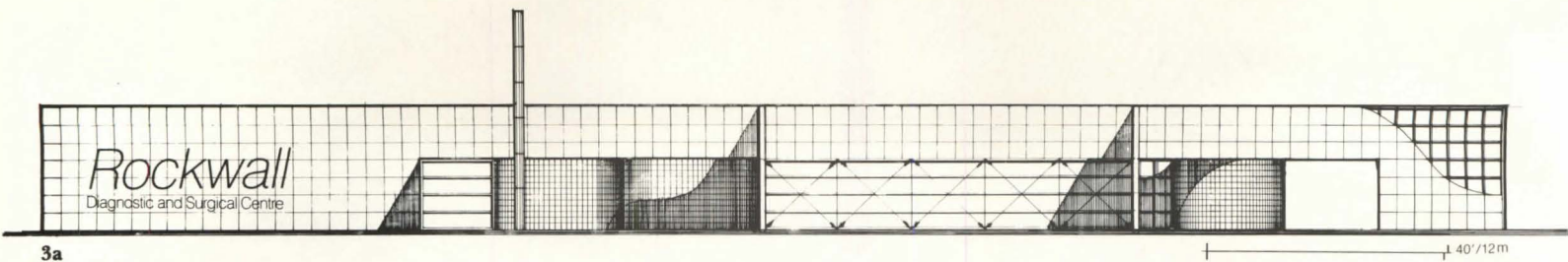
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P/A Calendar

Exhibits

Through May 31

The Architecture of Jose Maria Jujol. Graham Foundation, Chicago.

Through June 2

Arthur Charles Erickson Retrospective. Center for Inter-American Relations, New York.

Through June 9

Venturi, Rauch and Scott Brown: A Generation of Architecture, 1964-1984. Octagon Museum, Washington, D.C.

Through June 9

The Critical Edge: Controversy in Recent American Architecture. The Jane Voorhees Zimmerli Art Museum, New Brunswick, N.J.

Through July 18

National Characteristics in Design. Boilerhouse Project, Victoria and Albert Museum, London, England.

Through July 20

The City of Frankfurt: New Buildings in a Historical Context. Gensler Associates, San Francisco. Also **September 15-October 22**, Crown Hall, IIT, Chicago; **November 2-16**, University of Ontario, Toronto; **December 15-January 15**, University of British Columbia, Vancouver, B.C.

Through July 29

Architecture in Silver. Renwick Gallery, National Museum of American Art, Washington, D.C.

Through August 4

Art + Architecture + Landscape. San Francisco Museum of Modern Art, San Francisco.

Through August 25

Chicago Furniture: Art, Craft and Industry, 1833-1983. Cooper-Hewitt Museum, New York.

Through September 22

Material Evidence: New Color Techniques in Handmade Furniture. Renwick Gallery, National Museum of American Art, Washington, D.C.

May 22-October 26

Chicago and New York: More than a Century of Architectural Interaction. The New-York Historical Society, New York.

May 23-June 30

New Public Architecture: Recent Projects by Fumihiko Maki and Arata Isozaki. Japan House Gallery, New York.

May 24-August 31

Architectural Ceramics: Eight Concepts. American Craft Museum, New York.

June 10-July 9

Kohn Pedersen Fox: New American Architecture. RIBA Gallery, London, England.

Competitions

May 24

Deadline, Third Annual ASID/Wilsonart Design Competition. Contact Jan Liverance Gelb, % McKone & Co., 2700 Stemmons Frwy., Suite 800, Dallas, Texas 75207 (800) 433-3222/in Texas, (800) 792-6000.

June 15

Application deadline, Designed and Made for Use. Contact American Craft Museum Offices, 45 W. 45th St., New York, N.Y. 10036.

June 17

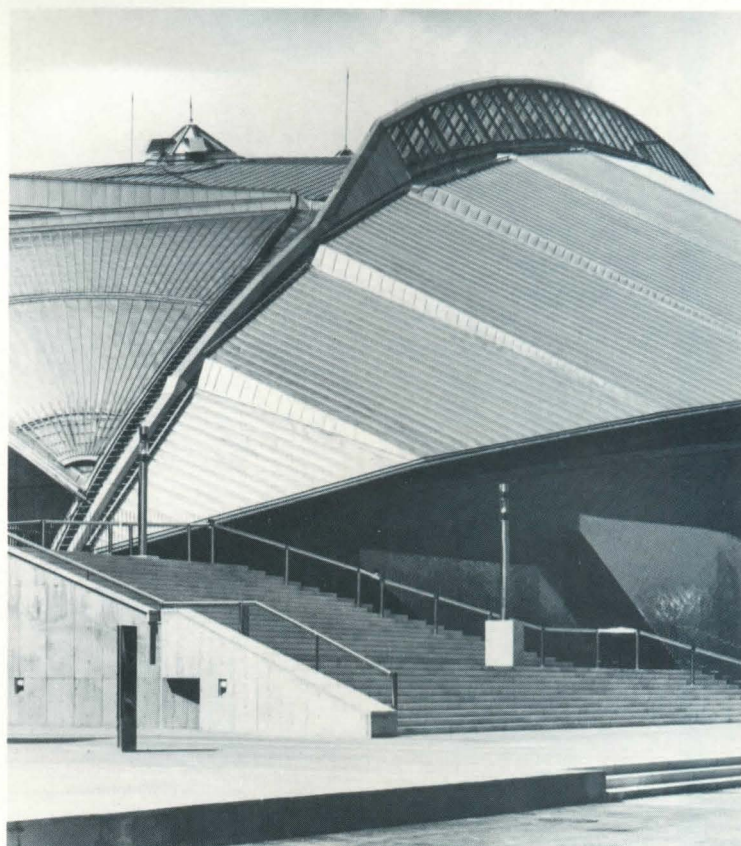
Registration deadline, Arizona Museum Design Competition. Contact Design Competition Administrator, Arizona Historical Society, 1242 N. Central Ave., Phoenix, Ariz. 85004 (602) 355-4470.

June 25

Deadline, Hillside Housing Design Competition. Contact Charles P. Graves, FAIA, The Hillside Trust, 3012 Section Rd. at French Park, Cincinnati, Ohio 45237.

August 2

Submission deadline, National Lighting Awards Program. Contact National Lighting Bureau, 2101 L St., N.W., Suite 300, Washington, D.C. 20037.



Fujisawa Gymnasium, F. Maki at the Japan House, May 23.

Taisuke Ogawa

Conferences

May 16-17

Design ADAC '85. Atlanta Market Center, Atlanta, Ga. Contact Atlantic Decorative Arts Center, 351 Peachtree Hills Ave., Atlanta, Ga. 30305 (404) 231-1720.

May 16-18

Housing the Homeless, AIA Symposium. Seattle, Wash. Contact Ravi Waldon (202) 626-7429.

May 29-30

Fourth Annual Spring Open House, Designers Walk: Doorways to the Future. Toronto, Canada. Contact Gail Bernstein, Designers Walk, 326 Davenport Rd., Toronto, Ont. M5R 1K6 (416) 928-0935.

June 3-7

A/E Systems '85, Sixth International Conference on Automation and Reprographics in Design Firms. Anaheim Convention Center, Anaheim, Calif. Contact Conference Director, A/E Systems '85, P.O. Box 11318, Newington, Conn. 06111 (203) 666-6097.

June 3-9

InterArch '85: 3rd World Biennale of Architecture. Sofia, Bulgaria. Contact Georgi Stoilov, Union of Architects in Bulgaria, 3 E. Georgiev Str., Sofia 1504, Bulgaria. Tel: 442673.

June 10-13

EDRA16/1985: Environmental Design Research Association Conference, New York. Contact Madeline Goss, Conference Administrator/EDRA 1985, Environmental Psychology Program, The Graduate School and University Center of the City University of New York, 33 West 42nd St., New York, N.Y. 10036 (212) 790-4553.

June 11-14

NEOCON 17: The World Congress on Environmental Planning and Design. Merchandise Mart, Chicago. Contact Christian Laine, Merchandise Mart, Suite 830, Chicago, Ill. 60654 (312) 527-4141.

June 13-15

America's Riverfront Heritage: Bringing It to Life. Minneapolis Plaza-Hotel, Minneapolis. Contact David Solomon, The Jefferson Co. (612) 379-4540.

June 16-21

Thirty-fifth Annual International Design Conference in Aspen. Aspen, Colo. Contact Alexia Lalli, IDCA, Lalli & Moore Associates, 126 Fifth Ave., New York, N.Y. 10011 (212) 206-8816.

July 17-19

Calicon 3, 3rd Annual California Contract Show. Western Merchandise Mart, San Francisco. Contact Diane Scheiman, 1355 Market St., San Francisco, Calif. 94103 (415) 552-2311.



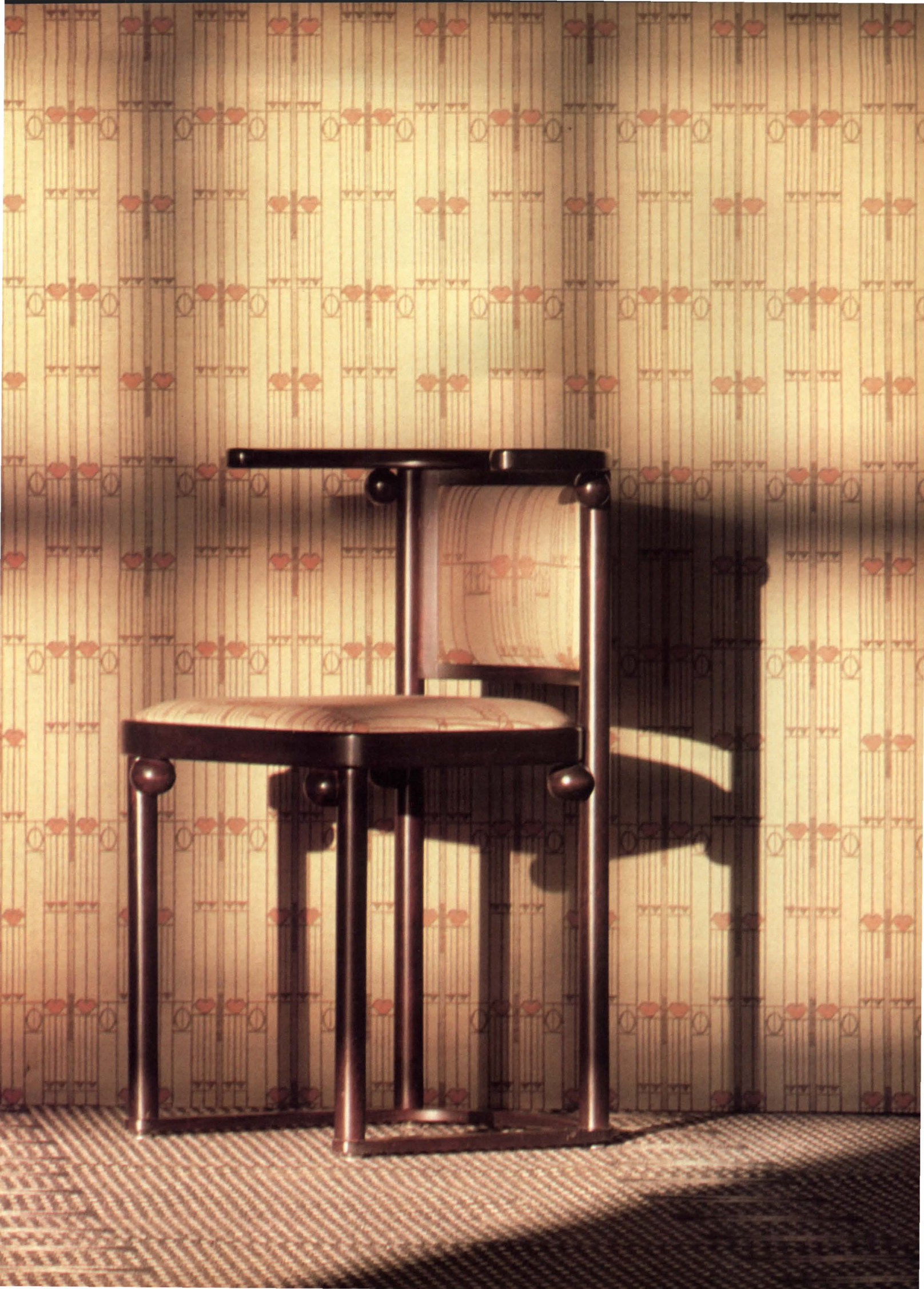
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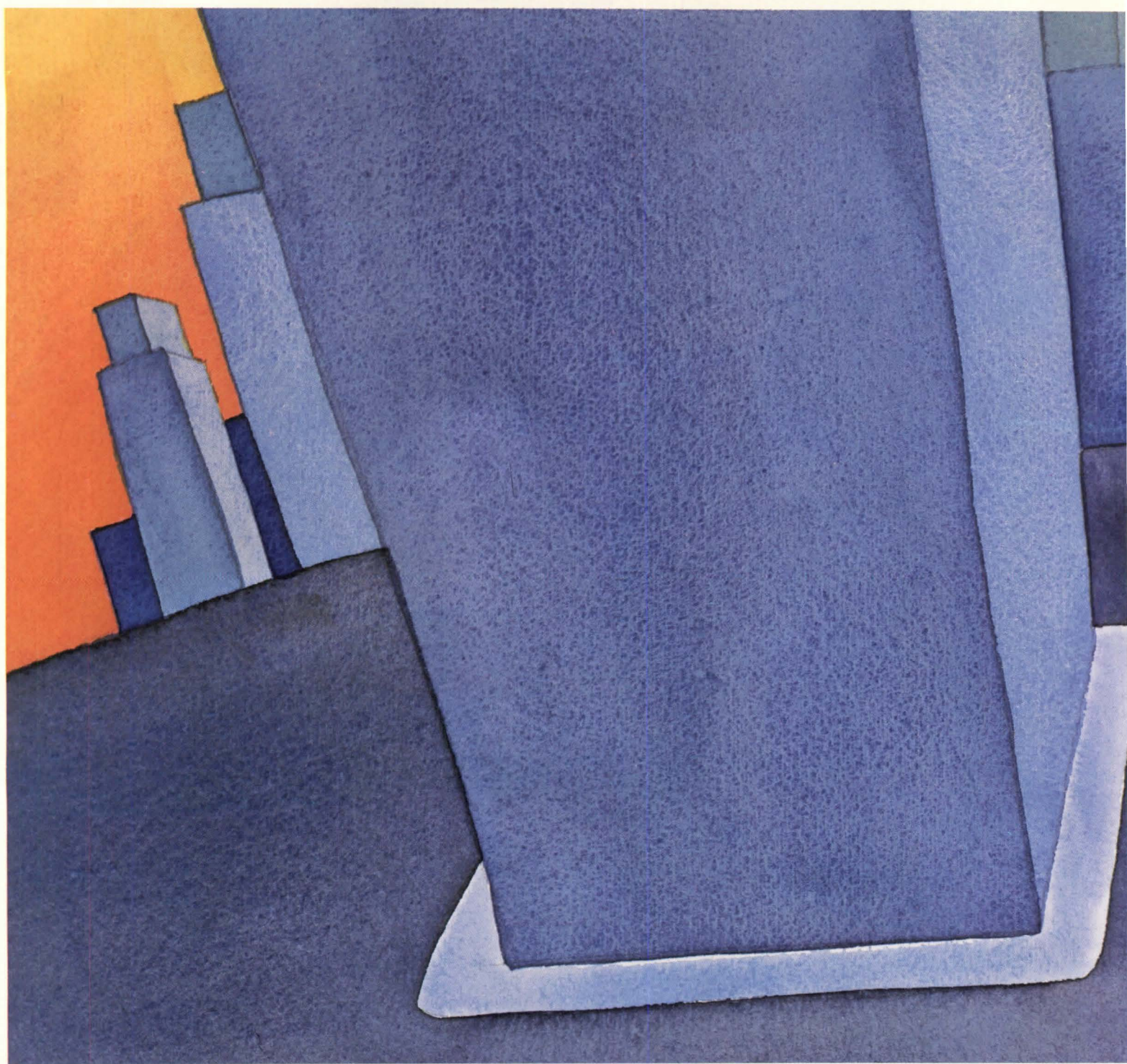
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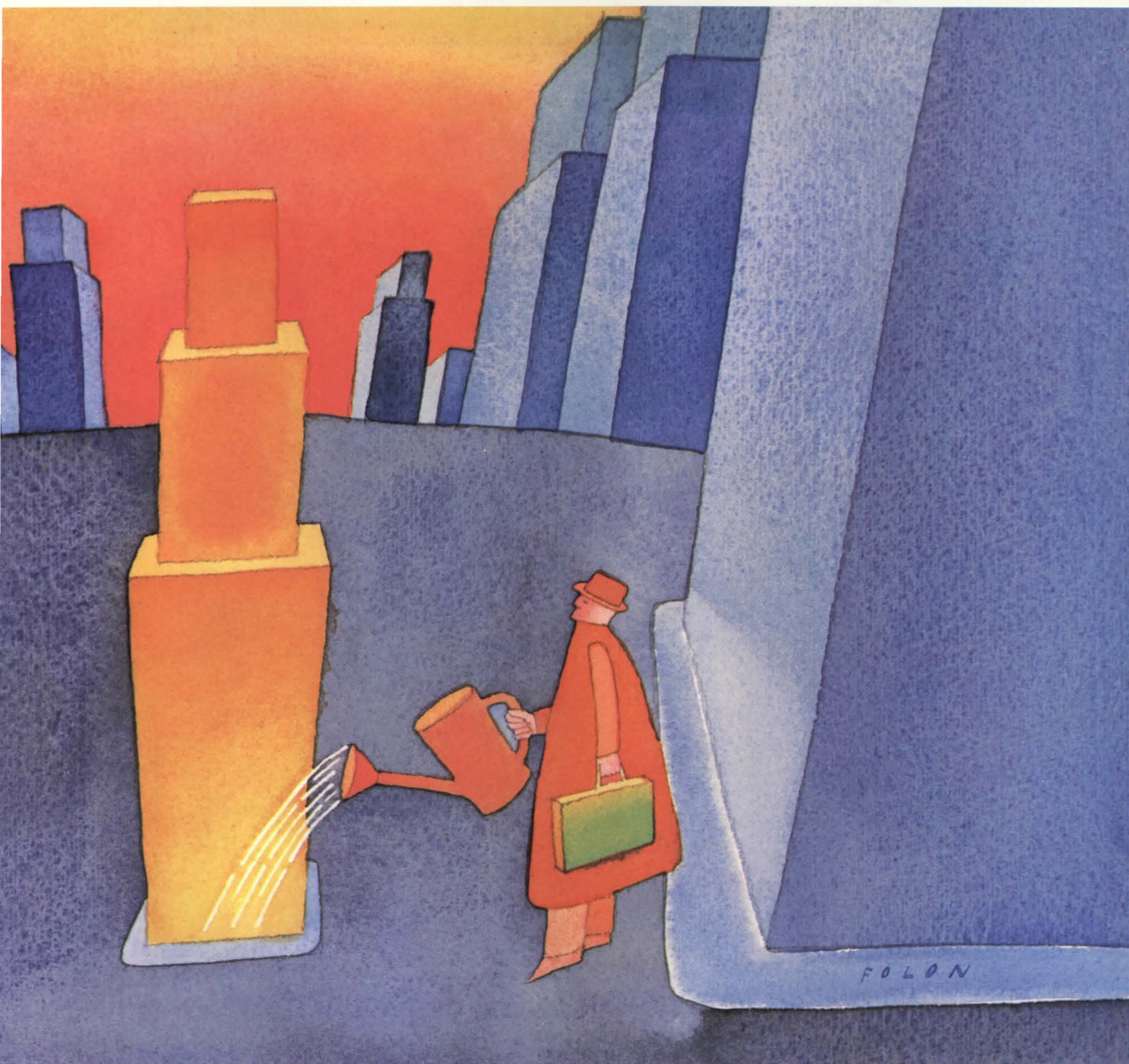
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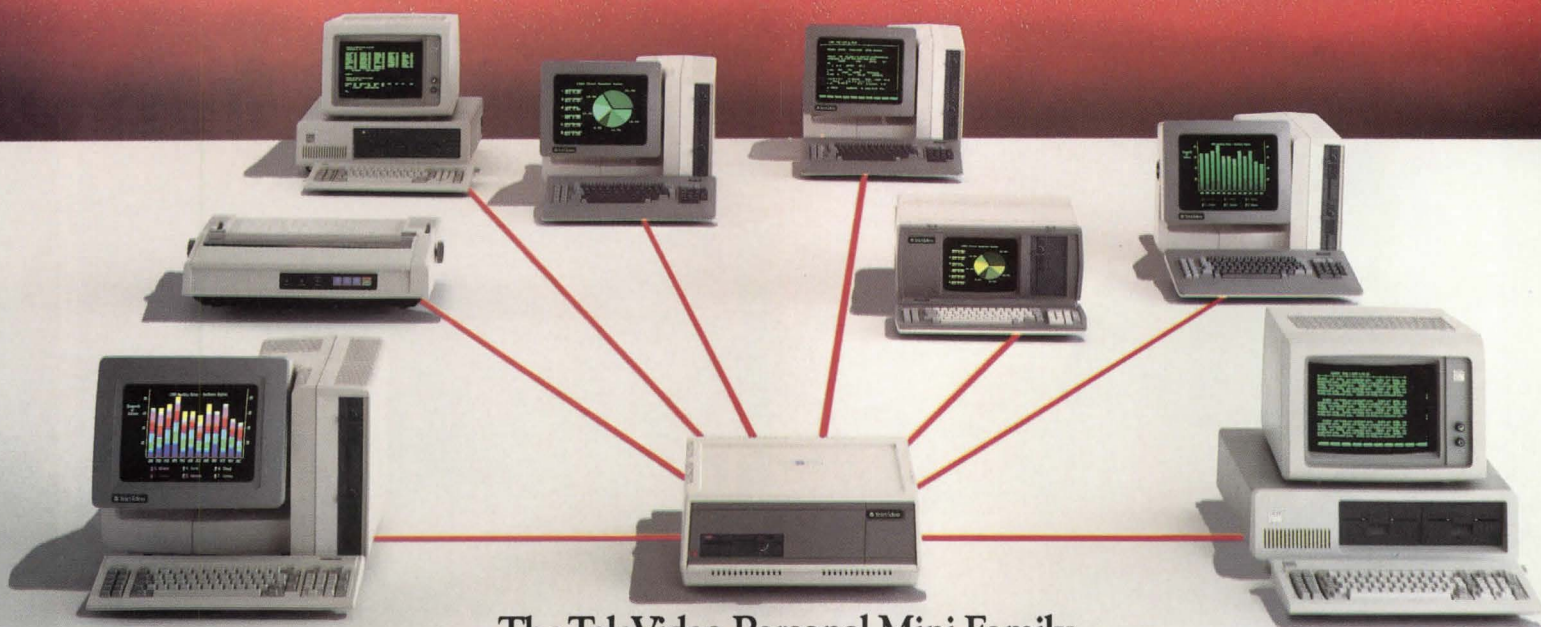


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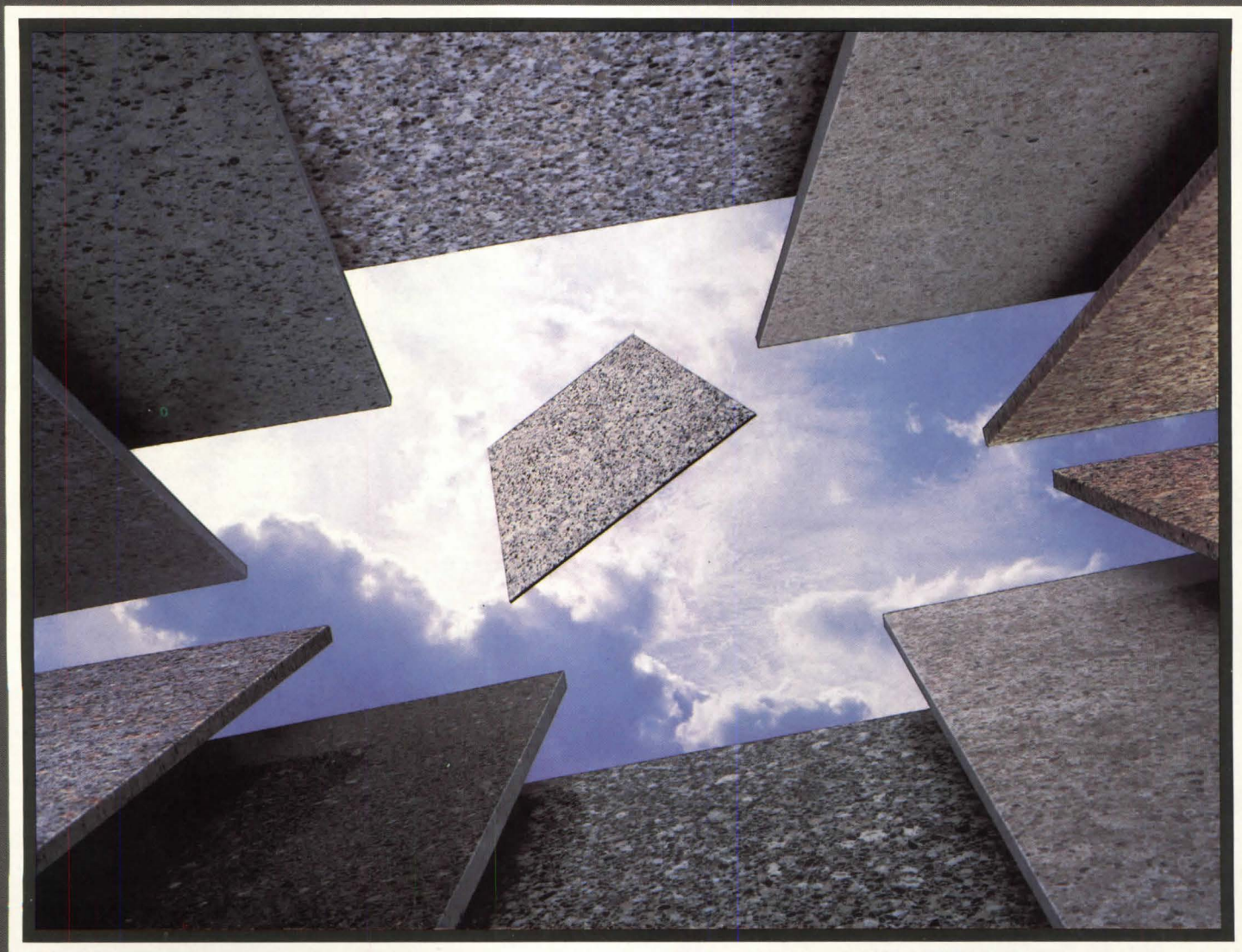
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P/A Practice

Computers: Microcomputer Database Management

Database management software allows the rapid retrieval of information that has been compiled in a relatively standard form. Database products are nothing more than electronic file cabinets. A *database* (like a row of file cabinets) is a collection of *files* (like the individual file drawers) composed of a series of *records* (like the sheets of paper within the drawers), which contain a number of *fields* (like the entries on each sheet of paper). Architectural offices are littered with databases: the Rolodex on the desk, the catalogs on the shelf, the file cabinets, the drawing flat files. A database software product can help with any information in the office whose improved *access*, *sharing*, and *manipulation*—either through calculation or recombination—could make the office more competitive.

When thinking about the application of database software, consider not just how it would work on an individual basis, but how it would work throughout the office. The value of databases is as a company resource, not as a replacement for one individual's method of entering and accessing information. Mark Kalen of Jung/Brannen Associates holds that databases are the "corporate memory," outlasting the knowledge or experience of any single individual in areas where collections of specific facts are valuable. Stephen Tucker of Dean Tucker Shaw looks at it another way: that databases are a powerful, cost-effective way to transfer the knowledge of senior people in the office to junior staff. Shared access to a database of any kind can help new staff members to be more productive in their first year with the firm.

While this article focuses on microcomputer database products, offices with dedicated word-processing equipment or dedicated CADD or financial application computers should look to their software suppliers for database applications. ("Records processing" packages for NBI word-processing systems or some of the advanced "Glossary" features of Wang equipment have excellent applications here.) Don't overlook the possibility of linking microcomputers to the mass storage of the larger machine.

Selecting a Product

First, ask your hardware and software vendors if your present dedicated word processing, CADD, or dedicated financial mini or mainframe computer can perform the tasks that you want. Second, consider whether you should develop your own database or buy a preprogrammed one. Preprogrammed

database applications include client tracking, accounting, project management, and job cost systems. The high end database packages will allow you to build an application as complex as almost any of these. It may not be as fast or as error-free, but it will be just the way you want it.

An interesting compromise is increasingly available: Ashton Tate offers a catalog of templates for sale developed by others using their dBase II product ("Application Junction"), and Power-base is about to release a project management template, as are two other of the vendors mentioned here.

For the products examined, *price* is not a major consideration. The least expensive, PFS: File and PFS: Report from Software Systems, retail for about \$280 together. The most expensive, dBase III, goes for \$695. The price tag of the product is trivial when you compare it with the money spent by your office specifying potential database applications, selecting a software product, educating key individuals, and "entering" the initial set of data.

Portability of data and *flexibility* are the most important considerations, and equally provided by the top vendors. You want portability because you may want to change database management products, and you don't want to have to throw out all of your files when you do. One product, Data Base Manager III from Alpha Software Corporation, specifically touts its ability to use files from spreadsheet (e.g., Multiplan) and word-processing products (Wordstar). Nearly every database product can produce its files in ASCII or DIF format; whether this actually means that the files can be transported easily and effectively is another question. One vendor addresses this by offering a simple file management product, Condor Jr., as well as a relational product called Condor 3. Thus, you get started simply, and when you need more capability, your files make the journey with you.

Flexibility is an important but a less distinguishing characteristic among microcomputer database products. Look for it in the three phases of database operation: data input and editing, data retrieval and manipulation, and data reporting.

One of the few important distinctions left among products is whether one is a *file manager* or a *relational database manager*. File managers can access only one file at a time, whereas relational database managers can look in several at once (the number varies among products).

If you start to see redundancy among files or the same information entered repeatedly, a relational product is probably best. Database designers put it in these terms: file managers handle one-to-one relationships among data very well, but relational database products are necessary for one-to-many or many-to-many links.

Relational database managers vary in their ability to reveal pieces of related information in different files. The best product by far is Power-base, whose zoom feature allows you to examine related information in different files quickly without the difficulty and delay of other products.

Capacity is an increasingly moot point. All of the products reviewed had a reasonable capacity. The only characteristic that seems telling is the number of characters per record that you can put under any one heading in a database record. This limit is important because architects usually store anywhere from one to ten pages of text. The least expensive product reviewed—PFS: File—can hold up to three or four pages of text per record. The Nutshell is without limit.

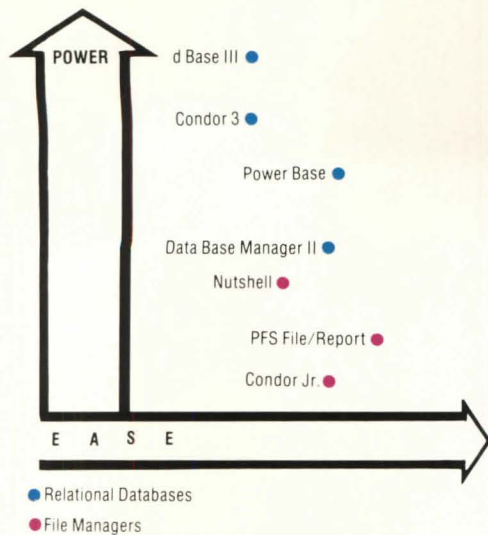
What about *graphic capabilities*? Some of the database products, like the better spreadsheet programs, now offer line, pie, and bar chart capability. Condor 3 offers a graphics module, as does the PFS family. Data Base Manager II from Alpha Software Corporation can link smoothly with a spreadsheet

57 *Computers: Allan Ackerman*
58 *Specifications: William T. Lohmann*

	Text capacity per record	Procedural language	Graphics	Indexed sorts
PFS: File/Plan/Graph	3-5 pages	No	Yes 1	1 key
Condor Jr.	Limited	No	No	No key
Nutshell	Unlimited	No	No	All fields
Power-base	Limited	No	No	6 keys
Condor 3	Limited	Yes	Yes 2	8 keys
Data Base Manager II	5	Yes	3	1 key
d Base III	1-2 pages	Yes 4	No	10 keys

1 Sold as a family; graphics capability only with PFS: graph
2 With graphics option
3 Via interface with some spread sheets with graphics capabilities
4 Actually one step beyond; a full-featured programming language
5 Theoretically most powerful, can work with some word processing programs

P/A Practice



package, so presumably it can use their graphics capabilities.

You should also consider the *indexing* capabilities of a product. Indexing is a technique you can use with database products to speed up the sorting or searching of one or more files by factors of five to ten. Given a search of 1000 records that can otherwise take ten to thirty minutes, this is important.

Do you need a *procedural language*, or the ability to develop customized menus for use in the operation of routine database operations? The more complex your application and the more you expect the people in your office who use the application to be different from the person who develops the application, the more attractive—even critical—this feature will be. Of the products reviewed here, Condor 3 has this feature. The dBase III is in a class of its own, possessing a full-fledged programming language.

When considering the *use* of a database program, the following are important: The creation and modification of records; the searching, sorting, and manipulation of records within files (in the case of a file manager), and across files (in the case of a relational product); and the production of reports that are selective subsets or selective recombinations of the stored information.

Different people in the office will care about different combinations of these three. It is here that there are tradeoffs between power and ease of use, and here that many more products have now reached acceptable compromises.

There are two final considerations: *multi-terminal capability*, and *data access limitations*. If your database is going to be accessible from more than one terminal or microcomputer, the software needs to be able to handle that. Products vary here. The range is from no simultaneous use, to locking simultaneous users just out of the same file, to only locking simultaneous users out of the same record, which is the most desirable. Data access limitation is important for reasons of security, privacy, and application integrity. You don't want trade secrets out, or people's privacy violated, or people who use the system to change its design. Products vary here, too.

A Comparison of Some Products

The two charts review a small group of what are probably today's best available IBM and IBM-compatible microcomputer database products for under \$1000. (Some of the products reviewed have been made available

for Apple's Macintosh line of microcomputers. In some ways, the Macintosh makes the use of database products particularly easy with its pull-down menus and extensive graphic capabilities. Using databases properly requires good spatial thinking, and the screen display techniques used by database software developers for the Macintosh greatly facilitate this.)

If you want endless upward flexibility, allowing you to build either an integrated financial system or a system that can have its own customized menu structure, then you have to buy a product as sophisticated as Condor 3 or, at the top, dBase III. If you want to keep a simple telephone file, either the PFS: File/Report/Graph family or Condor Jr. is sufficient. For applications such as meeting notes, where you want to be able to sort records that include a page or more of text, the PFS product and Leading Edge's Nutshell are right.

The best mid-ground product that offers relational capability and a high level of sophistication is Power-base. Power-base's documentation is among the best for *any* microcomputer software product. It is the kind of product that can start beginners from scratch and take them quite far. Power-base is as far as you can go without venturing into the world of Condor 3 and dBase III's command languages. This benefit is also Power-base's limitation, preventing integrated financial applications with reasonable effort. Last, of Power-base, Condor 3 and dBase III, Power-base can handle the least text, dBase III the next, Condor 3 the most.

Conclusion

The time to wait for further improvements is past; get started, but don't try to do it all at once. Start with an application that you do now and would like to do better, not with an application your office has never done before but that database technology makes possible. As with any office productivity change, you are embarking on a cyclical process defining the performance specification for your databases, trying to get the software product and your office staff to fulfill the spec and modifying the spec for another try. Products now on the market have the flexibility to allow this cyclical application. Above all, designate someone to maintain and revise the database. That person will make the difference between a spotty set of records that no one trusts, and one that is used often and with confidence.

But starting is important, even if it is one database on one microcomputer on one desk, because the organizational barriers to databases are more complex and take longer to overcome than the technical hurdles. Organizationally, we fear the loss of resilience, information security, and ownership that can come when information is standardized and shared. Databases, to be useful, depend upon cooperation and an office culture that values the contribution of a group, as well as the talent of a single individual.

Allan Ackerman

The author has an architecture degree from Harvard, and has worked as a manager, marketing consultant, and teacher in the area of software applications for architectural and engineering professionals for the past six years. He currently practices in Cambridge, Mass.

Products Reviewed and Their Publishers Hands-on Trial:

Power-base, from Powerbase, 12 W. 37 St., New York, N.Y. 10018 (212) 947-3590.

PFS: File and *PFS: Report*, from Software Publishing Corp., 1901 Landings Dr., Mountain View, Calif. 94043 (415) 962-8910.

Condor Jr. and *Condor 3*, from Condor, 2051 S. State St., Ann Arbor, Mich. 48104 (313) 769-3988.

Review of Literature, Documentation, and Independent Software Reviews:

Nutshell, from Leading Edge Products, Software Div., 21 Highland Circle, Needham Heights, Mass. 02194 (800) 343-3436 or (617) 449-4655.

dBase III, from Ashton Tate, 10150 W. Jefferson Blvd., Culver City, Calif. 90230 (213) 204-5570.

Data Base Manager II, from Alpha Software Corp., 30 B St., Burlington, Mass. 01803 (617) 229-2924.

Specifications: Evaluation of Technical Data

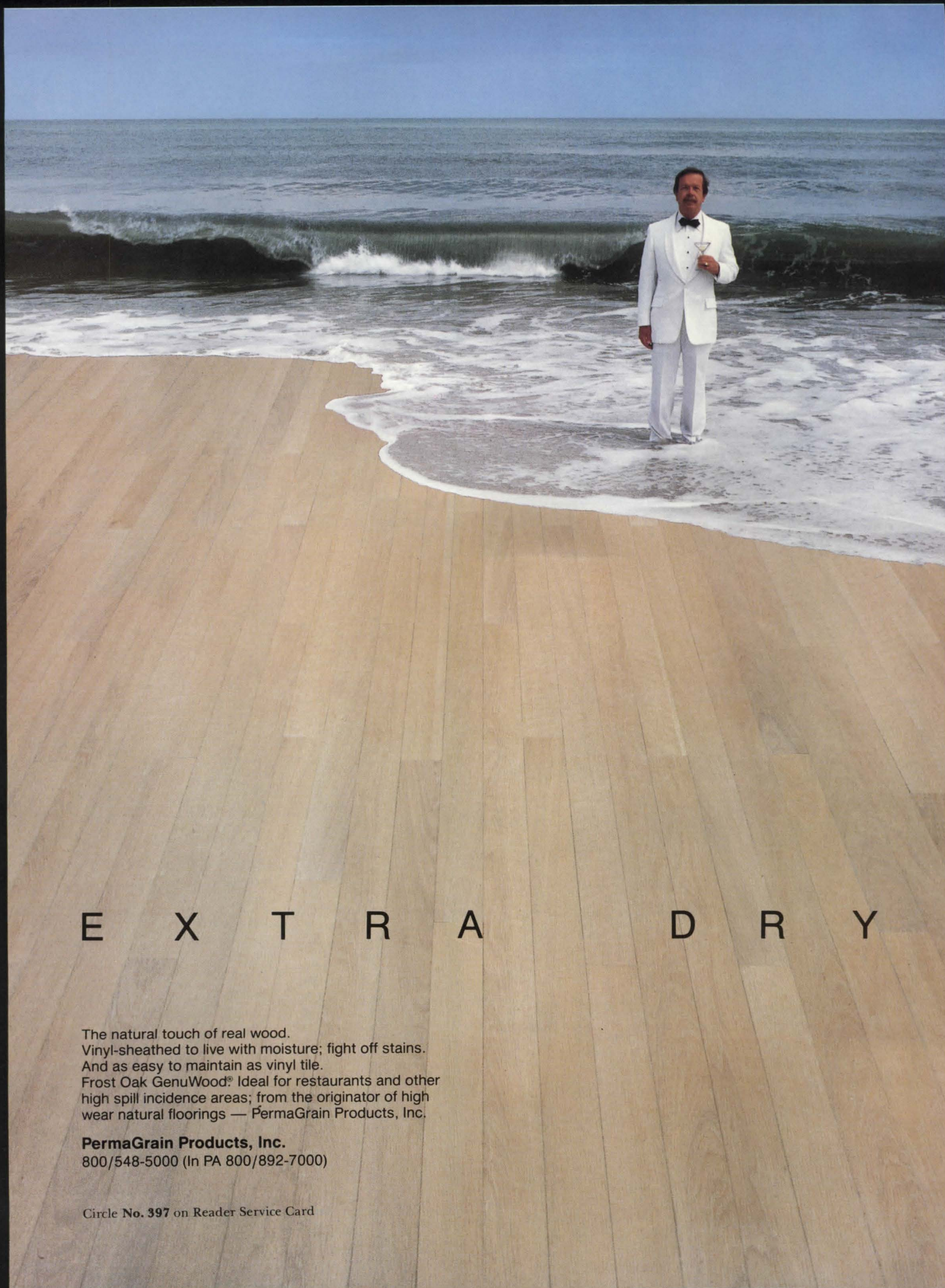
The development of "high technology" construction materials and manufacturing processes has changed the rules for the analysis and selection of many construction products. Since material and product selection is close to the heart of architectural design, many practitioners are learning to combine a detailed evaluation process with their intuitive design sense.

For centuries, traditional materials have performed predictably within recognized broad limits. Architects and engineers could rely on the materials' consistency and relatively forgiving natures. But completely new products now flood the market and the old performance guidelines do not apply.

The new "high tech" products are much more precise in their performance limits and far less tolerant of adjacent materials. They also are subject to radical change in the formulation and manufacturing processes, often in the guise of "improving" the product. Some materials vary from one batch or dye lot to another. We are sold plastic flashing materials that become brittle at low temperatures and metallic coatings that depend upon the same type, rate, and direction of application for a consistent appearance. Elastomeric sealants, which are used successfully in expansion joints when shielded from ultraviolet degradation by a protective skin, fail in glazing applications. Even stone acts differently when sliced 3/8-inch thick and reinforced.

The evaluation of technical data obviously occurs on different levels in the design process. It takes less study to determine the type of resilient base to use on a project than to select the roofing system. The evaluation process should be organized, however, even if only on a subconscious level. For major decisions and for complex and interactive systems, it should also be quantified and documented.

A little-known, three-page ANSI/ASTM standard called E678-84 describes the evaluation process from the product liability standpoint. It was prepared by ASTM Committee E-40 on Technical Aspects of Prod-



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BALLAST FOR SINGLE PLY ROOFING

Characteristics	PRI	Hypothesis I	VAL	Hypothesis II	VAL	Hypothesis III	VAL	Comments
		3 Stone aggregate, 1½"		3 Precast concrete panels		3 Polystyrene insulation panels		
1 Depth/density	2 1	4 2.67"/90.0 pcf	5 OK	4 1.71"/140.0 pcf	5 OK	4 104.34"/2.3 pcf	5 OK	Min 20 psf required
Traffic-bearing capability	2	Poor	OK	Good	OK	Poor	OK	
Rectangular pattern	3	Not applicable		Max. 2.6 sf (max. 60 lbs. for handling)	OK	Max. 32.0 sf (max 4' x 8')	OK	
Durability	4	Excellent	OK	Excellent	OK	Poor	OK	
Cost	5	\$ 0.06-0.10 per sf	??	\$ 0.47 per sf	OK	\$ 49.92 per sf	OK	
Insulation value	6	Nil	OK	Nil	??	R = 549.16	OK	
Comments		Assume 3" thickness		Assume 2" thickness; colors also available		Incredible!		
Decision				6 Best choice				

ucts Liability Litigation and offers a basis for the formation of technical opinions in product liability claims. While its thrust for attorneys is "after the fact," the document also provides a logical approach to product and material selection. Restated for the designer's purposes, it outlines six basic steps for a simple evaluation matrix (see example in box).

1 Determine desired characteristics. State the particular goal in broad terms first, such as "keep the roofing membrane on the roof." Then list the desired physical attributes of the product (hardness, color, texture), neces-

sary performance characteristics in measured parameters (weatherability, abrasion resistance, elongation, vapor transmission rate), environmental and dimensional limitations, and relation to adjacent materials. Add applicable code requirements, budget constraints, and the client's stated preferences.

2 Establish priorities. Assign a priority to each item on the list.

3 Develop hypotheses. Consider the available materials that might meet the stated requirements and make a tentative selection of the most favorable possibilities.

4 Collect data. Develop technical data for

each hypothesis, gathering physical and performance characteristics, evidence of reliability, vendor qualification, testing programs and field performance history, even instructions for installation and maintenance. Try to match collected data to the statement of desired characteristics. Look for common test and reference standards for direct comparison later.

5 Validate data. Determine the relative value of the data based on the source and nature of the information—test data vs. verified field data, published literature, personal experience, hearsay. Identify the most reliable and the most unreliable sources. Reject, or at least minimize consideration of, data from questionable sources. Qualify the reliability and accuracy for each bit of information.

6 Evaluate data. Compare the qualified data for each hypothesis with the original criteria established in defining the problem. Fill in the information gaps if necessary. Eliminate the hypotheses with direct conflicts. Narrow the number of options by finding the material that most closely matches the high priority criteria. If similar options remain, determine the most favorable solution by direct comparison of the performance data for the similar materials.

Such evaluation is a cumbersome process, perhaps, but it will lead to an informed decision that is consistent with known facts. The product liability attorneys are quietly pointing the way. **William T. Lohmann, AIA, FCSI** ■

The author is Specifications Manager for Murphy/Jahn, Chicago.



Polo Planters...

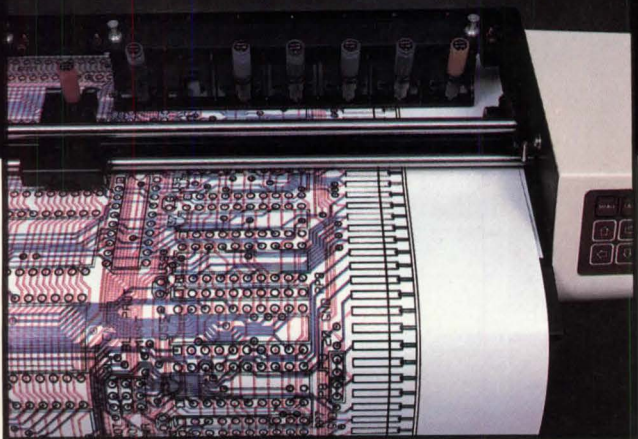
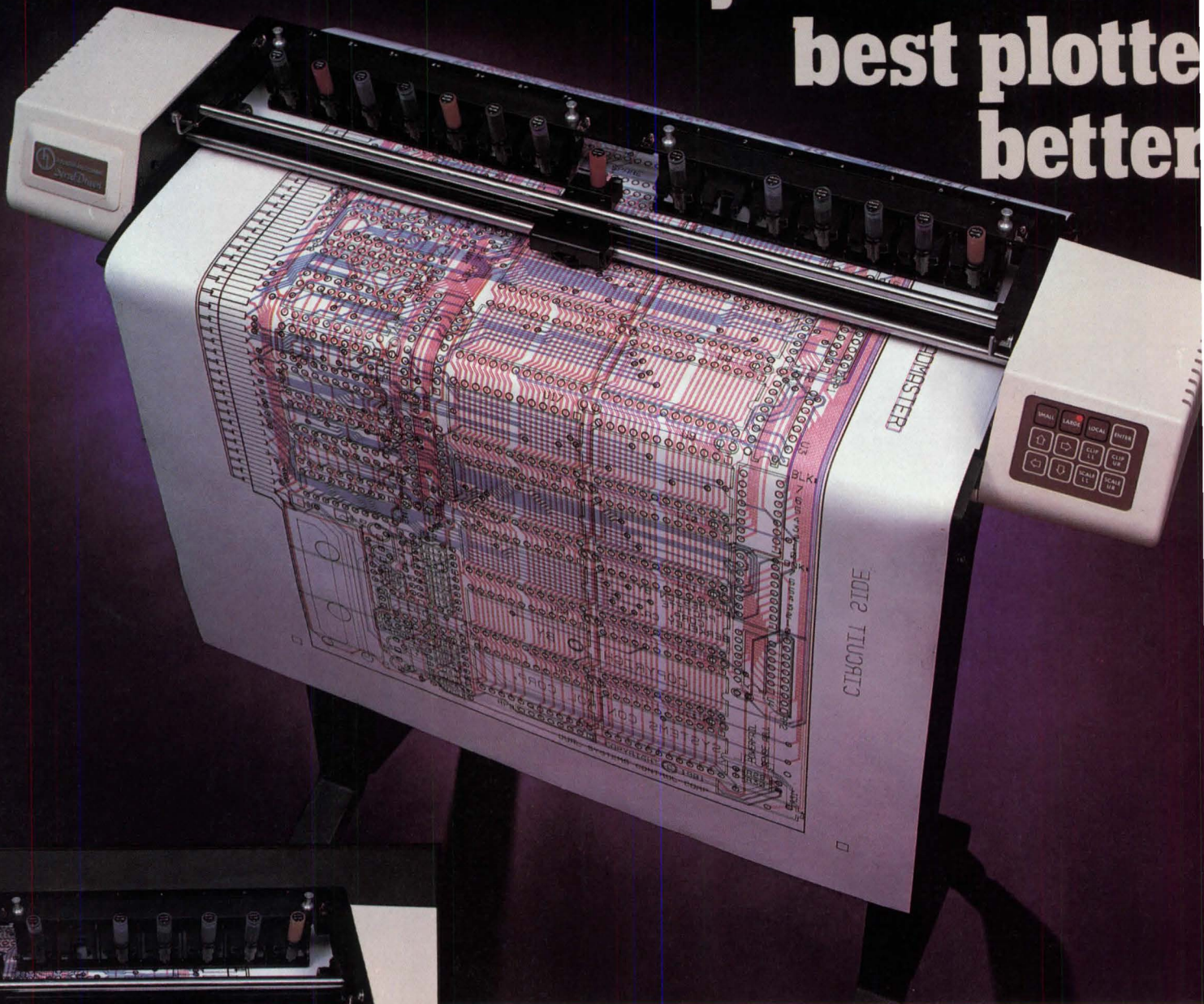
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constantly changing pens are over — which allows you to dramatically reduce your drafting throughput time when creating C and D size plots.

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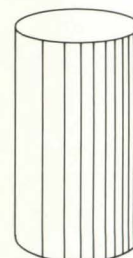
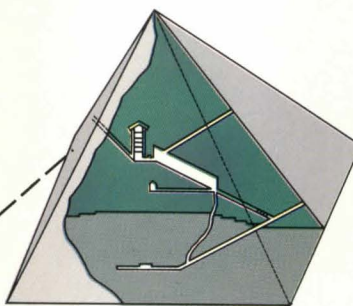
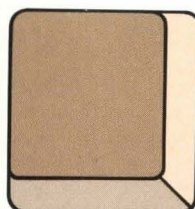
We're confident you'll be impressed with our newest plotter. Call us at 1-800-531-5205 (512-835-0900 for Texas residents) for the name of your nearest dealer or distributor, or write Houston Instrument, 8500 Cameron Road, Austin, Texas, 78753. In Europe, contact Houston Instrument, Belgium NV., Rochesterlaan 6, 8240 Gistel, Belgium. Tel.: 059-27-74-45. Tlx. 846-81399.

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Progressive Architecture's Official Guide



A/E SYSTEMS[®] '85

The Sixth
International
Conference on
Automation &
Reprographics in
Design Firms

June 3-7, 1985
Anaheim, California
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About A/E SYSTEMS '85

This Official Guide to A/E SYSTEMS '85 is prepared by Progressive Architecture and contains the following information about the show:

- *Schedule at a glance*
- *Description of the Tutorials and A/E SYSTEMS Seminar Program*
- *Description of the 16 Concurrent Conferences*
- *List of exhibitors*
- *Description of the special features at A/E SYSTEMS '85*

A/E SYSTEMS '85—being held June 3–7, 1985 at the Anaheim Convention Center—is the sixth in a series of annual conference/trade shows on automation and reprographics in design firms.

Since it was first held in Chicago in 1980, both attendance and the exhibit have increased more than fifteenfold. At least 16,000 attendees are expected at this year's show, making it the largest gathering of design professionals in the world.

Sponsored by the automation/reprographics newsletter A/E SYSTEMS REPORT, this year's show will have over 200 vendors in close to 1000 booths displaying products and services in computer graphics (CADD), reprographics, microcomputers and management systems—all developed specially for use by the design professional.

Besides the exhibition, A/E SYSTEMS '85 has one of the most comprehensive education programs ever offered to design professionals. Eighteen professional societies and publications are sponsoring a total of 16 all-day or half-day conferences on automation-related subjects. In addition, the U.S. Army will present a program on "Using CAE in the Army."

The show sponsors themselves are holding forty 3-hour tutorials on such subjects as "Introduction to Computer Graphics for the Building Industry," "Developing Standards in A/E CADD" and "Applying Small Computers in the Design Office." The A/E SYSTEMS Seminar Program consists of 80 one-hour "how-to" sessions spread over June 5 through June 7.

Representative subjects include "Computers in the Design Studio," "Systems Drafting in the Design Office" and "2001: A Designer's Odyssey."

Other features of A/E SYSTEMS '85 include the Reprographics Center, a completely self-contained and operational "repro center"; the Software Center, a single location displaying design, technical and management software for A/E firms; and User Discussion Groups, sessions that bring together users of specific hardware or software systems.

To receive complete information about attending A/E SYSTEMS '85, call 203-666-6097 or write to P.O. Box 11318, Newington, CT 06111. Free tickets to the exhibition are available on request.

Highlights of A/E SYSTEMS '85

- *The most comprehensive conference ever held on design firm automation/reprographics/management—over 200 speakers in 152 sessions.*
- *16 all or half day concurrent conferences sponsored by professional societies and trade publications*
- *40 tutorials and 80 seminars on every conceivable subject dealing with how to practice more effectively*
- *The largest exhibit ever for design professionals—200 vendors in close to 1000 booths*
- *Every major supplier of computer graphics (CADD), mini and microcomputers, reprographic and management systems—all in one place at one time*
- *Comedian David Brenner at the Host Dinner*
- *More than 16,000 architects, engineers and other design professionals expected to attend—the largest such gathering in the world.*

Schedule at a Glance

Monday, June 3 (Exhibits not open)

8:00 AM	Registration opens
8:30 AM	Concurrent
4:30 PM	Conferences
9:00 AM-12:00 Noon	Twelve Tutorials
1:30 PM-4:30 PM	Twelve Tutorials
6:00 PM	Registration closes

Tuesday, June 4

8:00 AM	Registration opens
8:30 AM-4:30 PM	Concurrent Conferences
8:30 AM-11:30 AM	Eight Tutorials
10:00 AM	Grand opening of exhibit hall
1:30 PM-4:30 PM	Eight Tutorials
4:00 PM-6:00 PM	Cocktail party in exhibit hall
6:00 PM	Registration and exhibits close

Wednesday, June 5

8:00 AM	Registration opens
8:30 AM-4:30 PM	Concurrent Conferences
9:00 AM-10:00 AM	Series 100 seminars
10:00 AM	Exhibits open
12:00 Noon-1:00 PM	Series 200 Seminars
3:00 PM-4:00 PM	Series 300 seminars
4:00 PM-6:00 PM	Cocktail party in exhibit hall
6:00 PM	Registration and exhibits close

Thursday, June 6

8:00 AM	Registration opens
8:30 AM-4:30 PM	Concurrent Conferences
9:00 AM-10:00 AM	Series 400 seminars
10:00 AM	Exhibits open
12:00 Noon-1:00 PM	Series 500 seminars
3:00 PM-4:00 PM	Series 600 seminars
4:00 PM-6:00 PM	Cocktail party in exhibit hall
6:00 PM	Registration and exhibits close
6:45 PM	Host dinner featuring comedian David Brenner

Friday, June 7

8:00 AM	Registration opens
8:30 AM-4:30 PM	Concurrent Conferences
9:00 AM-10:00 AM	Series 700 seminars
10:00 AM	Exhibits open
12:00 Noon-1:00 PM	Series 800 seminars
4:00 PM	Registration and exhibits close

Now your firm can afford the best

The dual-screen Interact™ is designed for continuous production work in the architectural office, and features extensive display and dynamics capabilities.

The Professional Interpro 32™ operates not only as a graphics terminal networked to a VAX or Micro II—but also as a standalone workstation running software developed for the IBM PC family and for the UNIX operating system.

For a system to meet the needs of any architectural firm—large or small—look to Intergraph for a solution.

With Intergraph, you can configure a system that best suits your firm now, and that can grow as your need for automation increases. Begin with our new entry-level Micro II™ processor and up to four workstations, then meet any future requirements by adding additional processors and workstations, linking your entire system with our Ethernet network.

The low-cost Intergraph Micro II, offering roughly the same power as a VAX-11/750, measures only 24"x11"x 29", and serves as a standalone system in an office environment.



The System supporting the Solution

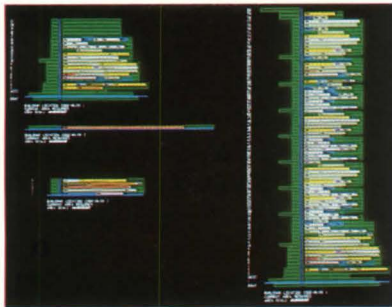
(Because there's more to architecture than just drafting)

At Intergraph, we design our systems to carry you through *all* phases of a project, not just drawing production. Our interactive graphics solutions work in as many different fields as you do, automating the complete range of design and engineering disciplines.



Marketing and Programming

Your first job is marketing, and Intergraph helps with design visualizations that let your prospects see their projects before construction.

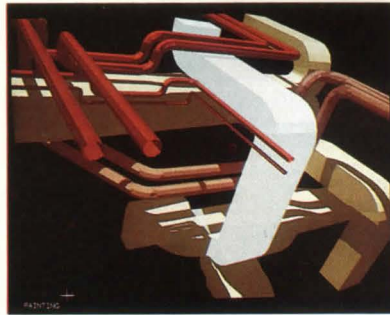


For facility planning, Intergraph offers an extensive array of tools, including the ability to generate multi-building stacking diagrams.



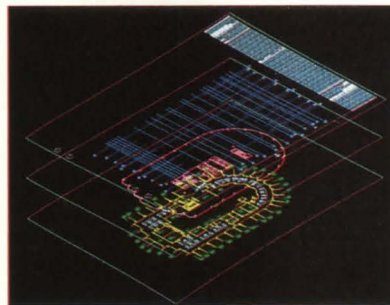
Schematic Design

For schematic design, we combine 3-D modeling with adjacency analysis so your client can preview the proposed design.

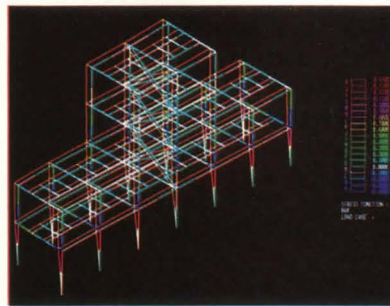


Design Development and Engineering

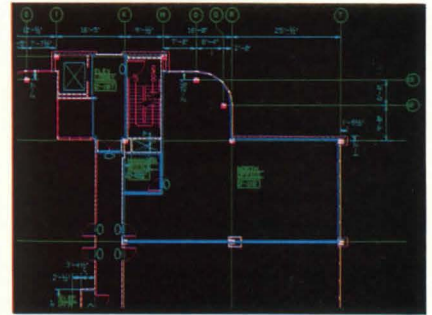
Intergraph offers complete software for mechanical, electrical and plumbing engineers. From schematic layout to analysis to documentation, our system automates each phase of the engineering process.



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Intergraph enables engineers to solve structural analysis problems without having to buy time on a mainframe computer. The new Intergraph RandMicas™ product is interactive software for 2-D and 3-D frame and finite element analysis and design.



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Our drawing production software—including sections, details, elevations, site plans and engineering drawings—is the most mature in the CAD industry.



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Tutorial Schedule

Tutorials are an exciting aspect of A/E SYSTEMS '85, offering three-hour, in-depth sessions on subjects of special interest. Each participant receives a tutorial package that includes a detailed course outline, workbook, and other written materials which elaborate on the lecture presentation.

Because certain tutorials complement others, be sure to check the presentation abstracts to identify related sessions of interest to you.

Each tutorial is \$95 which includes the workbook materials and coffee break; it does not include hotel accommodations. To obtain a registration form call 203-666-6097 or write to A/E SYSTEMS '84, P.O. Box 11316, Newington, CT 06111. On site registration is also permitted on a space-available basis.

Monday, June 3, 1985

9:00 AM — 12 NOON

T-1 Effective Use of Computers in Civil Engineering

Convention Center—Room 1

To make effective use of computers, civil engineers must be aware of the common characteristics and deficiencies of conventional engineering computer programs and become knowledgeable about state-of-the-art integrated software systems.

In this tutorial, you'll discover cost-effective computer uses in civil engineering design and productivity improvement, then learn how general purpose engineering information processing systems can aid your analysis, design, and decision-making processes.

Dr. Leroy Z. Emkin

Director, GTICES Systems Laboratory, Professor of Civil Engineering Georgia Institute of Technology, Atlanta, GA

T-2 CAD Training: The Human Resources Aspect of Automation

Convention Center—Room 2

While a computer aided design (CAD) system is often a worthwhile capital investment, a professional service firm's most valuable asset is still its staff. The widely touted productivity gains of CAD are achievable only through a highly organized production process, and that requires staff training.

This tutorial addresses such issues as the selection of potential users, effective training methods, documentation, trained staff retention, advanced training, and quality control to help you usher your staff into the "CAD Age" with confidence.

Ishya S. Riggs

Systems Manager CRSS/EPR Division, San Francisco, CA

T-3 Introduction to Computer Graphics for the Building Industry

Convention Center—Room 3

Because architects and other construction professionals think and communicate in visual images, computer graphics is essential to the growth of computer usage in the building industry.

In this tutorial, you'll learn how computer graphics can help you make money; how to select the right system by comparing system types, prices, and capabilities; and what the payoffs and pitfalls of computer graphics are. No prior knowledge of computer is needed.

Dr. Joel N. Orr

Director, The CADD/CAM Institute, Danbury, CT

T-4 Computers for Contractors: Systems and Selection

Convention Center—Room 4

Today's contractor is confronted by a bewildering array of computer hardware and software programs—almost too many from which to choose.

By participating in this tutorial, you'll gain practical information on what you *can* do, what you *should* do, and how much it will cost you, which will make your system selection process faster and easier. You'll leave with specific ideas on what direction to take and how to get started.

John D. Smith

Director, Construction Industry Services Arthur Andersen & Co., Chicago, IL

T-5 Computer Graphics in Interior Design

Hilton—Pacific Ballroom A

Using Gensler and Associates/Architects as a case study, this tutorial concentrates on the selection, preparation, and implementation of a computer graphics system.

You'll discuss the reasons for bringing CADD in-house, a typi-

cal profit and loss statement for the system, the system selection process, how to prepare your office for CADD, and hidden implementation costs, focusing on the needs of both large and small offices.

Anthony Mirante

Associate

William B. Tracy, AIA

Associate

Gensler and Associates/Architects, San Francisco, CA

T-6 Effective Human Resource Management

Hilton—Pacific Ballroom B

This four-part tutorial offers practical tips on the effective management of human resources in today's business organization.

Following an introductory presentation on why organizational management is important and who it should involve, you'll discuss organizational design factors, compensation and reward systems as they relate to staffing, and "career pathing" techniques.

John T. Carlsen

Executive Vice President/General Manager

Nadel Architectural Corporation, Santa Monica, CA

T-7 Introduction to Small Computers for Architects

Hilton—Pacific Ballroom C

This tutorial will help architects understand the practical benefits you can expect to derive from small computers, such as the IBM PC, XT, and AT; the TRS-80; Apple; and HP.

You'll learn the key steps in selecting a system that's appropriate for your firm, how to shop for software, how to talk to salespeople, and how to overcome the three major problems faced by today's businesses when acquiring computer systems.

C. Page Highfill, AIA

President, Highfill-Smith Associates Inc., Architects, Engineers and Planners, Richmond, VA



T-8
Introduction to Small Computers for Engineers
 Hilton—Pacific Ballroom D

The micro chip is responsible for technological advancement that triggered the present computer hardware revolution, making powerful, low-cost computer systems available to all engineers in the building profession.

During this tutorial, you'll discuss hardware basics, comparative performance, size limitations, and the micro-main-frame connection. You will also gain important tips on becoming an informed consumer to avoid the pitfalls of small computer system selection.

M. Kevin Parfitt, P.E.
Principal
Parfitt/Ling Consulting Engineers,
State College, PA

T-9
Marketing Management for Design Firms
 Hilton—California Pavilion A

Designed to benefit both new and mature marketing programs in today's design firms, this tutorial stresses organizing and managing to win, pointing out ways to shorten the trial and error process.

You will discuss the important functions of a successful marketing program, how to staff it, the role of management in its success, setting the proper marketing direction for your firm, and how to get the most for your marketing dollars.

Lyle G. Trease
President
Trease Consulting Group,
Minneapolis, MN

T-10
Conducting a Computer Needs Audit
 Hilton—California Pavilion B

Because no single computer system or software package can satisfy every need, leading organizations use numerous systems acquired over a period of years.

This tutorial offers a step-by-step, systematic approach to design automation and computer support. Based on your business and organizational objectives, you'll learn how to identify your most promising opportunities, define specific systems needs, then sequence multiple investments into a logical, long-range plan.

H. Lee Hales
Management Consultant
Houston, TX

T-11
Project Management for Design Firms
 Hilton—California Pavilion C

As projects become increasingly complex, and clients more demanding, the success of today's design firm depends increasingly on the project manager's management skills.

This tutorial describes recent trends in design firm organization, emphasizing the project manager's role and defining his or her responsibilities. You'll benefit from suggested approaches for project managers to planning work, delegating responsibility, and dealing with clients.

David Burstein
Vice President and Southeast Regional Manager
Engineering Science, Inc.,
Atlanta, GA

T-12
Fundamental Reprographics
 Hilton—California Pavilion D

Systems drafting applies the high-production output techniques of reprographics to the hands-on design and drafting process. This tutorial reviews systems drafting techniques for copy, cut and tape procedures along with maximized-use methods for in-house electrostatics, contact vacuum frame, and diazo reproductions.

Following a general cost-benefit analysis of systems drafting, you will discover both the pros and cons of using photo-reproduction techniques, tint screening, and photo-drafting to help you communicate design concepts more quickly and effectively.

Gary M. Gerlach, AIA
Principal
Pin Graphic Advisor,
Glastonbury, CT

Monday, June 3, 1985
1:30 PM — 4:30 PM

T-13
Computers and Reprographics in Interior Design
 Convention Center—Room 1

Computers and reprographics technology have significantly impacted traditional interior design methods and management. This tutorial examines management philosophy, then presents technical "how-to" information to help you establish a state-of-the-art CADD/Reprographics/EDP/WP link.

With this powerful combination at your disposal, you'll be able to provide sophisticated and timely architectural pro-

gramming, stacking, space planning, specification writing, production documentation, purchasing, and facilities management services for your clients.

Bradley M. Meade
Manager of Computer & Reprographics
Swanke Hayden Connell Architects,
New York, NY

T-14
Effective Business Planning
 Convention Center—Room 2

A highly focused approach to business planning for the design profession is examined in this tutorial. It shows you how to prepare a written business plan with action plans for a small firm, including subplans for finance/accounting, marketing, human resources, technical operations, and ownership/administration/organization.

The seminar also details how to introduce and improve the formal team process of strategic planning in medium and large size design firms, including business plan preparation, review and results tracking.

Herbert A. "Bud" Hoyles
President and Senior Consultant
Hoyles Associates Inc.,
West Vancouver, BC

T-15
Developing Standards in A/E CADD
 Convention Center—Room 3

This tutorial focuses on the development of CADD standards—what they are, why they are necessary, and how to establish them—for both the A/E office and the involved disciplines.

You'll discuss the value of CADD standards for the autonomous unit and for the unit as part of a larger team, then consider the need for standards within disciplines to facilitate the exchange of data.

G. Anthony DesRosier
Applications Consultant
Computer Graphics Applications (CGA), Hopkins, MN

T-16
Applying and Managing Computers in Construction
 Convention Center—Room 4

This tutorial reviews for you three groups of specialized construction computer software: estimating, integrated accounting (payroll, accounts payable, job cost accounting, billing and receivables, and general ledger), and project scheduling.

You'll first review the functions and features of each group that are required typically by contractors, receiving a list of

the microcomputer software packages that are most popular with contractors. In addition, you'll witness an on-the-spot demonstration of one package in each group that meets most of your requirements.

John D. Smith
Director, Construction Industry Services
Arthur Andersen & Co., Chicago, IL

T-17
Computer Graphics in Architecture: Systems and Selection
 Hilton—Pacific Ballroom A

If you're having trouble choosing a CADD vendor, this tutorial can help you decide on appropriate computer graphic technology for your architectural office.

Topics to be covered include the preliminary study, determining the technical and administrative effects of CADD, detailed systems analysis, developing a cost-benefit analysis, systems evaluation and selection issues, an overview of hardware, and drafting and applications software, among others.

Eric Teicholz
President
Graphic Systems, Inc.,
Cambridge, MA

T-18
Computer Graphics in Engineering: Systems and Selection
 Hilton—Pacific Ballroom B

Designed to help you understand the basics of computer-assisted design and drafting, this tutorial offers helpful information about the components of a drafting system, including input devices, central processing units, output devices, communications, and software.

You'll learn what current capabilities are available to perform design, analysis, drafting, and documentation for engineering applications and how to select the proper system for your needs.

Timothy C. O'Connor, PE
President
O'Connor Consulting, Inc.,
Lathrup Village, MI

T-19
Applying Small Computers in Architecture
 Hilton—Pacific Ballroom C

This sequel to T-7 answers architects' questions about the benefits of expanding a basic, small-computer installation.

You'll discover how to apply computers and software—including small CADD systems—in your practice, how to maximize

Tutorial Schedule

the benefits of each system in your office, and how new technologies can create higher standards, improve service, and offer better methodologies for clients.

C. Page Highfill, AIA

President

Highfill-Smith Associates Inc. Architects, Engineers and Planners, Richmond, VA

T-20

Applying the Small Computer in Engineering

Hilton—Pacific Ballroom D

Today's small computers are touted as fantastic production and design tools for engineers, and this tutorial will help you decide whether this claim is fact or fiction.

The presentation will focus on small computer applications in both small and large engineering and A/E firms, including document production, marketing, engineering computation, business applications, graphics, and CADD. You'll learn how to select and evaluate software, as well as where to get software for specific engineering disciplines.

M. Kevin Parfitt, PE

Principal

Parfitt/Ling Consulting Engineers, State College, PA

T-21

How to Organize and Implement an Effective Marketing Program

Hilton—California Pavilion A

In this practical workshop, you'll discuss how architects and engineers can gain management and staff commitment to marketing; assess your firm's strengths and weaknesses; define appropriate goals, territory, project mix, and market direction; do your own research; develop an effective marketing plan; and evaluate results.

The tutorial is based on actual case histories, points out common marketing pitfalls, and focuses on the "musts" that can make your program successful.

John Coyne

President

Coyne Associates, St. Paul, MN

T-22

Introduction to Facilities Planning

Hilton—California Pavilion B

This tutorial describes facilities planning and its relationship to the design professions, identifying the tasks of facilities planners, the issues they face, and the skills they require. (Computer aids to planning will be discussed on Tuesday in T-30.)

You'll discover how facilities planning differs from architectural programming and interior design, the differences between long- and short-range planning, and how approaches and issues differ among industrial, administrative, and institutional settings.

H. Lee Hales

Management Consultant

Houston, TX

T-23

Scheduling and Budgeting for Project Managers

Hilton—California Pavilion C

Today's business climate is forcing design firms to "sharpen their pencils" as never before in order to get work, while simultaneously high interest rates are requiring clients to accelerate their project schedules, minimizing the time available for design.

This tutorial offers practical approaches to help project managers deal with these problems, including specific procedures to establish and monitor project schedules and budgets to maintain your firm's profitability and keep your clients happy.

David Burstein

Vice President and Southeast

Regional Manager

Engineering-Science, Inc., Atlanta, GA

T-24

Implementing and Managing Reprographic Production

Hilton—California Pavilion D

Hands-on systems drafting and layered systems drafting set the stage for an orderly transition to computer aided design and drafting (CADD). This session outlines logical formats required to accomplish advanced reprographics and pin-registered overlay drafting.

Following a project management-level cost-benefit analysis, you'll review maximized use methods for producing in-house contact screen tints, setting up filing systems, and easing the hassles of checkprints. Finally, you'll learn the latest photo-reproduction techniques and how to mix pin graphics with CADD hardcopy output and post-punching.

Gary M. Gerlach, AIA

Principal

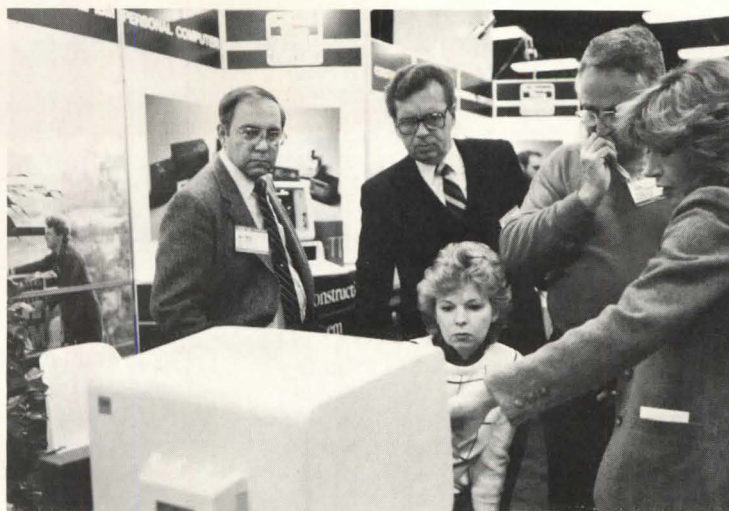
Pin Graphic Advisor, Glastonbury, CT

T-25

Time Management For Design Professionals

Convention Center—Room 1

Specifically prepared for design professionals, this tutorial shows



why designers must manage time as a critical resource in their practices, and offers concrete suggestions to help avoid wasting time, setting daily goals, and controlling demands on your time.

This tutorial also offers suggestions on how to conduct more effective meetings and bursts the myths of time management. Participants will learn a 14 point system for getting more organized and increasing the amount of productive time in each working day by two hours.

Herbert A. "Bud" Hoyles

President and Senior Consultant

Hoyles Associates Inc., West Vancouver, BC

T-26

Ownership Transition

Convention Center—Room 2

How is your firm dealing with "ownership transition" to maximize value and provide growth opportunities?

This tutorial reviews the transition process for both buyers and sellers, including valuation methods, goodwill, and individual goals. You'll gain helpful insights based on Mr. Bevis' participation on a research project co-sponsored by PSMA, ACEC, and AIA.

Douglas A. Bevis, AIA

Chief Financial Officer

The NBBJ Group, Seattle, WA

T-27

Preparing Effective Proposals

Convention Center—Room 3

This workshop-format tutorial presents the key elements of successful proposal writing, with individual attention to your special problem areas.

You'll learn how to: allow more "think time" for proposal planning, "psyche out" what your client really wants to know, present essential information about your firm and its services

in the most readable manner, and use computers to make proposal preparation easier.

Margaret B. Spaulding

Editor

A/E Marketing Journal, San Francisco, CA

T-28

Implementing and Managing an Architectural CADD System

Hilton—Pacific Ballroom A

The effective use and integration of CADD technology in a design office depends largely on how completely staffing, training, library development, technical, and administrative issues are addressed.

This tutorial shows you how to implement and manage CADD in an architectural office. Topics include how to manage CADD systems, options for implementation, and preparation for the system, among others.

Eric Teicholz

President

Graphic Systems, Inc., Cambridge, MA

T-29

Implementing and Managing an Engineering CADD System

Hilton—Pacific Ballroom B

This follow-up to T-18 focuses on what management needs to know and do to bring CADD on board—what to do now, what to do when the system arrives, and what to do later to keep it running.

You'll learn how to: define and establish short- and long-term CADD goals, deal with staffing and training, organize and schedule workloads, and bring a system in-house effectively.

Timothy C. O'Connor, PE

President

O'Connor Consulting, Inc., Lathrup Village, MI



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**HEWLETT
PACKARD**

Tutorial Schedule

T-30 Computer-Aided Facilities Planning

Hilton—Pacific Ballroom C

Computer-aided facilities planning offers new opportunities for professional designers and corporate planners alike. In addition to their more traditional uses in design, computers are now used for the on-going planning and control of space and equipment.

In this tutorial, you'll receive an overview of available systems and software plus helpful tips on how to locate and select the right tools for your firm.

H. Lee Hales
Management Consultant
Houston, TX

Tuesday, June 4, 1985 8:30 AM — 11:30 AM

T-31 Integrating CADD and Reprographics

Hilton—Pacific Ballroom D

Whether it is enhanced or hindered by computer aided design and drafting, the output of your design process is of primary importance. This tutorial considers application management of the multi-faceted, interactive computer graphics system, used as a design and drafting tool, as a function of its hardcopy output.

By examining CAD as design output—and CADD as plotted hardcopy output—at each stage of the design process, you'll learn what CADD and non-CADD elements interface within a project. In addition, you'll discover how CADD layering logic can be implemented for drawing management and integrated with off-line users of pin graphics.

Gary M. Gerlach, AIA
Principal
Pin Graphic Advisor,
Glastonbury, CT

1:30 PM — 4:30 PM

T-32 Microprocessor Integration with Networks and Mainframes

Hilton—California Pavilion A

This tutorial covers four major topics related to microprocessor integration with networks and mainframes.

In discussions led by experts, you'll learn how to use microcomputers: in local networks, as data entry stations to mainframe computers, to receive data from mainframe computers for further processing (a process known as "downloading"), and

to access public databases and information services.

Chester A. Shuman
Executive Vice President

Mark W. Ellsworth
Vice President
Harper and Shuman, Inc.,
Cambridge, MA

T-33 Financial Management and Project Control for A/E's

Convention Center—Room 1

This financial management tutorial emphasizes practical matters such as hiring a financial manager, pricing techniques, project budgeting, and methods of controlling project and overhead costs.

You'll discover the importance of planning, discuss the steps in developing an effective annual business plan, and learn how to select and implement computerized accounting and project control systems.

Lowell V. Getz
Financial Consultant
Lowell V. Getz, CPA, Houston, TX

T-34 Developing Your Selling Skills

Convention Center—Room 2

This tutorial defines selling in the context of the design services firm, with emphasis on closing the sale as the culmination of your total marketing effort.

You'll identify a variety of sales roles, determine which are most effective, and discuss the best ways to get to know clients, develop tactical plans, and improve your selling skills.

Jim Ricereto
Programs Director
Daniel, Mann, Johnson &
Mendenhall, San Francisco, CA

T-35 Computerized Specifications: A Primer for Design Professionals

Convention Center—Room 3

While every mature design professional knows the importance of properly written construction documents, most dread the task of writing them. Yet, lose one major lawsuit because of improperly prepared documents, and you could be out of business.

This tutorial presents techniques used by professional specifiers. You'll discover how to write specs better, faster, and more easily with computer assistance as well as how to develop your own computerized master specifications.

Hans W. Meier, FCSI
Certified Construction Specifier
Meier Associates, Studio City, CA

T-36 Architectural Computer-Integrated Design

Hilton—Pacific Ballroom A

Many architects and engineers limit their use of CADD to production-type drafting, but computer-integrated design concepts are equally valid in the planning, schematics, design development, construction documents, and construction phases of projects.

For over 15 years, the Stewart Design Group has used relational data bases, layout optimization, free-hand sketching, drafting, three-dimensional presentations, specifications, schedules and listings as an integrated matrix for use throughout the design/construction process. In this tutorial, you'll discover the lessons they have learned, their techniques for application, and the benefits they have achieved.

Clifford D. Stewart, AIA
President
Stewart Design Group, Boston, MA

T-37 Interactive Environmental Systems Analysis for Facility Managers

Hilton—Pacific Ballroom B

Interior design is a complex process which addresses an interactive spectrum of user needs and corresponding environmental services.

In this tutorial, you'll become acquainted with a computer-based process which organizes the interior design process, with emphasis on how the environment created can increase the productivity and efficiency of its users.

Dr. Maree Simmons-Forbes
Associate
Friday Design Group,
Washington, DC

T-38 Integrating CADD in the A/E Office

Hilton—Pacific Ballroom C

CADD systems offer two significant benefits to firms with diverse architectural and engineering groups in-house: the coordination of each discipline's work on a single data base, and the ability to transfer information from schematics directly into documentation for design development, working drawings, and construction supervision.

Through a case-study presentation, this tutorial highlights CADD benefits and explores the information management and control challenges implicit in CADD usage.

Seymour L. Fish, AIA
Partner, Director of Production and CADD Services
Haines Lundberg Waehler,
New York, NY

T-39 Micro-CADD for Architects and Engineers

Hilton—Pacific Ballroom D

Take your credit card to the local computer store on a Saturday afternoon, and you can easily walk away with a microcomputer-based CADD system. But do you really want to? Does micro-price mean micro-support? Are desktop systems really powerful enough to support design as well as drafting activities? What are users doing with their systems?

This tutorial will help you understand what a CADD system is and how micro-CADD stacks up against manual methods and systems costing tens of thousands of dollars. It is intended for all members of the design profession with an interest in microcomputers and CADD. Whether you already have an expensive CADD system or are considering your first microcomputer, you will find this tutorial helpful in organizing and executing your micro-CADD implementation plan.

Daniel S. Raker
Editor
A/E SYSTEMS REPORT,
Cambridge, MA

T-40 Integrating Reprographics and Facilities Management

Hilton—California Pavilion A

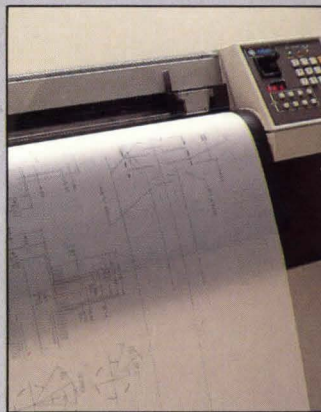
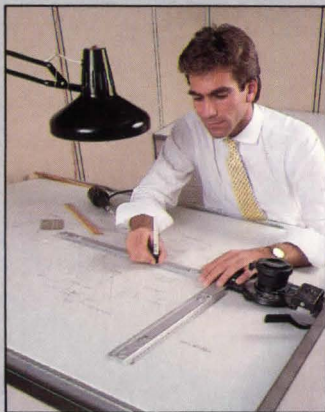
To meet many needs, such as the unending task of maintaining up-to-date information on the status of corporate facilities, today's design professional must document more accurately new facilities as well as record efficiently all changes to existing buildings.

In this tutorial, A/E's, corporate planners, facilities managers, and interior space planners will discover how to achieve better documentation with techniques less expensive than those you may now be using.

James C. Gaither, Jr.
Territory Manager
The DuPont Company, Stow, OH
Ann M. Dunning, AIA
President
Ann M. Dunning, AIA, Inc.,
Chagrin Falls, OH

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Seminar Schedule

The purpose of the A/E SYSTEMS '85 seminar program is to stimulate creative production and management problem-solving by exposing you to new ideas. Between Wednesday, June 5, at 9:00 a.m. and Friday, June 7, at 12:00 noon, we offer 80 one-hour seminars on a wide variety of special topics.

For a \$195 fee, which includes admission to the exhibit area, you may attend any eight seminars of your choice on a first-come, first-served basis.

To obtain a registration form call 203-666-6097 or write to A/E SYSTEMS '85, P.O. Box 11316, Newington, CT 06111.

If you prefer, you may register on site for individual one-hour seminars at a cost of \$35 each.

Wednesday, June 5, 1985 9:00 AM — 10:00 AM

S-101

Computer Applications in Urban Planning and Civil Engineering

Convention Center—Room 1

Because of the many divergent computer-based products available to the civil engineering, design and planning professional, they are difficult to evaluate. This presentation will provide a framework enabling comparisons of the merits of various systems, encompassing: integrated vs. non-integrated; single vs. multi-user; interactive graphics vs. CAD vs. COGO; computer vs. manual overlay drafting; and networking vs. multi-user. A CADD system will be presented as an example.

Harvey H. Liss, PE, Ph.D.

President

VL Systems, Inc., Irvine, CA

S-102

Computerized Construction Product Information Access

Convention Center—Room 2

Construction/design professionals can now access manufacturers' product information via computer terminals furnished to them. Networks enable you to access regional technical product information, shorten your product research time, and keep up with new product announcements. Learn how to research, select, specify, and purchase materials and products quickly!

Charles M. Denisac, Jr., FCSI, CCS

Vice President, Ardex

Corporation, Santa Fe Springs, CA

S-103

Success Starts at the Top: Principals' Roles and Relationships

Convention Center—Room 3

Principals play an essential role in the success of any design organization. In this seminar, which stresses attendee participation, you'll review an organizational model to gain a comprehensive overview of the roles

of principals and their relationships in firms of varying sizes. Topics include leadership, conflict management, and organizational personality and environment. Handouts and worksheets are provided.

H.C. "Chip" Clitheroe, Jr.

Principal/Consultant

The Consultant Collaborative, Santa Ana, CA

S-104

Computers in the Design Studio

Hilton—Pacific Ballroom A

CADD includes graphic and nongraphic applications which enhance design quality and client satisfaction while giving the architect more time for creative design tasks. This session covers programming, sketch systems, expert systems, CADD and miscellaneous utilities, with particular attention to 3-dimensional modeling, including user interfaces, data base schemas, descriptive systems, and functional constructs.

David Vere Thompson

Associate Principal, RTKL

Associates, Inc., Baltimore, MD

S-105

Setting Standards for CAD and Reprographic Production

Hilton—Pacific Ballroom B

Production tools such as the T-square and parallel rule accommodate individual expression, but production systems such as CAD and reprographics require uniform professional standards. This seminar addresses justification, applications, and techniques to help you develop and implement a uniform professional standard for design production.

Richard C. Hein, AIA/CSI

Principal, Anshen & Allen,

San Francisco, CA

S-106

CAD Panel Discussion—Where Are We?

Hilton—Pacific Ballroom C

CADD systems are today accepted in many A/E design offices as indispensable tools. They have improved productivity and

design quality, eliminated some common and costly errors, and in some cases proved to be valuable sales tools. But, CADD has brought a new set of problems to the design office that is influencing both designers and the firms they work for. The steps underway in the CADD industry to overcome these problems in the next generation of systems is the subject of this discussion.

Panel Chairman:

Charles M. Foundyller

President

Daratech, Inc., Cambridge, MA

Panelists:

Stephen T. Ball

President

Cascade Graphic Development, Santa Ana, CA

Charles M. Eastman

President

Formative Technologies, Inc., Pittsburgh, PA

David R. Skok

President

Skok System Inc., Cambridge, MA

Robert P. Tiel

Director, Engineering Marketing—CAD/CAM

IBM Corporation, White Plains, NY

Walter Von Seggern

President

Sigma Design Inc., Englewood, CO

John Walker

President

Autodesk, Inc., Sausalito, CA

S-107

How to Make Your Systems Work in Spite of Themselves

Hilton—Pacific Ballroom D

Microcomputers, CADD, and all the other new tools and techniques often fail to meet our expectations. Instead, they seem to be the cause of delays, unexpected expenses, staff resentment, and management embarrassment. Avoid the pitfalls by discovering the problems peculiar to each system, common training mistakes, and a proven systems approach to choosing and using new systems.

Fred A. Stitt

Architect/Editor

Guidelines, Orinda, CA

S-108
The Current Status of CADD in Japan

Hilton—California Pavilion A
In these few years, CAD systems including foreign-made drafting systems have gradually spread among Japanese design firms and construction companies. But many problems concerning the efficient use of these drafting systems have still remained. To solve these problems, some big construction companies have developed their own CAE systems. This presentation gives an overview of a TADD (Totalized Architectural Design and Drafting) system developed by Ohbayashi Corporation showing the capabilities of such a system.

S. Matsuoka

*Director, System Development and Computing Center
Ohbayashi Corporation,
Tokyo, Japan*

S-109
What to Look for in Computerized Accounting

Hilton—Huntington Room
The speaker shows you how to decide when to change your accounting system, then outlines the essential applications in a computerized system. You'll become familiar with the five basic modules in most software packages for accounting systems—accounts receivable, accounts payable, general ledger, payroll, and job costing—and learn the capabilities and limitations of each.

Michael T. Sheppard

*Senior Consultant and Associate
The Fails Management Institute,
Raleigh, NC*

S-110
Mid-size and Large Firm CEO Roundtable

Hilton—Laguna Room
How do other mid-size and large design firms solve the day-to-day problems facing senior management? In this informal roundtable, attendees will have the opportunity to trade success (and failure) stories with fellow top managers in A-E-P offices.

Wednesday, June 5, 1985
12:00 NOON — 1:00 PM

S-201
Automated Mapping and Facilities Management: The Owner's Perspective

Convention Center—Room 1
In this seminar, you'll explore automated mapping and facilities management from the perspective of the property/facility owner, who seeks a corporate-

wide database of facility information to support an efficient, economic operation. The discussion includes an overview of AM/FM applications, suggestions on organizing a successful AM/FM project, and examples of ongoing projects.

Larry J. Engelkin

*Executive Vice President
EGT Incorporated, Houston, TX*

S-202
Integrated Design/Construction Database Management

Convention Center—Room 2
As the construction industry makes greater use of automation to assist the construction process, data can be passed from one specialty to another—design to construction to building operation—without traditional loss. In this seminar, you will become acquainted with the process by which data is used interactively with graphics and is managed on a total project basis.

Dr. Maree Simmons-Forbes

*Associate
Friday Design Group,
Washington, DC*

S-203
Project Management Response to CADD

Convention Center—Room 3
Firms using CADD systems require effective project management to make money. This session helps A/E firms using or acquiring CADD to sharpen their project management in tracking the progress of decisions as well as documents, keeping project teams flexibly organized, and managing clients with more sophistication.

Tom Haskins

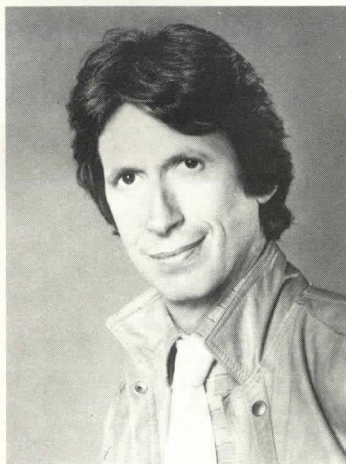
*President
The Haskins Organization,
Pittsburgh, PA*

S-204
Organizing and Managing the Design Office in an Automated Environment

Hilton—Pacific Ballroom A
The success of a new computer system depends as much on its users and their preparation as on the quality of the hardware and software. This seminar outlines how to organize your office before delivery of a new system, how to manage its use after delivery, and how to budget and justify expenditures for organizational activities.

Ched Reeder

*Principal
The Computer-Aided Design Group[®], Santa Monica, CA*



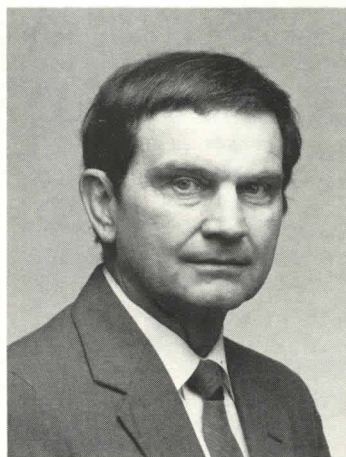
**Comedian
David Brenner
To Headline
Host Dinner**

Date/Time:
Thursday, June 6 at 6:45 PM
Location:
Ballroom at Anaheim Hilton

David Brenner, world-famous comedian and popular guest host of NBC's "The Tonight Show," will headline the A/E SYSTEMS '85 Host Dinner on Thursday, June 6, at the Anaheim Hilton.

Beginning at 6:45 p.m. with a cash-bar cocktail party, the gala evening will feature a leisurely sit-down dinner, an exciting exhibition of state-of-the-art, computer generated animation and modeling by computer graphics expert Chuck Csuri, and the captivating comedy of David Brenner.

Named "Las Vegas Comedy Star of the Year" and *Atlantic City Magazine's* "Best Comedian Headliner," among many other honors, Brenner is a freewheeling, multifaceted talent whose career has included stints as a writer, producer, director, and recording artist, as well as an entertainer. Wry, fast-paced, and eminently entertaining, Brenner's unique brand of humor often features vignettes from his youth as a South Philadelphia gang leader, where he learned how to get out of tight spots by getting laughs. Academically able as well as street smart, Brenner graduated with honors from Temple University before embarking on a varied and successful career in entertainment.



**Computer-
Generated
Imagery**

Professor Csuri will present recent advances in the field of computer graphics as related to imagery and animation. His firm, Cranston/Csuri Productions, produces award winning graphic displays for many local and national news and feature shows, including the NBC Today Show, ABC and P.M. Magazine.

Computer-generated imagery and animation will be presented to illustrate advanced techniques for texture mapping, refraction, and complex motion control. These techniques represent some recent advances in the field of computer graphics. Applications have been made to Architecture, Industrial Design, Science, Education and Art and Entertainment.

Tickets are \$44 in advance by calling 203-666-6097. Space permitting, tickets will also be on sale at the door Thursday evening at a cost of \$49.

Seminar Schedule

S-205

Systems for the Small Office Hilton—Pacific Ballroom B

The creative use of systems drafting can enable small firms to be more competitive as well as more productive. This seminar focuses on production techniques that you can apply effectively to projects ranging from residential development and motel chain development to single-family residential renovations and new construction.

Ann M. Dunning
President

*Ann M. Dunning, AIA, Inc.,
Chagrin Falls, OH*

S-206

CAD: Where Are We Going? Hilton—Pacific Ballroom C

Are we going to nirvana in an electronic handbasket? The year 1984 hinted at the heavenly blessings 1985 is to bestow: Expert systems for civil engineering's infrastructure projects; talk-to and talk-back computers; \$50,000 CAD work stations for the well-to-do engineer; \$20,000 work stations for the prospering architect; and \$5,000 CAD for the not-so-rich. Four CAD-expert panelists will reveal and discuss what the computer masters of Huntsville, Tulsa, California—and Japan—have in store for us.

Panel Chairman:

E. Forrest, PE
*Editor, A-E-C Automation
Newsletter, Carlsbad, CA*

Panelists:

Littleton Daniel, AIA
*President
Endeavors Group Inc., Tulsa, OK*

James L. Lambert, PE
*President
Artecon Inc., Carlsbad, CA*

James W. Meadlock
*President, Intergraph Corporation,
Huntsville, AL*

Frank H. Puhl
*President
Cadam Inc., Burbank, CA*

S-207

Computer-Aided Management Modelling for A/E's Hilton—Pacific Ballroom D

This session examines computer modelling techniques used by a mid-size architectural firm to structure fees, monitor project progress, chart short-term manpower utilization, develop long-range workload planning and personnel requirements, and develop cash flow projections. Fast, reliable, simple methods for getting a grip on key information are illustrated as a basis for tactical decision-making and

strategic management/market-
ing planning.

Paul J. Henderson
*President
Henderson Gantz Architects,
St. Louis, MO*

S-208

Computer-Generated Animation for Architecture and Urban Design Hilton—California Pavilion A

Japanese computer experts have developed computer-generated three-dimensional animation systems for architecture and urban design. In this seminar, you will see the work of Japanese designers who have created ten animated videos of cities and architecture during the last two years. A discussion of hardware and software, along with the aims and effects of animation, is also included.

Tsuyoshi Sasada
*Associate Professor
Osaka University, Osaka, Japan*

S-209

Computers in the Contractors Office Hilton—Huntington Room

Contractors are developing innovative uses for computer technology every day. In this seminar, you'll learn what other contractors (perhaps your competitors) are doing with computers, as well as why and how they are being used. You'll also discover how to determine if your company can benefit from a computer system, important factors to look for before you make a purchase, and an overview of computer software.

John M. Geffell
Timberline Systems, Portland, OR

S-210

Architectural CADD Managers Roundtable Hilton—Laguna Room

Directed to managers of computer graphics departments in architectural and interior design offices, this forum allows the exchange of tips, experiences, issues and problems with fellow CADD managers.

Wednesday, June 5, 1985
3:00 PM — 4:00 PM

S-301

Computer Graphics for Road- way and Bridge Design Convention Center—Room 1

This seminar covers the production of contract drawings for roadways and bridges using both micro and mini CADD systems.

Procedures, methodology, productivity, and benefits are discussed with special emphasis on the acceptance of aerial digitized tapes of topography maps, merging them with computer-generated alignments, profiles, cross-sections, transverse sections, details, and more. Applications are suitable for other types of contract drawings.

Alden R. Jenkins, P.E., P.S.
*Chief, Computer Services Division
Alden E. Stilson & Associates,
Columbus, OH*

S-302

The Use of Laser Plotting in Reprographics Convention Center—Room 2

In this session, you'll become familiar with the technology of laser equipment and its applications in the field of reprographics. In addition, you'll learn how an A/E firm can combine plotting and multi-color offset printing in one operation by using direct imaging laser equipment.

Pat Brumfield
*President
Lelleyett and Rogers Co.,
Nashville, TN*

S-303

How to Develop a Long Range Business Plan for Your Firm Convention Center—Room 3

Very few design firms have a long range business plan even though it is an established practice of good management. The first step is knowing what should be in a good plan. Then you can do the organizational development—the who, when and how. John Simonds has helped more than 50 design firms develop strategic plans. In this seminar he covers the practical issues of how to develop a plan for your firm.

John M. Simonds
*President
Martin-Simonds Associates, Inc.,
Seattle, WA*

S-304

Planning Profits Through Cost-Effective Data Reporting Systems Hilton—Pacific Ballroom A

A firm's profits may be only as good as its data reporting systems. This seminar presents budgeting, cost accounting, and cost monitoring techniques that "make profits happen," equipping you to project your firm's profits quickly and accurately.

Nancy L. Watson
*President
A/E Management Services, Inc.,
Plymouth, MI*

S-305

Buying, Customizing, and Writing A/E Micro Software Hilton—Pacific Ballroom B

The best computer system in the world can fail miserably if its software doesn't satisfy user needs. This seminar offers helpful hints on how to acquire software that meets the needs of your A/E office by getting the most out of readily available products.

James J. Jordan, Sr.
*President
J. J. Jordan, Sr., Architect-Engineer,
Sacramento, CA*

S-306

PC Applications in the CADD Environment Hilton—Pacific Ballroom C

Recent and on-going developments in personal computer hardware and software have vastly expanded PC office applications. This seminar shows you how to use the PC as a management tool in the CADD production environment, as an alternative to stand-alone CADD systems, and as an adjunct to CADD in the fully integrated A/E office of the future.

Joseph S. Brown
*Managing Partner
Everett I. Brown Company,
Indianapolis, IN*

S-307

Expert Systems: Consultants of the Future? Hilton—Pacific Ballroom D

"Expert Systems" are computer programs containing specialized technical knowledge about narrow classes of problems, plus procedures for applying this knowledge to individual cases. In this seminar, you'll review general expert system concepts, then discover how this new technology might serve as "consultants" in facility design, construction, and management, helping designers solve complex problems that normally require specialized expertise.

Fred Stahl
*Product Administrator, CAD/CAM
Plans and Requirements
IBM Corporation,
Poughkeepsie, NY*

Dr. Joel N. Orr
*Director, The CAD/CAM
Institute, Danbury, CT*

S-308

Architectural Design Software Hilton—California Pavilion A

This seminar focuses on basic architectural design principles you can use as guideposts for CAD decision-making in the rapidly changing computer



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Seminar Schedule

hardware environment. These guideposts are discussed in the context of commercially available CAD systems, emerging microcomputer graphics, plus other software that is useful in the design process but totally independent of commercially available CAD systems.

Donald R. Fullenwider, AIA
President
Fullenwider Consulting Group,
Santa Monica, CA

S-309 **Job Costing Systems** Hilton—Huntington Room

In this seminar, you'll learn what your job costing system should do for you—the value of a good system from an historical viewpoint, the elements of an integrated system, and the reports it should produce to help you manage your firm. Also, you'll discover how to evaluate your system and alternatives, how to gain staff support for system modifications, and what the key elements are in effective system implementation.

Michael T. Sheppard
Senior Consultant and Associate
The Fails Management Institute,
Raleigh, NC

S-310 **Marketing Directors Roundtable** Hilton—Laguna Room

Marketing directors and staff have an opportunity to exchange ideas with their peers in other A-E-P offices.

Thursday, June 6, 1985
9:00 AM — 10:00 AM

S-401
Working with a Graphics Service Bureau
Convention Center—Room 1
This session offers timely tips on effective planning for the successful implementation of CADD. Discussion topics include preplanning, knowing the process, project management and scheduling, selecting a workable project, choosing a graphics service bureau, plus post-project evaluation and feedback.

Joseph C. Orloff, AIA
President
Interactive Architects,
Newport Beach, CA

S-402
Engineering Applications and Management of Microcomputers
Convention Center—Room 402
Through a case study of the 4-

year evolution of microcomputer usage in a 25-person, multi-discipline A/E firm, this seminar addresses management decisions related to acquiring systems and describes present and future microcomputer applications. Topics include personnel, cost/benefit decisions, and microcomputer uses, for civil, structural, process engineering and others.

A. Ross Cash, P.E.
President

Blake Eckerle, P.E.
Civil Engineer
Cash & Associates Engineers,
Long Beach, CA

S-403 **Lead Finding For Marketers** Convention Center—Room 3

There are lots of people who are ready and willing to help you find business leads, and this seminar helps you discover who they are and where to reach them. You'll learn the secrets of networking—what information to give out and what to keep secret, national canvassing techniques, and effective telephone usage, among other helpful information.

William A. Feathers
President
Feathers Consulting Services,
Santa Monica, CA

S-404 **A Performance Specification for CADD Design and Evaluation** Hilton—Pacific Ballroom A

Over the past six months, AIA has initiated an expanded program to provide CADD educational materials. For those interested in reviewing the products resulting from this project, or who are interested in joining the AIA's Computers in Architecture Committee, this meeting provides the opportunity to talk with current members and make your views known. Plans for opening committee membership and the development of new products through 1986 will be discussed.

The Computers in Architecture Committee of the American Institute of Architects

Committee Members:
David Jordani, AIA, Chairman
William Christian, AIA
William Dikis, AIA
Robert Krawczyk
J. Blake Mason, AIA
Michael Schley, AIA
American Institute of Architects,
Washington, DC

S-405 **Integrating PCs into Reprographic and Management Applications** Hilton—Pacific Ballroom B

In this seminar, you'll learn how small offices can systematically apply the microcomputer to contract documents, project management, and office management; why standard word processing, spreadsheet, and data base programs make up the basic software package for small architectural offices; and how the microcomputer integrates naturally with reprographics and CADD.

Frank Mascia
Owner
Collaborative Design Group,
Tucson, AZ

S-406 **The Executive's Role in Office Automation** Hilton—Pacific Ballroom C

This seminar examines a multi-office architectural firm's experiences with selecting and implementing a CADD system, including multiple office integration, cost recovery, personnel motivation, and integration with other computer systems. Both solved and unsolved problems are presented.

James O. Jonassen
Partner/CEO
NBBJ Group, Seattle, WA

S-407 **Micro CADD Panel Discussion** Hilton—Pacific Ballroom D

Representative of the leading vendors of micro-based CADD systems discuss the pros and cons of installing such systems in A/E firms. Topics to be covered include what users are actually doing with micro-CADD, limitations of micro-CADD in comparison to larger systems, and integration possibilities of micro-CADD with other microcomputer software and larger CADD or mainframes. The panel discusses coming developments in micro-CADD and invites questions from the audience.

Panel Chairman:
Daniel S. Raker
Editor
A/E SYSTEMS REPORT,
Cambridge, MA

Panelists:
Tom Lazear
President
T & W Systems, Inc.,
Huntington Beach, CA

Richard Nedbal
President
Personal CAD Systems,
Los Gatos, CA

Kevin O'Lone
Systems Integration Manager
Autodesk, Inc., Mill Valley, CA

S-408 **Computer Applications and Developments in Australia and New Zealand—Part 1** Hilton—California Pavilion A

Largely due to the work of The Association for Computer Aided Design Limited (ACADS), a non-profit association of technical computer user organizations, CADD is widely used in Australasia. While most of the CADD hardware and software is of American origin, an increasing amount is being developed locally, particularly applications software. Two Australian CADD software products—*Palette* and *Easinet*—are already being marketed in the U.S. This presentation covers the areas of application in the Australasian region highlighting CADD developments of special interest, and offers an overview of ACADS which currently has 600 member organizations.

Speaker To Be Announced
Association for Computer Aided Design Limited,
Melbourne, Australia

S-409 **The Future of Computers in Construction** Hilton—Huntington Room

Five years ago, a good strategic plan would not have included the personal computer. It was simply not available to the business user at the time. Gordon Graves knows from his 23 years at IBM first-hand the difficulties inherent in the rapid explosion of microtechnology. This seminar will report on the key points of developing an implementation strategy for your firm, and getting the most from your investment in personal computers.

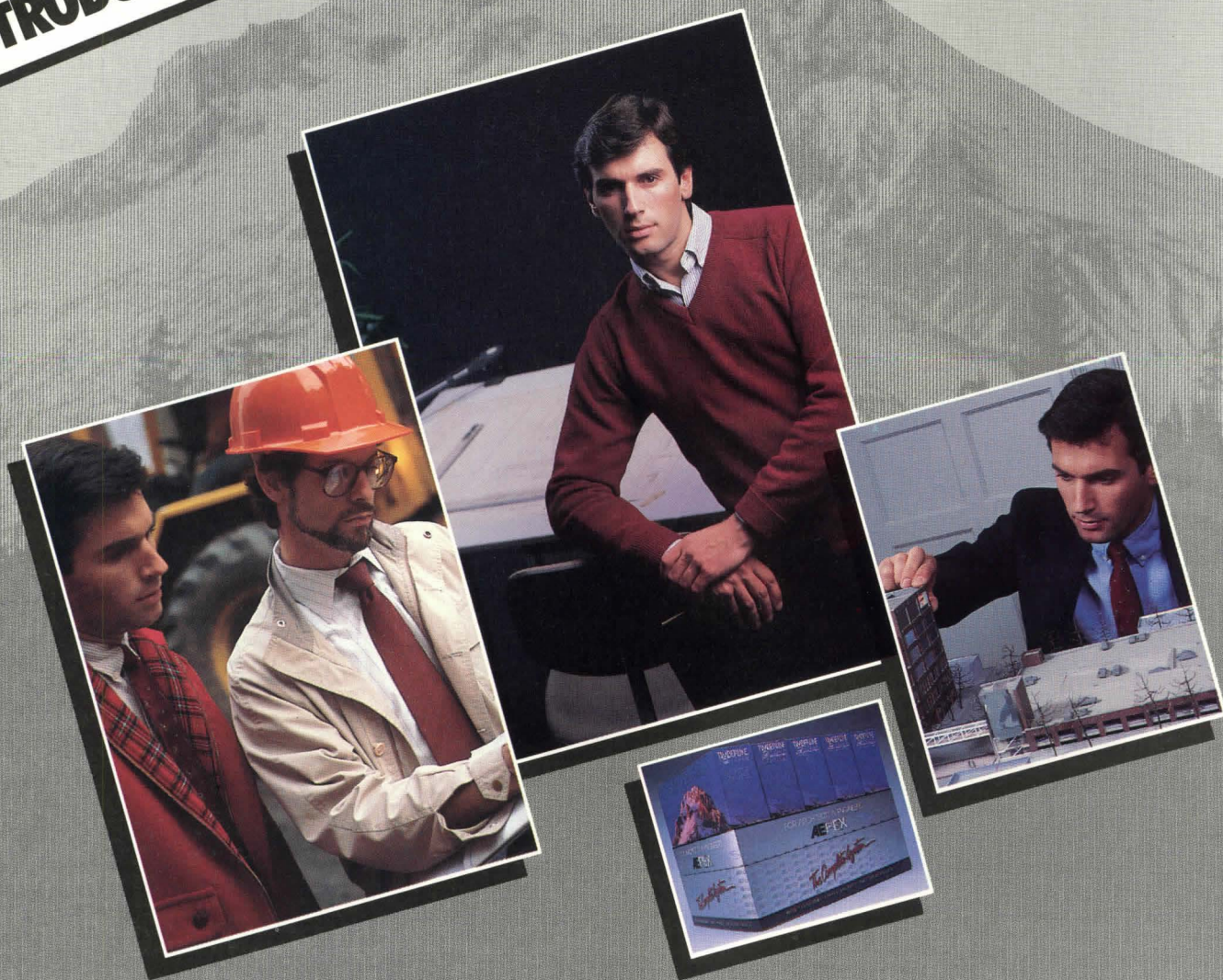
Gordon A. Graves
President, Concord Management Systems, Tampa, FL

S-410 **Automated Project Management in Power and Process Engineering** Hilton—Laguna Room

The technique of project management involves the planning and scheduling of work tasks in an organized fashion to reduce costs and maintain project schedules. This technique, although typically applied to construction projects can also be beneficial to the process and power industries for facility maintenance, shutdowns, and

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Seminar Schedule

plant outages. In addition, automated systems are available which can store information about plant equipment, spare parts, inventory status, and routine preventive or predictive maintenance work orders. Detailed capabilities of these type systems will be presented during this session.

Jack Figel

*Product Manager, Artemis Maintenance Control System
Metier Management Systems, Inc.
Houston, TX*

Thursday, June 6, 1985

12:00 NOON — 1:00 PM

S-501

Marketing Communications in the Professional Design Firm

Convention Center—Room 1
This seminar offers an overview of what a small or large A/E firm's marketing communications program should include, despite popular misconceptions, and how to plan and execute an effective program. The presentation offers examples of successful and unsuccessful programs, outlines the role of senior management, and provides realistic recommendations as opposed to theoretical solutions.

N. Richard Lewis

*President
Lewis & Associates, Los Angeles, CA*

S-502

Improving Relations with Your Outside Repro Services Firm

Convention Center—Room 2
This seminar explores how to establish good relations with your repro shop, how to select a good firm, what to look for in an outside organization, when to investigate the possibility of an in-house repro facility, and the future role of the repro services firm.

Paul Koze

*President
Blue Print Service Company,
San Francisco, CA*

S-503

Managers of the Future: What They Need To Know and How To Develop Them

Convention Center—Room 3
Most leaders of design firms have acquired their management skills through costly trial and error—and an occasional seminar. Will this approach be sufficient for the future or will design firms adopt a new philosophy and approaches to management and the grooming of future managers? This workshop pre-

sents the case for change and outlines practical steps design firms can take today to prepare managers for the coming decade's challenges.

John M. Simonds

President, Martin-Simonds Associates, Inc., Seattle, WA

S-504

Getting High Productivity from CADD in the First Year

Hilton—Pacific Ballroom A

Some of the most important factors in CAD/CADD purchasing and implementation decisions tend to be downplayed or overlooked. This presentation reports on the factors affecting a reasonably productive computer assisted drafting (CAD) system, as well as the limiting factors to CAD productivity. It also includes a discussion of the larger productivity potential of computer-assisted design and drafting (CADD) systems.

Rolland E. Rien

*Principal/Manager, Computer Operations
Dalton Dalton Newport,
Cleveland, OH*

S-505

Micros in the Small A/E Office

Hilton—Pacific Ballroom B

This seminar will focus on the application of personal computers in the small office, including how a computer training plan was implemented, the tax issues involved, and the benefits derived. Other aspects to be covered include employee computer use at home; estimating manpower requirements through the use of electronic spreadsheets; applications in HVAC, structural calculations, budgeting; and general office administration.

Harold E. Costley

*Vice President, Design Services
Torrence, Dreelin, Farthing & Buford, Inc., Richmond, VA*

S-506

How to Survive in the Design Business

Hilton—Pacific Ballroom C

This seminar focuses on the changing forces affecting the design profession and their potential results, with special attention paid to the impact of automation and the design professional's new roles and responsibilities. Mr. Wolfberg uses his firm's case history to illustrate developing trends and the corresponding needs for change if design firms are to survive.

David A. Wolfberg

*Architect
Wolfberg/Alvarez & Associates,
South Miami, FL*

S-507

IGES Standards for Computer-Aided Design

Convention Center—Room 2

This panel discussion offers a comprehensive overview of the Initial Graphic Exchange Specification (IGES) standard for data exchange from both the user's and the vendor's standpoints. A three-member panel of experts covers the need for standards to establish common terminology in human and machine data exchanges, the history and function of the IGES organization, and the steps being taken by the IGES/AEC subcommittee to insure that IGES is a viable standard for architecture, engineering, and construction.

Moderator:

G. Anthony DesRosier

*Applications Consultant
Computer Graphics Applications (CGA), Hopkins, MN*

Panelists:

Jon H. Pittman

*Associate, Co-Chairman IGES/AEC Subcommittee
HOK Computer Service Corporation, St. Louis, MO*

Fred I. Stahl

*Product Administrator, CAD/CAM Plans and Requirements
IBM Corporation,
Poughkeepsie, NY*

S-508

Computer Applications and Developments in Australia and New Zealand—Part 2

Hilton—California Pavilion A

See description for S-408

Speaker To Be Announced

*Association for Computer Aided Design Limited,
Melbourne, Australia*

S-509

Computerized Marketing for Contractors

Hilton—Huntington Room

Design and construction firms of all sizes need to increase marketing productivity. A computer with appropriate software can help you keep track of vital marketing and sales information. It can bring you the information you need at the time you need it most. The focus of this presentation is on using computers to obtain, analyze and act on the right information at the right time—a key to marketing success.

William S. Linton

*Vice President
Tecton Media, Inc., New York, NY*

S-510

Microcomputers in Process Plant Design

Hilton—Laguna Room

Because the process plant design/construct industry is in one of the worst periodic slumps in its history, it is essential that design companies be "lean and mean" when the next build cycle begins. This seminar helps you use proven productivity tools effectively by examining real requirements, matching them to available software, and selecting appropriate hardware. Case histories of builders now using micros successfully, plus a list of currently available software, are featured.

Tom Lazear

*President
T&W Systems, Inc.,
Huntington Beach, CA*

Thursday, June 6, 1985

3:00 PM — 4:00 PM

S-601

Ink Drafting for Manual and Automated Production

Convention Center—Room 1

Participants in this seminar will become acquainted with The Rapiddraw System, a method of direct ink drafting on polyester film, which produces clean, superior original drawings capable of meeting the stringent requirements of today's reprographic processes, overlay drafting applications, and computer plotting. The session will familiarize attendees with the various media and techniques, and help them to choose the proper materials for the job at hand.

Dick Mattes

*Manager, Plotter Supplies Division
Koh-I-Noor Rapidograph, Inc.,
Bloomsbury, NJ*

S-602

Effective Word Processing

Convention Center—Room 2

Far too often, the word processor is considered nothing more than a "smart typewriter." This seminar shows you how to develop workable masters and set up a system for easy information retrieval while avoiding pitfalls, giving you a thorough understanding of the capabilities and limitations of your systems.

Gwenn Burnham

*Owner/Manager
Amanuensis, San Francisco, CA*

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Seminar Schedule

S-603

Systems Drafting in the Engineering Office

Convention Center—Room 3

Systems drafting in the small- to medium-size engineering office is necessary not only to the implementation of CADD, but also to the provision of engineering services at reasonable cost. While the wide variety of new and improved reproduction equipment and materials offers necessary flexibility in presentation, this seminar shows you why the evaluation of alternatives is a must in the preparation of contract drawings and why a planned approach to each project is required.

Wesley H. Sparks, P.E.

*President
SPARVAN, Inc., Long Beach, CA*

S-604

Computer-Generated Specifications and Graphic Output

Hilton—Pacific Ballroom A

Computer evolution is triggering a revolution in specification writing, which may soon make separate drawings and specifications as obsolete as producing specs on a typewriter. This seminar demonstrates computer-assisted specification production methods on the horizon that automatically manipulate master specifications, use CADD to generate specifications, and merge graphics and text on a single page.

Mark J. Kalin

*Director of Information Services
Jung/Brannen Associates, Inc.,
Boston, MA*

S-605

Programming as a Marketing Tool: A Case Study

Hilton—Pacific Ballroom B

Facilities programming in project proposals can be a powerful tool for developers, contractors, and design professionals. Through a case study, this seminar demonstrates how to use a facilities programming proposal to give owners and managers a clear understanding of your scope of work and how the proposal can be used as a contract document.

Joan Young

*Design Methods Manager
Design Logic Inc., Oakland, CA*

James H. Davis

*Marketing Director
Stolte Inc., Oakland, CA*

S-606

Multi-Office Systems Integration

Hilton—Pacific Ballroom C

As architects and engineers step up their use of CADD, the ability to integrate applications, data, and hardware between offices and firms is increasingly critical. This session discusses intra- and inter-office computer communications technology, emphasizing the need for data exchange standards and office practices which will help achieve integration.

Jon H. Pittman

*Associate
HOK Computer Service
Corporation, St. Louis, MO*

S-607

2001: A Designer's Odyssey

Hilton—Pacific Ballroom D

This seminar traces the history of computer use in construction design and discusses the impact of today's applications on the design profession. You'll learn how shifting influences and changing computer technology will mold a new construction industry within the next 15 years, impacting architects, engineers, contractors, and a host of others.

Harry Mileaf

*Director, Technology and Product Development
McGraw-Hill, Sweet's,
New York, NY*

S-608

In Search of Microcomputer Software

Hilton—California Pavilion A

The present deluge of new microcomputer software, which varies greatly in quality, capability, and price, poses problems to the uneducated buyer. This seminar offers timely tips on how to establish reasonable expectations for an inexpensive microcomputer and its software, what to look for in different software arenas, and how to shorten your search process and make intelligent purchasing decisions.

Byron Wilkes

*President
A/E Software Consultants Inc.,
Seattle, WA*

S-609

Computerized Project Management for the Engineering/Construction Industry

Hilton—Huntington Room

New demands from government agencies, financial institutions, public service commissions, and clients require the engineering/

construction industry to deliver a tightly controlled product that is technically sound, on schedule, and within budget. Since ideally, product controls should originate with the E/C professional, this seminar reviews computerized project management control systems that could become indigenous to the industry, covering today's requirements and tomorrow's trends.

Ted Williams

*Manager, Information Services
Project Software & Development,
Inc., Cambridge, MA*

S-610

Geometric Models and Databases in Process and Power Engineering

Hilton—Laguna Room

A 3-dimensional computerized design modeling system is the most effective design tool for complex projects. This seminar shows why the computerized system, which includes 3-dimensional modeling, process modeling, and an engineering database, is best initiated at project conception, creating a single, project-long source of information for all designers and constructors.

Amadeus M. Burger

*President, Construction Systems
Associates, Inc., Marietta, GA*

Friday, June 7, 1985

9:00 AM — 10:00 AM

S-701

3D Modeling in Design

Convention Center—Room 1

In this session, you'll review the conceptual bases of CAD systems commonly used in the building industry, then clarify relationships between 2D drawings and 3D models. Symbolic and geometric requirements of the building industry are discussed, and a conceptual approach is presented which combines symbolic and geometric data within a single building model. Discover the advantages and disadvantages of each approach!

Gregory Bloom

*Vice President
MEGA CADD, Inc., Seattle, WA*

Paul A. Lewis

*Director of Product Development
GMW Computers, Inc., Seattle, WA*

S-702

Using Photodrawings on A/E Projects

Convention Center—Room 2

This seminar discusses the procedures the A/E can use to produce quality photodrawings

using popular 35 mm cameras with recommended films, proper accessories and minimal investment. Participants will review the applications and cost benefits of the procedure while learning the shortcuts to quality, economy and speed for in-house and reprographic services contact frame and photo-projection photodrafting. Output media, drafting and applique procedures will also be considered along with the interface of photos with CADD.

Robert J. Neely

*President
Neely Reprographics, Jackson, MS*

S-703

Xerography in Reprographics

Convention Center—Room 3

This session covers some of the latest trends in Xerographic technology and focuses on how design firms can reduce costs by using commercial reprographics services. Applications include creating standard detail libraries, generating multiple workable copies of basic floor plans, making major revisions, and modifying standard house plans to individual buyer specifications.

Chuck Heller

*Product Manager
Océ-Industries Inc., Chicago, IL*

S-704

Personal Computer Applications for Professional Surveyors

Hilton—Pacific Ballroom A

The personal computer is becoming a standard tool in many professional surveying offices. This session focuses on how micros are being applied in field data collection, traverse-coordinate geometry, and finished drawings.

Tom Donahue

*President/Editor
FORESIGHT, Apple Valley, MN*

S-705

Generating New Business with CADD

Hilton—Pacific Ballroom B

Now that "differentiation," "efficiency," and "state-of-the-art" have become buzz words that clients look for when selecting design service professionals, architects and engineers can gain new benefits from their CADD systems in the areas of marketing and extended services. This seminar shows you how to use printed materials, slides, and video techniques to promote CADD as a unique professional service.

Neal David, AIA

Director of Marketing

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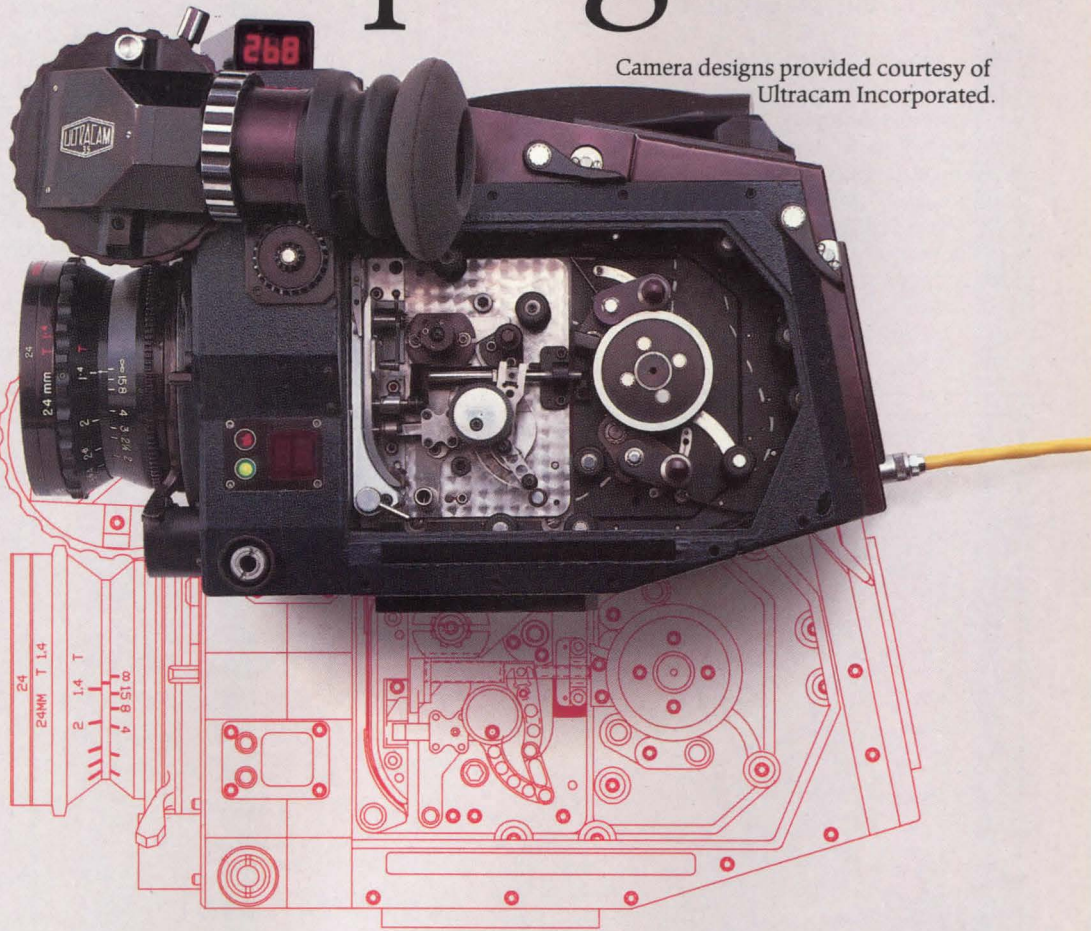


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Seminar Schedule

Diem Le
Manager—International Marketing
SKOK Systems Incorporated,
Cambridge, MA

S-706
Selecting Facility Management Software
Hilton—Pacific Ballroom C

The biggest potential for cost benefit of any computer application related to architecture or design can perhaps be found in facility management. But like CAD five years ago, the technology and terminology are new and the potential for expensive mistakes is high. This session lists the steps to take in selecting a facility management system,

emphasizing benefit-to-cost analysis, planning for the future, and the avoidance of common errors.

Panel Chairman:
Jeffrey M. Hamer
President
The Computer-Aided Design Group,
Santa Monica, CA

Panelists:
James R. Boyce
President
DFI Systems, Orlando, FL

Michael Colacino
President
Resource Dynamics Inc.,
New York, NY

Bradley M. Meade
Director of Computer and
Reprographic Operations

Swanke Hayden Connell Architects,
New York, NY

S-707
Finding and Keeping Good People

Hilton—Pacific Ballroom D
The speaker presents five guaranteed methods of locating the personnel you need, covers the "nuts and bolts" of making job offers they can't refuse, then shows you how to structure an office environment and a project system that not only keeps your staff working, but motivates them to perform at the limits of their capabilities.

C.M. "Chuck" McReynolds
Principal, C.M. McReynolds,
Sierra Madre, CA

S-708
Financial Management for Professional Design Firms
Hilton—California Pavilion A

Financial success in design firms is based on the understanding, planning, monitoring, and control of financial activities. Learn the key elements of budgeting, reporting, and analyzing financial data for profit, plus cash and balance sheet management techniques. The graphic presentation of financial data, generated by microcomputer, is emphasized to help design firm managers understand trends and the current position of your firms.

Robert F. Mattox, FAIA
Vice President
EDAW, Inc., San Francisco, CA

S-709
Engineering CADD Managers Roundtable
Hilton—Huntington Room

Directed to managers of computer graphics departments in engineering and planning offices, this forum will allow the exchange of tips, experiences, issues and problems with fellow CADD managers.

S-710
Small Firm CEO Roundtable (Less than 20 staff)
Hilton—Laguna Room


How do small firms solve the day-to-day problems facing senior management? In this roundtable, attendees will have the opportunity to trade success (and failure) stories with fellow top management in A-E-P offices.

Friday, June 7, 1985
12:00 NOON — 1:00 PM

S-801
The Liability Implications of Automation: Pluses and Minuses
Convention Center—Room 1

A host of liability considerations, both positive and negative, accompany automation of the professional practice. The use of CADD may significantly increase quality and decrease errors, but it may also introduce unmanageable professional liability problems. This seminar helps you maximize the liability benefits of automation while avoiding new exposures to professional liability losses.

David W. Lakamp
President
Professional Practice Insurance
Brokers, Inc., Palo Alto, CA



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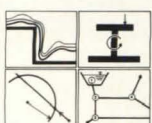
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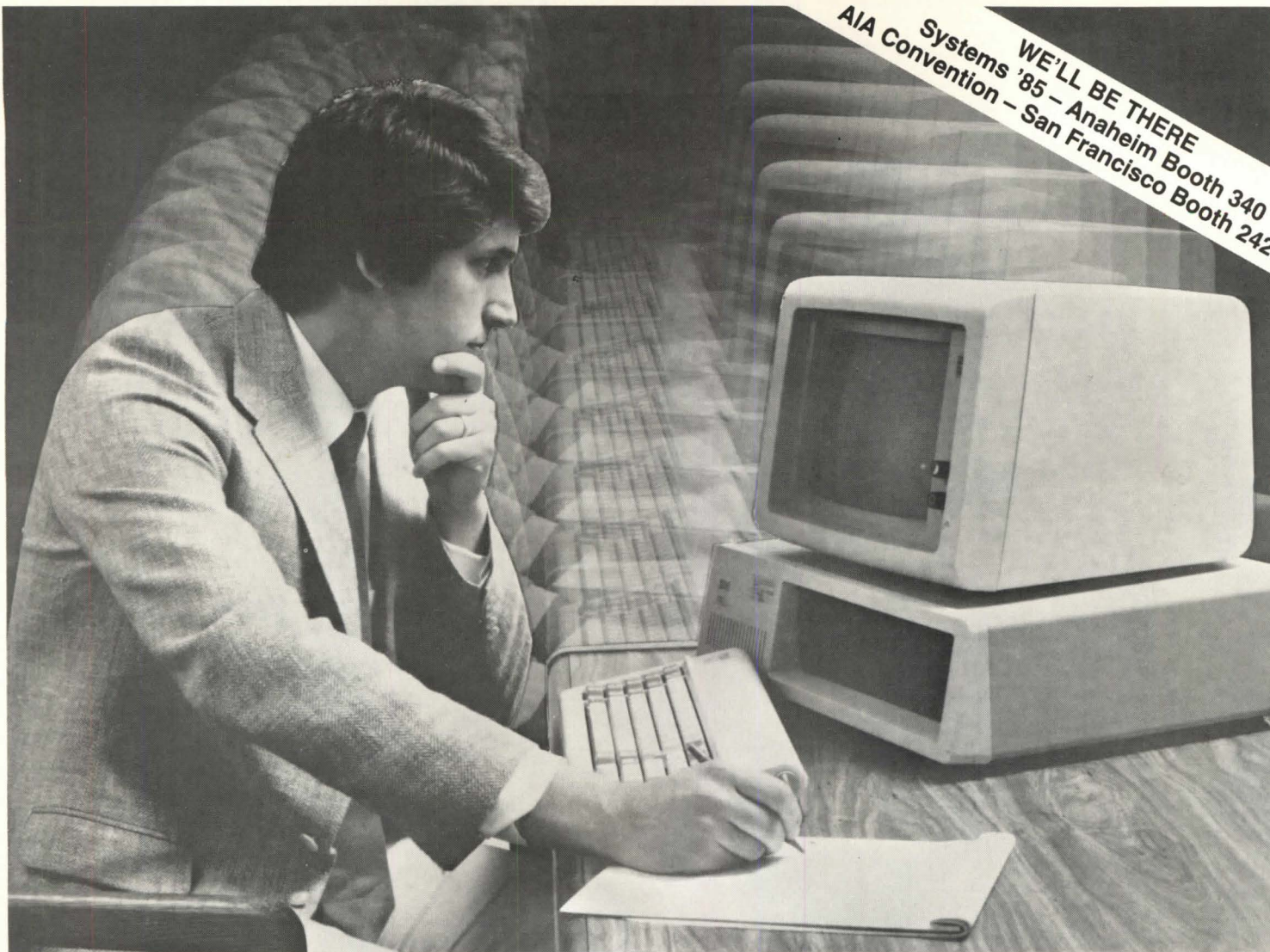
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Milwaukee, Wis. 53224

S-802
Microcomputer Communications Networks—A New Project Management Tool

Convention Center—Room 2

Effective communications are vital to keeping projects on track, and project managers spend more than half their time communicating with teammates. Current communications tools include meetings, telephone, express couriers, facsimile machines and the mails. Computers provide another medium: electronic mail. Traditional electronic mail involves large computers and data networks. Recent advances make microcomputer mail networks, made up of independent microcomputers, feasible and inexpensive. These networks will be compared to existing communications alternatives for project managers.

Douglas Mahone, AIA
Partner
Teamwork Systems,
San Francisco, CA

S-803
The Aperture Card: Improving CAD/CAE Communication

Convention Center—Room 3

While many firms are increasing their productivity through CAD, creating designs faster and more accurately than ever before, little is being done to update distribution methods for CAD-generated data. This seminar shows how you can use the aperture card, an up-to-date method of communicating design data.

Jim Buchanan
Market Coordinator
3M Engineering Systems
St. Paul, MN

S-804
Evaluating Surveying & Drafting Software for Microcomputer Systems

Hilton—Pacific Ballroom A

This session focuses on microcomputer software for field data collection, surveying and finished drawings. The location, evaluation and selection of appropriate systems will also be discussed. An examination of evaluation criteria and the specific results of benchmark testing conducted by *FORESIGHT* newsletter, which included comparative analysis of the most popular packages under real world conditions, is also discussed.

Tom Donahue
President/Editor
FORESIGHT, Apple Valley, MN

S-805
Developing an Effective Project Summary Report—Where's The Beef?

Hilton—Pacific Ballroom B

Project summary reports advise management of a project's financial performance based on predetermined criteria. They are intended to alert management if follow-up action is needed. It is easy, however, to compile information that misleads or confuses, rather than providing a basis for appropriate action. This session examines business practices which determine the levels of useful summarizing and the ef-

fective use of exception reporting. Participants will receive tools for evaluating summary reports and to develop the necessary criteria to obtain reliable summary reports in A/E firms.

Richard D. Pipkin
Principal
Management Design,
San Francisco, CA

S-806
Management Policies and Facility Design

Hilton—Pacific Ballroom C

By considering a facility design as an expression of corporate policies from a project's begin-

Seminar Schedule

ning, you can minimize expensive and frustrating design errors. This seminar shows you how to seek out, define, and incorporate management policies into the design process using systematic interview and computer database techniques.

Joe Akinori Ouye, Ph.D.
Executive Vice-President
Design Logic, Inc., Oakland, CA



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Seminar Schedule

S-807

Computerized Human Resource Management Hilton—Pacific Ballroom D

This is a "people management" seminar with a new twist. You'll learn how to use your computer to keep a variety of important personnel records, including vacation and sick leaves, leaves of absence, compensation reports, and comprehensive data on individual staff members.

C.M. "Chuck" McReynolds

*Principal
C.M. McReynolds,
Sierra Madre, CA*

S-808

Automating the Marketing Function Hilton—California Pavilion A

While software is available to assist the design firm in everything from technical design functions to financial management, business development and marketing have consistently been overlooked. This seminar shows you how to design an automated system to manage the business development functions of your A/E firm, improving your "hit rate" and assuring a steady flow of work.

Eugene D. Thayer, PE

*Vice President
Technical Information Systems, Inc.,
Norfolk, VA*

S-809

Personal Computer Users Roundtable Hilton—Huntington Room

There are plenty of other applications for your PC—and plenty of people who want to know of your innovative uses. Share tips for success and learn how to avoid the pitfalls in this roundtable which allows PC users in A-E-P offices to question peers and provide answers.

S-810

Financial Managers Roundtable Hilton—Laguna Room

Directed to financial managers and officers in A-E-P firms, this roundtable offers a forum for solutions to common day-to-day problems and issues.



CAD or CAB?

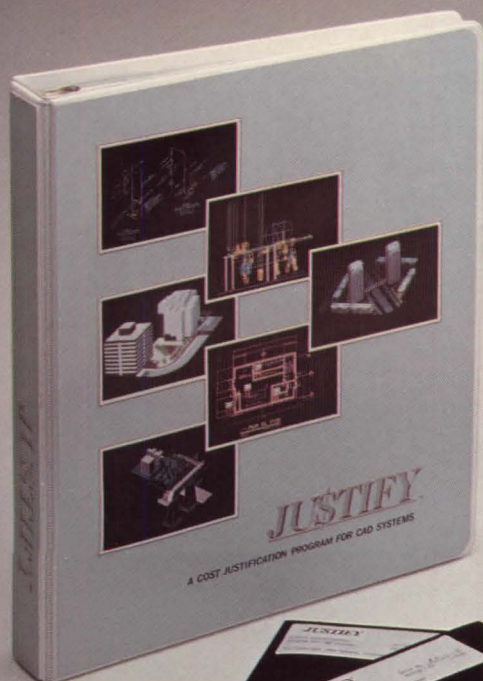
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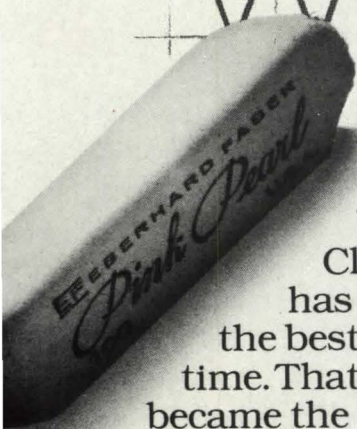
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Concurrent Conferences

This year at A/E SYSTEMS '85 there are 16 Concurrent Conferences on various topics sponsored by professional societies and trade publications. All are held in the Hilton or Marriott Hotel which are adjacent to the Convention Center. Thus, attendees can walk next door to view the extensive product/services exhibits.

Though these conferences are not connected officially with A/E SYSTEMS '85, show management is cooperating fully with the sponsors to insure a quality learning experience for all attendees.

Free Exhibit Passes

Registrants at any of these 16 Concurrent Conferences will automatically receive complimentary passes to view the 950 booth exhibit at A/E SYSTEMS '85. Exhibit hours are:

Tuesday, June 4
10:00 AM to 6:00 PM
Wednesday, June 5
10:00 AM to 6:00 PM
Thursday, June 6
10:00 AM to 6:00 PM
Friday, June 7
10:00 AM to 4:00 PM

Be sure to allow enough time at the show to view all the exhibits of interest to you. See page 44-45 for a listing of the exhibitors at A/E SYSTEMS '85.

The Design Process: Case Studies Of Tomorrow

**Sponsored by
Fred Stitt, Editor/
Publisher
Guidelines
The GL Foundation
The Institute for
Advanced Architectural
Studies**

**Session C-1
Marriott—North Hall
Monday — Tuesday,
June 3 — 4, 1985**
The Design Process conference will bring you up to date on the most advanced concepts, tools, methodologies, and opportunities available to the design professional today.

The program will explore the newest emerging design problems, design media, and far-reaching methods of design problem solving. And there'll be a wide-ranging survey of the brand new design and consulting services you can provide by using the latest technology.

**Day One
Monday, June 3, 1985**

**8:00 AM
Registration**

**8:30 AM
Techno-Aesthetics and the
Visionary Tradition in
Architecture**

Introductory visual presentation.

**9:00 AM
Designing with Biotechnology
and Natural Processes**

Carolyn Dry
*Architect, educator, environmental
theorist and researcher
Virginia Polytechnic Institute,
Roanoke, VA*

**10:00 AM
Designing Holographic
Environments**

Friedrich St. Florian
*Dean of Architecture
Rhode Island
School of Design,
Providence, RI*

**10:50 AM
Break**

**11:10 AM
Designing Low-Cost Commercial
Spaceships**

Gary C. Hudson
*Engineer, spaceship designer and
space development entrepreneur
Pacific American Launch Systems,
Redwood City, CA*

**12:00 Noon
Luncheon Program:
Artificial Intelligence, CADD
and the Next Generation Design
Studio**

Fred Stitt
*Architect and editor/publisher
GUIDELINES, Orinda, CA*

**1:30 PM
The Technological Synthesis of
the Arts—Laser, Video, Com-
puter and Music**

Ron Pellegrino, Ph.D.
*Electronic artist
Electronic Arts Productions,
Petaluma, CA*

**2:30 PM
Visionary Design and
Presentation**

Glen Small
*Architect, educator and futurist
Southern California Institute of
Architecture*

**3:20 PM
Break**

**3:40 PM
Design With Advance Transfer
Technology—Applying Aero-
space Technology to Building
Design and Construction**

David Nixon
*Architect and industrial designer
Future Systems Consultants,
Santa Monica, CA*

**4:30 PM
Designing with Biological and
Molecular Construction**

Eric Drexler
*Research Affiliate
MIT Space Systems Laboratory,
Cambridge, MA*

**5:30 PM
Cocktail Reception**

**Day Two
Tuesday, June 4, 1985**

**8:30 AM
Sensitized Environments, Intel-
ligent Buildings and the B-IQ**

Roy Mason
*President and architect
Architron Associates,
Washington, DC*

**9:30 AM
Advanced Creative Expression
in Computer Art**
Special video and graphics
presentation

**10:20 AM
Break**

**10:40 AM
Computers and Video in Archi-
tectural Design and Design
Simulation**

Ernest Burden
*Architect, visual communications
consultant and editor
The Presentation Advisor,
New York, NY*

**11:30 AM
Lunch Program:
Designing Simulated Realities**

Blending light, form, movement
and illusion in new building de-
signs. Special guest luncheon
speaker to be announced.

**1:00 PM
Designing "Real Time"
Interactive Video/Computer
Performances**

Ed Tannenbaum
*Electronic Performance Designer
"Raster Rsrch," Inc.—Interactive
Video Systems Design, Crockett, CA*

**2:00 PM
Panel: Designing The Ideal
Design School**

Conference participants speak
their minds on how to use ad-
vanced technology in training
designers and architects.

**3:00 PM
Panel: New Groups and
Activities Dealing With
Advanced Technology, Art and
Architecture**

A potpourri of new techno-aes-
thetic resources. Participants will
have the option of breaking early
to visit the A/E SYSTEMS '85
exhibit area.



Registration Information

The Design Process conference enrollment is \$60 per day, or \$110 for both days. The luncheon programs are optional and priced at \$15 extra per day. Special student, faculty and group enrollment discounts are available, contact GUIDELINES for details.

For further information, contact GUIDELINES, Box 456, Orinda, CA 94563. Telephone (415) 254-0639 or (415) 254-9393.

Introduction To AM/FM Automated Mapping & Facilities Management

Sponsored by
AM/FM International
(a non-profit organization)

Session C-2
Hilton—California Pavilion A
Tuesday, June 4, 1985
8:30 AM — 4:30 PM

8:30 AM
Registration

9:00 AM
AM/FM Systems—
What Are They

- An Overview of AM/FM
- Meaning of AM and FM
- Digital Map and Drawing Data Base Approach
- Components of the AM/FM Industry—Utilities, Governments and Others
- Function of the Industry: Computerized Geographic and Utility Information.
- AM/FM vs. AM Data Base vs. Graphics.
- Who's Who in the Industry: Users, consultants, contractors and vendors.
- What is an AM/FM Project
- DMDDDB Groups
- Who Owns an AM/FM Project: Users vs. Data Processing.

11:30 AM
Lunch Break in Exhibit Hall
Visit the exhibits of your choice.

1:30 PM
Investigation Module
The Learning Process

- Economic Feasibility: Inventory and Cost/Benefit Analysis
- Prototype/Test/Pilot Plan, Definition, Specifications
- Big Project: Review, refinement, preparation
- Procurement: Hardware/software/service, Contracts
- Acquiring Data Base and Applications: Conversion, update and uses

- Summary Panel: Answer specific questions from attendees.

Sponsor

AM/FM International was formed in early 1982 by the Keystone VI Planning Committee. The organization was formed as a non-profit educational organization to assist its members in learning more about AM/FM projects and to communicate information to all regarding the components of the industry and help people to learn about starting a project.

Registration

The cost of this full day program is \$195 which includes the seminar, handout material, box lunch, and admission to the exhibit hall.

For further information on this program contact Barbara Emery at AM/FM International, 8775 East Orchard Rd., Suite 820, Englewood, CO 80111 (303) 779-8320.

The Consultant Process: How to Select, Negotiate and Work With Design Professionals

Sponsored by A/E Marketing Journal

Presented in cooperation with the Southern California chapter of The Society for Marketing Professional Services
Session C-3
Hilton—California Pavilion C

Tuesday, June 4, 1985
8:30 AM — 4:15 PM

The success of any project today depends to a great extent on the performance of the design professional—architect, engineer, interior designer and other specialist consultants. Yet too often the client selects the wrong firm(s), negotiates a poor contract, has a disastrous relationship during the job or all the above.

This one-day program will give clients some tips on how to make this relationship the symbiotic one it should be. Through the personal experience of clients and other participants in the process, you will learn how to make the most of the professionalism that is available to you among design consultants.

8:00 AM
Registration

8:30 AM
Welcome and Introduction
William Feathers
President
Feathers Consulting Services
Santa Monica, CA

8:45 AM
Consultant Selection: How to Find the Right Consultant for Your Needs

Ben Cubler
Manager, Corporate Property Management
Atlantic Richfield Corp.
Los Angeles, CA
George Cormack
Director of Facilities & Real Properties
County of Orange
Santa Ana, CA
Martin McElroy
President
Sixty-Eight/52 Associates
New York, NY

10:00 AM
Break

10:15 AM
Negotiation with Consultants: Getting a Fair Contract at a Good Price

Michael Miguel
Manager, A/E Professional Services Office
NAVFAC
San Bruno, CA
Donald Battjes
Vice President, Development
Hughes Aircraft Co.
Los Angeles, CA
Charles Poll
President
Charles Poll and Associates
Los Angeles, CA

11:15 AM
Panel Discussion

11:30 AM
Lunch in the exhibit hall
Visit the exhibits of your choice

1:30 PM
Avoiding Problems: Why Things Go Wrong and How to Prevent Them

Gilbert Jordan
Senior Vice President
Cushman Management Company
Los Angeles, CA
Richard Neave
President
Eagle Design & Construction Group
New York, NY
Raymond Gaio
Vice President
DMJM
Los Angeles, CA

2:30 PM
Break

2:45 PM
Automated Systems: How to Use Computers Both in Your Operations and in Your Consultant's

Roger Panther
Assistant Vice President, Programming and Design
Hospital Corporation of America
Nashville, TN

Concurrent Conferences

Theodore Stanton, AIA
Principal
Yearwood & Johnson
Nashville, TN
Manuel Urquiza
Principal
CHA
Los Angeles, CA
Robert Newson
Principal
Daniel Dworsky Associates FAIA
Los Angeles, CA

3:45 PM
Panel Discussion

4:15 PM
Adjournment

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout material, box lunch, and admission to the exhibit hall.

For further information on this program contact Carol Goselin at A/E Marketing Journal, P.O. Box 11316, Newington, CT 06111 (203) 666-9487.

Computer Tools For Landscape Architects

Sponsored by
The American Society of Landscape Architects

Session C-4
Hilton—California Pavilion D
Tuesday, June 4, 1985
8:30 — 4:30

This program will focus on the exciting applications of computers in landscape architecture at both site and regional scales, with special emphasis on office and project management through automated systems. This presentation is vital for all professionals involved with site development and planning, including landscape architects, architects, engineers and community planners.

8:00 AM
Registration

8:30 AM
Trends in CAD for Landscape Design

Stephen Ervin, ASLA
President
MFE Associates
Amherst, MA

Recent developments and systems applications will be reviewed for landscape architectural practice. Capabilities and limitations of low-cost CAD systems will be presented.

10:00 AM
Break

Concurrent Conferences

10:30 AM Landform Modelling and Earthwork Calculations

Bruce MacDougall, Ph.D., ASLA
*University of Massachusetts
Amherst, MA*

Presentation will emphasize recent work on computer methods for grading and terrain manipulation using state-of-the-art graphic techniques.

11:30 AM Lunch in the Exhibit Hall

Visit the exhibits of your choice

1:30 PM Computer-Based Site Analysis and Landscape Planning

Stephen Ervin
Bruce MacDougall

Using microcomputers to analyze data obtained from remote sensing sources has led to effective methods for site and regional landscape analysis and planning. Advances and current practices will be addressed in this session.

3:00 PM Break

3:15 PM Managing Computer Resources in the Design Office

Stephen Ervin
Bruce MacDougall

This discussion will address aspects of using computer tools effectively within a design office. Options for ownership, leasing, sharing, staffing and project management will be presented.

4:15 PM Wrap up and Adjournment

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout materials, and admission to the exhibit hall.

For further information on this program, contact Rod Mercer at the American Society of Landscape Architects, 1733 Connecticut Avenue, N.W., Washington, D.C. 20009 (202) 466-7730.

Using CAE In The Army

Sponsored by
U.S. Army

Session C-5
Convention Center—Room 4

Tuesday, June 4
1:30 PM — 4:30 PM

Over the past several years, the Army Information Systems Command (ISC) has been utilizing CAD for their drafting requirements. Recent analysis of

broader ISC activities indicate that a CAE (computer aided engineering) system could be implemented to directly increase the productivity of engineering personnel.

This session will be divided into two parts. The first part will outline, plan, and describe how Army personnel surveyed, specified and selected a CAE system. Detailed information will be provided as to how the system was installed, internal application software developed and evaluation tests conducted.

The second part of the session will be open to the panel of speakers to answer any questions or to describe different aspects of the program in more detail.

The presenters will include:

Chairman:

Pat Tufts
Chief Engineer
(USAISC)

Tom Bakey
Army CAD Coordinator

Major Frank Ogden
Chief Communications Systems Officer

Larry Sieck
BASCOP CAD Coordinator

Chuck Hansford
Chief Engineering Automation Branch

Robert Copeland
BASCOP Project Leader

This session starts at 1:30 PM Tuesday, June 4 in Room 4 at the Anaheim Convention Center and is **free** to all A/E SYSTEMS '85 registrants.

Computers in Design Education

A national conference for professors and students involved in computer design

Sponsored by
A/E SYSTEMS REPORT

Session C-6
Anaheim Marriott—
North Hall

Wednesday, June 5, 1985
8:15 AM — 4:15 PM

Schools of architecture, engineering and interior design are integrating the computer into their curricula with varying degrees of success. This all-day conference on "Computers in Design Education" will show how several of the more successful programs are doing it. Attendees will learn how to structure and teach the use of computers; how the university and industry should interact; what to do to overcome administrative hurdles; and how to establish implementation guidelines.

7:45 AM Registration

8:15 AM Introduction

Michael P. Sherman, Ph.D
*University of Illinois
Urbana, IL*

As host of the conference, Dr. Sherman will introduce the subject and set the stage for the other speakers.

8:30 AM Computer Aided Design in the Studio

William J. Mitchell
*UCLA Graduate School of Architecture and Urban Planning
Los Angeles, CA*

This presentation will discuss the practical and theoretical problems that computer aided design poses in the studio. It will be illustrated with examples of student work from UCLA and elsewhere.

9:20 AM The Role of Industry in Academia

Eric Teicholz
Graphic Systems, Inc.
Cambridge, MA

As more and more universities seek support from industry, it is increasingly important to understand the potential benefits and dangers from such a relationship. This talk will discuss the advantages and drawbacks from a number of existing universities/industrial relationships.

10:00 AM Starting a CAD Course for Architecture

Kelly R. McAdams AIA
*University of Texas at Austin
Austin, TX*

Implementing a course in Computer Assisted Drafting into the curriculum of an architecture school poses a number of problems similar to those encountered in introducing CAD into an architect's office. The talk will discuss these problems and how they were overcome and the relationship of CAD to other systemized procedures.

10:40 AM CAE in Structural Engineering Education

Leroy Z. Emkin, Ph.D
Lawrence F. Kahn, Ph.D
*Georgia Institute of Technology
Atlanta, GA*

This session will address how the university can achieve the goal of developing well educated structural engineers who are trained in the effective use of

computer-aided engineering and design systems (CAE/CAD).

11:30 AM Lunch in the Exhibit Hall

Visit the exhibitors of your choice

1:30 PM Applications of Computer- Aided Design to Architectural Engineering

M. Kevin Parfitt P.E.
*The Pennsylvania State University
University Park, PA*

Computer aided design has been used for several years at Penn State as an educational tool in the teaching of engineering applications and for providing students a means to simulate complex real life engineering situations. The discussion outlines their activities and the use of commercial level software and hardware for teaching purposes.

2:10 PM Exploiting Athena: A Unique Environment for Architecture

Patrick Purcell
*Massachusetts Institute of
Technology
Cambridge, MA*

This session will present various components of a successful architecture design curriculum that has integrated computer aided design and the standard architecture design studio.

2:50 PM Architectural Modeling for the Design Studio

Chris I. Yessios, Ph.D
*Ohio State University
Columbus, OH*

This presentation will discuss the features of Archimodos, a computer aided architectural modeling, design and drafting system which is intended for use in an educational architectural design studio.

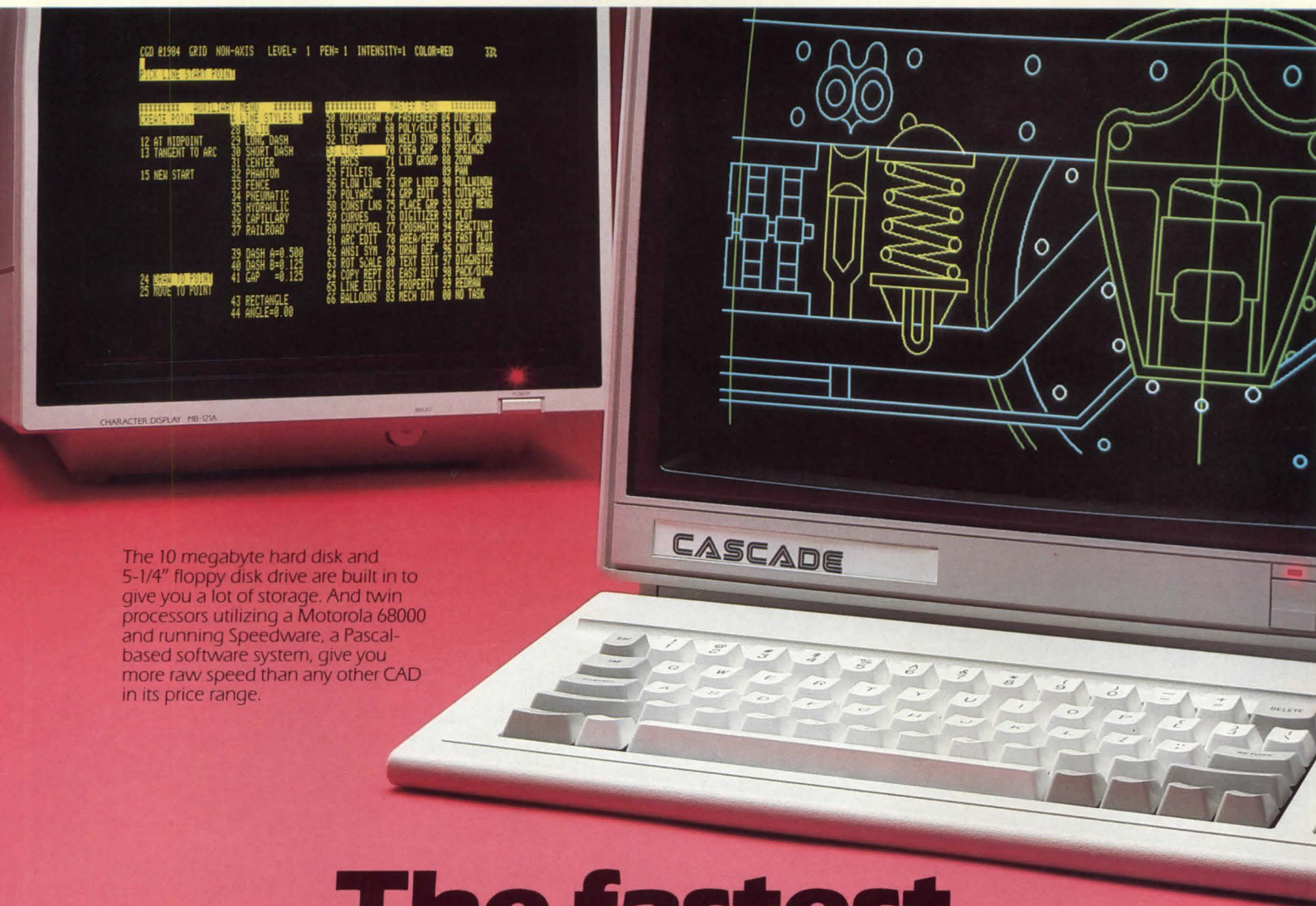
3:30 PM Panel discussion

4:15 PM Adjournment

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout material, box lunch, and admission to the exhibit hall.

For further information on this program contact Dr. Michael P. Sherman, University of Illinois, 905 South Goodwin, Urbana, IL 61801, (217) 333-1956.



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Concurrent Conferences

New Directions For Growth and Profit Through Computerized Engineering

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National Society of Professional Engineers/ Professional Engineers in Private Practice.

**Session C-7
Hilton—California Pavilion C**

Wednesday, June 5, 1985

**8:30 AM — 11:30 AM
and 1:30 PM — 4:30 PM**

Computers in engineering put a burden on management to create an environment where employees produce accurate, innovative designs for a profitable concern. Client groups have adjusted their expectations, and the vendors offer continuous systems innovations. Everyone from line supervisor to officers and owners will gain valuable insight on how the firm's management should keep pace with the advances in automated engineering.

Module 1—Clients and Competition

**8:00 AM
Registration**

**8:30 AM
Introduction**

Robert Marshall
ACEC Computer Aids Committee

**8:35 AM
What's The Competition Doing?**

Gregory Coleman
*ACEC Research and Management Foundation
Washington, DC*

Four out of five consulting engineers use computers, according to a recent ACEC survey. Take a look at how the profession uses computers in practice and where it's headed.

**9:00 AM
What Will The Client Want?**
Robert Marshall, Moderator

Captain William Harris
*Head Acquisition Department
Western Division NAVFAC
Engineering Command*

John Hanson
*Deputy Architect
State of California*

Representatives of major client groups reveal their expectations from designers in computerized

practice, including quality, turnaround, systems compatibility, flexibility and more.

**10:15 AM
CADD: Is There a Second "D"?**

Robert Marshall, Moderator

Michael Jordan, PE
Intergraph

Dr. Irwin J. Reps
IBM

Eric McDougal
McAuto

Computer-aided Drafting and Design (CADD) systems have been entirely drafting machines, with little real design capabilities. Three major CADD vendors explore the coming of a true second "D", and how this will affect design practices.

**11:30 AM
Lunch break in the exhibit hall.**

Visit the exhibitors of your choice

Module 2—Profitability Now

**1:30 PM
Are We Making Money with the Computer?**

Robert Marshall, Moderator

Daniel Shevchik
*Malcolm Pirnie, Inc.
White Plains, NY*

Elbert C. Ray
*Proctor-Davis-Ray Consulting Engineers, Inc.
Lexington, KY*

Allen Noyes
*Brown & Caldwell
Walnut Creek, CA*

Reducing project man-hours through automation means less revenue under some traditional compensation arrangements. A lively panel of three highly automated consulting engineers explain how to make the computer return on its investment, through client education, negotiation and new agreements.

**2:45 PM
Break**

**3:00 PM
Human Factors in Computerized Design**

James Olsten
*Dames & Moore
Los Angeles, CA*

Everyone doesn't embrace the new technologies as positive events, and benefits don't automatically come to buyers of hardware and software. Designs are still produced by humans, with their own misgivings, anxieties, styles and aspirations. The session explores the Human Factor and how to meld it into a system installation.

**3:30 PM
Software Evaluation**

Dennis Hirota
*Sam O. Hirota, Inc.
Honolulu, HI*

Design firms have a duty to their clients, employees and owners to acquire accurate, cost effective software from the seemingly limitless marketplace. Here's how.

**3:50 PM
Professional Liability in Automated Design Practices**

Paul M. Lurie
*Lurie Sklar & Simon, Ltd.
Chicago, IL*

Designers bear the same responsibility for their work regardless of what computerized process helped produce it. Automation has brought new wrinkles to liability abatement for managers.

**4:30 PM
Adjournment**

Registration Information

The cost for each module is \$125; if one registers for both, cost is \$195 total. The price includes the seminar, all handout material and admission to the exhibit hall. Registrants to both modules will also receive lunch.

For further information on this program, contact ACEC Professional Development and Meetings, 1015 15th Street, N.W., Washington, D.C., 20005. Phone (202) 347-7474.

Computer Aided Facility Planning & Management

Sponsored by
International Facility Management Association

**Session C-8
Hilton—California Pavilion D**

**Wednesday, June 5, 1985
8:30 AM — 4:00 PM**

Computers can aid significantly in the efficient and effective planning and management of a corporation's facilities. Learn what computers can do for your company, what the state of the art is in terms of the available technology, and how other corporations have implemented computers into their facility management departments. We welcome all facility professionals who want to learn more about the powerful potential of the computer for facility management support.

**8:00 AM
Registration**

**8:30 AM
Getting Started: An Introduction to Computer Applications**

James E. Coombes
*Senior Associate, Consulting
Facility Management Institute
Ann Arbor, MI*

Based on the results of our survey of current computer applications in facility management, you will learn how other facility management professionals are using the computer in their work. You will also learn both the advantages and disadvantages of using computers to aid in facility management.

**9:15 AM
Determining your Computer Needs**

Peter Kimmel
*Realty Specialist
General Services Administration
Washington, D.C.*

Determining the right fit between computer hardware and software for your facility management department is no easy job and may represent a sizable investment for your corporation. Because the facility management departments of today's corporations vary so widely in terms of size and complexity there is no one right answer. This presentation will outline the criteria and steps necessary for selecting and implementing an automated facility management system.

**10:00 AM
Break**

**10:30 AM
Using Computers in Facility Planning and Management: A Case Study**

Arthur Hahn
*Manager, Facilities Operations
TRW, Electronics & Defense
Redondo Beach, CA*

A case study of how TRW uses computers to aid in the space optimization and efficient operation of their facilities will be presented. TRW is a major defense contractor using both a CAD system and PCs in their facility management department.

**11:30 AM
Break for Lunch and Exhibit Viewing**

**1:30 PM
Selecting Software Programs for Facility Management**

Michael Schley
*President
Facility Systems Group
Houston, TX*

The advantages and disadvantages of developing software in-house vs. commercially available software packages will be



discussed. The application of PCs vs. larger CAD systems for facility management will also be reviewed.

2:30 PM Facilities Management and "Expert Systems"

James R. Boyce
President

DFI/Systems, Orlando, FL

The emergence of computerized tools to support the methods of modern facilities management is leading to a collision of design methodology versus the use of computers to perform design functions. The emerging systems will be so-called "expert systems" and will have far reaching effects on how facilities will be managed.

3:15 PM Round Table Discussion

Speakers will engage in a discussion of specific issues raised by the audience.

4:00 PM Wrap-up and Adjournment

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout materials, and admission to the exhibit hall.

For further information on this program you should contact Mel Schlitt, Executive Director, IFMA, Summit Tower, Suite 1410, Eleven Greenway Plaza, Houston, TX 77046 (713) 623-4362.

The Use Of Computers In Marketing

Sponsored by
**The Society for Marketing
Professional Services**

Session C-9
**Hilton—California
Pavilion B**

**Wednesday, June 5, 1985
8:30 AM — 11:30 PM**

This SMPS program was so popular at A/E SYSTEMS '84 that it has been updated and expanded to a half-day seminar. It will help you evaluate your present information systems with a look toward future needs, and it will be of interest to principals and marketing staff who are looking to improve managerial, administrative and clerical productivity in the office by more efficiently managing information.

**7:30 AM
Registration**

8:30 AM Managing Marketing Information Systems

Wendell "Dell" Palmer
Executive Vice President
*Greiner Engineering Sciences, Inc.
Denver, Colorado*

For nearly 16 years Mr. Palmer has been using computers to manage the marketing efforts of the firms he has been associated with. The computer offers the flexibility to search out information and produce an infinite variety of reports and supportive tasks such as mailing lists and marketing analyses. He will discuss the aspects of good marketing record keeping systems and several alternatives to the use of computers in this system. Mr. Palmer will describe some of the software he has developed and used in his own firms and will provide handouts which will include sample forms useful in collecting the information necessary for inclusion in a good marketing information system.

Speaker

Dell Palmer is Executive Vice President of Greiner Engineering Sciences, Inc., a national engineering firm with offices in 32 cities. He is responsible for the general management of the firm's Rocky Mountain regional offices. He holds a Bachelor of Architectural Engineering Degree from Penn State University and is a registered professional engineer.

Why Attend This Program

- To learn how to maximize the use of your present computer
- To learn how you, as a non-programmer, can generate marketing data that is relevant to the planning process
- To hear what impact the computer is having on professional design firms

Registration Information

Cost of this half-day program is \$125 which includes the seminar, handout material, and admission to the exhibit hall.

For further information on this program, contact Jeanne Murphy at SMPS, 801 N. Fairfax St., Suite 215, Alexandria, VA 22314 (703) 549-6117.

Automated Specifications and Product Selection

Sponsored by
**The Construction
Specifications Institute**

Session C-10
**Marriott—North Hall
Thursday, June 6, 1985
8:30 AM — 11:30 AM**

Automated design, product selection, and specifications hold great promise and challenge for the preparation of construction documents. For the design professional, manufacturer, and specifications consultant the impact on job skills, office procedure, and competition will be significant. To help you prepare for those changes this workshop explains what investments in time, equipment, and personnel can be made now. It describes the systems available today, the direction they can be expected to take in the future, and the legal implications to be considered.

8:00 AM Registration

8:30 AM Introduction

- Automated Systems Available Today
 - Equipment
 - Costs
 - Advantages & Disadvantages
- Automated Systems of the Future
 - Interactive product selectors
 - Interactive specification writing systems
 - Interactive CADD systems and automatic specification production
- Who will produce the systems of the future?
- Will today's equipment be compatible?
- How to prepare for automation

10:00 AM Break

10:15 AM The Legal Implications of Automation

- Copyright considerations
- Potential anti-trust implications
- Hardware and software contracts
- Professional Liability

11:15 AM Questions and Answers

11:30 AM Lunch in the Exhibit Hall

Speakers

Robert Paul Dean, AIA, CSI, CCS is Senior Associate, and Production Coordinator and CADD Production Manager for Heery & Heery, Architects & Engineers, Inc. of Atlanta, GA. Prior to joining Heery & Heery, Mr. Dean was with AIA in Washington where he helped write the initial version of MAS-

TERSPEC 2, the AIA Service Corporation's master specification system. He received his Bachelor of Architecture degree from Tulane University and holds a Master of Architecture degree from The University of Washington.

Robert J. Smith, CSI is an attorney with Wickwire, Gavin & Gibbs, P.C., Washington, DC. Mr. Smith is a graduate of the University of Wisconsin with a BSCE as well as a Juris Doctorate. Prior to joining his present firm he was a Civil Engineering Professor at the University of Wisconsin and was also Chairman of the Wisconsin Transportation Commission.

Registration Information

Cost of this half-day program is \$125 which includes the seminar, workbook and handout material, and admission to the exhibit hall.

For further information on this program, contact Penny Goodman at CSI, 601 Madison St., Alexandria, VA 22314, (703) 684-0300.

Micros, Minis & Mainframes In Civil Engineering

Sponsored by
**The Society for
Computer Applications
in Engineering, Planning and
Architecture (CEPA)**

Cosponsored by
**American Consulting Engineers Council (ACEC)
APEC, Inc.
National Society of
Professional Engineers/
Professional Engineers in Private Practice (NSPE/PEPP)**

Session C-11
**Hilton—California
Pavilion C**

**Thursday, June 6, 1985,
8:30 AM — 11:30 AM and
1:30 PM — 4:30 PM**

Micro, mini, mainframe, which shall it be? Quality and productivity in engineering are shown to be enhanced by the use of computers, regardless of size. Six practicing professionals discuss their experiences and illustrate that using the proper tool for the job at hand is still a good idea.

The morning session is devoted to the application of computers to the design and analysis functions. In the afternoon, the drafting function—CAD, and the integrated design and drafting functions—CADD are explored.

Concurrent Conferences

Morning Program: **Computers in Civil Engineering**

8:00 AM
Registration

8:30 AM
Micro Computers in a Civil and Structural Engineering Office

Robert M. Sweeney
Reaves & Sweeney, Inc.,
Memphis, TN

The use of micro computers and off-the-shelf software can increase the productivity of professionals. Case studies in the fields of structures, hydrology, and geometrics are presented.

9:15 AM
Mini Computers—Changes Are Coming

Charles S. Hodge
Boyle Engineering Corporation,
Newport Beach, CA

Mini computers have traditionally been the mainstay for computer applications in civil engineering. Agonizing reappraisals are now needed to maintain software investments.

10:00 AM
Coffee Break

10:30 AM
Making Effective Use of the Mainframe Computer—Even Small Firms Can Benefit

John Sandberg
Daniel Mann Johnson & Mendenhall, Los Angeles, CA

In a large firm the volume of data often makes a mainframe a requirement, but one doesn't have to own one to make good use of one. Numerous owners of mainframes are in the time sharing or service bureau business offering special application software, some at bargain prices.

11:15 AM
The Future

The morning's speakers' wrap-up of the morning session with emphasis on how new developments in computer technology may affect your professional practice.

11:30 AM
Lunch Break in the Exhibit Hall

Afternoon Program: **CAD/CADD in Civil Engineering**

1:30 PM
Microcomputer Based CAD Systems

W. Tracy Lenocker
Willdan Associates,
Anaheim, CA

This presentation will review the capabilities of existing computer assisted drafting programs for microcomputers with particular attention to civil engineering applications. The discussion will also cover minimum hardware configurations. Increases in productivity and profitability as well as problems and pitfalls will be covered.

2:15 PM
Organizing for CADD

Richard L. Bland
Giffels Associates, Inc.,
Southfield, MI

The productivity improvement potential of CADD systems can only be realized if the technology is effectively implemented. The impact on office procedures cannot be understated. Proper planning and education of project team captains is as important, and more difficult, than the training for operation. Some innovative approaches will be presented for dealing with these aspects of CADD implementation in a mini-computer installation.

3:00 PM
Coffee Break

3:30 PM
The Integration of CAD and Mainframe Computer Applications

Robert K. Waddick
Sargent & Lundy Engineers,
Chicago, IL

Sargent & Lundy uses a CAD system based on the VAX family of computers, and has integrated CAD applications into the overall computing effort centered around two large Sperry 1100 systems. An extensive network of graphics terminals has been applied to a wide variety of structural and other civil engineering applications. These lead directly to the creation of final design drawings and calculations.

4:15 PM
The Future

CAD/CADD systems are becoming more and more prevalent in civil engineering practice. The speakers give a glimpse of what the future may hold.

Registration Information

Cost of each session is \$125 or \$195 for both sessions which includes the seminar, all hand-out material, coffee breaks and admission to the exhibit hall.

For further information on this program, contact Patricia C. Johnson at CEPA Inc., 15713 Crabbs Branch Way, Rockville, MD 20855. Phone (301) 926-7070.

The Computer and The Interior Designer

Sponsored by
Institute of Business Designers Southern California Chapter

Session C-12
Hilton—California Pavilion D

Thursday, June 6, 1985
8:30 AM — 4:00 PM

If you are an interior designer, an architect, space planner, or a design firm administrator planning to incorporate the computer into your design practice, this program is for you. If you are a first-time user, or already using a system, it is for you.

We will provide you immediately with a take-home syllabus, as well as information to help in analyzing your need for a computer; which applications are most cost effective; managing a project with a computer; implementing a system in your organization; weighing alternatives like using a service bureau rather than purchasing your own system, and much more!

8:00 AM
Registration
Continental Breakfast

8:30 AM
Hardware and Software: What is it? What do you do with it? What can it do for you?

David P. Leckie
Director of Information Systems
Walker Associates, Los Angeles, CA

James Lefever
Computer Operations Manager
Welton-Becket, Santa Monica, CA
When you have decided to get a computer, where do you start? A look at available state of the art hardware and software for business and graphics.

9:30 AM
Computerization of a Design Firm: Three case histories

Timothy H. Walker
Walker Associates, Inc.
Los Angeles, CA

Theodore L. Stanton III
Yearwood & Johnson Architects
Nashville, TN

Kenneth Hedlund
Enviro-netics, International
Los Angeles, CA

This panel discusses the motivating factors of computer start-up, day-to-day economic and production realities and the projected future use of the computer in three interior design firms.

10:30 AM
Bits and Bytes: Walking Through a Job With Your Computer.

Thomas McAllister, IBD, ASID
T.W. McAllister & Assoc., Inc.
Calabasas Park, CA

Milton Swimmer
President
Swimmer Cole Martinez Curtis
Marina del Rey, CA

Susan Wilson,
IBD, AIA Prof. Affil.

President
Wilson Design Assoc.
Los Angeles, CA

Judith Wilson, IBD
Judith Wilson Design Associates
Studio City, CA

Concerning small, medium and large interior design and space planning firms, this session will take you through a job from inception to completion.

11:30 AM
Lunch in the exhibit hall
Visit the exhibits of your choice

1:30 PM
Service Bureaus: An Alternative To Owning Your Own Computer.

Cathrin M. Drikas
Director, Business Administration,
CAD Division
Continental Graphics
Los Angeles, CA

An explanation of service bureaus, their options, its changing future, and pros and cons of their uses will be discussed, including a slide presentation.

2:30 PM
Friend or Foe: Computers in Our Interior Environment.

Lloyd Henry
Interior Systems
Commercial Specialty Interior Contractor
North Hollywood, CA

Howard G. Smith
Smith, Fause & Assoc., Inc.,
Acoustics Consultants
Los Angeles, CA

Paul Schmidt
Computer Technician
Spring Computer Systems

Joel Makower
Author, Office Hazards
Rayne Sherman IBD
The Sherman Design Group,
Moderator

This panel discusses a systematic approach to construction and systems; occupant comfort; and the future of the office of the future. An in-depth case study is a special feature.

3:30 PM
Discussion and wrap-up

4:00 PM
Adjournment

Zoom to change scale
and pan over full
"E" size drawings

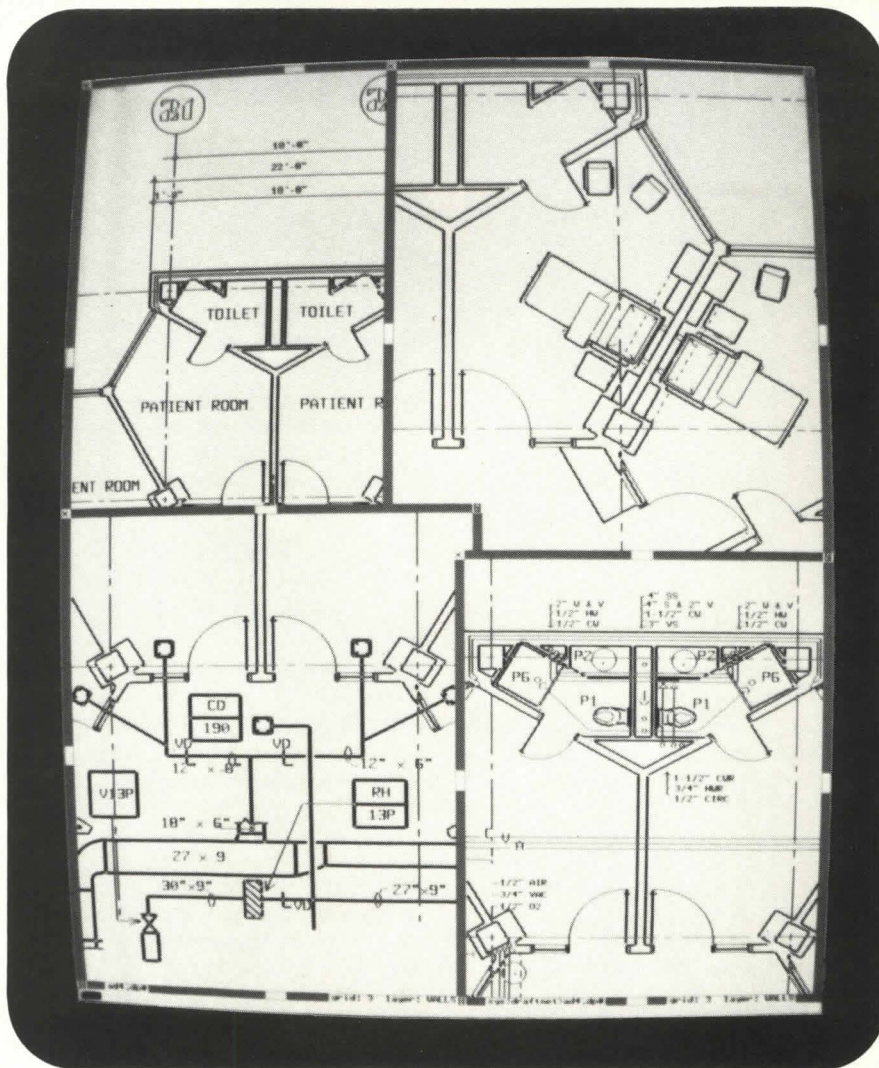
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windows from
any scale to any scale

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drawing grid &
dimensions to
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Circle No. 362 on Reader Service Card

Concurrent Conferences

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout material, box lunch, and admission to the exhibit hall.

For further information on this program contact Pearle Gray at IBD, 216 South Citrus Ave., West Covina, CA 91791 (818) 966-9703.

Management Issues Facing Today's Design Professionals

Sponsored by
Professional Services
Management Journal (PSMJ)

Session C-13
Hilton—California
Pavilion B

Thursday, June 6, 1985
8:30 AM — 11:30 AM
and 1:30 PM — 4:00 PM

Morning Program: Clients Talk About Price Competition

Pricing decisions make the difference between profit and loss. At this session you will learn:

- What are the effects of increased price competition (bidding)?
- How does the private client view price competition?
- How does the governmental client view price competition?
- What is the future outlook for pricing and profitability?

This program lets you hear and question clients who extensively use design profession services.

8:00 AM
Registration

8:30 AM
Effects of Price
Competition

Nora Lea Reeve
Consultant Management
Services Inc.
Tampa, FL

How has bidding affected professional services? Where does price competition work? What to do when you have to bid.

9:00 AM
The Private Client
Speaks

Richard Foster
Digital Equipment Corporation
Acton, MA

What does the client look for? How does the private firm regard price? Will lower prices result in selection?

9:30 AM
The Public Sector Speaks

J. Calvin Spradley
General Services
Administration
Kansas City, MO

How important is price? How are design professionals perceived? What factors result in selection?

10:00 AM
Current and Future
Economic Conditions
Affecting Price

David A. Rinderer
PSMJ
Brookline, MA

What effects do computers have on price? What will be future profitability? Increased competition—how will it affect management and pricing?

10:30 AM
Roundtable Discussion

The panel responds to questions and comments of registrants.

11:30 AM
Lunch in the Exhibit Hall

Visit the exhibits of your choice

Afternoon Program: Managing The Branch Office

This PSMJ program is designed specifically for design professionals facing growth and client demands which require them to open and manage branch offices. This program will give you specific tips on such issues as:

- How to open a branch office
- How to choose and keep a branch manager
- How to get new jobs through branch offices
- How to evaluate branch profitability
- How to develop interoffice cooperation

This session is conducted by professionals with "hands-on" experience in branch office management.

1:30 PM
How and Why to Open a Branch
Office

McLane Fisher
Executive Vice President
CH2M Hill
Denver, CO

How to justify a branch office. Issues to consider when choosing a location. Making the "go-no go" decision.

2:00 PM
Compensating and Motivating
Branch Managers

Herbert A. "Bud" Hoyles
Management Consultant
Vancouver, BC

Incentive compensation, motivating the budding entrepreneur, keeping the branch manager on the team.

2:30 PM
Marketing Through Branch
Offices

Bill Herb
Marketing Director
Greiner Engineers
Tucson, AZ

Cooperative marketing, communication of leads, local selling vs. regional or national capability.

3:00 PM
Financial Management of
Branch Offices

Tom Kurkjian
Treasurer
George Nolte & Associates
San Jose, CA

Interoffice charges and reviewing corporate overhead, evaluating branch financial achievements.

3:30 PM
Roundtable Discussion

An opportunity for all attendees to question the speakers and share their personal branch office experiences.

Registration Information

The cost of each session is \$125 or \$195 for both sessions which includes the seminar, workbook and handout materials, and admission to the exhibit hall.

For further information on this program contact Paula DiFoggio at PSMJ, 126 Harvard Street, Brookline, MA 02146, (617) 731-1912.

Computers In Power And Process Engineering

Sponsored by
A/E SYSTEMS REPORT

Session C-14
Hilton—California
Pavilion D

Friday, June 7, 1985
8:30 AM — 4:00 PM

The design of today's modern processing and production refineries and power facilities demands the equally high technology afforded by computer-aided engineering and graphics. Performing day-to-day applications in project management, facilities management, modeling and design, the computer is as necessary to the engineer as the slide rule was a generation ago.

This one-day program will show process and power engineering managers what their peers at the cutting edge are

doing to use this important technology and what the leading designers and developers of these systems are doing to advance the state-of-the-art in computer-aided power and process engineering.

8:00 AM
Registration

8:30 AM
The User's Perspective
Introduction—What's
Happening Now

Larry J. Engelken
Executive Vice-President
EGT Incorporated
Houston, TX

From computer scanning to stereo photography, the high-tech tools available to the power and process engineer seem to offer limitless potential. Moderator Larry Engelken will set the tempo for the day, beginning with available applications from the user's viewpoint.

9:00 AM
Where Are We Now? Where
Are We Going?

Frank D. Hutchinson III
Senior Vice President
Gibbs & Hill, Inc.
New York, NY

Reviewing Gibbs & Hill's over 15 years of experience in the use of their CADA[®] System for the design and engineering of power plants, Frank Hutchinson will share problems, pitfalls and successes and explore the future potential for computer graphic and design applications.

9:45 AM
Applying Computers in the
Process and Power Engineering
Firm

William C. Breen
Senior Vice President
Fluor Engineers, Inc.
Irvine, CA

Using computers for design, process simulation, 2D CAD, 3D CADD, material management and integrated project management, William Breen will provide a case study look at his firm's applications. Emphasis will be placed on 3D plant modeling, specification and drawing generation, integrated design and distributive processing.

10:30 AM
Detailed Design Review
Through 3-D Modeling

Joseph A. Mudd
Chief Engineer—Computer
Applications
Bechtel Petroleum, Inc.
San Francisco, CA

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User Group Meetings

Do you have a problem with your system that you'd like to have solved? Have you developed a new "wrinkle" that you'd like to share with your peers? Would you like to get together in an open forum and exchange hardware/software "secrets" with other design professionals? Then consider attending one or more of the vendor sponsored User Group Meetings to air your concerns.

These in-depth two-to-three hour meetings will be conducted by each of the organizations listed below as a vital service to their customers or members. For more details about these meetings, contact the below listed representatives directly:

ACCI Business Systems, Inc.

Paul Pamer
12707 North Freeway #140
Houston, TX 77060
Hilton Palos Verdes
Thursday 1:30 PM-4:30 PM

AutoCAD

Stephanie Ford
2658 Bridgeway
Sausalito, CA 94965
Hilton Capistrano
Wednesday 1:30 PM-4:00 PM

BST Consultants, Inc.

Chris Meyer
P.O. Box 23425
Tampa, FL 33623
Hilton Capistrano
Thursday 1:30 PM-4:00 PM

CIVILSOFT

Katie Hill
290 South Anaheim Blvd. #100
Anaheim, CA 92805
Hilton Palos Verdes
Monday-Thursday 9:00 AM-4:00 PM

Coordinating Council for Computers in Construction

Harry Mileaf
Sweet's Division
1221 Avenue of the Americas
New York, NY 10020
Hilton Laguna
Tuesday 9:00 AM-12:00 Noon

ECOM Associates, Inc.

Gary Koser
8634 West Brown Deer Road
Milwaukee, WI 53224
Hilton Capistrano
Thursday 9:00 AM-12:00 Noon

Micro Mode, Inc.

Bill Henderson
4006 Mt. Laurel
San Antonio, TX 78240
Hilton Palos Verdes
Thursday 1:30 PM-4:30 PM

The coordination between design companies and operating clients usually culminates in a detailed model review which includes checks on design rules, maintainability, operability and constructibility. Joseph Mudd will show how his firm's review methods improve plant quality while reducing home office design costs through the 3-D computer graphic models.

11:15 AM Panel Discussion

Led by Moderator Larry Engelen, the speakers from the morning session will field questions on the specific issues raised from the audience.

11:30 AM Lunch Break in the Exhibit Hall.

Visit the exhibits of your choice.

1:30 PM The Vendor's Perspective Introduction—Advancing the State-of-the-Art

Larry J. Engelen

The use of Computer-Aided Design and Drafting (CADD) is growing exponentially. In power and process engineering, three of the leading vendors will discuss their approach to meeting the end-user demand—in the present as well as the near future.

1:40 PM The Power of 3-D

Ralph B. Zak

Director, A-E-C Strategic Marketing
Calma Company, Santa Clara, CA

The majority of existing CAD users work in 2D. The reasons

for this are clear: low cost, cost-effectiveness, ease of use. However, the greatest benefits to be derived from CAD technology are in the application of 3D modeling techniques. Using Calma's system, Ralph Zak will provide examples of how 3D graphics with integral 3D data-base can be effectively used.

2:20 PM Product Process Automation—Integrating CAE/CAD/CAM

Charles M. Sroczynski
Manager, Product Marketing,
Process & Power Plant Design
Computervision Corporation
Bedford, MA

Through a family of hardware which includes personal designers, stand-alone micro-based workstations, mini driven groups of workstations and business processors for database solutions, Computervision has become a world leader. Now, industry-specific marketing and development groups within CV are tackling each of the major A-E-C design disciplines. This session focuses on their response to the power and process field.

3:00 PM Integrating Design Disciplines Through Computer Graphics

Ken Brockwell

Applications Manager, Plant Design
Intergraph Corporation
Huntsville, AL

Interactive, computer-aided plant design systems provide for the production of process schematics and 3-D models comprising structural, equipment, piping, HVAC and electrical features. Integrated with the modeling phase are analysis

functions and an extraction process for 2-D detailing, construction drawings and material take-offs. Ken Brockwell will discuss how his company is meeting the challenge in computer-assisted plant design.

3:40 PM Panel Discussion

Led by the moderator, the afternoon speakers will field questions on the specific issues raised from the audience.

4:00 PM Wrap-up and Adjournment

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout material, box lunch, and admission to the exhibit hall.

For further information on this program contact Carol Goselin, A/E SYSTEMS REPORT, P.O. Box 11318, Newington, CT 06111 or call (203) 666-6097.

Automation and the Architectural Firm—Can It Be Done?

Sponsored by A/E SYSTEMS REPORT

Chaired by
Daniel S. Raker
Editor, A/E SYSTEMS
REPORT and President,
Design & Systems
Research, Inc.

Session C-15
Hilton—California
Pavilion C

Friday, June 7, 1984
8:30 AM — 4:30 PM

Share the day with professionals who are well along the way towards automation and learn from their experiences and mistakes. The program provides a cohesive look at the stages of automation in an architectural firm from word processing and accounting to CADD and reprographics.

At this session you learn how firms of all sizes are benefitting from automation. Each speaker brings an area of expertise that is topic specific, like CADD, or project management, or master details in an automated reprographics environment. In addition each speaker brings a personal perspective from having managed, acquired, or used the technology presented. Speakers come from firms one as well as one thousand persons in size, and nearly every range in between.

8:00 AM Registration

8:30 AM How Sweet It Can Be!

Seymour Fish, AIA

Director of Production and Director
of CADD Services
Haines Lundberg Waehler
New York, NY

Reflections on the road to automation at HLW and a discussion of the benefits of CADD and computer operations integrated with design, engineering, and drafting activities. HLW has a growing CADD installation plus sophisticated management information systems and controls.

9:30 AM Automation in the Front Office

Greg Putnam

President
PMC Inc.
Piedmont, CA

One of the first steps towards effective automation is organization of the front office. Greg Putnam has years of consulting experience bringing word processing, financial and project accounting, and advanced marketing techniques to firms. He will provide guidelines on acquiring new systems and give tips for making existing systems more effective.

10:10 AM Drawing Automation Starts with Reprographics

Ken Gardiner

Director of Architecture
CUH2A
Princeton, NJ

At CUH2A the reprographics and CADD systems work concurrently and continue to evolve.

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you can design...
but can you
manage your
business?
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a service that
can help.**

The principals/sponsors of A/E SYSTEMS '85 — George Borkovich, Michael Hough and Frank Stasiowski — together provide the largest and most comprehensive package of management, marketing and systems information available to architects, engineers, contractors and other design and construction professionals.

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Newsletters and special reports that "tell it like it really is" and give practical advice that can be applied directly in your firm

Forums — such as A/E SYSTEMS '85 — where design professionals like yourself can exchange ideas, see the latest products/services and learn from the experts

Trade Shows

A/E SYSTEMS '85 — the largest trade show for design professionals in the world, being held June 3-7, 1985 in Anaheim

CMC '85 — the computer and management show for contractors co-sponsored by *Engineering News Record*, being held October 15-18, 1985 in Houston concurrently with A/E SYSTEMS—Fall

Newsletters

A/E Systems Report — the monthly newsletter containing tips on automation and reprographics for professional design firms

Professional Services Management Journal (PSMJ) — the monthly management bible for design firm executives

A/E Marketing Journal — the "how to" marketing newsletter for planning and design firms

Contractor Profit News — the monthly newsletter with practical and profitable management and marketing ideas for contractors

Seminars and Conferences

PSMJ Seminars — over 80 seminars and conferences each year on a variety of management-related topics, including the very popular CEO Roundtables

A/E Marketing Journal Conferences — the annual Promotion Strategies Conference in the spring

A/E Systems Report Seminars — the cutting edge computer-related seminars exclusively for architects, engineers, interior designers and facility managers

Publications

Automation from A to Z and **Automation for the Design Firm** published by A/E SYSTEMS REPORT

Financial Statistics Survey, Executive Management Salary Survey and **Fee Survey** published by PSMJ

The A/E Marketing Handbook and the **Publicity and Awards Directories** published by A/E Marketing Journal

Plus more than two dozen other titles per year on management, marketing and automation topics.

We will be pleased to send you further information on what we do that can help you better manage your practice. Just write to:

A/E SYSTEMS, Inc. • P.O. Box 11316 • Newington, CT 06111

Concurrent Conferences

This in-plant repro center uses a vacuum frame for pin bar or post-punched CADD documents alike. Tips on when to use manual, reprographic, and CADD drawing techniques for an efficient mix of drawing productivity.

10:50 AM Professionals, Micros, and Details—A One-Man and Large Firm Perspective

Loren Mastin
*Loren Mastin AIA Architect Ltd.
and Harwood K. Smith & Partners
Dallas, TX*

There is an easier way of doing certain construction document

sheets. Not using CADD as we now know it, but with microcomputers that can prepare, document, index, and produce master details. Loren Mastin has embraced the micro as a tool in his one-man office, and is now spreading the gospel in a much larger firm where computer budgets are high, but professional computer literacy is on the rise.

11:30 AM Lunch in the Exhibit Hall

Visit the exhibits of your choice

1:30 PM A CEO's Perspective on CADD

Jim Jonassen
*President
NBBJ
Seattle, WA*

A look at the trade-off of capital allocation towards automation and away from personnel. How NBBJ made the decision to purchase a CADD system, and then decided which brand, how many stations, who would use it, and what projects would be first on the system. Tips for studying available CADD systems and getting a system up and running in the office.

2:20 PM Psychological Dynamics of

Computer Implementation

Ira Fuchs
*President
Micro-Installations
New York, NY*

You don't get into your car in the morning and expect it to butter your toast—what should you expect from your computer? Hardware and software are only 30% of the computer implementation equation. The remaining 70% is the working environment, user expectations, and preparation. From the perspective of an end user and a vendor, Fuchs discusses the psychological barriers to successful computer implementation.

3:10 PM Setting a Long Range Technology Plan at ADD Inc.: A Two Year Perspective

Phillip Briggs
*Partner
ADD Inc.
Cambridge, MA*

Two word processors, two PCs, two CADD workstations. Where do we go from here? Phil Briggs discusses how technology is playing an increasingly important role in planning the future of ADD Inc. Compound growth of personnel, space, and computers must be tempered by technology understanding, cash flow planning, training, and job satisfaction.

4:00 PM Roundup: Action Items for Your Office

Daniel S. Raker and the speakers of the day.

Registration Information

The cost of this full day program is \$195 which includes the seminar, handout material, box lunch, and admission to the exhibit hall.

For further information on this program contact Carol Goselin at A/E SYSTEMS REPORT, PO Box 11316, Newington, CT 06111, (203) 666-6097.

Computers and Marketing For Contractors

Sponsored by
Contractor Profit News (CPN)

Session C-16
Hilton—California
Pavilion B

Friday, June 7, 1985
8:30 AM — 11:30 AM
and 1:30 PM — 4:00 PM

**Morning Program: Computers in
Construction**

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Before buying a high-priced computer-aided drafting system, consider VERSACAD ADVANCED. Using today's most powerful microcomputers, it exceeds the capabilities of many large-scale CAD workstations. A number of Fortune 100 companies have chosen it for their drafting needs. For more information, call toll-free 1-800-228-2028, Ext. 85
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Huntington Beach, CA 92647
(714) 847-9960

See us at Booth 544

Technological advances continue to revolutionize the construction industry. Benefit from this program where leaders in the use of computers in construction share techniques, developments, philosophy and future enhancements. They will address such issues as:

- How the computer is revolutionizing the job site.
- How computerized management techniques increase profits.
- How to use automation in estimating construction costs and how to prepare successful bids.
- How to apply computers to the scheduling process and bring in the job on time.
- How to develop a data base and improve your decision making abilities.
- How to use computers in the field.
- How to stay competitive in the technological age of the 80's and lead the way in the 90's.

Be prepared for a challenge to your ideas of how the construction industry works and how it will operate in the future.

8:00 AM
Registration

8:30 AM
How to Begin Using Computers in Construction

John Ricchini
P.C.I.
Lincoln, NE

9:15 AM
Practical Applications and Techniques

Gregory P. Denk
Kitchell Contractors
Phoenix, AZ

10:30 AM
What Computers Will Do in the Future

Frank A. Stasiowski
Contractor Profit News
Brookline, MA

11:00 AM
Roundtable Discussion

The chance for you to get answers to the specific questions you have.

11:30 AM
Lunch in the Exhibit Hall.

Visit the exhibits of your choice.

Afternoon Program: Selling Contractor Services

Fierce competition has increased the importance of successful selling of contractor services.

Selling means survival. The sophistication of the sales effort is rising. This program will share with you proven techniques to raise the "hit rate" of your marketing program.

"Selling Contractor Services" is designed for chief executive officers, construction executives, marketing directors, and all those concerned with improving their sales performance in the contracting industry.

1:30 PM — 4:00 PM

A frank discussion led by two experts in the construction industry. They will share their knowledge on such subjects as:

- How to make the best use of brochures and other sales materials.
- How to make a successful presentation, impress the potential client, and be selected to bid.
- How to identify promising leads and potential projects.
- How not to waste your marketing time and dollars and how to increase the effectiveness of your marketing staff.
- How to measure the success of your sales efforts.
- How to be selected for qualifications and not by price.

Successful sales efforts are well planned and make the most efficient use of the resources available to the marketing task. After this session you will be prepared to improve your sales plan to increase your flow of work.

Registration Information

The cost of each session is \$125 or \$195 for both which includes the seminar, workbook and handout material, and admission to the exhibit hall.

For further information on this program contact Paula Di-Foggio at CPN, 126 Harvard Street, Brookline, MA 02146, (617) 731-1913.



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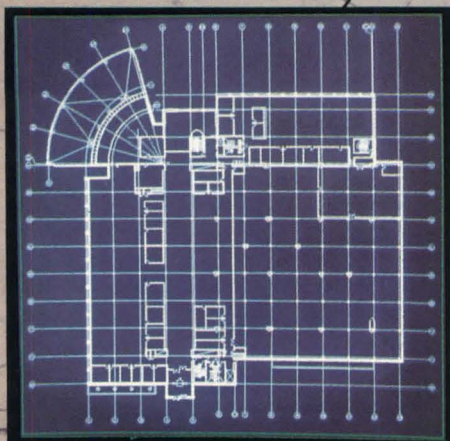
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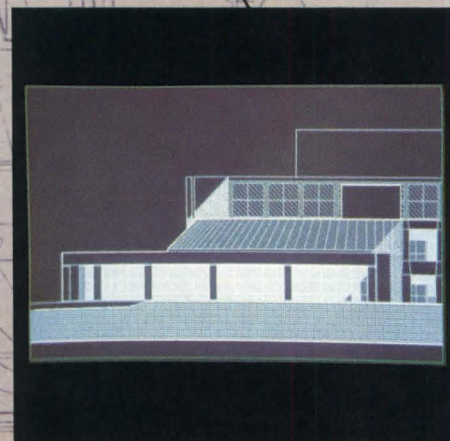
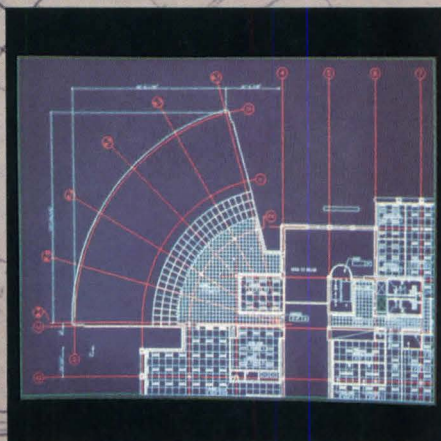
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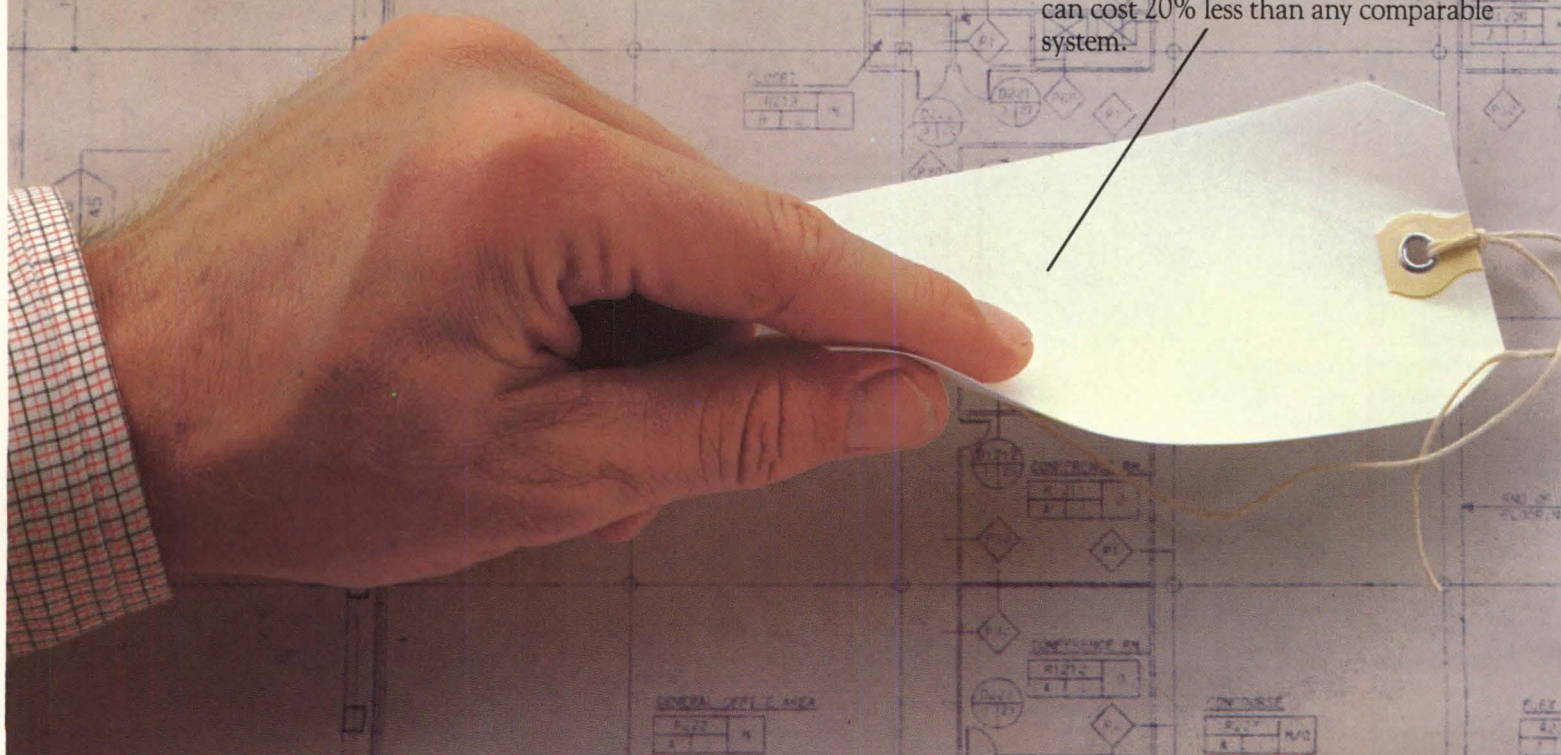


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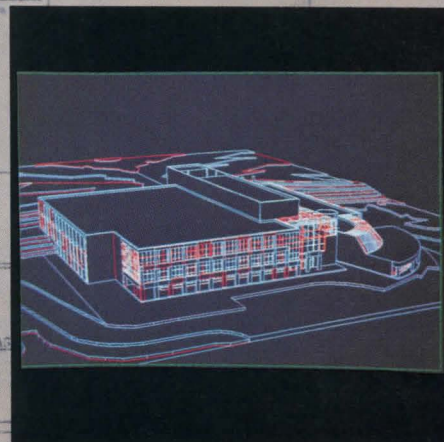
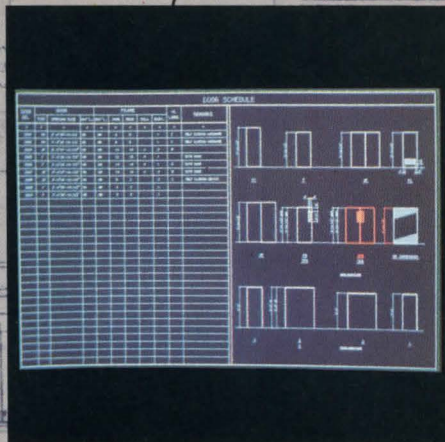
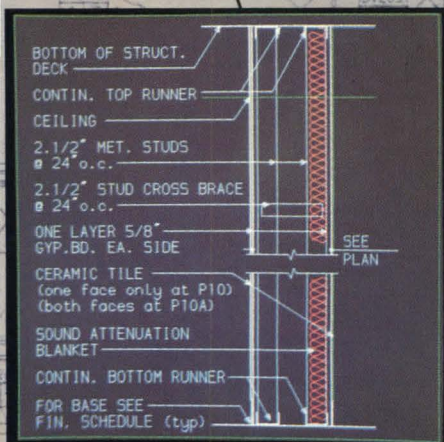


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See us at the A/E Systems Show, Anaheim, June 3-6, Booth #1127,
and the AIA Show, San Francisco, June 9-12, Booth #463.

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List of Exhibitors

Here is a list of exhibitors who have signed up for A/E SYSTEMS '85 as of March 1, 1985:

The A/E Software Center

A/E SYSTEMS '85 attendees will have access to more than 40 firms who specialize in providing software for the design profession. Many of these firms are not large enough to staff a booth on the exhibit floor so we have designated a special "A/E Software Center" on the floor where those exhibitors will display information about their products.

Attendees can request from a variety of software products that deal with architectural and engineering design, construction and construction management, project management, graphics, cost estimating, facilities management, financial and accounting, marketing, word processing and numerous other special applications.

Be sure to stop by the A/E Software Center!

ACCI Business Systems, Inc.

Agfa-Gevaert, Inc.

AIA Press Bookstore

AIA Service Corporation

Alpine Datasystems, Inc.

AM/FM International

American Consulting Engineers Council

The American Institute of Architects

American Society of Landscape Architects

APEC, Inc.

APOGEE Computer Designs, Inc.

Apollo Computer, Inc.

Applied Digital Communications

ARCAD

The Architect's Friend

Architectural Record

Ardex Corporation

Artecon Inc.

Association for Computers in Design

AT&T Information Systems

Auto-trol Technology Corporation

AutoCAD

bc COMPUTING

Benson, Inc.

Bishop Graphics, Inc.

Bowne Information Systems, a subsidiary of TSR, Inc.

Breuer & Company

BruningCAD

BST Consultants, Inc.

Building Design & Construction

Buildings Design Journal

Business Development

Association of Orange County

Business Information Systems, Inc.

CALCOMP

California Council, AIA

Carrier Corporation

Cascade Graphics

CEPA

Chemco Photoproducts Company

Civil Engineering

CIVILSOFT

Clearprint Paper Company, Inc.

The Computer-Aided Design Group

Computer Aided Design Report

Computer-Aided-Planning, Inc.

Computer Graphics World

Computervision Corporation

Concept Group, Inc.

CONSTECH/Widnell & Trollope, USA

Construction Specifications Institute

Consul & Mutoh, Ltd.

Coordinating Council for Computers in Construction

CPT Corporation

H.G. Daniels Company

Daratech, Inc.

Datagraphic Systems

Data General (Technical Products Division)

Data Processing Design

Data-Basics, Inc.

Demand, Inc.

Design Graphics World

Design-Mates, Inc.

Design Search

Designers West

DFI/Systems

Diagram Corporation

Dietzgen Corporation

Disco-Tech

Dresco Reproduction Inc.

Du Pont Company—Industrial Systems

Easi File Corporation

Eastman Kodak Company

ECOM Associates, Inc.

Electrical Consultant

Elite Software Development Inc.

ENERCALC Engineering Software

Engineering News-Record

Extek Microsystems

Foresight Resources Corporation

Exhibit Highlights

A/E SYSTEMS '85 has the largest architectural and engineering computer and management exhibit ever, housed in 200,000 square feet of exhibit space. Close to 1000 exhibit booths; almost 250 companies including every major vendor serving the automation, reprographics and management needs of the design and construction professional.

- More than 75 of the leading vendors of computer graphics (CADD) hardware, software, systems and services—from plotters to turnkey systems,

from microCAD to 3-D modeling and animation, including every major vendor serving the architect-engineer-contractor market.

- Over 50 companies offering reprodrafting services, products and supplies. And the state-of-the-art multi-vendor exhibit, **The Reprographics Center.**
- Scores of professional societies and trade organizations, publications and consultants providing computer and management education, training and guidance.

- More than two dozen leading suppliers of drafting room and office automation furniture, equipment and cabinetry—from pencils and pens to tables and chairs to ergonomically-designed systems and contract furnishings.
- Over 75 office automation exhibits of word processing, personal computers, minis and mainframes, peripherals and computer software for every A-E-C application imaginable.

Free Admission

Every major vendor serving the automation, reprographics and management needs of the design professional will be at A/E SYSTEMS '85. Don't miss your chance to see how they can help you practice more effectively. You won't be disappointed.

Admission to the exhibition at A/E SYSTEMS '85 is free for anyone who has a ticket. To obtain a ticket call 203-666-6097 or write:
A/E SYSTEMS '85
P.O. Box 11318
Newington, CT 06111

The exhibition is being held at the Anaheim, California Convention Center and the hours are:

Tuesday, June 4
10:00 AM to 6:00 PM
Wednesday, June 5
10:00 AM to 6:00 PM
Thursday, June 6
10:00 AM to 6:00 PM
Friday, June 7
10:00 AM to 4:00 PM

Facsimile Information Systems Corp.
Fuji Photo Film U.S.A., Inc., Photo Reproduction Products Division
General Electric—Calma Company
GMW Computers, Inc.
Graphic Horizons, Inc.
Graphic Systems, Inc.
Guidelines Publications
Halford A/E Systems Corp.
Hamilton Industries
Harper and Shuman, Inc.
HASP, Inc.
Haworth, Inc.
Hellmuth, Obata & Kassabaum, Inc. (HOK)
Hewlett-Packard Company
Holguin & Associates, Inc.
The Huey Company
Hydro Systems, Inc., Civil Engineering Software
IBM Corporation
Illuminating Engineering Society
Industrial Engineering
Information Displays, Inc.
Institute of Business Designers
Intergraph Corporation
International Facility Management Association
International Reprographic Association

James River Graphics, Inc.
James J. Jordan, Architect-Engineer
Keuffel & Esser Company
Koh-I-Noor Rapidograph, Inc.
Kuhlman-Vlasek
The Lietz Company
Lighting Technologies
McDonnell Douglas
AEC Automation Systems Co.
McGraw-Hill Cost Information Systems
Mega CADD, Inc.
Micro Mode, Inc.
Micro-Installations, Inc.
Microseal Corporation
Minolta Corporation
Nicolet Computer Graphics Division
nuArc Company Inc.
Océ Industries Inc.
Opti-Copy, Inc.
Orange County Chapter/AIA
PacSoft
Personal CAD Systems
Plan Hold Corporation
Plus III Software, Inc.
The Posthauer/Pinkert Company, Inc.
Primavera Systems, Inc.
Prime Computer
Printfold Company
Productivity Systems, Inc.
Progressive Architecture

Rayven, Inc.
Repro/CAD Associates
Research Engineers, Inc.
Resource Dynamics
ROBO Systems
Roll Vac Corporation
H. Schreiber Co.
Shacoh Copiers, Inc.
Sigma Design, Inc.
SKOK Systems Incorporated
The Society of American Military Engineers
SoftTrak Systems
Solarsoft Inc., Division of Kinetic Software
SOTA Software, Inc.
Southwest Analytical Systems, Inc.
J. S. Staedtler, Inc.
Strategic Software Planning Corp.
Sun/Coast/Architect/Builder
Sweet's Division—McGraw-Hill
Sys Comp Corporation
Teamwork Systems
Technical Information Systems, Inc.
Teledyne National Tracing Paper
Teledyne Post
Teledyne Rotolite
Texas Instruments Incorporated

3M Engineering Systems Division
Timberline Systems, Inc.
Tonias Engineers
Ulrich Planfiling Equipment Corp.
The Ultraprint Company
Unicad, Inc.
Van Nostrand Reinhold Company Inc.
Vector Automation, Inc.
Vemco/Quantum
VersaCAD Division of T & W Systems, Inc.
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VL Systems, Inc.
Stephen C. Wexler & Associates, Div. of Wexco Intl. Corp.
Wiley Professional Software
Wind-2 Research, Inc.
Yeakel Electronic Software

The Reprographics Center

Introduced at last year's show in Baltimore, this extremely popular display is even better than before. The Reprographics Center, located in a 20' x 50' island display in Booth 913, is sponsored by the International Reprographic Association (IRgA). In the heart of the product exposition, this special display features a completely self-contained and operational "repro center." Through hands-on demonstrations, it depicts how reprographic and computer graphic techniques and products can be married into an effective

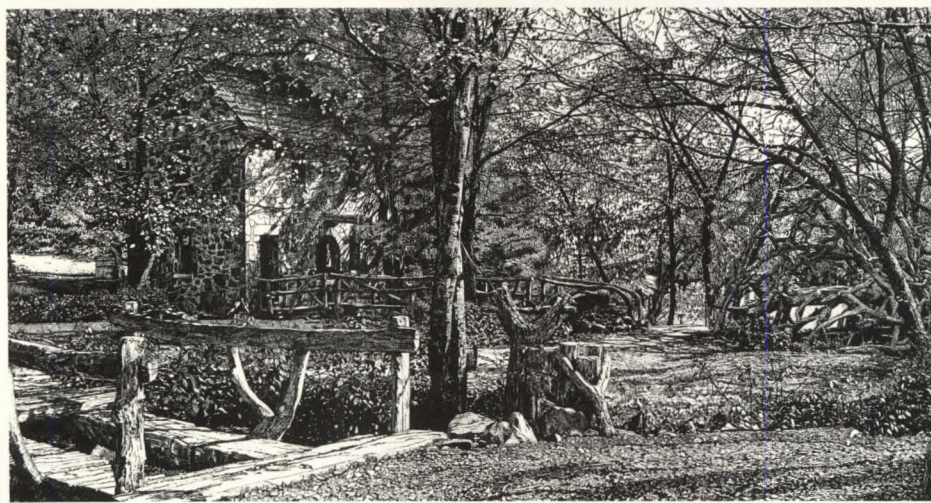
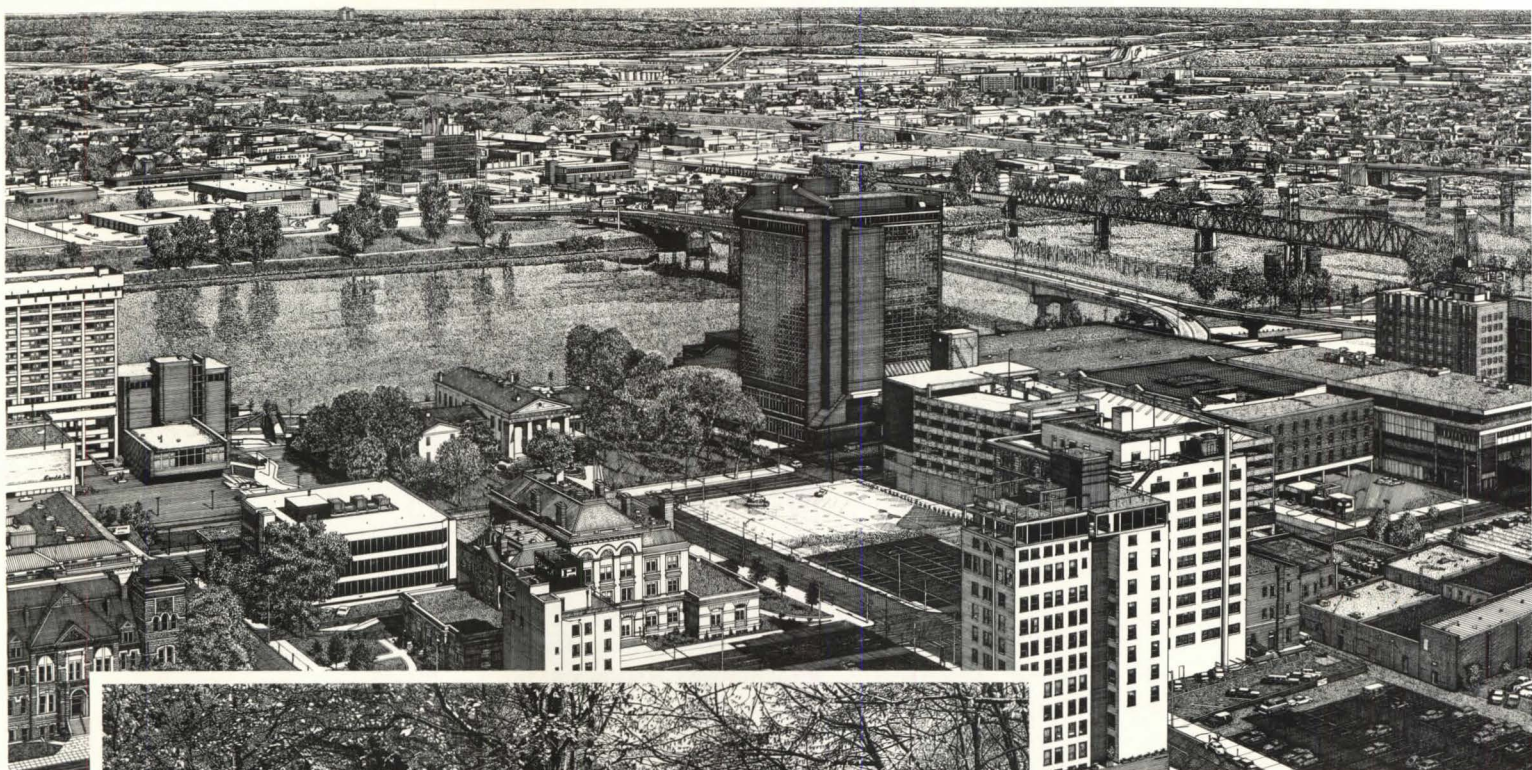
documentation and production effort.

Developed through A/E SYSTEMS REPORT research, the idea was nurtured by a special committee of the IRgA in an effort to provide useful information to design professionals in a non-sales setting. The display will be staffed by members of the IRgA.

Among the vendor participants providing products for the display are:

Acti Products
Clearprint Paper Company
Consolidated Reprographics
Design Mates, Inc.
Dietzgen Corporation
DuPont Company
Hamilton Industries
James River Graphics
Keuffel & Esser Company
Teledyne Post
Teledyne Rotolite
Ulrich Planfiling Equipment
Vemco Corporation

Rapidograph



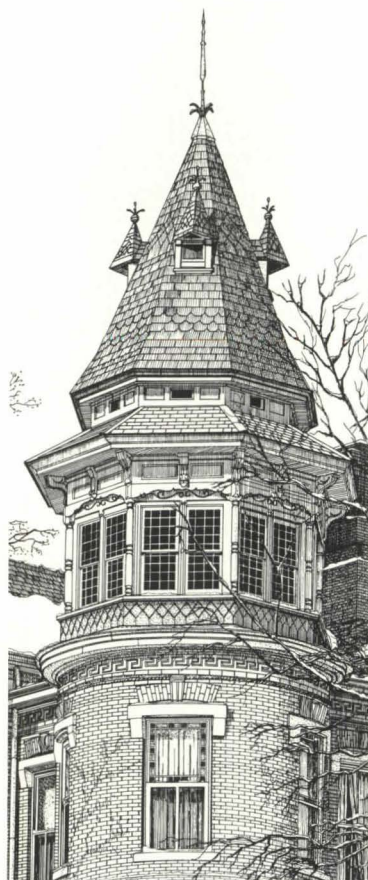
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architectural detailing by Richard DeSpain

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PA-S-85

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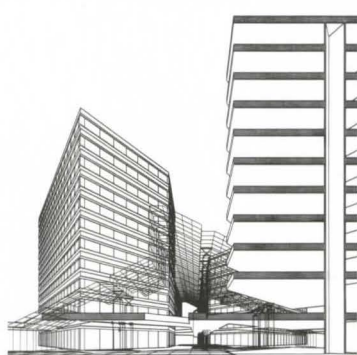
A/E Systems Products



Alpine Datasystems

Alpine Project Time Management is the nation's leading multiterminal project-costing and reporting software, with nearly 200 installations in medium and large A/E firms across the country.

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ARCAD

Architectural Interactive Design System, fast, easy, consistent, flexible, is the most affordable advanced computer graphics system for architects on the market today.

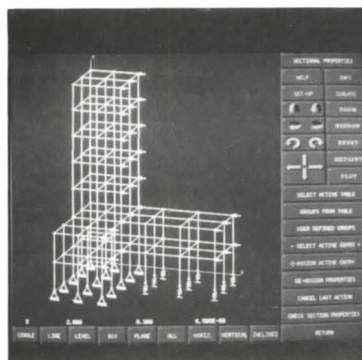
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The Architect's Friend

"The Architect's Friend" represents the perfect balance between price and performance. The system includes IBM-PC compatibility, 2-D CADD, a full accounting package, networking, and more.

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Auto-trol Technology

Auto-trol is demonstrating specially designed high-performance display hardware; mid-priced color workstation for general-purpose design and analysis; a PC-based workstation that allows users to view and annotate graphics files.

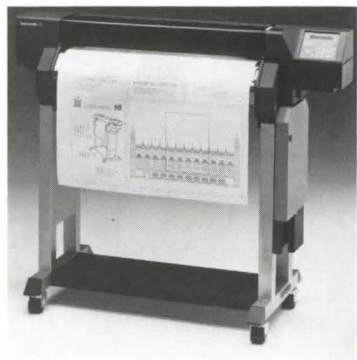
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bc Computing

bc, a Prime Computer Applications Consultant, will unveil the first Civil CADD system—DRAWMAPS. Interactive Graphics... Digital COGO... Smart Maps.

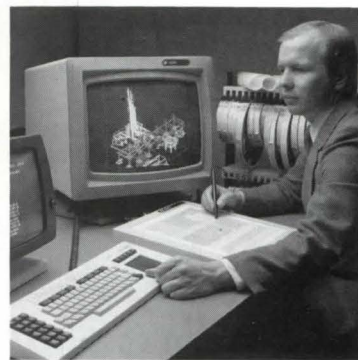
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Benson

Benson's 8-pen 1625 sheet pen plotter plots "A" through "E" sized drawings on paper and film and features automatic pen capping, digitization, and windowing.

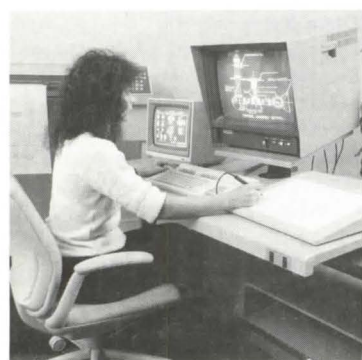
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Calma

DIMENSION III 3-D computer-aided engineering and design system for engineers and constructors of large process plants saves project costs. Calma provides distributed processing solutions for design, analysis, procurement, and construction.

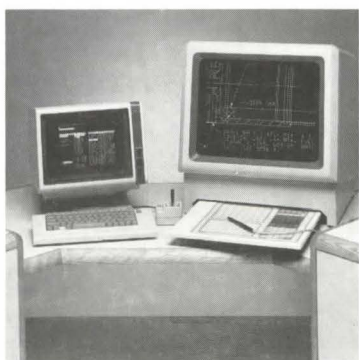
Circle 242 on reader service card



Carrier Corporation

Will display its second-generation E-2000 computer-aided drafting system that is three times more efficient than its predecessor. Designed for all building design professionals, the E-2000 can be mastered quickly.

Circle 243 on reader service card



Cascade Graphics

Cascade X with Speedware is the fastest 2-D computer-aided drafting system in its price range. It features full-function software, dual monitors, and high-resolution screen.

Circle 244 on reader service card

Architectural Computer Software

The Professional Accounting and Management System (PAMS)™ is a fully integrated financial and project management software package designed for professional firms.

Circle 245 on reader service card

Artecon

The ArteMate™ 40 Workstation Computer will provide Knowledge-Based/Expert System capabilities to assist the architectural, engineering, and construction functions.

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ACD

The Association for Computers in Design is a nonprofit organization that seeks to advance the professional use of computers in design firms.

Circle 247 on reader service card

AutoCAD

AutoCAD, priced at \$2000, is a complete CAD software package that includes object snap, dynamic dragging of objects, linetypes, and isometric grids and features 90 percent of the capabilities found in large-scale CAD costing \$100,000 or more.

Circle 248 on reader service card

Bowne Information Systems

BIS makes available the complete SPECTEXT library, covering MASTERFORMAT Divisions 1-16, on magnetic media (Disks or Tape) for over 160 different microcomputers and word processors.

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Business Information Systems

ACE, an integrated financial management system for A/E's, is the solid and effective resource you want when your goal is monitoring, controlling, and improving productivity.

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A/E Systems Products

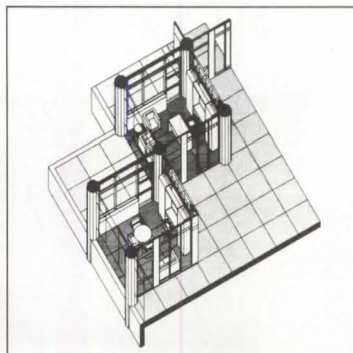


A/E Systems Products



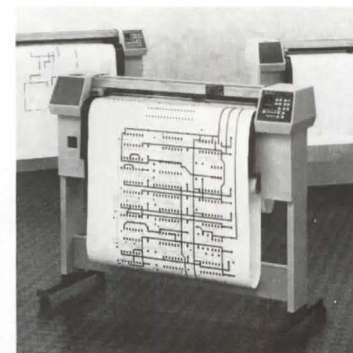
GMWComputers
RUCAPS Building Modeling™
System is the only CAD tool for the building industry that integrates geometric, symbolic, and nongraphic information into a single building model.

Circle 265 on reader service card



HOK Computer Service
HOK DRAW integrated 3-D system, designed by architects, features complete networking between disciplines, hidden line removal, perspective, parallel and axonometric views, sun/shadow studies, and wall and contour generation.

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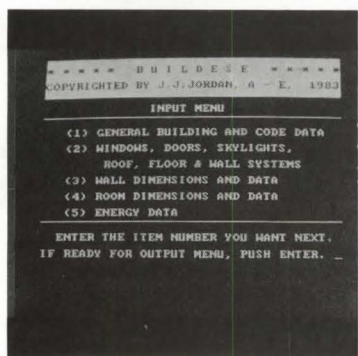
Hewlett-Packard
Designed for ease of use and uninterrupted operation, the Hewlett-Packard 7580 series introduces a new level of reliability, quality, and product support to drafting plotters.

Circle 267 on reader service card



Huey Company
Will be displaying Light Tables and Drafting Furniture. Also will be showing Computer Products: CAD-BACK and ULTRAPRINT.

Circle 268 on reader service card



James J. Jordan
BUILDSE microcomputer software modules BEAMJOIS, RETWALLS, HEATCOOL, DIAFRAMS, and SHERWALL are outstanding professional time-savers available for license fees of less than \$100 each.

Circle 269 on reader service card



Microseal
New universal microfilm reader performs with aperture cards, jackets, microfiche, and unitized x-rays. Multiple lens units permit viewing entire drawing at 14.8 magnification, with expanded view of areas at 24x magnification.

Circle 270 on reader service card



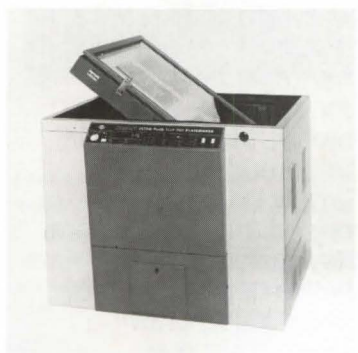
Minolta
RP 1824 reader-printer for aperture cards achieves excellent copy quality from microfilmed engineering drawings. Advanced features offer flexibility and ease of operation.

Circle 271 on reader service card



Nicolet
ZETA 836CS is a new cut sheet drafting plotter. The 8-pen 36-inch plotter offers single sheet and roll media flexibility. It has speeds up to 25 ips with 2g acceleration.

Circle 272 on reader service card



nuArc
Overhead and Flip/Top overlay drafting exposure systems, with high-intensity Metal Halide light sources, will be exhibited.

Circle 273 on reader service card

Graphic Horizons
GRAPH/NET design-oriented turn-key CAD/D system, developed to think like an architect, interior designer, or facility manager, provides 2-D Drafting, 3-D Perspectives, Adjacency Optimization, and Database programs.

Circle 274 on reader service card

IBD
Institute of Business Designers represents professional interior designers whose major emphasis is commercial and institutional interiors, promotes higher ethical and design standards, provides educational programming, seeks legal recognition, and advances the practice of contract design.

Circle 275 on reader service card

IBM
Will present its overall strategy in AEC, demonstrating CAD/D systems for architectural design, production, and facilities management. Recently completed building project will highlight drawing automation and project control capabilities.

Circle 276 on reader service card

McDonnell Douglas
Will demonstrate its integrated architectural and engineering design and analysis systems on a 32-bit Micro-VAX computer. Systems include GDS, COGO, ROADS, and STRUDL.

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MEGA CADD
Design Board Professional, the newest software package in the popular Design Board series, features powerful, easy-to-use 3-D design and modeling for personal computers.

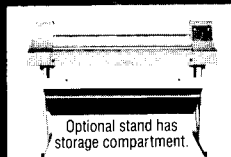
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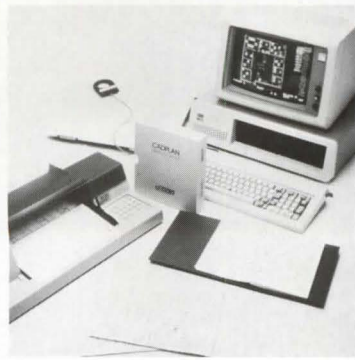
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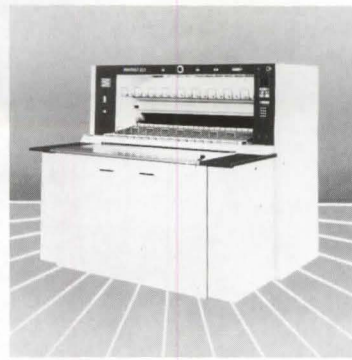
A/E Systems Products



Personal CAD Systems

A new series of products give architects and engineers a true design package for IBM XT or AT. CADPLAN 2-D drafting production package is also being shown with new supported devices and drivers.

Circle 279 on reader service card



Printfold

Printfold 825 automated whiteprint machine will be featured. Made in America and designed especially for American market requirements, the 825 is backed by a nationwide service organization committed to ship parts within 24 hours.

Circle 280 on reader service card



Roll Vac

Roll Vac 4500 is the first fully automated overlay printer. Exposure guesswork is eliminated by automatic sensor, which compensates for varying densities and multilayers of drafting film.

Circle 281 on reader service card



Shacoh Copiers

The 920 Electrostatic Copier creates full-sized reproductions from 36-inch originals and enlarges up to 200 percent.

Circle 282 on reader service card



Sigma Design

New products include an IBM-PC interface; Realistic Shadowing for 3-D design and modeling; Structural Drafting, Analysis and Design package; SIRGEN fully integrated DBMS and On-Screen Report Generator.

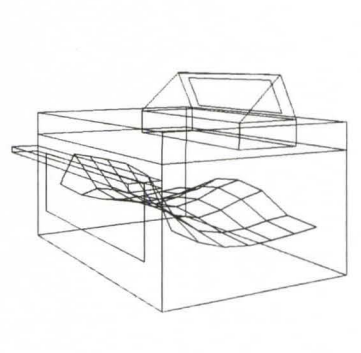
Circle 283 on reader service card



SKOK Systems

The Artech 220GP Designstation is the top of the line of a broad range of CAD solutions offered by SKOK for architects, engineers, and facility managers.

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Solarsoft

Recent programs include SUNPAS 4.0, a menu-driven program that calculates heating and cooling loads; and DAYLITE 1.0 daylighting design tool for analyzing natural illumination for a variety of roof and wall aperture types.

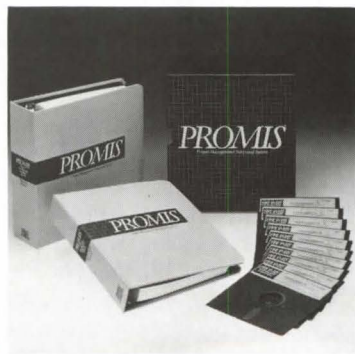
Circle 285 on reader service card



J.S. Staedtler

MARS Plot range plotter accessories for computer-aided drafting include ballwriter, fibertip, and pressurized ballpoint cartridges. Pen assembly holders adapt drafting points to fit most plotters.

Circle 286 on reader service card



Strategic Software Planning

PROMIS, a microcomputer-based project management software system, handles planning, tracking, resource management, and cost control functions. It is designed for IBM PC/XT, AT, and compatibles.

Circle 500 on reader service card

Micro-Installations

MiCAD/CRM is a complete turnkey 2-D/3-D CAD and Facilities Management system with a base price under \$20,000 including installation and training.

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Micro Mode

In three days or less we convert your accounting data to your in-house computer. Proven Project Management/Accounting Software has over 320 A/E user firms throughout the U.S. and Canada.

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Posthauer/Pinckert

A brokerage firm specializing in CAD equipment, we buy, sell, broker, rent, and lease CAD systems, workstations, and plotters.

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Primavera Systems

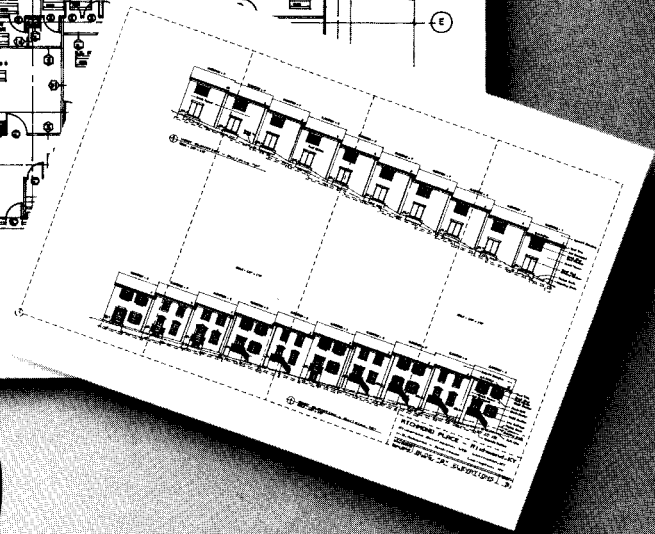
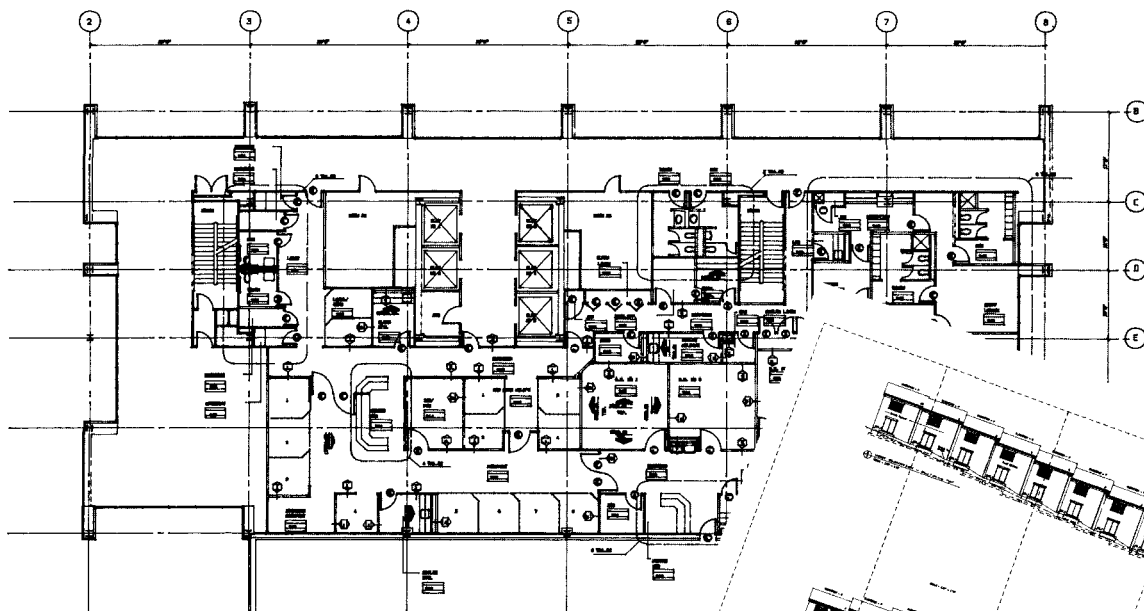
Primavera Project Planner controls project schedules, costs, and resources in an integrated data base. Customized tabular and graphic reports for projects of up to 10,000 activities.

Circle 504 on reader service card

SofTrak Systems

Project management software will include: MicroTrak, which automates scheduling and facilitates schedule updating; PlotTrak network plotting module, which uses MicroTrak-generated schedules to format and produce time-scaled precedence network diagrams.

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*Affordable CAD, by Oliver Witte, Architectural Technology, Fall, 1984.
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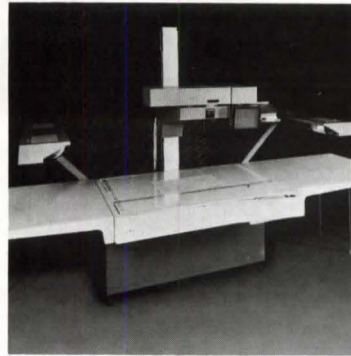
A/E Systems Products



Teledyne Rotolite

ML-54/40 Whiteprinter makes economical copies from computer-generated plots and manual drawings up to 54 inches wide by any length.

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Engineering Systems/3M

Prints from aperture cards created on the 2800 Processor Camera are folded, collated, and distributed, or duplicate aperture cards are created automatically via the Quantimatic Printer and 968 Card Duplicator.

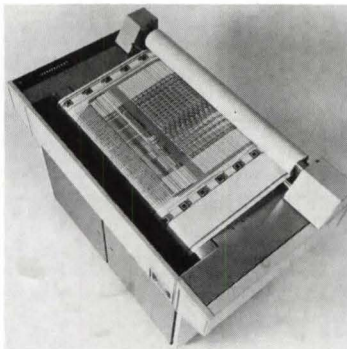
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Timberline Systems

AEPEX project management/accounting software package for small- to medium-sized architectural and engineering firms runs on IBM PC, PC XT, TI PC, and DEC Rainbow.

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Versatec

Stop by the Versatec booth and see the world's first electrostatic color plotter in operation. It produces floor plans, architectural drawings, and engineering output in full color.

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Southwest Analytical Systems

Software for DEC VAX and IBM-PCXT systems, with emphasis on critical path job scheduling (SPMCS), earthwork (SASI-VOL'Q), and coordinate geometry (SASI-COGO)—including plotter output capabilities.

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Sys Comp

A complete library of FEA, CAD, Civil and Structural applications on personal computers including a complete integrated COGO, Earthwork DTM, and Contour CADD System.

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Ultraprint

UL35 synthetic drafting media, manufactured by Kimberly-Clark, is smooth like vellum but stable like polyester and is an ideal low-cost CAD plotter material.

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Van Nostrand Reinhold

Publisher of professional books on Architecture, Construction, and Engineering, featuring books on management and computer applications.

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Vector Automation

A family of CAD/CAM products will be presented, which utilize our 4096 x 4096 resolution display and Vector's powerful 2-D and 3-D design software package.

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Yeakel Electronic Software

Architectural/Engineering project control, billing/accounts receivable system integrated with payroll, accounts payable, general ledger, and manpower utilization using IBM PC through System 36.

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June 3-7, 1985

Location

Convention Center
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Exhibits

Free for preregistrants prior to May 20; \$20 at the door. Exhibits are open from Tuesday, June 4 through Friday, June 7. No one under 21 admitted.

Conference/Seminar Programs

\$95 to \$195 depending on the program. Conference program runs from Monday, June 3 through Friday, June 7.

To receive complete registration information.

Write to A/E SYSTEMS '85, P.O. Box 11318, Newington, CT 06111 or call (203) 666-6097.

Registration at the door is fine.

Cash, check or Master Card/VISA accepted. Registration opens 8:00 AM Monday, June 3.

PIONEERS OF CAD IN ARCHITECTURE

Edited by Alfred M. Kemper

Those who came forward and submitted the material contained in this book need to be commended for putting aside concerns about publicizing proprietary information, a frequent problem with the development of CAD, and for being willing to contribute facts and ideas from which the field of architectural design as a whole can benefit. The evidence that the architectural profession is learning what it needs and what to demand are contained in this book.... The meeting of minds, then, has to be the most significant sign of the current state of CAAD and the most significant contribution of this book.

Dr. Chris I. Yessios, Ohio State University

How many pioneers? Two, four, six? No, you'll find here reports, pictures, drawings, descriptions, applications, comments and advice from over 60 practicing American firms, 12 architectural schools and various special contributors. You'll find over 650 pages in this volume. You'll find the experiences of these pioneers most professionally documented and profusely illustrated, by CAD of course.

E. Forrest, Editor, A-E-C-Automation Newsletter

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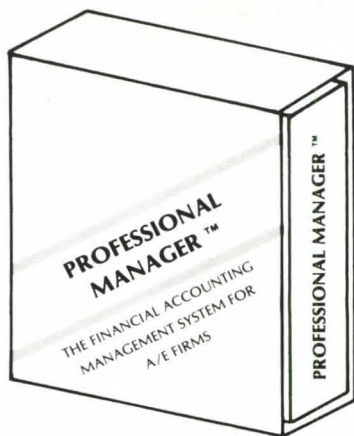
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*James W. Rivers, Vice President
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"We've been implementing a Du Pont overlay drafting program for large and small projects for six years," says Mr. Rivers, "and we estimate a 30% savings in drafting time as a result. We also save time on corrections because we don't have to redraw floor plans every time there's a change.

"A case in point is our work on Place St. Charles, one of New Orleans' newest buildings. Du Pont showed us how to effectively increase productivity in the architectural planning for this 53-story building.

"Having drawn floor plans, we supply pin-registered bases to each engineering discipline. This speeds development of preliminary and final plans by all consultants, reduces errors and makes it easier to coordinate efforts among disciplines.

"And because we also save time on corrections, and reduce repetition, we gain more creative design time."

Overlay drafting is a cost-effective way to make high-quality drawings. And it's a major step toward implementing computer-aided design. Perhaps it's time you found out how high the rise in productivity can be at your firm.

Return the coupon below for more information on how a Systems Drafting approach can work for you.

Note: Place St. Charles is a joint venture of Mathes, Bergman & Associates, Inc. and Moriyama & Teshima Planners, Ltd.

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DO ARCHITECTS WANT TO MAKE A PROFIT?

At a recent conference, Michael Hough, publisher of Professional Services Management Journal, stated that most architects don't want to make a profit. It was indicated that most design professionals, especially architects, don't feel comfortable with the idea, feel that it is unprofessional, and maybe unethical. If you have the same beliefs, then you might feel that CAD is not for you.

However, consider the impact that CAD productivity can bring to the most important aspect of your practice — design quality. As you know, the quality of your design is primarily limited by the number of design alternatives explored within a given time frame. With CAD you can leverage your efforts from design development through construction documents while greatly reducing tedious drafting tasks, so that your projects can move to a higher level of design quality ... and possibly more profits!

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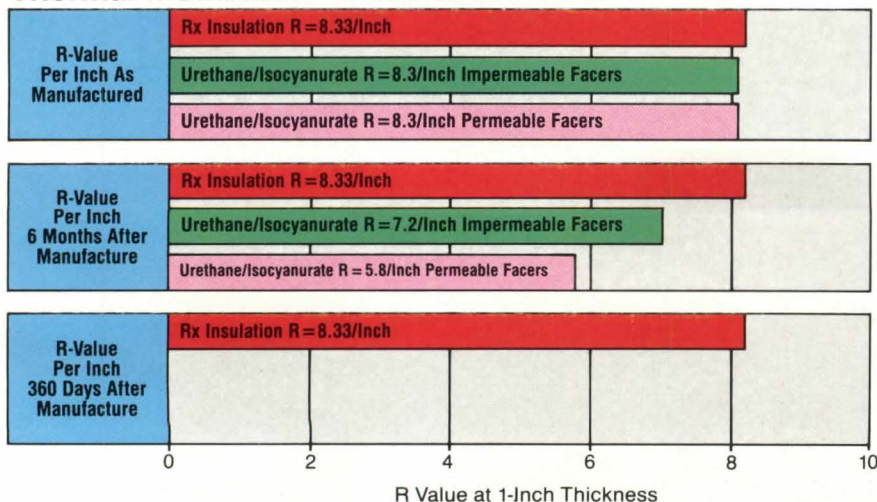
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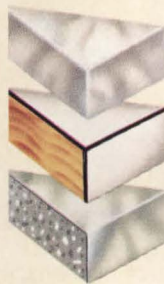
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Fireman's Fund Employers Insurance Company, De Pere, WI, shows how CORIAN custom-fits a wide variety of creative designs. Champ Parish Raasch & Associates, architects.



CORIAN is solid. Its color and pattern go all the way through.

Laminates (with or without black edges) must be glued to a substrate.

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CORIAN solidity and impermeable seams allow for maximum hygiene at Guy's Dental School, London. Derrick Graham, architect.

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Because of its beauty and toughness, CORIAN was used for these stylish counters in an El Paso, Texas, bank.



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In Seattle, Waterfront Place is a showcase of design and urban development.

And Pella Windows.

Waterfront Place is a six-block development on the shores of Puget Sound.

On the hills above it, the tallest skyscrapers in the West lurk in the misty Seattle air. At its watery front step, ships bound for and from foreign ports pass in a constant procession. Commuters and tourists come and go by ferry.

And on some days you can even see majestic Mt. Rainier.

On any day, however, it's a bustling center of activity where old buildings mingle with new. And where offices and commercial space mix comfortably with residential units ranging from artist lofts to lofty luxury condos. It's a living and working place that attracts people 24 hours a day.

It wasn't always so.

Cornerstone Development Company President, Paul Schell, and a team of talented architects have turned a shabby part of Seattle's important waterfront district into an energetic urban neighborhood.

The project, one of the largest privately financed urban developments in the country, has turned out to be a showcase of thoughtful and sensitive design.

It's also turned out to be a showcase for a lot of Pella products.

At the National Building, a five-story 1890s warehouse, architects Hewitt, Daley & Isley kept the best of the old and added new materials with a deft touch.

Outside, the brick was scrubbed up, an ornate metal cornice restored, and old windows replaced with new Pella Awning and Fixed Windows.

And in what seems to be the Seattle style, the Pella Clad sash and frame are different colors – the former tan, the latter blue. Inside, the wood of Pella glows like the original massive wood columns, beams and ceilings.

By using the Pella subframe system for replacement, the owners were able to keep some of the existing window structure, complete the installation entirely from inside, and save a considerable sum of money.

Next door, the Waterfront Place One building, designed by The Bumgardner Architects, relates in scale and shape to the National and other typical warehouse buildings along the waterfront. The street level has shops and services, and floors up to 10 have commercial space. The top three are an urban residential dreamland of stunning luxury condos that are entered through a secluded rooftop garden.

As the building rises, the materials, colors, and setbacks signal changes in function.

Echoing these changes are the white Pella Clad Windows and Doors. Commercial spaces feature Pella Pivot Windows. The condos include nearly the entire Pella line from the Contemporary French Sliding Glass Door to Sunrooms that wrap around corners.

Here, as elsewhere in the project, the outstanding sound attenuation of Pella, STC 34 for the Pella Double Glass Insulation System, helps stop the noise from a nearby freeway, a

benefit to both office workers and residents.

Across the street, Watermark Tower, also by The Bumgardner Architects, leaves its mark on the Seattle skyline.

The first five floors are squarish and reflect the general shape of adjacent commercial buildings. But above that the building segues into a residential tower twenty stories high. It culminates in layer after layer of exuberant setbacks, balconies, chamfered corners and zigzag edges.

From any side it offers a lofty vantage point to view either a dazzling nighttime cityscape or a fiery sunset over the Sound.

But included with the view are the not-so-infrequent winds and rains – sometimes almost hurricane force. That's why the code required a window and door product that could withstand pressures of 80 psf and driving rains. Here Pella is capable of meeting tough conditions without looking sterile and industrial.

The diversity between these projects is part of what gives this area its rich urban texture. But what is so special about Waterfront Place are its unifying elements – superb design and a quest for quality. The result is a special sense of place, and proof that upscale can be human scale.

As important as the product is Pella Technical Service. Evaluating and selecting windows requires useable and objective information. Pella has it. And on every aspect of Pella for commercial installations in both new construction and window replacement. At Waterfront Place, Pella professional services played an important role in the design and construction process, allowing the designers to focus their attention on other details. Plus, backing your Pella distributor is the Pella Commercial Division which offers considerable engineering and architectural expertise to the building professional.

For more information, contact your nearest Pella distributor. Look for Pella in Sweet's General Building File, or call Sweet's BUYLINE. You'll find Pella listed in the Yellow Pages under "Windows", or simply return the coupon below.

- ☐ Please send me the latest information on Pella for commercial installations.
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Pella. The significant difference in windows.

Circle No. 406 on Reader Service Card

Architects have become involved with computers in a variety of ways—with important implications.

It has been said that with the computer, the numbers of architects needed will diminish drastically.

It has been said that with the computer, the small office will entirely disappear.

It has been said that building design will be taken more and more out of the hands of even medium-sized architectural design firms, to be executed only by large A/E companies that alone can afford very large computer systems.

Are we facing a crisis in the profession?

There is little doubt that a modern world without architects—or with lame-duck architects—would be a grim place. Architecture is the profession whose training encourages the student's social conscience and cultural and historical understanding to bloom, to take physical form, and to make an imprint on this earth, affecting everyone.

The computer itself will guarantee neither the salvation nor the destruction of the special role that architects have played in forming our civilization. Curiously, however, the machine can be used to hasten the passage towards either destination. On the one hand, there is a harmonious fit between architects and computers: both excel in finding simultaneous solutions to problems at several scales. On the other hand, if architects abdicate all but a cosmetic role; if they hide their heads in the sand regarding expert systems of all kinds; if they play the befuddled artist, eschewing business wisdom; and if they neglect to harness technology to assist them in their work and to free them to develop more humane and beautiful products; then indeed they will become inconsequential. There will always be room for the handcrafted object, but if the norm is technically sophisticated buildings, let architects be prepared to direct the process.

In P/A's first computer issue (May 1984),

we were determined to shatter the stereotyped image of computer output as "boring" and predictable, and concentrated on the computer as a design tool. This year, we compare the current situation with the predictions of doom reported in the first paragraph above, and have examined the range of ways in which architects use the computer—architects who not only learned to live with it, but benefit from it.

We found small firms that have flourished and have become more able to compete with the larger firms as a result of their new tool. We found medium-sized firms which, rather than reduce their numbers, increased the services they offer. We found firms that have expanded the limits of their design efforts because of the computer. We found architects forgetting their rivalry and sharing their knowledge. We found architects networking with other professionals to extend their field of practice. We found architects who have left the traditional profession and joined the computer industry, as their way to make a significant contribution to the field of architecture.

We looked into various ways universities are training architects for a world with computers. We asked the CAD vendors how they are meeting the needs of the changing profession. And we include, for your reference, a directory of useful books, periodicals, and conferences.

In every case, "imagination" meant more than designing a pretty façade. It meant pushing languages further, to create more subtleties as well as more standards to improve communication. It meant keeping one's financial house in shape, the better to accomplish one's goals. It meant examining the realities and resources of the contemporary world, and dealing with them in an enlightened way. *Susan Doubilet, Thomas Fisher* ■



The Traditional Office is Transformed

*Architects with computers
either broaden the range
of services they offer, or
deepen their investigation
of solutions in one area.*

Architects whose traditional practices have been transformed by the computer have been interviewed to see how their problem-solving skills have been applied to a variety of disciplines, some not usually associated with architects. Facilities management has turned a large profit for a small firm and helped balance the traditional side of the practice. Computerized methods have rendered a moderate-sized firm influential nationwide in hospital design. One large firm has become very efficient in production drawings, another has developed custom software for the design of complex structures, while a third is marketing its own software. Nevertheless, there is no fast buck solution for everyone. Facilities management is profitable, but requires specialized experience, not just an off-the-counter package. And software marketing has its own concomitant requirements—of transferability, broad market suitability, service, maintenance, and updating. *Susan Doubilet*



HOK

Over the past four years, Hellmuth, Obata & Kassabaum (HOK) of St. Louis has created its own CAD software using Digital Equipment Corporation (DEC) VAX/VMS computers and a relational database management system (INGRES) from Relational Technology, Inc. Since its first application—working drawings for the nearly completed Edison Brothers headquarters in St. Louis—the HOK system has been used on 150 projects within the firm's five offices. Last January, the firm decided to sell and service its system to other architectural firms through the HOK Computer Service Corporation (HOK/CSC).

Key to the potential success of HOK/CSC is its President, Charles Atwood, and its Vice President and Director of Product Development, Nathan Huebner. Since 1981, they have developed HOK's system from prior experience in architectural CAD, including work for SOM. In the following interview conducted by Deborah Dietsch, Atwood, Huebner and HOK Vice Chairman Jerome Sincoff discuss CAD within HOK, the firm's decision to market its system, and its ability to service it.

DD: What made you decide to market your CAD system to other firms?

Sincoff: It wasn't until last year that we started to think about it. By that time, we had used it successfully in our St. Louis, New York, Dallas, Washington, D.C., and San Francisco offices. As an architectural firm with a wide range of experience, we thought we could make a strong case for other firms to use it.

DD: How is the new CSC structured?

Atwood: From a financial and legal perspective, we are completely separate from HOK. We license software to them; they own their machines and are treated like any other client.

Huebner: We have grown from 4 to nearly 30 people in software and hardware develop-

ment, educational services, and regional marketing. Over \$2.5 million has been invested in our system.

DD: Why did you think other architectural firms would be interested in your software?

Sincoff: Our system is designed by architects for architects. It is an integrated system that can be used for a wide range of applications, from schematics to the bidding process.

Huebner: I don't think that there's any one thing that our system does that the rest of them don't do. I think it's a well thought-out collection of the better features of a lot of other CAD systems. It probably has the strongest command language interface available with alternative definitions for components. If you draw a chair, for instance, you get a plan and a 3-D object. We have generators for walls, contours for land planning, and other features architects need.

Atwood: Its major strength is its 3-dimensional capabilities.

Sincoff: The most compelling argument to use our software is that we've tested it here and it works.

DD: Have you tested it outside the firm?

Atwood: No, but we tested in our five branch offices, which gave us the experience of trying to support our system from a distance.

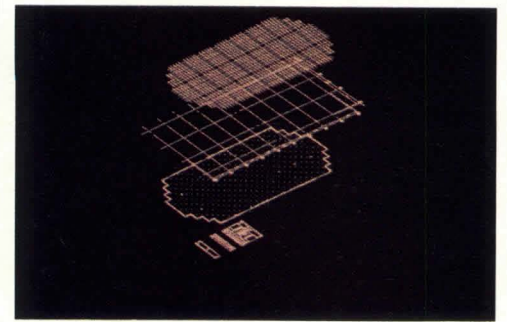
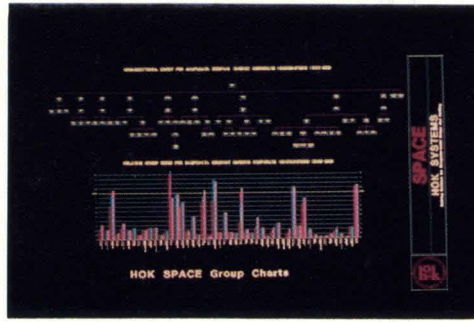
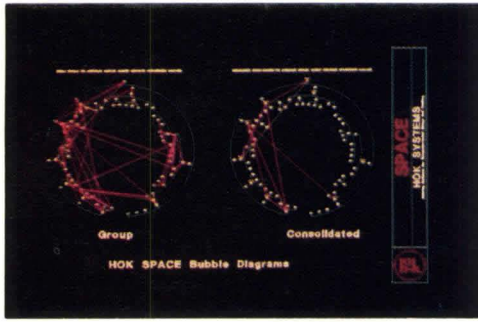
DD: Who is a potential user of your system?

Atwood: I see it being used by medium (50–100 people) and large firms. I think the only firms that wouldn't buy our software are those that have developed their own.

DD: By marketing your software, don't you feel that you're giving the competition an edge? How do you dispel the idea that by using your software, the resulting designs will look like HOK's?

Huebner: It's pretty generic software; it doesn't design like Gyo Obata. Because we've used and developed it for three years, we are ahead of firms trying it out for the first time.

DD: As a CAD vendor, how is CSC going to



service a system, train users, and update software?

Atwood: As architects, we are used to being in the service business. Our field service for hardware comes from DEC. We'll enhance our mature products such as HOK Draw and

'There's a question as to whether architecture will eventually become a part of facility management . . .'

HOK Space once a year with updates and newer products more often. HOK has developed enhancements all along from recommendations by a users group representing all the firm's disciplines.

DD: How much does the system cost?

Atwood: The basic cost of a system (\$35-62,000 per workstation) includes software, hardware, and customer support over the phone. We've structured the cost of training as additional so that a person who needs only two days of training isn't charged the same amount as the person who needs two weeks. With the release of the new MicroVAX this spring, we'll be able to drive our prices down below \$30,000.

DD: What types of application software are you marketing?

Sincoff: We committed ourselves to design software to encompass the entire design process. HOK Draw, our 3-D graphics software, and HOK Space, our software for programming, form the basis of our thinking.

Atwood: We're working on 20 systems in varying levels of detail. One of the major deci-

sions last year was to develop our facility management applications.

Huebner: Currently, we are marketing HOK Draw, HOK Space, Plot, Database (report format), and Invest (lease analysis). By the end of the year, we will offer six more systems, from stacking and blocking to an interface between HOK Draw and other CAD software.

DD: How has CAD changed HOK?

Sincoff: There's much more communication and coordination between disciplines that promote a real team spirit.

Atwood: The quality of drawings and level of detail have changed. The computer is a limited resource, so in the St. Louis office, we are working two six-hour shifts.

Huebner: One of the complaints from designers is that the system isn't fast enough. For production, it's a cost and quality control.

DD: How do you think traditional vendors will react to architect-defined software such as yours?

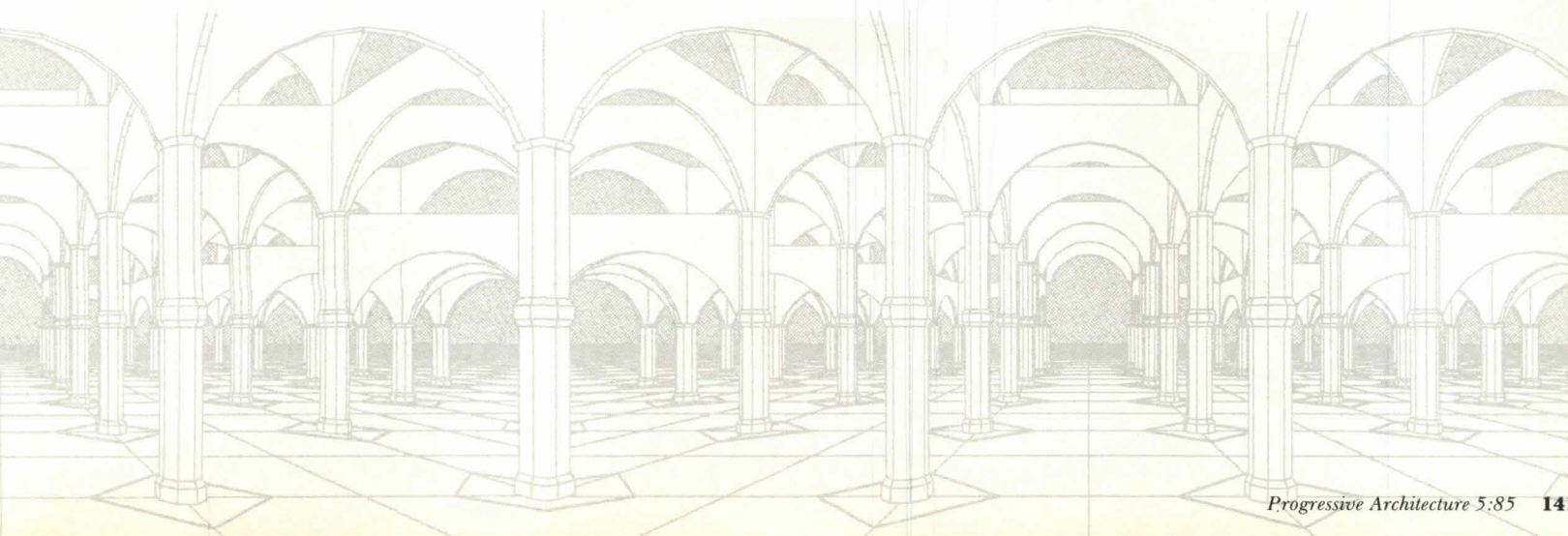
Atwood: Software firms are doing well, but the large vendors aren't. One factor is the personal computer: It's cheap, and architects already have it for accounting and specs. The hottest seller right now is Autocad that runs on the IBM-PC. But, of course, unlike HOK's 3-D capabilities, it's fairly unsophisticated.

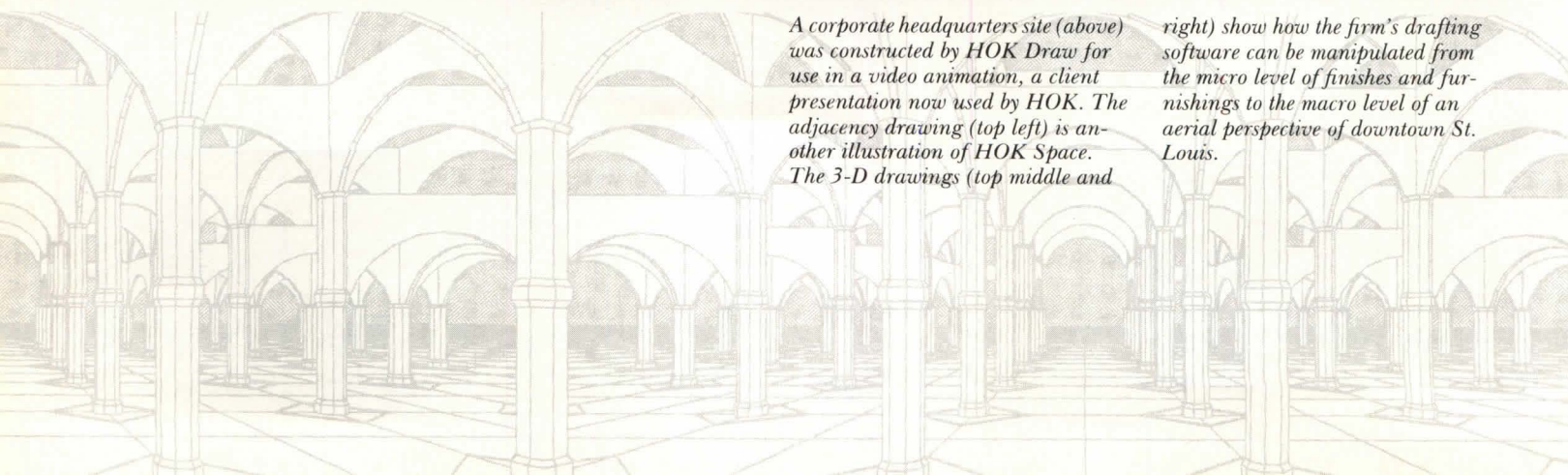
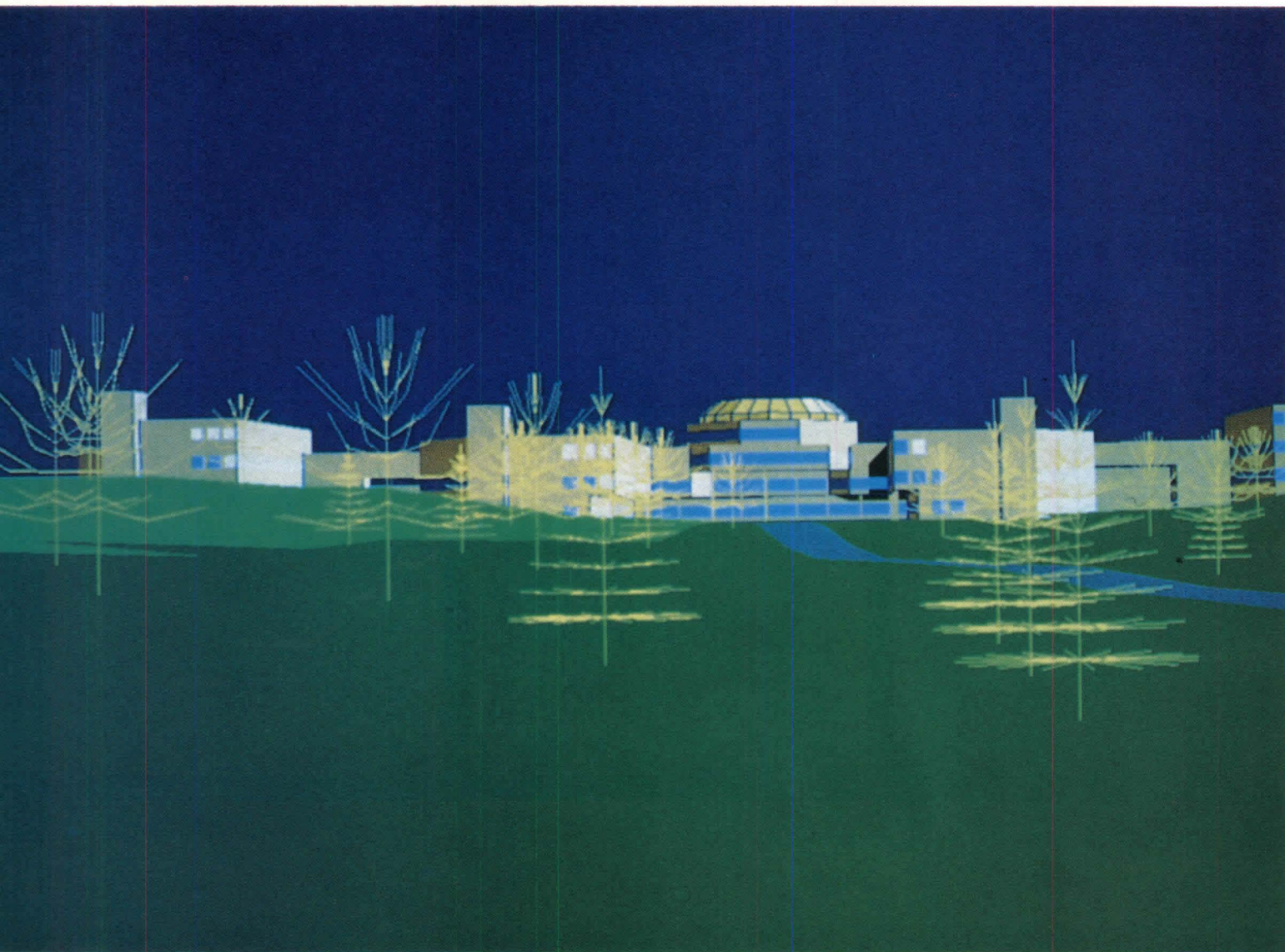
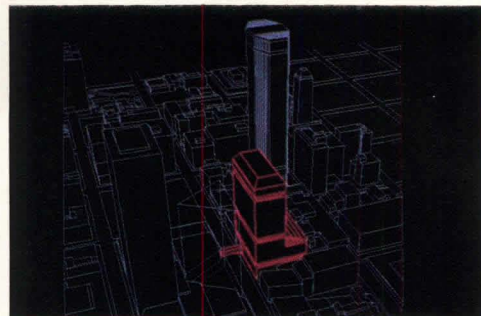
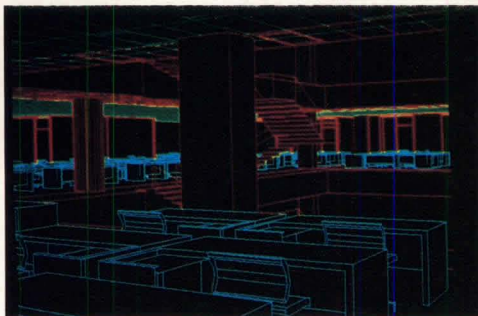
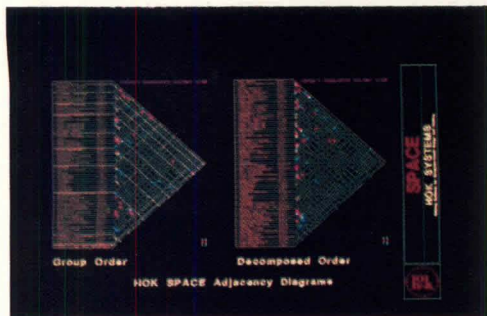
DD: How is CAD changing the architectural profession?

Atwood: There's a question as to whether architecture will eventually become a part of facility management as a design service within the life-cycle of a building. As a reflection of this trend, HOK's work these days is less than 50 percent architecture and more concentrated on related disciplines. Architectural firms are going to have to become more diversified and the computer is helping them to do that. ■

Deborah Dietsch is a freelance journalist in New York City who writes for design publications.

Perspective views (facing page and below) of an unbuilt mosque interior in Saudi Arabia demonstrate the 3-D capabilities of HOK Draw. The diagram (above) illustrates the multiple layers in which data—structural, mechanical, interior design, etc.—is stored. The charts (above left and middle) are developed on the HOK Space program, which forms the basis of the firm's facilities management software package: Using information from a client's present and future business operations, it formulates space layouts and forecasts costs.





A corporate headquarters site (above) was constructed by HOK Draw for use in a video animation, a client presentation now used by HOK. The adjacency drawing (top left) is another illustration of HOK Space. The 3-D drawings (top middle and

right) show how the firm's drafting software can be manipulated from the micro level of finishes and furnishings to the macro level of an aerial perspective of downtown St. Louis.

The Stewart Design Group

Clifford Stewart, President of The Stewart Design Group, has had a long history of innovative and practical experience with CAD.

SD: I understand your architecture office is associated with American Medical International of Beverly Hills, California.

Stewart: Yes. The Stewart Design Group has been a wholly owned subsidiary of the investor-owned hospital corporation AMI since 1978. We develop prototype standards and a planning manual for each new type of hospital in which AMI becomes involved, design the first couple of examples of each type, and then review all the work done for AMI by other architects, based on our manuals. We also provide nonconflicting architectural services for other clients.

'The wheel need not be reinvented.'

SD: How has the computer helped you?

Stewart: First, AMI was interested in our office in part because of our computer expertise, which dated from the mid-1960s, as well as our hospital design experience. But most important, the computer—we now have the Graphic Horizons system—helps us in every phase of hospital design, from site planning, to space programming, to final design and production. Components we develop for one project can be stored for consideration in later projects.

SD: Is there the danger of homogeneity?

Stewart: No, because we are constantly questioning conventional wisdom. In some jobs we set up a computer at the site, and certain doctors and staff actually participate in the planning of their departments.

SD: What about interaction between other involved parties?

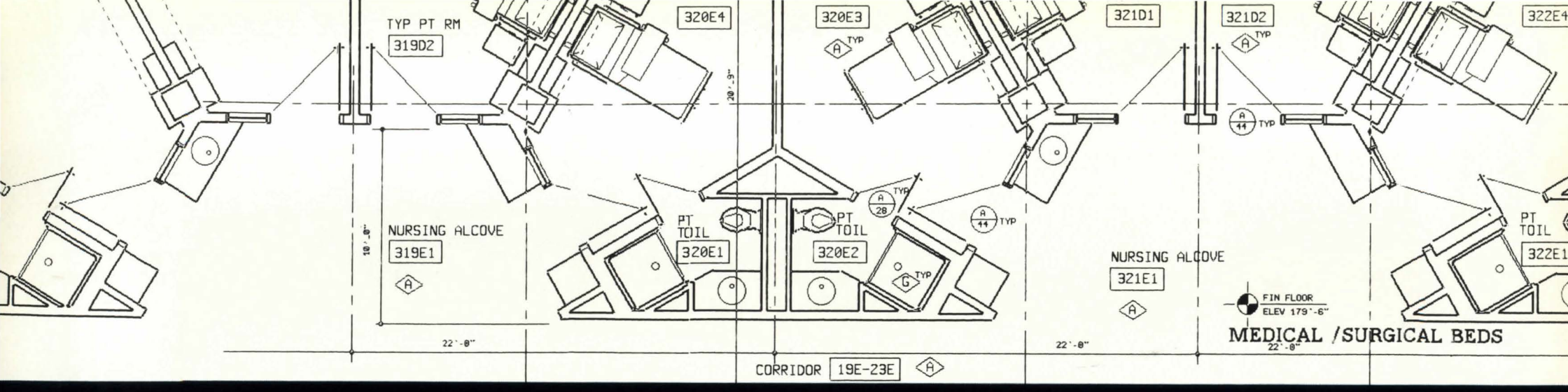
Stewart: The possibilities keep increasing: We have had direct communication with as-

sociated architects in other cities, and even more unusual is an association we may form with the Bank Building Corporation to design a magnetic imaging center in Atlanta. They have experience building branches (usually for banking, this time for medical care) and we have experience with the inner workings of a medical plant.

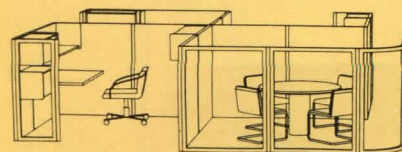
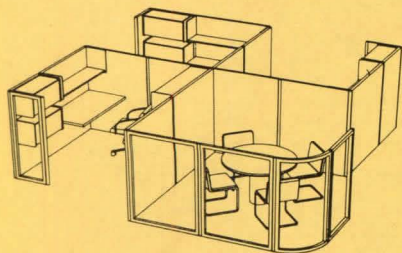
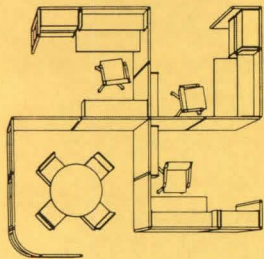
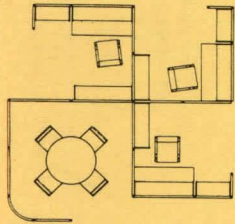
SD: You have mentioned that your computer experience dates back about 20 years.

Stewart: I was a partner in the Boston architecture firm Perry Dean & Stewart, and we designed a number of hospitals, schools, and university buildings. We often had to do or redo master plans, a time-consuming and error-prone activity, and we decided to harness the number-crunching computer at the Harvard Smithsonian Institution. By this time, Ivan Sutherland had succeeded in doing drawings on MIT's computer, and Digital Equipment Corporation brought out a new machine, the PDP15, aimed at graphics. So we acquired the machine for \$120,000 and Eric Teicholz (p. 155) was enlisted to head up a team to develop a system. The system was used by Perry Dean & Stewart, who received a number of U.S. Army commissions because of it, and it was also available to other purchasers. The Veterans Administration bought one, one was sold in England, in Switzerland, and in Australia, but at \$200,000 it was too expensive, too early, to interest architects. In 1974 I left the firm and, as the only interested partner, took the computers, but at that time I realized that a new generation of hardware and a new approach to software was on its way, and waited to update my system. In 1981, I served as consultant for the new computer firm Graphic Horizons. And that brings us to our setup today, with eight systems in-house, three at remote locations: at \$60,000 apiece, we have a very affordable situation. ■

In designing a hospital (a part of a computer-produced drawing is shown at right), the computer assists in all phases. Space programming, a formidable job when done manually, can incorporate weighted relationships between spaces and departments. Individual spaces can be designed, assembled, and a number of design alternatives studied. Rooms, from operating rooms to janitors' closets, are stored, with their necessary equipment and dimensions, in a database for future use, so that, as Stewart says, "the wheel need not be reinvented each time."



The Ryan Group



Over the course of eight years, architect Ronald Ryan of Red Bank, N.J., has built up a diversified practice with divisions in interior design, facilities planning and management, computer services, and architecture. A year and a half ago, Dr. Jeffrey Harkness joined The Ryan Group to head up its Software Development Corporation. More recently, Ryan brought a 25-year-old architectural firm—Leo Kornblath Associates of New York—into the fold. The latest addition to TRG's stable is a limousine service that makes profitable runs to Atlantic City when not shuttling from Red Bank to satellite offices in New York.

Ryan: We first got into CAD in 1982 while doing facilities planning for Merrill Lynch. We discovered very quickly that there was very little software available in facilities management, and absolutely nothing written that worked on our system (PRIME). We saw a market out there that was totally untapped, and we were lucky enough to have a client like Merrill Lynch that gave us the opportunity to test our programs in the field. Every drawing we've done for Merrill is on the system and can be accessible at any time. We don't take things off and archive them. We are also doing some very innovative things in such areas as cable management. If that resource is not managed properly, you can't reuse it. When traders move—and they move often—they take equipment with them. The old "system" was simply to cut an unused cable and abandon it, then run another for the next guy. Eventually, a couple of years ago, all the risers at One Liberty Plaza had to be purged, which cost Merrill millions. The idea now is to manage up front, tracking every single cable in the building.

Our present contract with Merrill is broken up into three areas: facilities planning, communications, and building maintenance. Our services—providing as-built drawings,

the equipment, and all the resources including new programs—will cost them 60 cents per square foot per year. At the end of the three-year contract, they own the whole system. We've very conservatively estimated that without even trying to maximize the system, they'll save \$10 million a year in the management of their new headquarters at the World Financial Center in New York. By computerizing and handling building maintenance in-house, they can save \$4–6 million a year on a \$17 million budget.

DDB: Have you sold the software you've developed to other clients as well?

Ryan: We've marketed it to other corporate clients, yes. That angle of the business is only

'Computerized building maintenance will save Merrill Lynch \$4–6 million a year on a \$17 million budget.'

a year old. Of course, facilities management is only one part of our practice. Granted it's the most dynamic part. It's also enabled us to bring up the purely architectural end of the business. That is much harder to do because you're in a traditional market; you're up against the biggest firms in the state and the country. When clients ask us how many corporate headquarters we've done, we've had to say none; but now we can say we manage them and we know how they work. We'll design your corporate facility from the inside out, not from the outside in.

Harkness: Our software development arm is working on improving our facilities management package. We're also trying to develop a comprehensive building materials/pricing package for use by developers. ■

Ronald Ryan first got into computers out of frustration with traditional practice, and traditional architects. "You can't get good draftsmen these days," says he. "I had CAD capabilities (left, in a space-planning project for Merrill Lynch) before I had word processing." Dr. Harkness, head of TRG's Software Development Corporation, adds, "The point is to put intelligence into the drawing and maintain it."



Swanke Hayden Connell Architects

SHCA, New York, is known in the architectural CAD community for its very effective and imaginative use of computers, especially in its combination of a variety of systems for different processes, and its integrated use of reprographic techniques first implemented a number of years ago. To take advantage of the efficiency and profitability of facilities management on CAD, the architects have set up a new company called Monitor. Associate Bradley Meade discusses the firm's use of computers.

SD: How do you use your computers?

Meade: We have each machine do what it does best. We have 48 operators—almost all of them architects or designers—working in three shifts on 16 Calcomp computers, doing architectural and interior design and production drawings, as well as graphic work for midtown zoning. Two people alternate at our one Micad workstation, doing detailing and developing furniture standards. We have 150 full- and part-time people with access to our 60 Microdata stations to do programming, stacking and blocking diagrams, document retrieval, purchase orders, specifications, accounting, depreciation schedules, facilities management, and midtown zoning. Eight people do word processing at our eight NBI stations. We also have three reprographics centers in-house, run by outside vendors who are invited to bid for the contract on an updated system every 1½ years. We may become a Beta test site for laser plotters. Smaller systems are installed in our Washington and Chicago offices, and they communicate with the New York office via telephone lines. Five of our clients, such as American Express and Salomon Brothers, are planning to plug into the system.

SD: Where are the efficiencies significant?

Meade: The data from a client interview can be used directly in developing the architectural program by our own team, eliminating

the need for outside consultants. The very process that develops the program is almost simultaneously beginning to solve the design, and working drawings and details begin to be generated even as the design is being worked out. The process is not traditionally linear—stages overlap. Time is saved, and for our clients, time is money. Basic to the system are libraries of components, “intelligent” symbols copied to produce a space plan from which purchase orders (error free!) are generated directly. Even our details are organized as assemblages of storable components. Specifications are automated, so that we need only one spec writer. Implicit in the system, and the greatest source of saved time, is the lack of redrawing: Many of the drawing layers become fixed and are carried through the entire process.

SD: Is the system most efficient in one area?

Meade: Definitely. Our work is divided fairly evenly between architecture and interior design, but our computer work is far more efficient for interiors.

‘Shift work is mandatory . . . but management controls are crucial.’

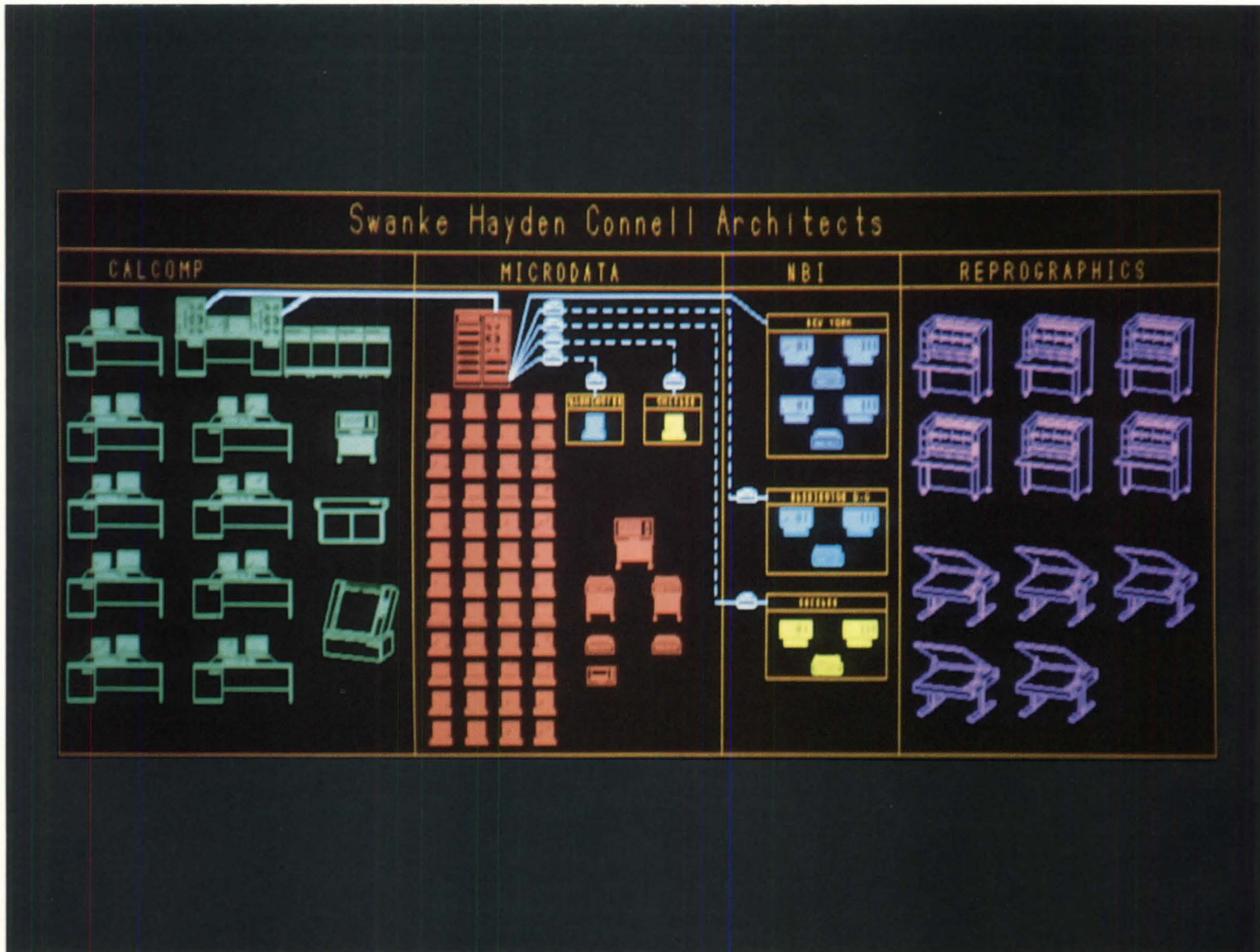
SD: Where are the bottlenecks in the system?

Meade: If client approval is needed to proceed from a completed stage to the next one, and it is 10 o'clock at night, the work flow is diverted. Shift work is mandatory if maximum efficiency is to be achieved, but management controls are crucial. The weekend shift is 30 hours long, and if three people are given the wrong information on Friday, three work-weeks would be wasted by Monday morning. ■

The bar at left, as well as that overleaf (p. 147), show layers of drawings executed on the computer. Because many layers become fixed, redrawing time is saved.

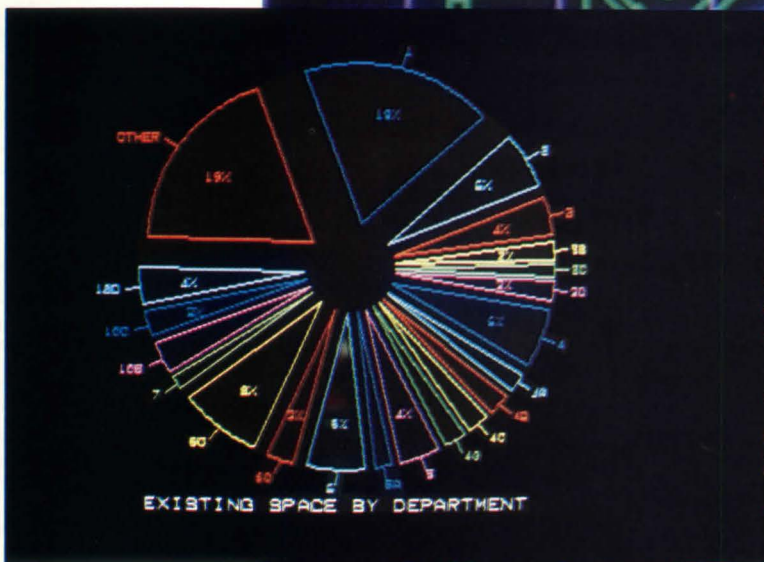
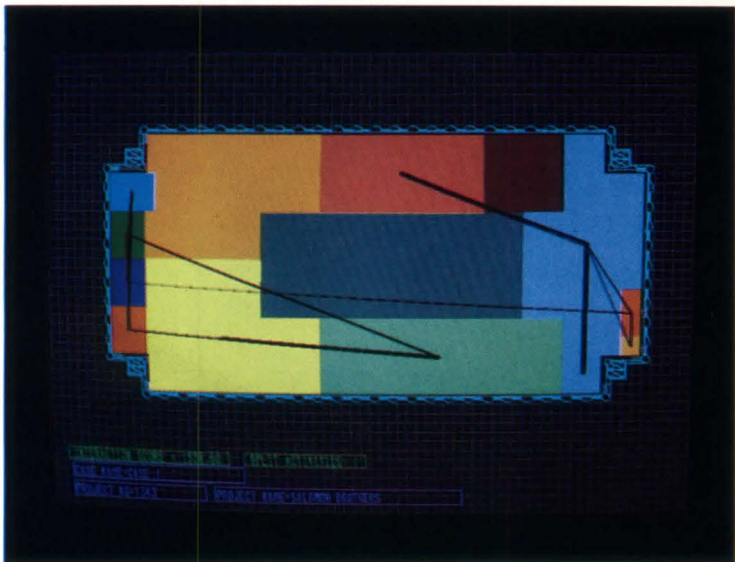
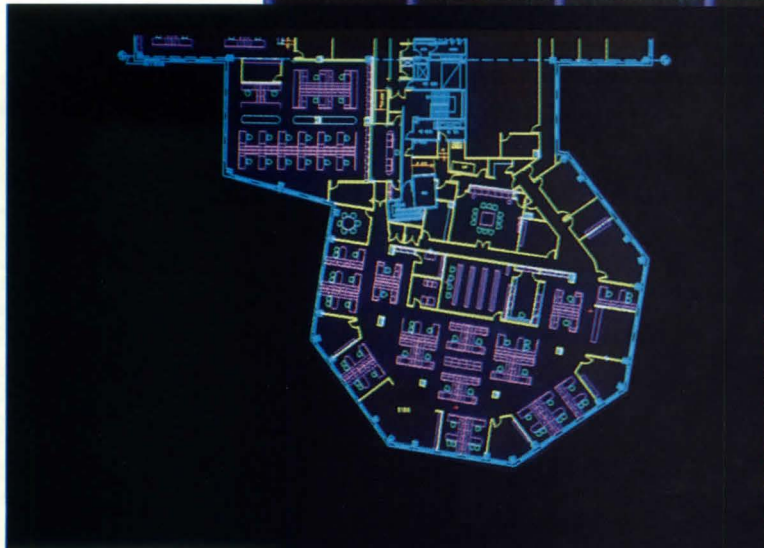
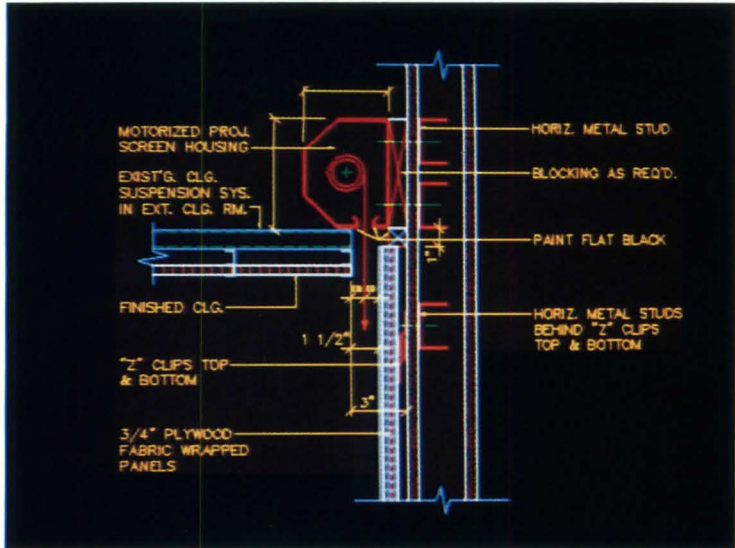
The diagram below sets out, in principle, the various systems used at SHCA. The firm now has: in New York, 16 Calcomp computers for architectural and interior design and production drawings, 60 Microdata stations for programming, stacking, and blocking diagrams, purchase orders, specs, accounting, facilities management, and other uses, one Micad workstation for detailing, eight NBI word processors, and three reprographic centers in-

house. The Washington and Chicago offices have smaller systems, tied by telephone lines.



Not illustrated here, but also developed at SHCA, are programs to handle Manhattan's midtown zoning code. The firm hired a mathematician to solve the otherwise extremely time-consuming problem of the allowable building boundary on any midtown

Manhattan site. As Principal John Barie explains, the firm is now trying to prove to the city that the computer documentation is sufficient, even without all the drawings normally required.



Shown above are some of the various drawings produced with the help of Swanke Hayden Connell's computers. Clockwise from the top left are: a wall section detail developed on the Micad (details are organized as assemblages of storable components); a furniture plan of offices in

a major building at the World Financial Center, produced on the Cal-comp; a space allocation chart produced on the Microdata; and a blocking diagram of a Seaport Plaza floor, also developed on the Microdata.

FTL/SOM

How has the computer changed the practice of engineering? What can engineers do now that they could not have done before? We asked those questions of two firms: Skidmore, Owings & Merrill and FTL Associates. Both, while very different in size and specialty, use the computer to design highly complex, indeterminate structures—some of them too difficult to model or calculate any other way. As shown in the following interviews with Todd Dalland, Ross Dalland, and Nicholas Goldsmith of FTL and Hal Iyengar, Mark Evans, Mark Anderson, Ray Clark, Doug Stoker, and Nick Weingarten of SOM, engineering with the computer will never be the same.

FTL Associates

TF: You are a small firm that specializes in the design of fabric structures. How do you use computers to design, and how does that differ from the way most firms use computers?

T. Dalland: Like most design consulting firms, our most powerful tools in the earliest stages of design are not computers, but rather tracing paper, physical models, and technical experience. Where we use the computer is in the design development and working drawing phases. We measure such things as the fabric surface curvature, the ridge and catenary radii, and the support point coordinates on the physical model and enter that data into the computer. What the computer does best is to optimize the design: finding the minimum surface, equalizing stresses, finding unbalanced loads, or calculating the worst loading situation on every support member. As we refine the design, we go back and forth between the physical model and the computer model a couple of times. It rarely requires more than that, since we can eliminate a lot of problems because of our

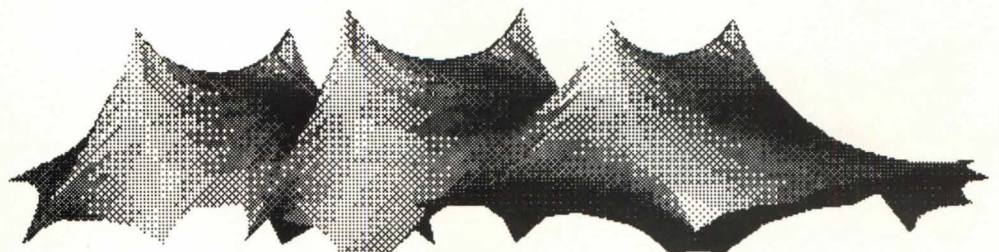
experience before we even get onto the computer.

Goldsmith: It would take an extremely sophisticated computer to match the ease with which we can sketch or build study models. However, design alternatives can be quickly reviewed on a graphics monitor. The computer and physical model are complementary tools and generate different information. The monitor and plotter provide two-dimensional descriptions, much like any drawing. The close alliance between engineering and architecture in the design fabric structures, though, does make the computer an ideal analytical tool.

T. Dalland: I don't think that we could design fabric structures economically without the computer. Prior to the Munich Olympics project, designers such as Frei Otto had to build large physical models and perform all of their calculations by hand. That process was simply too expensive for most projects. The computer has sped up the analysis of fabric structures, making their design more economical. It's important, however, that we be consulted early in the design process. Too often, architects involve us so late in their development that we have a difficult time, even with the computer, to realize both a high degree of design quality and building economy.

TF: How does your computer analysis work?

R. Dalland: Once we have entered the position of every lift and tack point from the physical model, the computer finds the optimum fabric curvature and analyzes the forces at each joint under different loading conditions: wind loads, snow loads, surface pressures. Once we've minimized the stresses and amount of material, we use the computer to calculate the best placement of seams, to dimension each fabric panel, and to draw the two-dimensional shape. We're also develop-





ing a library of cable, mast, and connection details for the computer.

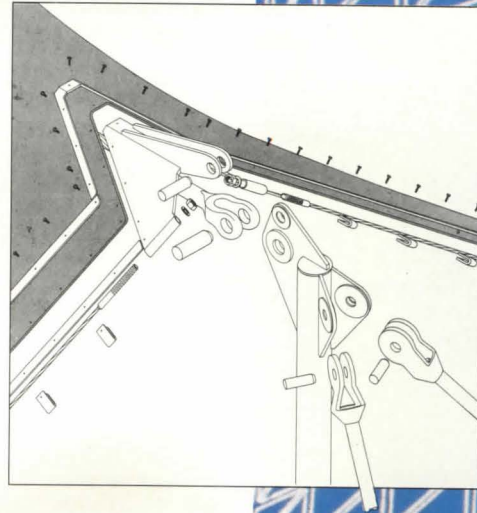
T. Dalland: Those panel drawings ultimately serve as shop drawings. The manufacturer

'The computer and physical model are complementary.'

will tell us the shrinkage factor for its particular fabric and the computer compensates for that shrinkage in the dimensioning of each panel. The fabricators then cut their fabric directly from those shop drawings, which is probably the closest any building-related industry has come to linking computer-aided design and computer-aided manufacturing. At some point in the future, we'll probably just exchange computer discs with manufacturers, and skip the step of printing the panel drawings altogether.

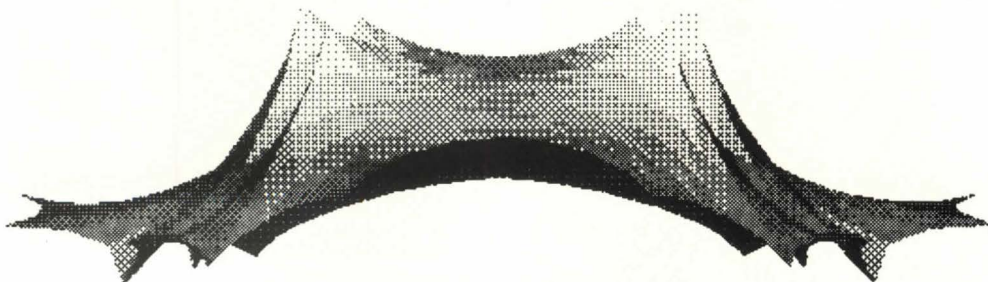
Goldsmith: The ease with which we can analyze and manipulate minimum surface structures on the computer forces us to question the long-held belief that organic building forms are irrational or intuitive—or that they come out of a hand-craft tradition. The computer shows that they can be rationally understood, that they have a definite formal order, and that they are easily translated into two-dimensional drawings. The computer not only makes the analysis of fabric structures easier. It changes how we conceive these structures.

T. Dalland: The computer is a great help wherever the building's structure is a driving force, as in high-rise buildings. But there is probably no other structure that has benefited as much from the computer as fabric structures. The computer has made them, for the first time, a viable option for ordinary buildings.



The border on these two pages is a detail of a triangulated fabric pattern generated on the computer. The optimization of fabric panels and shapes makes the computer an ideal tool in the design of fabric structures. The computer's translation of those optimized shapes and patterns into two-dimensional drawings for use in cutting the fabric also may make fabric structures one of the first building technologies to bridge the gap between computer-aided design and computer-aided manufacturing. Entering support and connection details (above) onto the computer is the next step toward that end.

The Florida National Pavilion (above left) is an outdoor concert facility in Jacksonville. The computer was used in shading studies (below) as well as in optimizing the fabric shape, analyzing hurricane-force wind loading, developing fabric patterns, and generating cutting patterns. Other issues, such as acoustics, lighting, and viewing angles, were more easily studied using physical models.



SOM/FTL

SOM

TF: How have computers affected your design and analysis, particularly of tall buildings?

Iyengar: In the 1960s, most engineers used only a few types of structural systems, applied over and over again in a cookbook approach. They depended upon judgment and experience to complement calculations done by hand.

With computers, we have been able to home in on the actual behavior of structures—on particular load flow mechanisms or system combinations—allowing us to look at buildings in new ways. For instance, we used to analyze tubular steel structures as a series of planes. Now we can do a three-dimensional analysis on the computer to see how the structure works as a unit. That not only lets us better understand the behavior of tube structures under various conditions, it lets us manipulate them, varying column spacings, clustering tubes, or changing the tubes' shapes. What the computer gives us is more freedom of thought and a greater flexibility in form-making.

The computer, of course, can give us too much freedom. One of the last papers Fazlur Khan delivered was on the rise and fall of structural logic. The computer is such a powerful tool that it can make us undisciplined by allowing us to make the most illogical structure work.

Evans: SOM's One Magnificent Mile project in Chicago is an example of a building that probably wouldn't have been done prior to the computer. It has clustered hexagonal tubes, a sheared-off top, skewed columns, and flat-slab construction. The behavior of a structure that irregular isn't accessible by any standard analytical methods. The use of the computer and finite element analysis let us know exactly how large to make each compo-

nent in the structure and exactly how each part would behave. What we could only have guessed at before, we now know for certain. That accuracy not only lets us design highly complex structures; it lets us design very efficient structures, without a lot of excess steel or concrete.

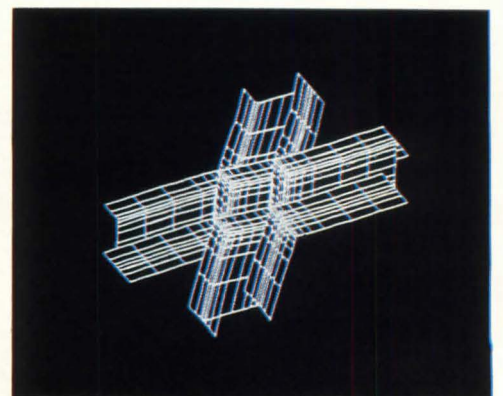
The computer also saves us a lot of time. We've developed software to do shear lag plots for buildings, for instance. It used to take us two days to do the necessary calculations; it now takes us two hours. Where the computer offers the most help is in the design of unusual shapes, tall structures, or buildings that must resist such things as earthquakes.

TF: Why don't you use computers for schematic design?

Iyengar: The computer has yet to replace the pencil and paper in the conceptualization of a design. It's not just that the available software isn't flexible enough. It's also that computer graphics terminals are simply not as convenient and as portable as a pencil and paper.

Where the computer has had an enormous impact on design is in the design development phase. It lets us analyze so many issues so rapidly that the architect can immediately see the effect a particular shape or orientation might have on, say, the building's structure, energy use, and wind loading. The computer thus allows engineering factors to be considered as an integral part of the design process, rather than after the fact. It also encourages the interaction of many more disciplines in the initial design of a building. That interaction at such an early stage among architects and engineers was never really possible before the computer.

Clark: In the mechanical and electrical disciplines, we've developed software that, given a particular schematic design, can calculate the required air volume at any diffuser and



automatically perform a pressure analysis, size the ducts, calculate the electrical power requirements, and select equipment from product files. The computer also lets us perform the normally time-consuming DOE 2 energy analysis so quickly that we do it routinely as just one more input in the design process.

Anticipating future needs becomes much easier with the computer as well. For example, we don't know what a typical office building's power needs will be in ten years. Some people think that it will double from three watts per square foot to six or eight watts. Others think that computers will eventually have battery power, greatly reducing our present power demand. With the computer, we can run projections to see what the design implications of both scenarios might be. We can then design the building to accommodate both options.

'What the computer gives us is more freedom of thought and a greater flexibility in form-making.'

The software that we've developed to date has focused on the separate needs of each discipline in the firms. What we're moving toward is a totally integrated database linking the various disciplines. We're also working on software that not only checks for interferences among the various systems in a building, but that automatically corrects the conflict, resizing a duct or moving a plumbing line, for example.

TF: Why does SOM write most of its own software and not market it?

Stoker: We write our own software because most of what's available on the market simply doesn't meet our needs. Many CAD vendors still think in terms of automated drafting.

Weingarten: It also lets us tailor the programs. Unlike the software available from most vendors, which is system pushed, our software is user pulled—responding to specific problems faced in specific projects. The software is better because of that.

Stoker: The reason why we don't sell our software is that we are an architectural firm, not a software house. The hard part in selling software is not in writing the programs but in providing their ongoing maintenance. An architectural firm just isn't set up to provide that kind of service.

TF: Would you recommend that other firms write their own software?

Stoker: No. If we were starting from scratch now, I don't think we'd do it. But SOM is big enough and has enough invested in custom software to justify our continuing.

You have to make a distinction between CAD and other types of computer uses. We use some of the commercially available spreadsheet programs for microcomputers. Those programs let you ask all kinds of "what if" questions crucial to running a firm. They're inexpensive and hard to improve upon.

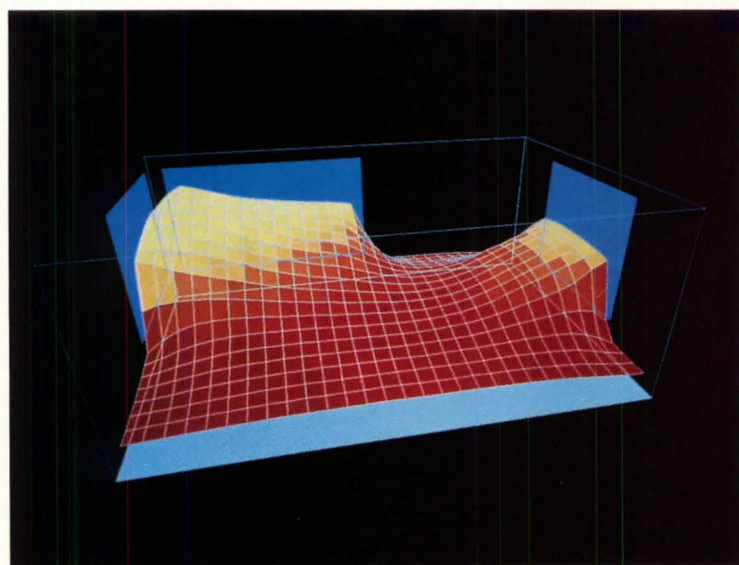
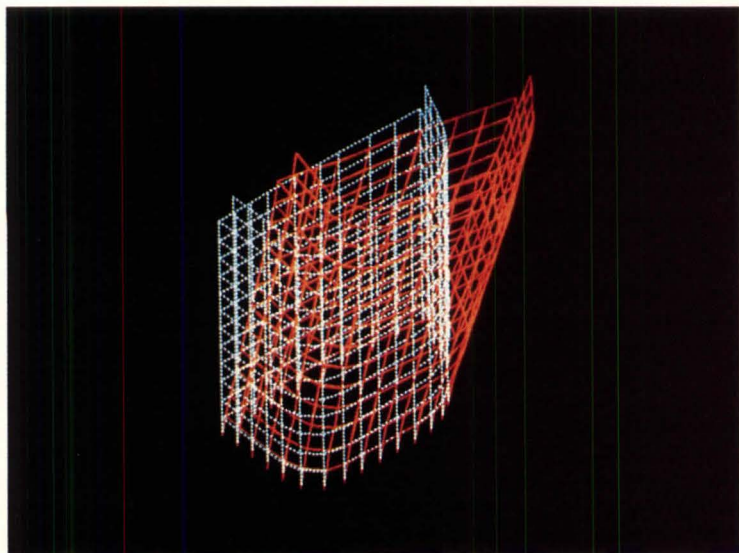
TF: What impact have computers had on the firm?

Stoker: Microcomputers have had the biggest impact on the management of the firm. The CAD system has not had much impact on the productivity of people; several studies have shown that you're lucky if you break even with a big CAD system or if you achieve an improvement in productivity. The real gain has been in improving our product and our services. That alone has made it worth the investment. ■

The computer-generated image along the edge of the page (opposite) is a diagram of stresses in the concrete slab at SOM's One Magnificent Mile. The building, a cluster of hexagonal structural tubes with columns skewed in plan, might not have taken that form prior to the computer, since it does not lend itself to any of the standard analysis methods.

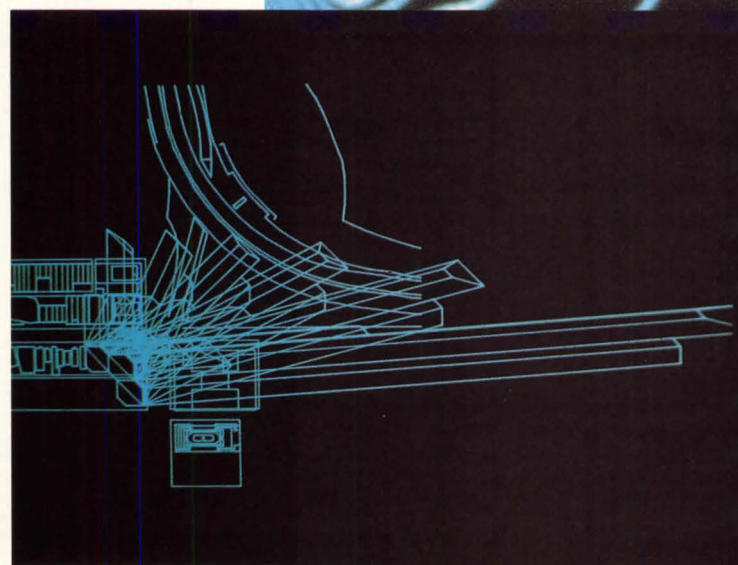
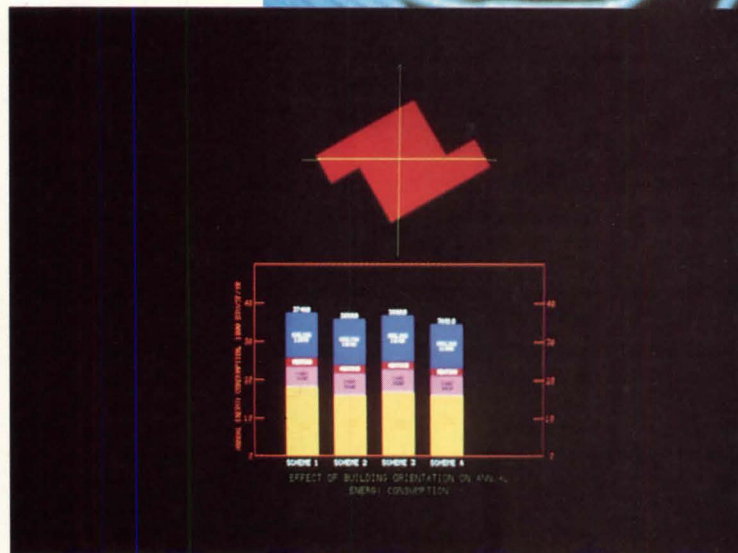
The beam and column connection (below) shows how the computer can focus on particular elements in a structure and illuminate the effect of different forces. Visualization with this degree of accuracy and speed is possible only with a computer.





These images indicate the range of capabilities of the software written by SOM. The firm's structural engineers can study the deflection of a structure three-dimensionally (top left) to see how it might behave in an earthquake, for example, and the mechanical engineers can rapidly estimate energy usage given the shape and orientation of a proposed building (top right). Those capabilities allow, to a degree never before possible, the input of engineering considerations in schematic design.

By storing and presenting information in three-dimensional form, the computer can give a much clearer picture of how a building behaves. The three-dimensional daylighting diagram (bottom left) is an example of that. The shadow projection from One Magnificent Mile (bottom right) was used to convince zoning officials that the building would not prevent the sun from reaching the nearby beach. The program that generated the shadows was written in one day for the zoning presentation, a responsiveness made possible by having programmers in-house.



New Careers

Computers offer new career paths for architecturally educated people. The design methods and problem-solving skills of the architect are directly applicable to the design of software.

With record numbers of architecture students in school (far more than the profession can absorb), with architects' compensation (and employees' salaries) among the lowest of all professions, and with architects (as opposed to engineers) receiving a declining percentage of all design fees, it's time to consider the alternatives to traditional practice. Computers offer some lucrative options.

These interviews are with architects, or people with architectural educations, who have pursued those options, becoming computer consultants, software designers, or principals of computer companies or service bureaus. They are all involved in architecture in some way: advising architects on system design, writing architecture-oriented software, even running a practice. More than that, their work reveals a certain architectural sensibility, be it in the way they think about the design of systems and software or in the way they define and solve computer problems.

What their example shows is that there are many applications of the architect's problem-solving skills and many outlets for the architect's creativity, beyond that of designing buildings. *Thomas Fisher* ■



FORMTEK

Charles Eastman, an architect who from 1967 to 1982 was Professor of Computer Science, Architecture, and Urban Affairs and Director of the CAD Graphics Lab at Carnegie-Mellon University, set up his own computer company, Formative Technologies, Inc. (FORMTEK) in January of 1983.

SD: You are an important member of the architectural CAD community in research, education, and now industry. How did you get involved in the field?

Eastman: As a graduate architecture student at the University of California, Berkeley, taking some computer training, studying with Christopher Alexander, I realized that I could develop a significant role in architecture in one of two ways—by assuming a technical position on large projects, or by working my way up through a traditional practice. I set out on the first route in the early 1960s, found computers fascinating, and was invited to join Carnegie-Mellon's faculty in 1967.

SD: Your product is expensive and not likely to attract the smaller architecture office. It also does not have three-dimensional capabilities. At what market are you aiming, and why?

Eastman: At one time I and others thought that 3-D and solids modeling were going to produce the big payoff. But the final document in the A/E industry is the 2-D drawing, and currently in the marketplace 75 percent of all CAD systems are used for drafting. While I aimed to penetrate this market, I knew that it is a mature area and that I had to either offer a lower priced product, or deal with problems as yet unsolved. I did the latter by providing the ability to scan and then manipulate large-scale drawings, so that

companies with reams of existing drawings of facilities needing rehabilitation could do so easily. Utility companies, for example, are important customers.

SD: What are your long-range plans?

Eastman: We are looking not only at the design phase, but at managing the life-cycle of the whole facility. I also feel that one of the challenges ahead is to be able to manage the entire building process in the computer—not possible today because of data-base limitations.

'The ideas of people from various disciplines . . . will be integrated.'

SD: I understand you are developing two of your own languages. Why?

Eastman: The standard languages are insufficient for large-scale modeling and for managing concurrent uses. In the future, we intend to provide the ability to develop more intelligent models of facilities with more complex relationships, and accommodate automatic recognition of flaws in, say, energy and structural loads. The ideas of people from various disciplines, working in a network, will be integrated in a foolproof way.

SD: What do you see as the environmental benefits of computers in architecture?

Eastman: It would be a shame, in fact it would be devastating, if architects did not take this tool and the freedom it gives them to direct their talents to a broader range of issues—better streets, better mass housing, better prefab systems. ■

This page's background illustrates sketching on FORMTEK. Drawings and photos can be scanned into the system, and modified by sketching and drafting programs.

Graphic Systems, Inc.

Background and insets below: Vertical Stacking Module and Adjacency Matrix from GSI's "The Space Program."

Eric Teicholz, computer consultant to CAD vendors and large companies, publisher of CAD books and reports, and chairman of numerous seminars and conferences, discusses how the computer has affected his career, and how it will affect the profession.

SD: You are trained as an architect, I believe. How did you get involved with computers?

Teicholz: I was a Harvard Graduate School of Design student in the 1960s, when Ivan Sutherland was developing new graphic tools at M.I.T. I took a course to learn about them, wrote programs to simplify the drudgery of drafting and laying out perspectives, and did a thesis on automatic design for housing. After graduating, I set up Design Systems, Inc., with Perry Dean & Stewart as our major client (p. 143), and in the 1970s, returned to Harvard as an Associate Professor and Associate Director of the Laboratory for Computer Graphics. Two years ago, the industry went berserk: the country was cycling out of a recession, computer vendors urged the development of products for architects, government commissions forced architects into acquiring machines . . . and there were also many horror stories of architects getting automated for the wrong reasons and with bad results. At that time, I left Harvard to set up my own consulting business in Cambridge, Graphic Systems, Inc., to get closer to the real world and to design itself.

SD: What form does your consulting business take?

Teicholz: I consult both directly to companies—though less and less to individual architecture firms—and through publications. We recently acquired *Design Com-*

putdata and have published the 1985 version in a useful form (see p. 173). We have published the results of a survey, *The Current State of Design Automation*, and, through McGraw-Hill, *A/E Computer Systems Update*, which we plan to update regularly. We also publish reports. We consult directly to vendors, institutions such as the AIA, and end users such as design/build firms who carry a data base through the entire process of programming, design, construction, facilities management, and leasing.

SD: What about PCs for architects?

Teicholz: For the new, more powerful machines such as the IBM PC/AT, the large companies such as Auto-trol, Computervision, and IBM are developing a wide range of design and production software, which will in turn permit these workstations to be integrated into larger systems. By the end of the year, over 90 percent of design firms will have PCs.

'Productivity will double overall . . .'

SD: Will architectural services change?

Teicholz: Yes. More design will be worked out three-dimensionally, and design will be closely tracked by cost analysis. The fee structure will change, with more time allocated to explore alternatives. The client will take a more active role in the allocation of spaces. Construction drawing production will become automated. Productivity will double overall, quadruple for drafting, and increase even more for facilities management and tenant improvement.

SD: Can you discuss the strengths of vari-

ous vendors' architectural products?

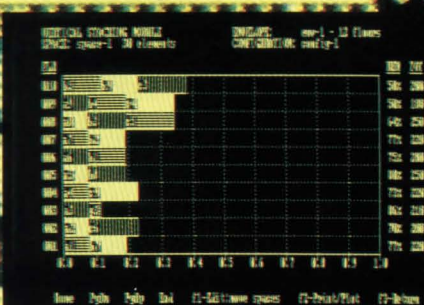
Teicholz: There are the old established firms that have added capabilities to meet the AEC market, such as Computervision, Calcomp, Intergraph, and Auto-trol, the latter three depending on the A/E segment as their largest user base; and those that were strong in engineering and added architectural needs, such as McAuto, Prime, and Intergraph. In contrast, there are the newer companies, such as SKOK, FORMTEK, and Graphic Horizons, that have newer techniques, less overhead, and friendly, cost effective products developed specifically for the architectural market, but that are more vulnerable. Graphic Horizons has good graphics and is easy to use, with numerous windows permitting simultaneous tasks. FORMTEK is a well-designed system with a wealth of applications software aiming at the larger firm. Computervision has the broadest applications, and is developing architectural products for the PC. Prime, with its Medusa graphics system, has excellent 3-D modeling. SKOK's 2-D drafting system is fast and well designed.

SD: Will the increase in productivity throw architects—especially young ones—out of work?

Teicholz: The structure of architectural services will change, as I mentioned earlier. Furthermore, not every aspect of the practice, and not every architecture firm, will be automated. As to the young architects, those with computer knowledge will be in demand in firms.

SD: They can also become consultants, like you. But as computers become second nature, the role will fade away.

Teicholz: Undoubtedly. But by then, I too will be somewhere else. ■



AECK/CADDSHARE

Aeck Associates, an architecture firm in Atlanta, established a CAD service bureau, CADDSHARE Corporation, about three years ago. Tony Aeck and CADDSHARE head Michael Bufkin discuss the history, relationship, and plans of the two firms.

JM: How did you first get involved with computers?

Aeck: For about a decade now, we have been demonstrating our abhorrence of reinventing wheels. Not too remarkably, in the mid-1970s the firm went to computers for accounting. Perhaps a bit more unusual was our purchase of a 15-foot-long graphic arts camera and our wholehearted plunge into color overlay drafting and offset printing.

In 1977 and 1978, a commission for 23 buildings for the Armed Forces Signal Center of Saudi Arabia kept the office hopping. Finishing the design phase, our relatively small (20-person) firm faced the fact that construction documents would force a doubling of staff, or some other drastic measures. However, projected workloads did not appear to justify an enlarged staff, so we turned to a computer service bureau for floor and reflected ceiling plans. From this came the encouragement for deeper computer involvement.

JM: When did you buy your first system?

Aeck: We bought our first, used, system with two workstations in 1979. It was decided to form an in-house service bureau, using existing staff members most closely connected with the earlier process. I took system manager training myself and elected the dedicated operator approach. The system was accepted on March 1, 1980, and by March 7 charges began being posted to jobs.

Within about 18 months, the system proved incapable of keeping up with our desire to link data and graphics on a large space-planning job. We had been doing some service bureau drafting for John Portman & Associates, and saw a possibility of upgrading the system if Portman would commit to two stations for three years. That contract was signed in March 1982. This was the rudimentary beginning of a new venture for us. We had our feet wet but we could then see what else was out there. The firm's technological expertise in computer graphics had reached, I believe, impressive levels; our shortage was in data management.

JM: How did you solve the imbalance?

Aeck: Michael Bufkin, with a comprehensive range of engineering and data management experience, was hired. Initially an Aeck employee, he was, by agreement, to found the new entity. In August 1982, CADDSHARE Corporation came into existence.

Lockheed, an ongoing space-planning client for Aeck, took our suggestion to put a workstation in-house to manage its own space. With the addition of architects Nix Mann & Associates, the system was again at capacity—two stations each at Aeck and Portman, and one each at Lockheed and Nix Mann. Another hardware update was needed as architects Stevens & Wilkinson signed on. The move up to the largest minicomputer available, expandable in modules, required a nerve-wracking juggling of new and renewal contracts against the inevitable purchase order. Any one retreating party would cripple the procedure; there were none.

JM: Where did you go from there?

Bufkin: CADDSHARE's next client was a

food service consultant with ties to some of our architectural clients. Another client requested drawings for printed circuit boards, and was willing to pay for software development. We welcomed the opportunity for this intensely database-related activity. Also joining the growing client list was a granite supplier seeking shop drawing help. Originally an Aeck contract, an agreement with Prudential for space management was turned over to CADDSHARE when it was determined to be more data-based than architectural. Taking advantage of more appropriate technology, this program was transferred to a stand-alone PC.

'We stress time-sharing and facility management.'

Aeck: Our motivation was *not* to start a whole new business, but to bring the firm's power up to what was then the state of the art. For Michael, of course, a new entity *was* the goal. We both find the separation into discrete organizations as positive, and essential.

Bufkin: We have an "arm's-length" relationship; CADDSHARE bills its time to Aeck, and Tony bills CADDSHARE for his consultation.

JM: How do you market your services?

Bufkin: Two barriers to marketing service bureau capabilities stand out most prominently. First is the lack of a financial frame of reference for potential clients.

Aeck: It requires a leap of faith for them

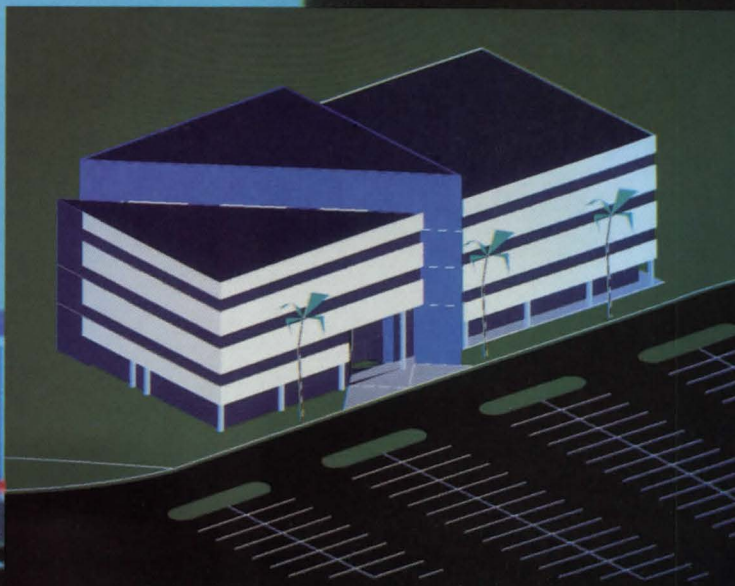
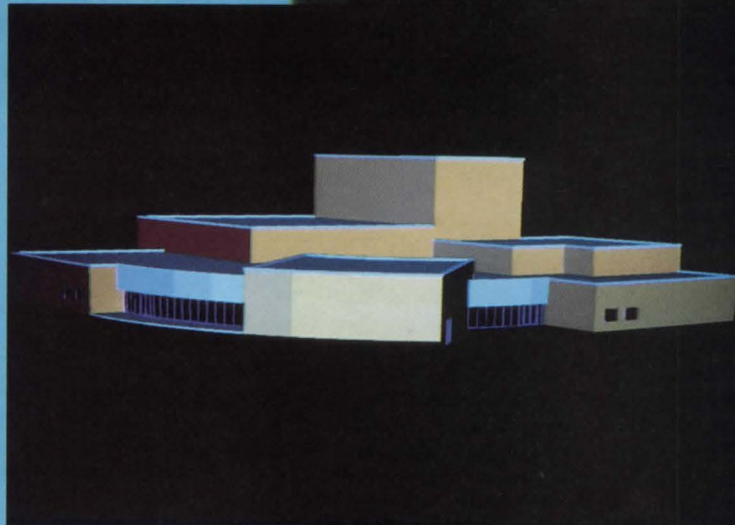
to accept that costs are reasonable. In addition, a service bureau is finding itself increasingly in competition with systems manufacturers because it is an alternative to purchasing equipment. Joint selling, once a common advantage, is disappearing. The precedent for CADDSHARE ownership and leasing of equipment has already been set, with Lockheed, and might be expanded upon.

Bufkin: There has been an almost total lack of CADDSHARE marketing to date. Some direct mail has produced little result; contacts have been a major source of clients, and our substantial growth.

Aeck: The foundations for this venture were key. Overlay drafting and word processing were valuable lead-ins to computer involvement. We weren't trying to be all things to all people, to be the biggest. We stress timesharing and the facilities management capability. We feel that FM is the most promising thing on our horizon. CADDSHARE's staff training and software generation abilities also rank high. I find CAD both productive and a great marketing force. First choice will always be a quality architectural firm, but unless that option also brings CAD with it, loss of commissions will mount for reluctant firms. All of the experience to date has been worth the effort, and I endorse the concept for other firms.

JM: Have your priorities changed?

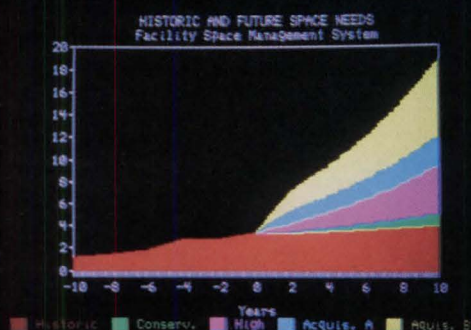
Aeck: By concentrating the computer involvement—now a given—in CADDSHARE, I find I can return an emphasis to design. We may have allowed the technology to become the end rather than the means. I now hope to prove that good design is the end of some very important means. ■



Computer-generated images for projects by CADDSHARE clients include a performing arts complex by Aeck Associates (top), a medical office building (above), and medical center (background), both by Nix Mann & Associates.

CADG

SPACE NEEDS Management System



The Computer Aided Design Group (CADG) is a software company founded six and a half years ago by three architects. The company markets facilities management software that is notable for its expandability and for the support the company gives it in the form of training sessions, procedural manuals, and instructional software. Also notable are the number of architects in the company (about half of its workforce) and the apparent ease with which they've adapted to their nontraditional role. The following comments are excerpts from conversations with three of the company's principals—Ched Reeder, Jeff Hamer, and Thomas Kvan—all of whom have an architectural education.

TF: What links do you see between designing buildings and software?

Kvan: An architect takes a vague statement, defines the problem, develops a model, evaluates the solution, writes detailed specs, supervises construction, evaluates the results, and signs off on it. We go through the same steps in developing software. The problem-solving methods that we learned in architecture school are entirely appropriate for this work.

Hamer: It does help knowing how to program. But, out of 22 people here, only 5 actually write code. The rest are involved in marketing or project management or system design—all of which are activities that go on in an architectural office.

TF: What adjustments have you had to make in becoming software designers?

Kvan: You first have to rid yourself of the architect's ego and shed all the delusions of grandeur that get embedded in you in school. Designing software is just as satis-

fying, but it's a more abstract exercise than creating a building.

Reeder: You also have to pay more attention to how the finished product is used. Architects rarely stay involved with their buildings once completed. The software designer spends a lot of time at the tail end of the process, maintaining and enhancing the product.

'Vendors are looking for architects at all levels.'

TF: Do you see computer consulting or software design as a career path architecture graduates should consider?

Kvan: Being a consultant to architects isn't a very lucrative field. Architecture is a relatively poor industry, so you can't charge a lot. Computer vendors, however, are looking for architects at all levels, from sales to customer support to software applications.

Reeder: The architect in that setting can act as a bridge between the users and the coders of software. Architects are well suited to that role, acting as a bridge between owners and contractors.

Kvan: We just have to broaden our idea of what it means to be an architect and what it is we do. The computer has shown us that architecture has nothing to do with pushing a pencil.

Reeder: What's left for the architect after computerization is not the production of drawings or the memorization of facts, but the solving of problems. The profession must establish in the public mind the value of those decision-making skills. ■

The computer-generated image (above) is a graph of space needs from CADG's facilities management software. The system is modular, allowing easy expansion or enhancement, and it contains inventory, drafting, layout, location, and master planning programs. With the system come extensive support, training, and computer-aided instructions.



Advancing Knowledge

What design possibilities and ethical dilemmas are raised by the computer? Architectural schools and computer associations have begun to address just those questions.

There is no lack of information about computers for architects. Newsletters such as the *A/E Systems Report* and the *S. Klein Newsletter*, seminars such as those held during the annual *A/E Systems* show, and magazines such as *Computers for Design & Construction* are among several sources of information on the subject.

What is often lacking is discourse on the meaning of computers for architects. What do they bode for the future of the profession? What ethical issues do they raise? What impact will they have on architectural education? In many ways, this entire issue is a response to the first question. The following interviews address the second and third.

For instance, the Association for Computers in Design promulgates not just a newsletter and seminars but ethical standards that all of its members are expected to uphold. And universities (of which UCLA and the University of Houston are but two examples) have begun to reevaluate the role of the computer in their curricula. Those are positive developments, for they advance not just information but understanding, not just the applications but the implications of the computer. *Thomas Fisher* ■

Houston/UCLA

Many architectural schools now offer courses in computer-aided design, although they are not all alike. They differ not only in their research agenda (See P/A, May 1984, pp. 154-158), but in their very teaching methods. Some schools teach architectural students how to program computers, others just teach students how to operate the machines. Some schools avoid research grants from computer vendors, others work closely with vendors in the enhancement of software. Some schools approach computers at a conceptual level, others emphasize the practical applications and benefits.

Representing two different approaches to the teaching of computer-aided design are the architecture schools at UCLA and The University of Houston. Speaking for UCLA is Professor William Mitchell; for the University of Houston, Professor Elizabeth Bollinger.

The University of Houston

TF: The school has a grant from Prime Computer Company to enhance its software for architects. How did that come about and how have students been involved in that enhancement work?

Bollinger: Prime wanted to better tailor its Medusa software package to the needs of architects, so it gave the school a grant and equipment to help develop architectural enhancements. The school of architecture shares the maintenance of the equipment with the university's facilities planning department, giving students experience not only in the building of symbol libraries and other enhancements for Prime, but in working with the facilities management department on its projects.

TF: The architecture school seems very practice oriented.

Bollinger: That's true. We try to foster links

between the school and local practitioners. For instance, we've begun continuing education classes in computers for local architects; the technology changes so quickly that practicing architects often have a difficult time keeping up.

Students who have studied computers here have had considerable success finding jobs in area firms, often as the manager of the computer system. The firms still look at a graduate's architectural skills first, but the computer experience has become a definite advantage when a decision must be made between two otherwise equal candidates.

Some students have also served in consulting capacities while still in school. For example, a large homebuilder in Austin gave us a grant to help better utilize the CAD system. Students developed new menus and new cost estimating and database programs. It was good experience for the students, one of whom was eventually hired as the manager of the system.

TF: Do you teach the students how to program, and does the design faculty use computers in the studios?

Bollinger: We don't require that the students learn how to program. Our goal is to familiarize the students with the computer and to get them to explore its use as a design tool, not just a drafting machine.

The integration of the computer into the studios is happening gradually. Many faculty members are interested, although integrating design and technical subjects in the studio is always difficult. It will take better design-oriented software for that integration to occur.

Computers won't be what we want unless we get the word back to the vendors. Certainly one advantage of working as closely with a vendor as we do with Prime is that we

can act as messenger and communicate the architectural profession's real needs.

TF: Are there issues that the vendors don't communicate to architects?

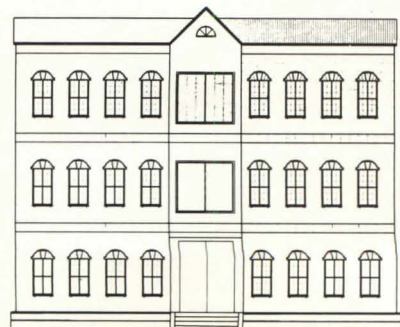
'It's only a matter of time before the computer is totally integrated into every school's curriculum.'

Bollinger: I've seen vendors, probably in an attempt to reduce the apparent cost of a system, not advise architects of the peripheral equipment needed to make the system work. One architect even had a computer and no printer, making the entire system worthless.

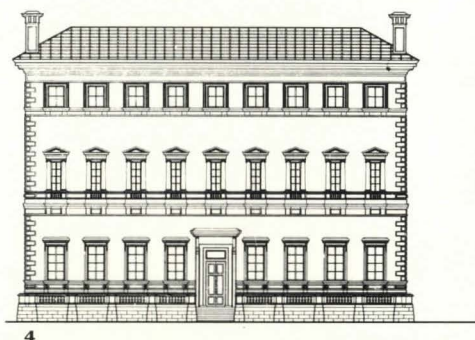
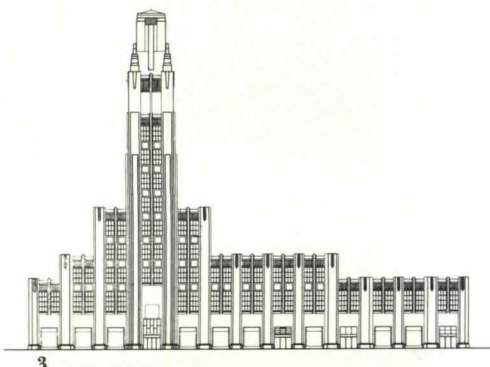
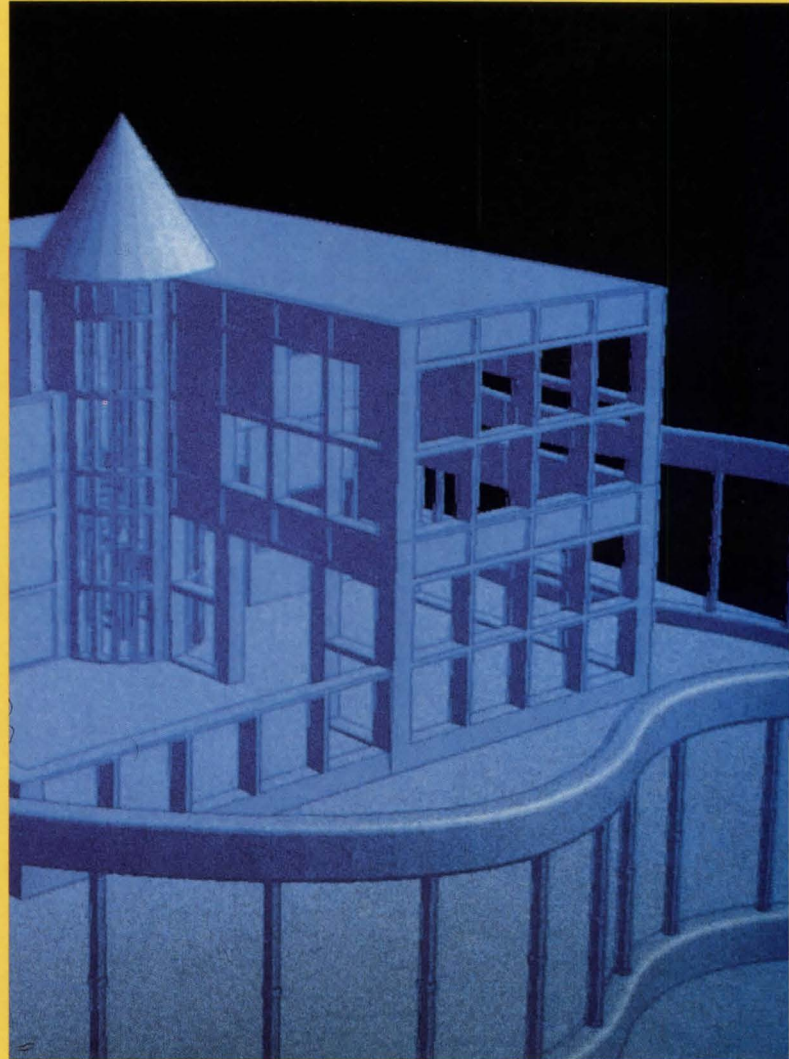
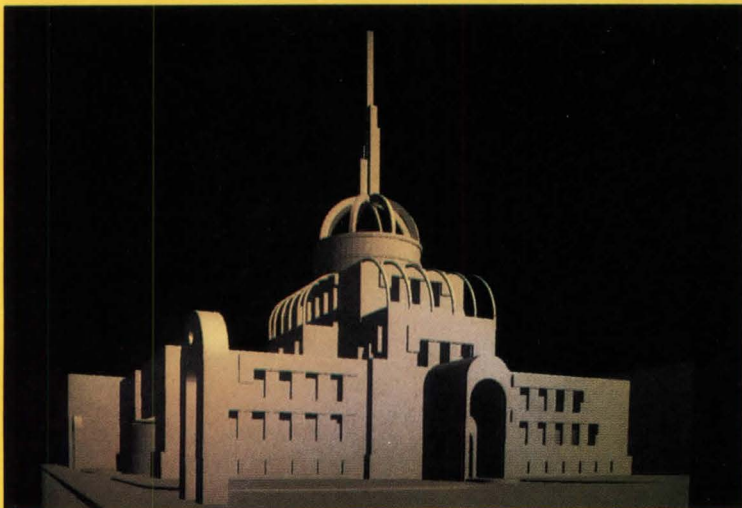
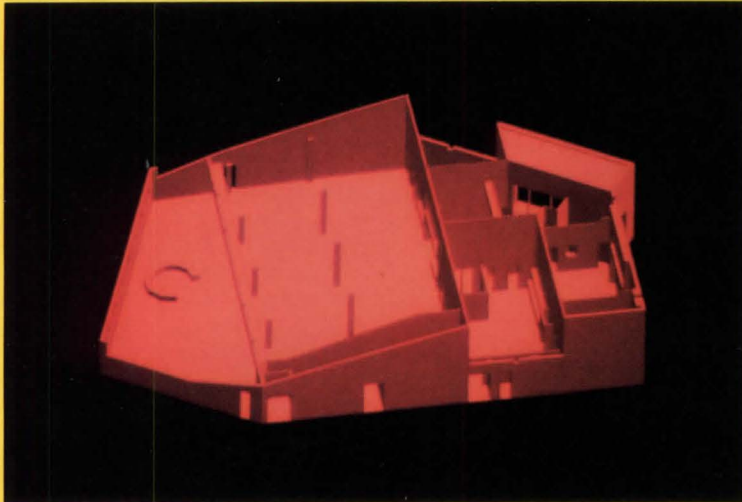
Some vendors also oversell the productivity gains possible with a computer. Managers often have great expectations of increased productivity, only to be disappointed when it takes almost a year for employees using CAD systems to return to the productivity level they had when manually drafting. After that, productivity can skyrocket, but management must be prepared to wait.

TF: What changes in the architecture schools do you see occurring because of computers?

Bollinger: It's only a matter of time before the computer is totally integrated into every school's curriculum. As students come to the school more familiar with the computer, introductory courses on how to use computers will probably disappear. For students in the design studios, I think that the computer won't change what they do so much as how far along in the design process they can go. The full effect of the computer, though, is really anyone's guess.



The student projects (below) were generated on the architecture school's Prime computer system. The line drawings (by Carolyn Aderholt, George Redford, Akai Yang, and Roland Mu) were part of an exercise exploring some of the capabilities of the computer, such as the rapid repetition of identical elements and the flipping of symmetrical halves. The color images (by Robert Delgado, Mark Jacob, and Suzanne Simpson) show student design projects done on the computer.



UCLA/Houston

UCLA

TF: What approach do you take in teaching computers at UCLA?

Mitchell: We teach all of the students who take the computer courses how to program. I think that one of the best ways to truly understand a building is not just to draw it, but to be able to write a computer program that describes it. Students can learn a lot about the composition of buildings by thinking about them computationally. I'm convinced that the way to become computer literate is to understand how to program rigorously. It's as important as learning how to draw before you can design.

The emphasis at UCLA is on the computer as a design medium. We're much less concerned about teaching the technical details of a computer than in getting students to understand its conceptual aspects, to explore how it might illuminate architecture in ways that would not otherwise be possible.

It's wrong to think of the computer as simply automating manual drawing methods. Just as photography imitated painting before we understood what made the new medium unique, so computer-aided design continues to imitate hand-drafting. It hasn't matured as a separate medium. That will take time, and the efforts of a few good designers who take an interest in it, in the profound intellectual and aesthetic issues it raises.

TF: What are some of the characteristics of the medium that make it unique?

Mitchell: For one, the computer allows the instantaneous transformation of a motif or design idea. Last spring, Charles Moore and I jointly taught a studio in which we explored that approach. We asked students to write simple, interactive Pascal programs that accepted, as input values, critical dimensions

of some architectural motif, such as a column or window type. By changing the values, the students could rapidly explore several variants of the motif. The programs generated results that were often startling and unexpected. It would have been nearly impossible to do so many variations any other way. ♦

Color, as well as geometry, can be explored in this way. Recently, we implemented software for performing hue, saturation, and brightness transformations for multicolored objects. This allows rapid exploration of variants of a color scheme, and fine-tuning of color relationships, in a way that would be quite impossible using conventional media such as paint or colored paper.

'Students can learn a lot about . . . buildings by thinking . . . computationally.'

TF: Do you work closely with any vendor?

Mitchell: No. We think that it's important, especially in a university, to take an independent, critical stance. We want no strings attached from industry.

We welcome vendor support, however. We're in the process of acquiring and installing a major new system in the architecture school so that we can greatly increase our teaching activities. It will have a central IBM 4361 processor, four Computervision workstations, a variety of other graphic displays, and a network of IBM PCs and ATs.

TF: You've spoken before about the possibility that computers may eliminate many of the traditional entry-level drafting jobs for

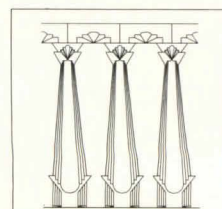
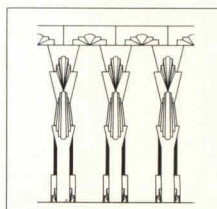
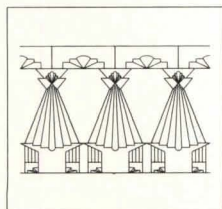
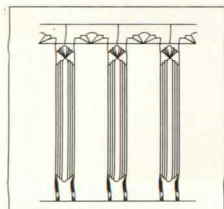
architecture graduates and about the need for architecture schools to model themselves more along the lines of medical schools with their own internship programs. Would you expand upon those ideas?

Mitchell: Captive within UCLA's graduate school of architecture is the Urban Innovations Group, a nonprofit organization in which faculty members supervise students working on real projects. Up to now, very little of UIG's work has been done on computers, although it would be interesting to see how students would use computers in that setting. After all, the real value of a computer is not as an expensive pen, but as decision-making tool. The conceptual orientation of the students in the Urban Innovations Group would certainly test that idea.

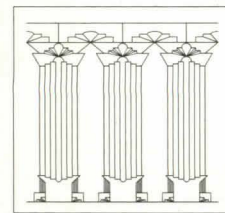
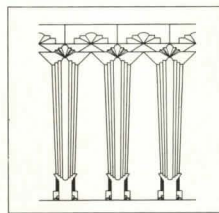
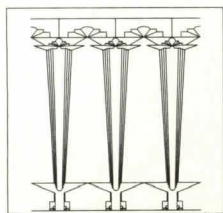
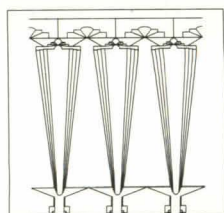
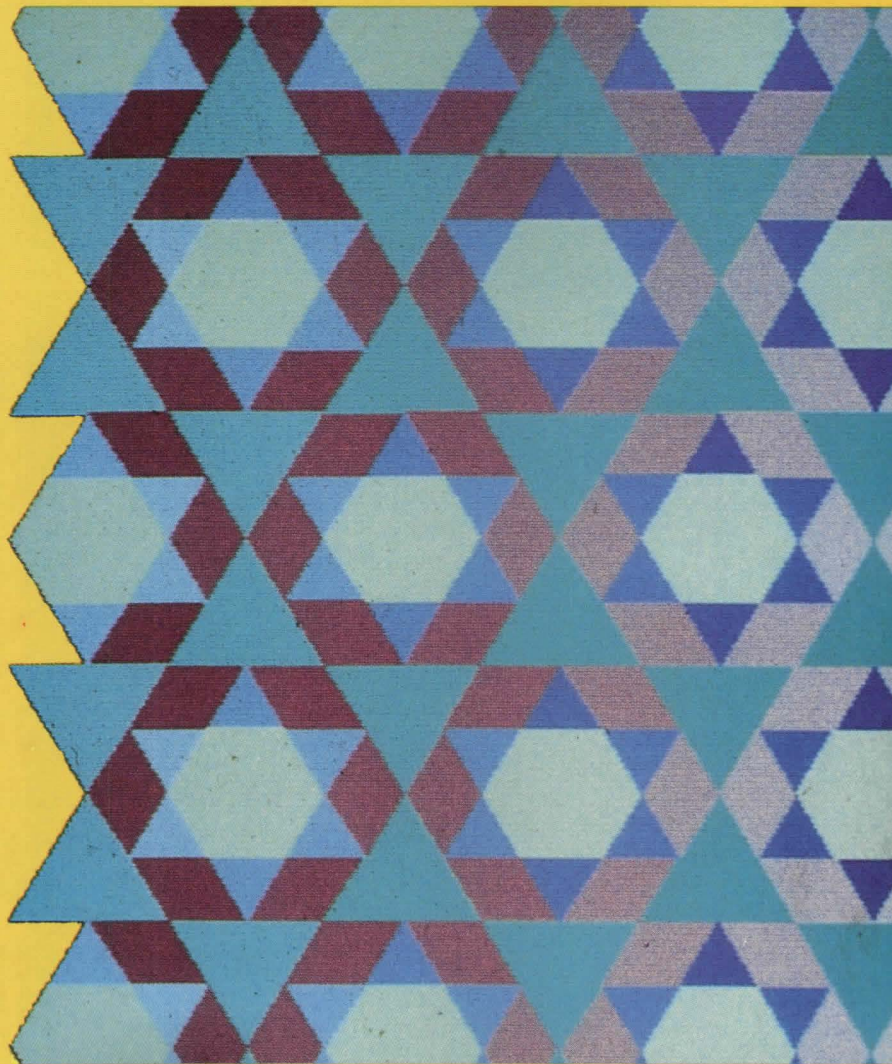
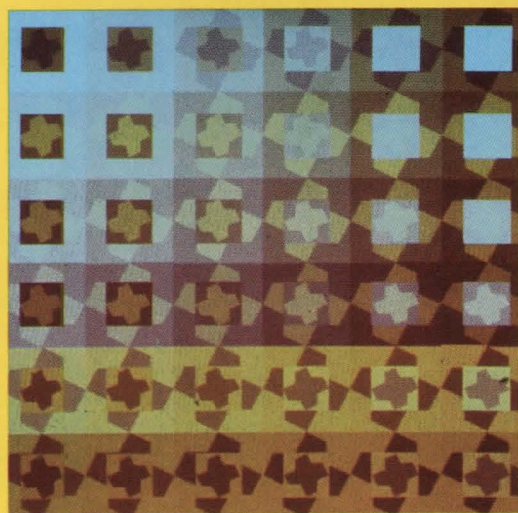
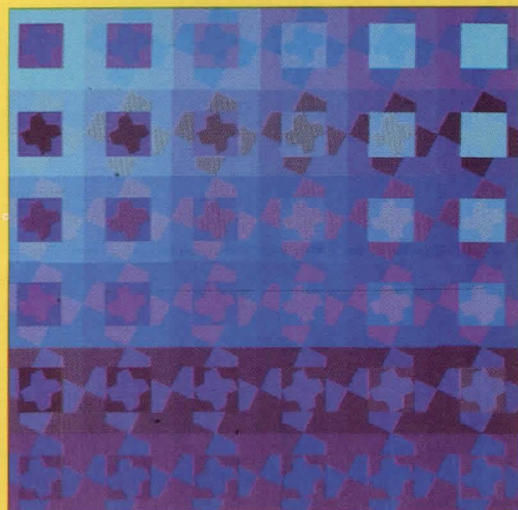
TF: Do you see the Urban Innovations Group as a model for other schools?

Mitchell: Few schools have pursued the idea, in part because it is expensive and inefficient, and because of the high turnover of graduating students. But as computer operators replace architectural graduates in entry-level jobs, the schools must find ways of better preparing students to take higher level, decision-making positions upon graduation. While it wasn't founded with that in mind, the Urban Innovations Group is one model, placing within the school some of the supervised practical experience that used to occur in offices. The computer is changing traditional roles, and the architecture school, like the architecture firm, must adapt.

The schools, however, should do more than just prepare students for practice. They should set standards and push the boundaries of the technology. Right now, the computer vendors are way behind the researchers. But the technology is way ahead of anyone's ability to use it. ■



The drawings of columns (bottom) are all variations on a design by Charles Jencks. Generated rapidly from a program written by John Heile, the column series shows how the computer allows the study of design options that would be too time-consuming to generate any other way. The computer also allows the study of color variations and combinations too subtle or time-consuming to do by hand as shown in the computer images (below) by Takuzi Kaneko and Jeffrey Kho.



ACD

Some say that the computer isolates people, that our interaction with the machine reduces our interaction with each other. But the evidence is just the opposite as associations of computer users continue to arise. Educators who teach computers in architecture schools have formed a group called Acadia. And architects who use computers in their practice have formed local groups, such as the AE Computer Task Force in Northern Ohio. Even an international computer association specifically for design professionals has been formed. It was founded two years ago by four architects: Allen Lungo, Franc Caggiano, Jeff Hamer, and Don Fullenwider, and it's called the Association for Computers in Design (ACD). Its president is Don Fullenwider, an architect who heads the Fullenwider Consulting Group in Santa Monica, Calif.

TF: What led to the founding of ACD?

Fullenwider: We realized that no national forum existed for design professionals who use computers. Educators had Acadia, and AIA members had the AIA computer committee, but that left out large numbers of design professionals and computer vendors.

We wanted to give people, who are often competing against each other in the marketplace, a means of discussing issues of common concern. The association has a bi-monthly newsletter for airing different views. In the last newsletter, for example, I wrote an editorial about computer vendors claiming to serve the A/E/C market. Architects, engineers, and contractors have such different needs that companies claiming to serve all of them probably don't serve any of them as well as they could. I'm sure that I'll get some comments on that from our members who are vendors, but I think it shows the kind of discussion ACD wants to encourage. The association also organizes quarterly lectures, and also takes positions on particular issues, such as the need for computer industry standards. I think that we can do a lot to further that cause by just getting the computer vendors who are members of the association to sit down and discuss standards.

'Firms . . . must computerize if they are going to compete.'

Another important step that we just took was approving a code of ethics that deals with such issues as copying software or lying about system capabilities. That's really the first time an industry-wide code of conduct has been defined.

Our short-term goal is to increase membership and to broaden the leadership of the association beyond that of its founding members. Our long-term goals include developing new computer curricula for design professionals and encouraging greater standardization and compatibility among computer systems.

TF: Why is there such interest among architects in sharing computer information?

Fullenwider: Many architects are scared to death. Firms that have not computerized are beginning to lose work, so they realize that they must computerize if they are going to compete. They also recognize that choosing the wrong system can be costly. Switching vendors is even more expensive. So there is a lot of incentive for architects to share information and discuss their experiences.

TF: Does increasing productivity crop up in many of the discussions?

Fullenwider: A basic principle of service sector production is that new technology does not save time; work always fills the time allotted. A computer can help architects better serve their clients, make fewer mistakes, and improve their product, but it has little effect on productivity.

That doesn't mean that architects should wait to purchase computers. An argument could be made for every architect to have a personal computer right now; there are at least sixty applications of the computer in an architect's office (CAD being the most expensive and the most difficult to make work). If firms wait until prices drop or the definitive computer emerges, they may not be in business when it comes time to make the decision. Firms that have made the commitment to computers, however flawed their initial decisions, will be the ones with the experience to compete. ■



The Vendors' View

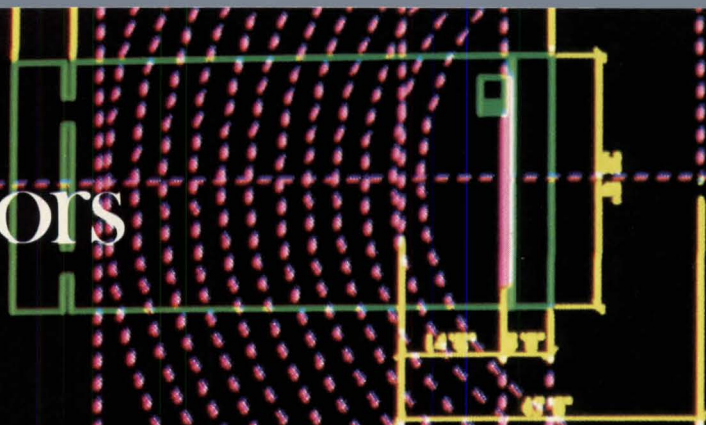
No one has been running harder to figure out how architects work, and what they need in computers, than the vendors. To tap their amassed expertise, P/A editors interviewed employees of some of the important vendors: Intergraph, Prime, Computervision, and IBM, who together control over 55 percent of the architectural CAD market, according to DARATECH, Inc., Cambridge, Mass., as well as SKOK, a young firm devoted to architecture customers, which aims to make a big dent in the market. Overall, they see the need for: smaller and more affordable stand-alone workstations (Autocad's financial success with the PC has been duly noted); more standardization of databases; more applications programs, the better to assist architects in providing more services; and better management in architectural offices. And everyone is jumping onto the Facilities Management bandwagon.

By the way, quite a few of these companies' employees are architects, who adjusted happily to the fact of the computer by making career changes. Susan Doubilet ■

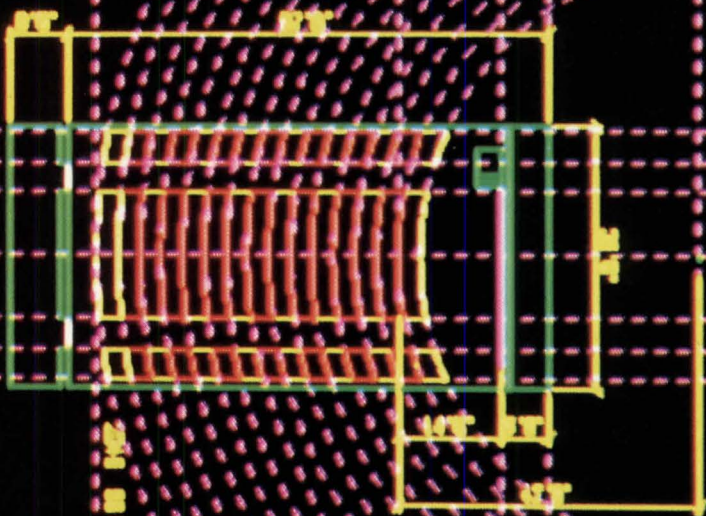
How do CAD vendors plan to meet the changing CAD needs of architecture offices?

The Vendors

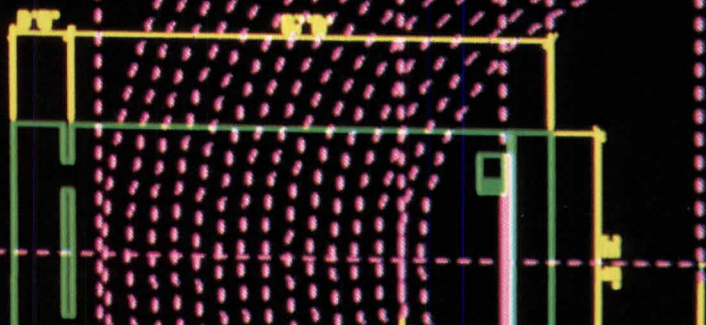
11 ROWS
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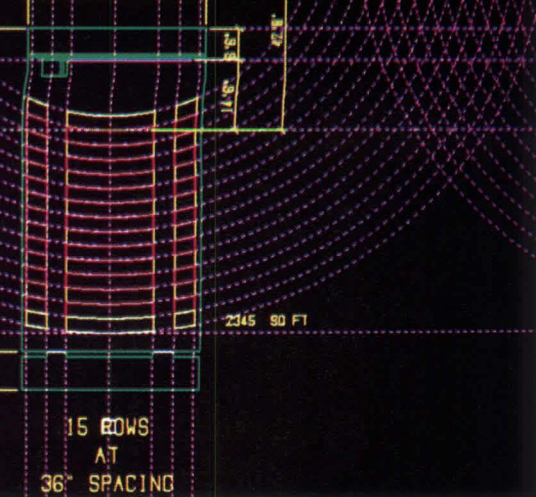


15 ROWS
AT
36" SPACING



14 ROWS
AT
36" SPACING





Computervision

The CAD/CAM pioneer of the 1970s, Computervision last year announced a broad range of new tools for architects and engineers, and this year is introducing, among other products, software packages for the IBM PC AT and XT. Despite the business difficulties the company is experiencing, it has some exciting new projects. Discussing the company's plans and their perspectives on the field are Otto Buchholz, Marketing Manager for Architectural Products, and David E. Owens, Director of World-Wide Marketing.

SD: How do you see computers affecting the practice of architecture?

Buchholz: Clients will begin to expect more intelligent buildings. Life-cycle costing will allow the owner to evaluate the benefits of a costlier mechanical system, for example, at the outset. With the computer, architects can take on the shop drawing process, integrating what is now a separate process. Facilities management, a process poorly handled up to now, can be handled efficiently by the computer within the architect's domain.

SD: Are you introducing any new products this year?

Owens: I'm glad you asked that. We recently began marketing our Spaceplan 3000, an interactive space-planning package. But our most exciting piece of news, to be announced at A/E Systems '85, is our development of a range of software available for the new IBM PCs—the XT and the stronger AT.

SD: A great number of architects will be delighted to hear that news. What will it include?

Buchholz: The initial four-piece architectural design software package will provide for office management, specifications writing, and CAD for the design process and document production. With the necessary basic hardware it will sell for about \$30,000,

less if fewer software pieces are taken.

SD: Where are the drawbacks?

Buchholz: Certainly there are limitations in speed, integration, memory, and type of rendering possible. It is single-task oriented, so the different pieces of software are taken off and put on as needed.

Owens: But while each workstation has stand-alone capability, it can network fully with higher level Computervision products. The PC package, then, becomes a good training tool from which to move up the line.

SD: Then it sounds like an excellent marketing tool for you. Are you not afraid that many architects will be disappointed in the stand-alone capacity, and feel conned?

'... a range of software is now available for the IBM PCs.'

Buchholz: No, and we've certainly considered that aspect carefully. We feel that it is an extremely useful tool, and that the aforementioned limitations are acceptable, given the price.

SD: I am sure it will cause quite a stir. How will you sell it?

Owens: Distributors, including Charrette stores, have made arrangements to sell the software with the IBM PC.

Prime Computer

Since about a year ago, Prime Computer has had joint world-wide marketing and development rights, with Computervision, to the powerful CAD software package Medusa, to which it had limited marketing rights since 1981. Among the developments of use to architects, as discussed by Marketing Manager Larry Dannenberg and Marketing Specialists Bob Thomson and Mark Pipas, are organiza-

tional systems for symbol libraries based on industry standards, and new menu formats.

SD: How will computers affect architectural practice?

Dannenberg: In space planning and facilities management, architects will gain the ability to sidestep the developer and come closer to the end user, by expanding into services that historically the developer has dealt with. If architects are wise, they will retain control of the databases.

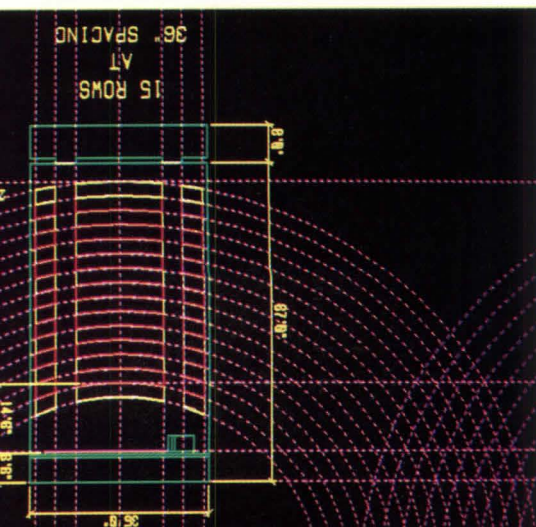
Pipas: And real estate contracts will have to deal with the database problem. It will become all the more important that IGES (Initial Graphics Exchange Standards) achieve its goal of formulating a neutral file format, so that data generated from any of the diverse computer systems can be handled by other systems.

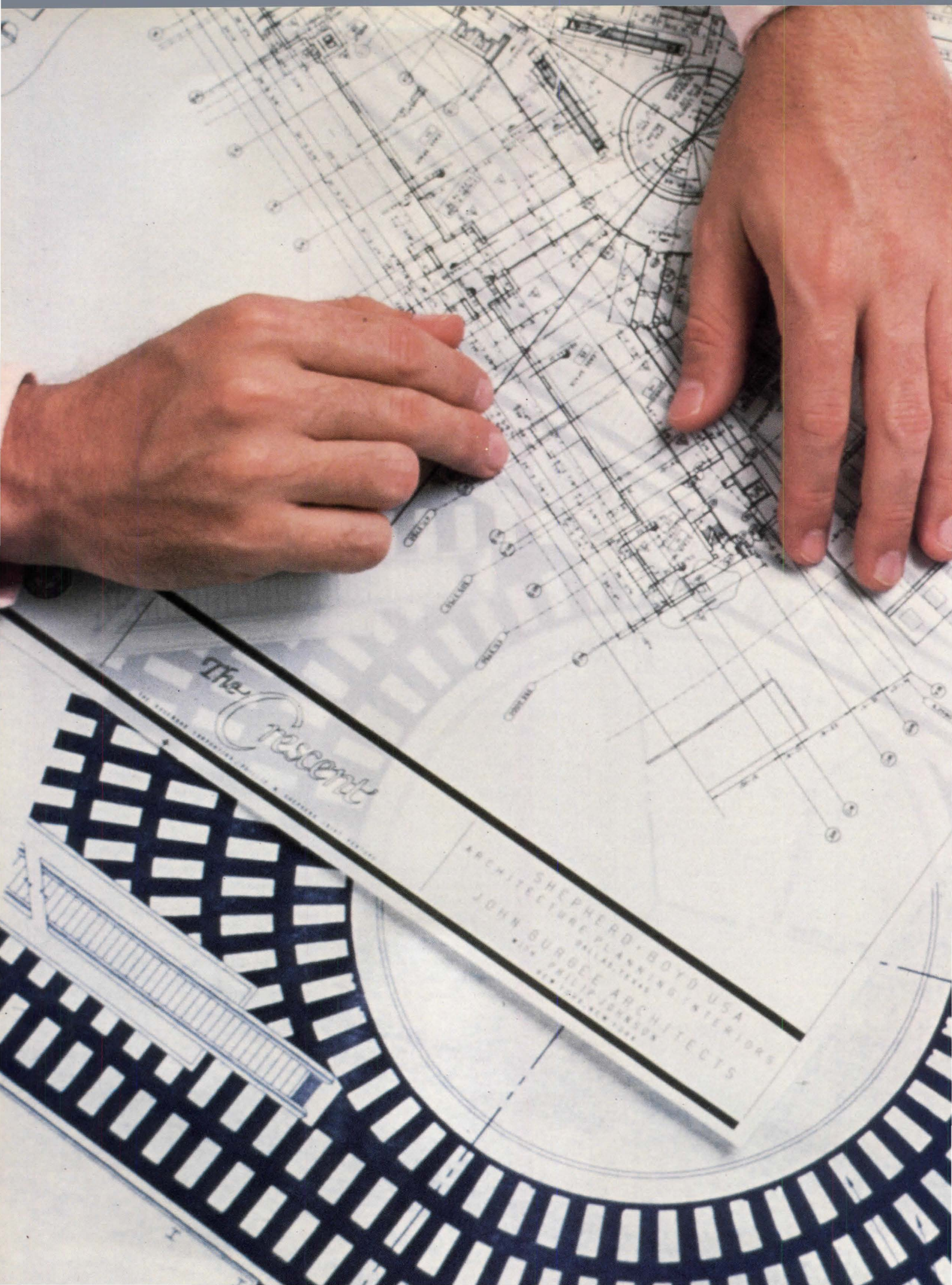
SD: What tools are being developed specifically for the architectural profession?

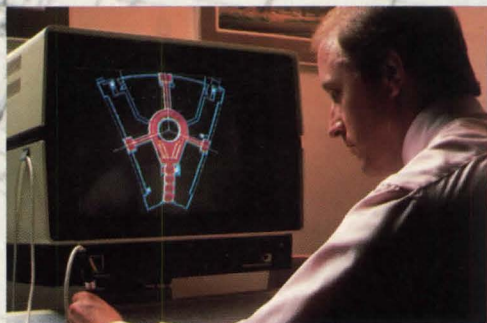
Pipas: Architects need to assemble information from many disciplines. We provide organizational systems for symbol libraries, which must be based on industry standards, spanning all disciplines. The various automated functions, not only CAD, must work on the same computer. We provide a new menu format for different drawing types. All symbols, and all applications, appear on flipover cards adjacent to the computer keyboard. A large number of layers are provided for. Bays can be irregular, wall types can vary, and so on. The library of text fonts is tailorable, and the spacing of text is proportional, so that text can be plotted full-scale and shipped directly to the fabricator—a boon to architects providing graphic design services. Areas can be calculated, hierarchical relationships established, and components, for example furniture, can be attached to rooms, useful for facility management.

Dannenberg: Our 2-D drawings are used to

Diagrams show theater seating analysis by the Cambridge Seven on the SKOK system.







Shepherd + Boyd/USA, with John Burgee Architects with Philip Johnson, are architects for the Crescent in Dallas, Texas (P/A, Feb. 1984, p. 66), whose client is a joint venture of Phillip W. Shepherd and a consolidated subsidiary of The RoseWood Corporation. With a CAD system from Computervision, Shepherd + Boyd produced complete sets of bid-quality drawings of the \$140 million project, though some one-of-a-kind details were executed by hand. The computer was also used in the design phase to study three alternatives. CAD facilitated the

drawing of the curved building, helped solve the parking layouts, and helped—through the use of 3-D capabilities—to isolate and study the odd-angled intersections of major steel beams, and design the appropriate gusset plates and weld connections. The architects also laid out the ceiling patterns on the computer, as well as the details of the hotel. Space planning and facilities management will be automated. For marketing purposes, a 30-foot-long by 6-foot-high model (shown here) on a hydraulic lift was built in the leasing office.

generate real 3-D solid models—not merely surface painted ones—and this process is unique in the field.

‘Flexibility, and tailorability, are important to architects.’

SD: Where do you see the place of PCs in the architecture office?

Dannenberg: PCs will replace single use components, for example word processing, spreadsheets, charts. But we don't see PC/CAD making important inroads. We have not put Medusa on PC. The memory and linkage is insufficient. Since an architect is a multifunctional person, integrating a range of expertise, the small system doesn't meet his needs well. The architectural office needs a system that can allow multiple users.

SKOK

Young Englishman David Skok founded SKOK Computers in South Africa in 1978, following pressure from architects to sell a CAD offshoot of the successful CAD/CAM system he had developed for his family-owned machine tool operation. By 1983 his system accounted for more than 60 percent of South Africa's architectural CAD market, and Skok moved his headquarters to Cambridge, Mass., hoping one of these days to equal his success, in terms of percentage, with American architects. An interview with Skok and company Executive Vice President Nicolas Story confirmed that their business focus is, and will continue to be, architects. And while neither Skok nor Story is an architect, 28 percent of their employees are.

SD: How do you woo architectural clients?

Skok: We have consulted architects about their needs constantly, and have welcomed their consulting us. For this reason we located our offices in Cambridge rather than on Route 128. And our conclusions have been twofold: We must develop more design-oriented CAD systems, and we must provide low-cost systems since 85 percent of architectural offices have fewer than 15 professionals and are not capital intensive.

SD: Have you new products?

Story: Yes. At A/E Systems '85 we will be introducing new applications software, for site planning and structural and electrical uses, among others, as well as new database templates for facilities management.

‘One thing is certain—architects must learn more about financial management.’

SD: How do you see the profession changing?

Skok: The structure of the firm will change. Communication is key, among architects and other professionals. Networking is critical, and all information will be centralized in one place in the office. The tool will also allow the well-organized smaller office to compete with larger firms, as has happened, for example, to one of our users, Urs Gauchat. Architects will be forced to produce databases, and some firms will follow up with facilities management; if they don't—and it is certainly not clear that many will—others will step into the breach.

Story: One thing is certain—architects must

learn more about financial management. The computer gives them the tool, but as an unfamiliar capital expenditure it also forces them to look upon money matters more carefully.

Intergraph

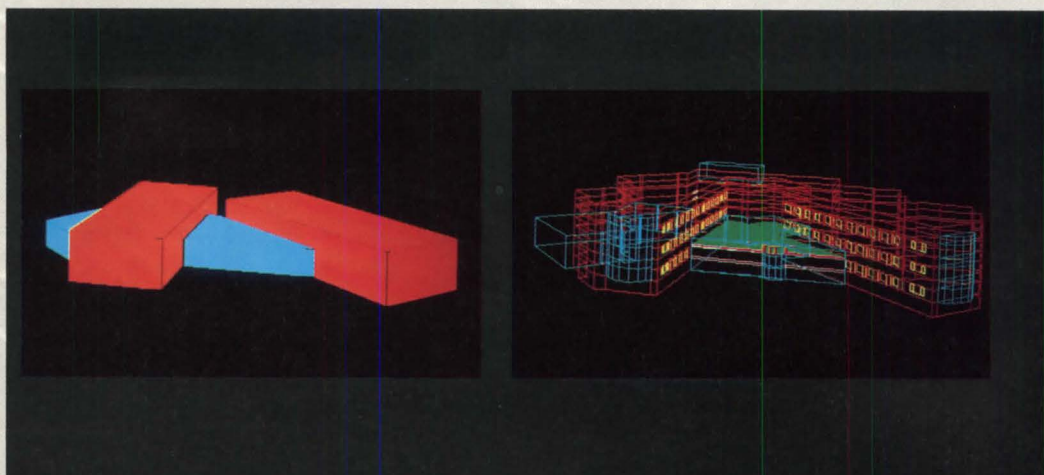
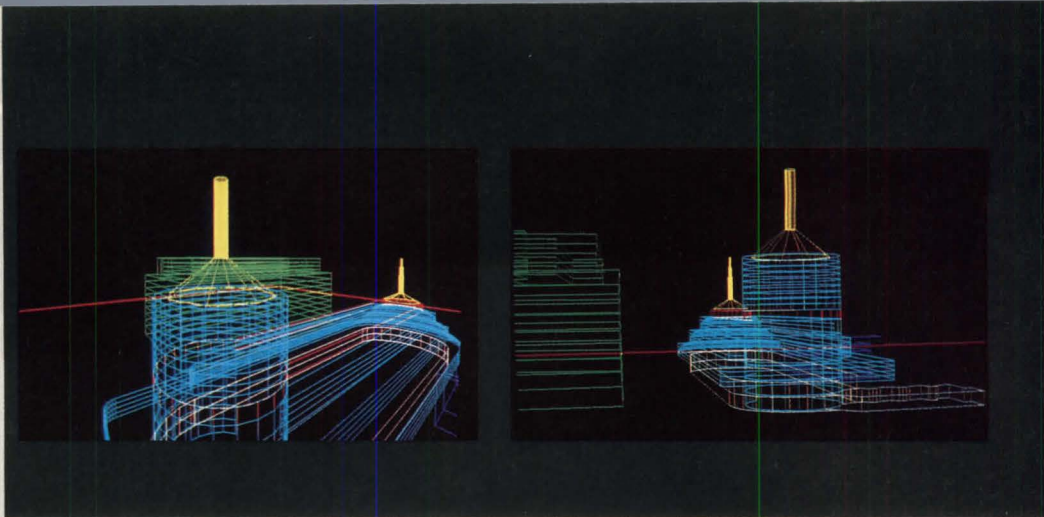
Eric Tirrell, Intergraph's Marketing Manager of Building Design Products, points out that his company has been a leading CAD vendor to architects, both in the number of systems it has installed and in the length of time (about four years) it has been developing products specifically for the architectural market.

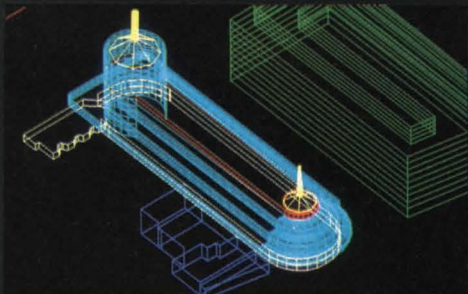
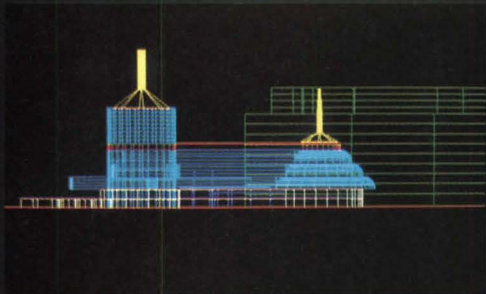
SD: Over your relatively long history of involvement with architects, have you noticed changes in the practice of that profession as a result of computers?

Tirrell: Certainly. CAD technology is starting to standardize the way people practice: They're using the same symbology, and organizing their offices in similar ways. Even more significant is the way compatible hardware and software is now linking firms. We're seeing networks of owners, architects, engineers, and designers passing information back and forth. For the Hospital Corporation of America, for example, six architecture and engineering firms with Intergraph systems are now linked by communication lines.

SD: What are some of your recent or upcoming product developments?

Tirrell: We very recently acquired Rand Micis software for interactive structural analysis to augment our existing design and documentation capabilities. We will be introducing an HVAC package at A/E Systems '85 which will support APEC software and, eventually, Trane Corporation analysis software. We also have a new program that generates specifications directly from drawing sets





Different views of a Computer Museum proposed for Toronto's waterfront were evaluated (left) on SKOK's system.

using CSI numbers, extracting from MasterSpec. We will also be announcing software for casting shadows upon models, with light sources specifiable, and for exhibiting transparency or reflectivity. In this, needless to say, we, being in the marketplace, are a little behind Don Greenberg in his research lab at Cornell (P/A, May 1984, p. 154).

SD: Are you also investigating lower priced workstations?

'CAD technology is starting to standardize the way people practice.'

Tirrell: Yes. We are working with Digital Equipment Corporation towards a low-end workstation, though we still anticipate smaller and more powerful micro hardware. At Systems '85, we will demonstrate a Vax stand-alone workstation which will run with our full complement of structural and civil engineering, architectural, space-planning, and facilities management packages, but with the drawbacks associated with less disc storage and on-board memory. And remember that just last November we introduced our own micro workstation, the Interpro-32, which is a desktop PC, compatible with the IBM PCs, and able to emulate different terminals—graphic, data base, and so on—through a series of windows.

IBM

It is almost certain that IBM will become the standard for microcomputer software. If IBM becomes the standard for graphics software as well, CADAM—IBM's graphics system—will

be center stage. The following interview with CADAM marketing people—Linda Tasker Tighe, Randall Kroha, and Richard Bennett—explains the company's strategy.

TF: How did CADAM become IBM's graphics software?

Tighe: CADAM began as Lockheed's in-house graphics system. In 1978, when Lockheed decided that it needed a partner to market CADAM to a wider audience and IBM decided that it needed better graphics software, the two companies joined forces. Lockheed still owns CADAM, but IBM markets the software.

TF: What is the market for CADAM and do you see that changing in the future?

Tighe: Since CADAM is primarily a facilities management system meant to run on IBM mainframe computers, its market has generally been companies with millions of square feet to manage, although a few large architectural firms use the system. The advantage of a mainframe-based system over those that depend upon micro or minicomputers is its ability to handle much more data, to support more CAD terminals, and to run cumbersome batch operations with greater speed.

Kroha: We're about to release a new system, called Personal CADAM, aimed at smaller architectural and engineering firms. It will operate on less expensive, stand-alone workstations, although it will be compatible with and operate much like CADAM.

Tighe: We're not trying to reach the very small, one- or two-person firms. We see the real market for Personal CADAM among firms with say 20, 30, or 40 people—firms that can't afford a mainframe but who need more than existing microcomputer software.

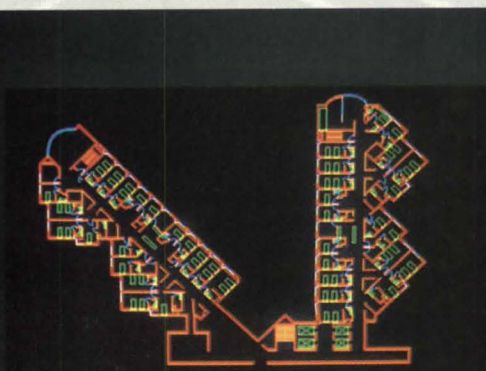
TF: What impact do you see the computer having on the architectural profession?

Tighe: It will bring dramatic changes. The computer will enable architects to broaden the services they can offer clients just as it has for banks. In the foreseeable future, some architects may be earning only 50 percent of their fee in the traditional manner. The other 50 percent might come from such things as facilities programming and management or graphics work, some of it nonarchitectural in nature. The computer will also affect code procedures. Most planning and zoning commissions eventually will have a model of their cities on the computer for use in judging a new building's compliance with codes, for instance, or in studying the effect a building's shadows or wind patterns have on adjacent buildings.

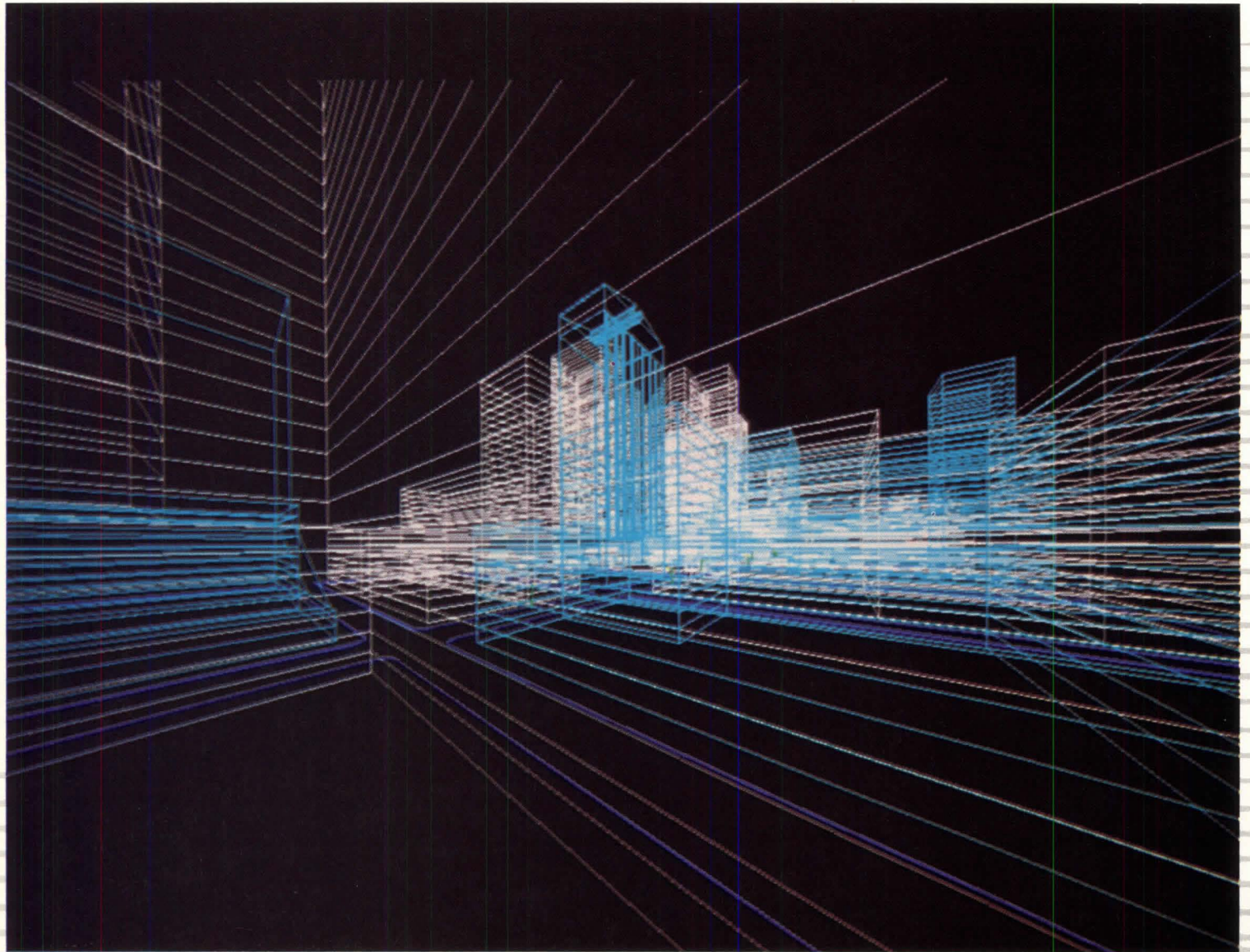
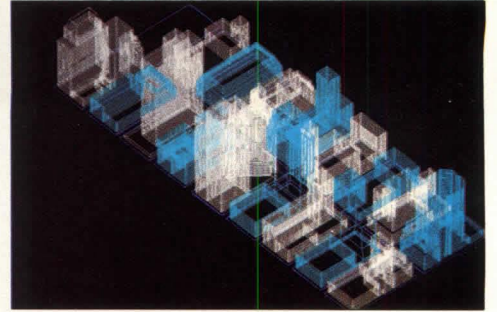
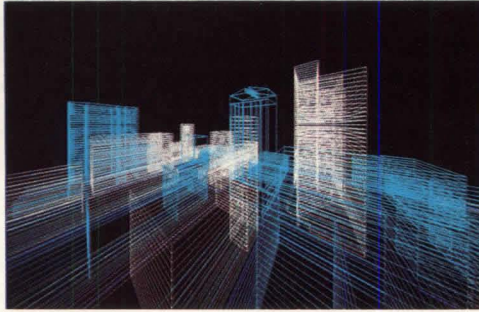
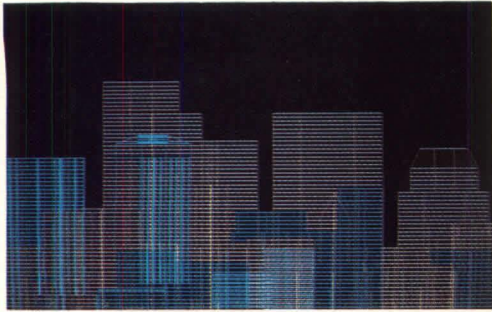
'Computers don't bode well for the small firm.'

Bennett: The structure of the architectural profession will also be affected by the computer. The profession is a cottage industry; it's labor intensive with a lot of personal involvement in its product. Because the computer requires a fairly sizable capital investment, it's going to force the profession to become more businesslike and probably force architecture firms to become larger and more diversified. I don't think computers bode well for the small firm.

We've developed Personal CADAM to help smaller firms get into areas such as facilities management. While we see the distinction between workstations and microcomputers disappearing, we've designed Personal CADAM to run on stand-alone workstations that most smaller firms can afford. Let's put it this way: they can't afford not to afford them. ■



Several phases in a hospital design by Payette & Associates—including massing, perspectives, plans, and site plan—were studied on SKOK's computers (left).



*Views of midtown Manhattan
(above) were developed by SKOK for
display in the Knoll showroom, New
York, during Designers Saturday
'84.*

Sources of Information

Abridged by Eric Teicholz from his publication, *Design Compu-data*.

Conferences and Conventions

A/E Systems 85—The 6th National International Conference/Exhibit on Automation and Reprographics in the Design Profession

A/E Systems Report
3400 Edge Lane
Thorndale, PA 19372
(215) 384-7262

AIDD: 24th National Convention and 9th Annual Design/Drafting CAD/CAM Exposition

American Institute for Design and Drafting (AIDD)
102 N. Elm Pl., Suite F
Broken Arrow, OK 74012
(918) 258-8651

CEPA: Society for Computer Applications in Engineering, Planning and Architecture, Inc.

CEPA
358 Hungerford Dr.
Rockville, MD 20850
(301) 762-6070

Computer-Aided Space Design and Management Conference cosponsored by Gralla Publications' Contract and Facilities Design and Management magazines

Gralla Conferences
1515 Broadway
New York, NY 10036
(212) 869-1300

National Computer Graphics Association Conference and Exposition

National Computer Graphics Association
8401 Arlington Blvd., Suite 601
Fairfax, VA 22031
(603) 698-9600

Periodicals

Computer Graphics World

Computer Graphics World Publishing Co., Division of PennWell Publishing Co.
1714 Stockton
San Francisco, CA 94133
(415) 398-7151

Computers for Design and Construction

MetaData Publishing Corp.
441 Lexington Ave.
New York, NY 10017
(212) 687-3836

Design Graphics World
St. Regis Publications, Inc.
390 Fifth Ave.
New York, NY 10018
(212) 613-9700

Plan and Print

AIDD, Inc.
10116 Franklin Ave.
Franklin Park, IL 60131
(312) 671-5356

Newsletters

A-E-C Automation Newsletter

7209 Wisteria Way
Carlsbad, CA 92008
(714) 438-1595

The A/E Computerization Bulletin

Guidelines
18 Evergreen Dr.
P.O. Box 456
Orinda, CA 94563
(415) 254-9393

A/E Systems Report

P.O. Box 11316
Newington, CT 06111
(203) 666-9487

Construction Computer Applications Newsletter

Construction Industry Press
1105-F Spring St.
Silver Spring, MD 20910
(201) 589-4884

ECAN: Engineering Computer Applications Newsletter

5 Denver Tech Center
P.O. Box 3109
Englewood, CO 80155
(303) 771-5307

Directories

Design Compudata

Graphic Systems, Inc.
180 Franklin St.
Cambridge, MA 02139
(617) 492-1148

Construction Computer Applications Directory

Construction Industry Press
1105-F Spring St.
Silver Spring, MD 20910
(301) 589-4884

Turnkey CAD/CAM Computer Graphics: A Survey and Buyers' Guide

Daratech Associates
P.O. Box 410
Cambridge, MA 02238
(617) 354-2339

Professional Organizations

American Institute for Design and Drafting

3119 Price Rd.
Bartlesville, OK 74003
(918) 333-1053

American Institute of Architects

1735 New York Ave., NW
Washington, DC 20006
(202) 626-7300

American Society of Civil Engineers, Surveying and Mapping Division

345 E. 47 St.
New York, NY 10017

Automated Procedures for Engineering Consultants, Inc.

Miami Valley Tower, Suite 2100
40 W. Fourth St.
Dayton, OH 45402
(513) 228-2602

Construction Specifications Institute

1150 17th St., NW, Suite 300
Washington, DC 20036

Design/Drafting Management Council

P.O. Box 11811
Santa Ana, CA 92711
(714) 838-5800

National Computer Graphics Association

8401 Arlington Blvd., Suite 601
Fairfax, VA 22031
(703) 698-9600

National Micrographics Association

8719 Colesville Rd.
Silver Spring, MD 20910
(301) 587-8202

Society for Computer Applications in Engineering, Planning and Architecture, Inc.

358 Hungerford Dr.
Rockville, MD 20850
(301) 762-6070

World Computer Graphics Association


2033 M St., NW, Suite 399
Washington, DC 20036
(202) 775-9556

Tips from Borkovich

George Borkovich, principal of A/E Systems, gives advice on getting and using computers.

- Start by appointing one individual, who should solicit input of those involved.
- Establish priorities: What areas require help, when and how? Don't get inappropriately seduced by, say, graphics capabilities.
- Look for new opportunities to apply your system.
- In the final selection on the system, Page Highfill from Richmond, Va., offers the following checkpoints: Is the computer among the top four in sales, so that a wide range of software will be available for it? What software does the manufacturer offer, and what outside software is compatible? What is the availability of local sales and service? What is your stockbroker's opinion of the company? What extra features are available for future add-ons?
- If possible, contact an independent A/E consultant.
- Get vendor promises in written form.
- Involve your firm's CEO in the decision.
- Don't take *too* long in deciding. You can wait forever for new technology, as there's always something new.
- Be sure to bill for computer service—it is not just overhead.
- Expect the financial payback within 1½ to two years.
- Consider the options to buying: leasing; renting/financing for eventual buying; buying rebuilt, warranted used equipment (brokers are springing up).
- It is wise to consider using decision-makers, rather than computer specialists, at the terminals.
- What to pay people with computer experience? Generally, these people can expect higher pay (technical industries and computer vendors can offer higher salaries, and this can be a sore point in a firm).
- Where to get experienced people? If necessary, pirate them from other firms. Or set up a training program, looking for enthusiastic staff members.
- Expect hidden costs: service, training, supplies, additional software packages.
- Don't computerize everything. Some operations are better done manually, such as one-time applications.
- Have a backup plan for when equipment breaks down; have a second piece, or arrange for a replacement from the dealer.
- Be wary about selling your own software. Do you know about testing, marketing?

P/A Fifth Annual International Furniture Competition

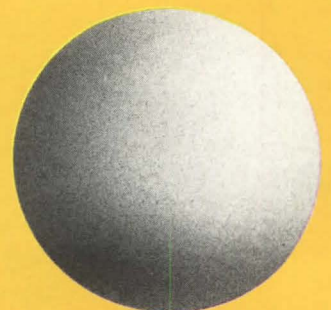


Conceptual strength versus production potential is the issue this year, regardless of stylistic trends or preferences.

You can take the “conceptual” out of the competition, but can you take the competition out of the conceptual? That is the question in this year’s International Furniture Competition, which drew 920 entries from 33 countries.

After an initial three years of increasingly theoretical submissions, P/A decided (as of last year’s competition) to drop the word “conceptual” from the program’s title, a move that appeared to produce a greater proportion of “real,” production-oriented pieces among last year’s winners. This year’s group, however, seems to signal a swing back toward the conceptual: Even the pieces that are technically sophisticated or stylistically conservative are clearly intended as one-off or limited-edition designs, and are more concerned with embodying an idea than serving a utilitarian purpose or reaching a large market. A good example is that of lighting, which is, admittedly, always the most difficult category in technical terms. But the winning lights are conceived as sculptures or constructions. And while the jury considered every entry for materials and craft, the idea behind the design came first: That was what consistently attracted jurors of divergent philosophies to such disparate objects as the meticulously crafted desk that juxtaposed a high-tech metal structure with a Classical façade, and a table made from a folded dollar bill.

The competition is just five years old and while it has thus far generated less than we had hoped in terms of actual furniture production, it continues to produce an annual crop of provocative ideas—one of the premises on which the competition was founded in the first place. *Pilar Viladas* ■



1 9 8 5

General jury comments

Gwathmey: I think the whole level of the submissions was better than last year's. . . . There was more variety, . . . less Post-Modernism, and more integration and consolidation of the classic and the new. And that, compared to last year, was refreshing, and gave the jury the opportunity to choose disparate and unique pieces on their own terms.

Beeby: There were the conceptual things versus the real things. . . . But I think if you made a well-constructed, beautifully finished piece that wasn't wildly conceptual, it wouldn't stand a chance—which may be okay.

Schultz: But there were some real things that we gave awards to.

Beeby: They weren't production things, though.

Schultz: But they are built furniture. . . . The craft of making furniture is terribly important, especially if you're going to make a number of pieces, but it's really very hard to judge these pieces on that basis. Probably the most interesting pieces here are those that are the most dubious in terms of craft.

Beeby: If you look at this group of objects that we've selected . . . in terms of solving problems or dealing with functional needs, they're not really strong, any of them.

Schultz: I think that's the history of this competition, almost.

King: A lot of entries were on a fairly high level, but there was not as much radical free-thinking as I would have liked. A lot of people fell into established styles, which was disappointing. I was disappointed in the lighting entries, which didn't tackle the technical problems of illuminating spaces at all. I was pleased with the decorative furniture, but disappointed with the office furniture,

especially those pieces that had to handle technical requirements such as computers. I liked the presentations; obviously, people went to a lot of trouble with them.

Wurman: My fantasy was that there would be two or three things that had what I call "of course"—the quality that makes me wish I had come up with it myself. Some were very well done, but there were no revelations about the performance of interiors. The essence of interiors is looking at the art of performance. For instance, I'm not interested in lamps as much as I'm interested in lighting. . . . But one wants the designs to perform artfully, not just functionally. ■



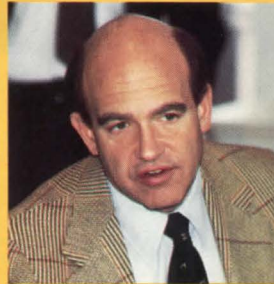
Thomas Hall Beeby, a partner in Hammond Beeby & Babka Architects, Chicago, Illinois, has designed furniture and is incoming dean of Yale's School of Architecture.



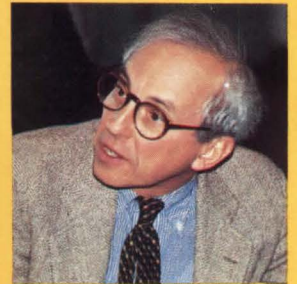
Perry A. King is a partner in the office of Perry A. King and Santiago Miranda, Milan, Italy. The firm specializes in product and interior design, including lighting and furniture.



Richard Saul Wurman is an architect, author, and editor based in Los Angeles, California. He is also the founder of Access Press Ltd., which has published guidebooks on a variety of cities and subjects.



Charles Gwathmey, a partner in the New York firm of Gwathmey Siegel & Associates Architects has, with his partner, Robert Siegel, designed both contract and residential furniture and accessories.



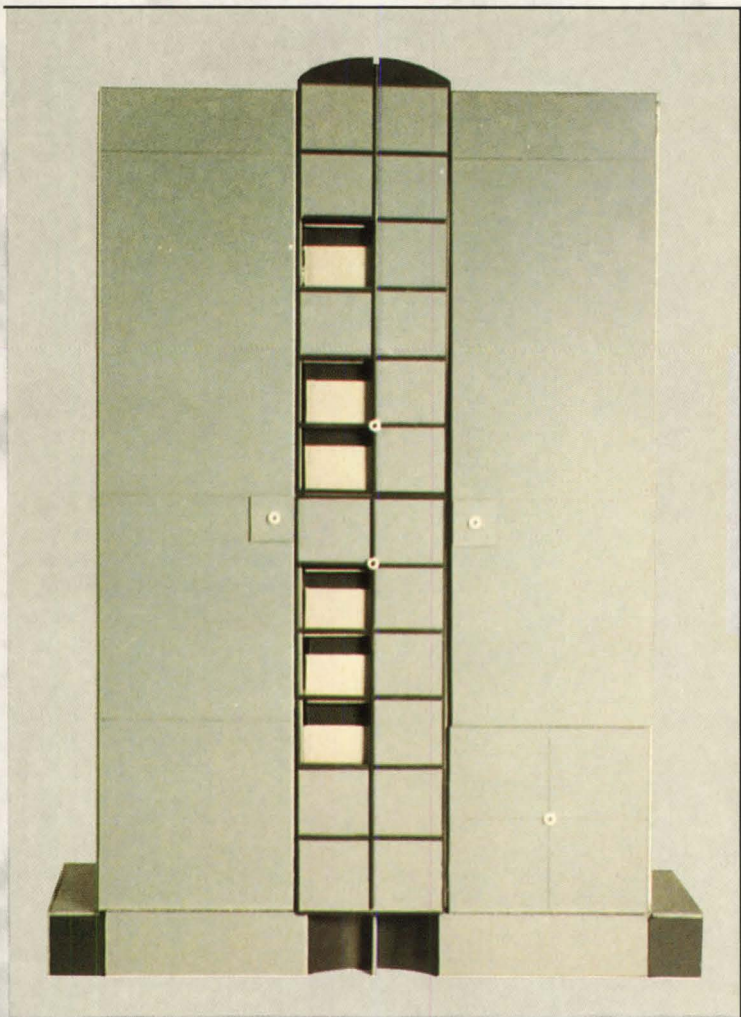
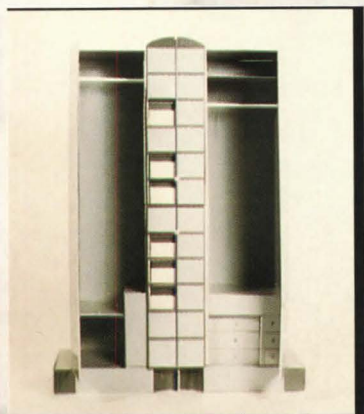
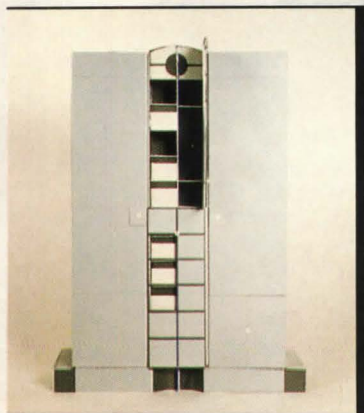
Richard Schultz, an industrial and furniture designer based in Barto, Pennsylvania, has designed furniture for numerous major manufacturers in the U.S. and abroad.

Photos: Lynn Karlin

Award

Armoire

Chris A. Gazso
Chicago, Illinois



Project: An armoire that measures 84 inches high, 50 inches wide, and 24 inches deep, constructed of lacquered plywood, glass, and metal, and colored gray, cream, and charcoal. The design represents ornament as a result of the incidental interior arrangement behind the "proper" façade.

Jury comments

Beeby: It seems to be a well-made, well-proportioned thing. It has a kind of variety within the very rigidity of it. . . . Look at how the doors open up.

King: Very elegant.

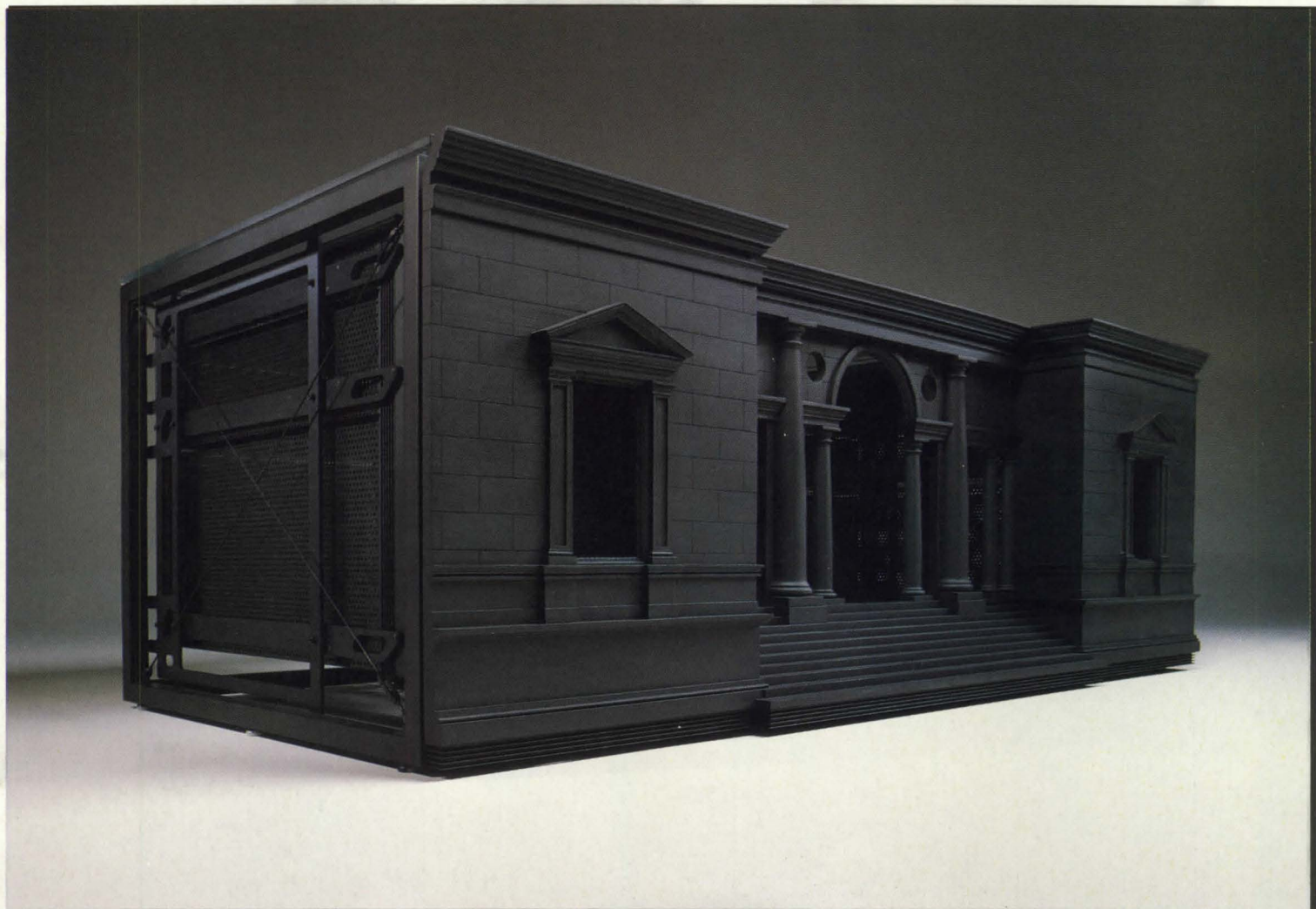
Gwathmey: This is . . . compelling on every level, both as a graphic and a color, and as a set of options within a construct; the variations that have to do with the use and flexibility literally make the graphic.

Schultz: I think this is typical of what I want to see in design, where the graphic element really comes from function. You could divide this up differently, but it is really pleasing to find something that looks as it functions.

Beeby: As you use it, it gets richer. Although there's little indication of that when it's closed, when you open it up it gets more and more interesting.

Desk

Rory McCarthy
 Kevin Kearney
 Bob Mick
 Tucson, Arizona



Project: A desk, 84 inches long, 36 inches wide, 30 inches high, and colored matte black. It is made of aluminum, steel tube, perforated stainless steel, rubber, and glass, and is equipped with LED time, date, temperature displays, and weather radio. The desk is ornamented with a Classical façade model of white oak, also colored black. The design is an attempt to fuse technology and Classicism, with grace and harmony.

Jury comments

Gwathmey: It's the decorated frame.

Wurman: It's an honest decorated frame.

Gwathmey: Isn't the real comment that 20th-Century technology and quartz clocks and all this kind of stuff can't ever be discreetly disposed in the Classical model, and so you integrate the two and make a comment on both?

Beeby: But actually, this is relatively pure, and makes no attempt to transform either;

both languages are left intact. . . . I think it's a very powerful juxtaposition from the front to the back. . . . It's a very sophisticated combination of two disparate parts, and I think it works. It would be fun, almost like sitting at a doll house.

Schultz: What he's completely eliminated is the idea that anyone sit in front of the desk . . . there's no slide-out front, or anything you could possibly utilize in any kind of functional way. First of all, you're going to get your feet all over the steps . . . but I don't know if you can ask that kind of question about a design like this.

King: I like, too, that celebration he's done on the sides with the tie rods.

Award

Stool

Michael Graves
Mary-Ann Ray
Keat Tan
Princeton, New Jersey



Project: A stool, designed for use in a small boutique, but which can also be used in residential and commercial settings. The stool, which measures 18 inches high, 19½ inches wide, and 15¾ inches deep, is made of stained bird's-eye maple veneer inlaid with ebony; the seat is covered with black wool sateen, although other fabrics can be used. The form of the legs is abstracted from the anthropomorphic forms of early furniture designs.

Jury comments

Schultz: I like it because it doesn't reproduce any particular style. It seems like period furniture, but I don't know what period, and that's nice.

King: Is it yesterday, perhaps?

Beeby: Or tomorrow—who knows?

Wurman: I think it's a pleasant footstool, and I say that not because I think it's important. It doesn't try to carve out risky areas . . . but what it tries to solve, it does very well, very pleasantly.

Gwathmey: The seat is very resolved . . . It's also interesting that it's frontal. It has a front and sides.

King: It's by far the best . . . in proportions.

Music Stand

Ruth Rotholz
Roger Tucker
New York, New York



Project: A music stand of polished brass and acrylic glazing. The stand's shaft is adjustable to 60 inches in height; its base is 14 inches in diameter; and the music tray is 20 inches wide and 12 inches high at its center. The design is harmonious with the ceremonial tradition of classical music and its performance environment, while at the same time respecting the functional requirements of the musician.

Jury comments

Schultz: It's one of the best things I've seen.

Gwathmey: You could put a bulb in it and make a lamp, and it would be better than most of the lamps we've seen.

Schultz: It's beautifully made in the detailing . . . it's just very nicely put together . . . I like the music lines going across [the tray].

King: Maybe the base is a little weak. . . . But the upper portion is absolutely beautiful . . . that's a very elegant object.

Gwathmey: And it doesn't have to be a music stand. You could have a little drawing there; you could put a flower on it. I mean it is, on its own terms, an object.



Desk

Sava Cvek
Michael King
Newton, Massachusetts



Project: A desk of mahogany, measuring 78 inches long, 36 inches wide, and 28 inches high. The design is based on the premise that a working desk is a place where creating is like building a bridge between elements of reality.

Jury comments

Schultz: I've seen this before, but as a kind of translation of a Classical piece, I think it works reasonably well. It's very elegant, and it seems to be well made.

Wurman: I don't understand why there are no drawers in it.

Gwathmey: It doesn't accommodate anything. As an image, though, it's compelling.

Beeby: The argument for this piece is that it is a known Classical idiom for a particular design language, and it is very skillful in the way it transforms that language. The use of the round piece as a hinge, and the bridge/arch as an expression of spanning, is quite successful.

Schultz: I might like to see that cylinder not of wood, but of another material. . . . It's like a load-bearing thing; it refers back to

bridges, which are mounted on rollers because there is movement there.

Gwathmey: That's what transformation is . . . you don't talk about the literalness of it but the intention of it.

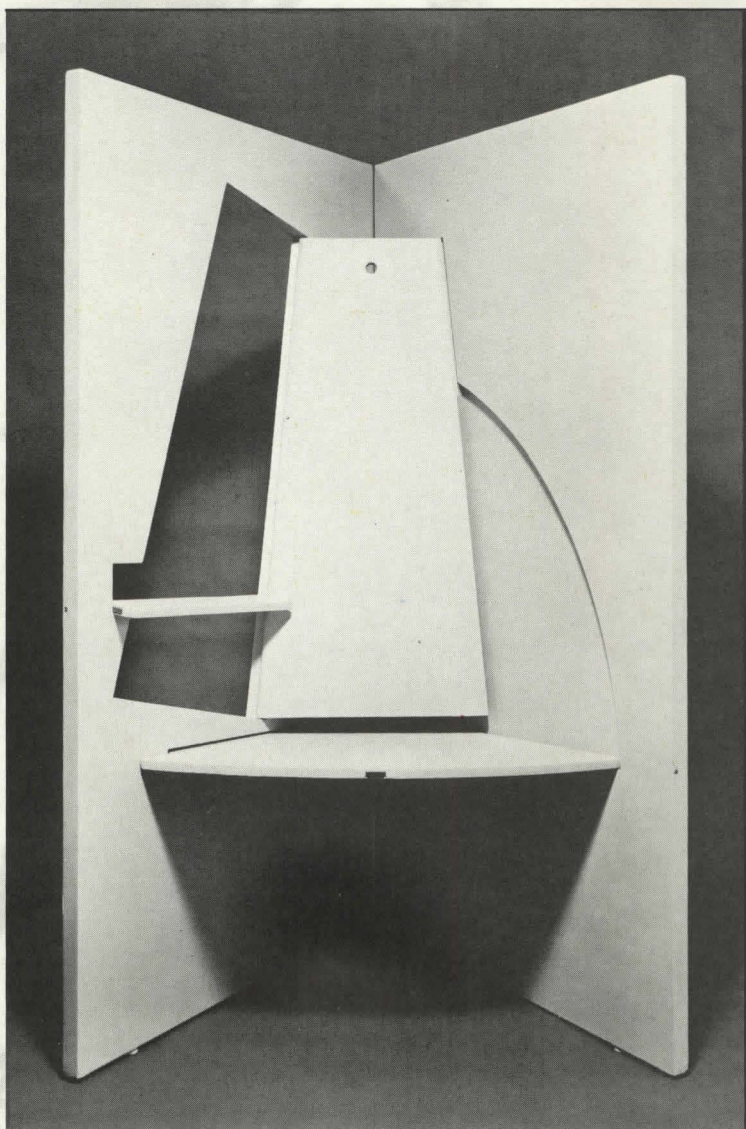
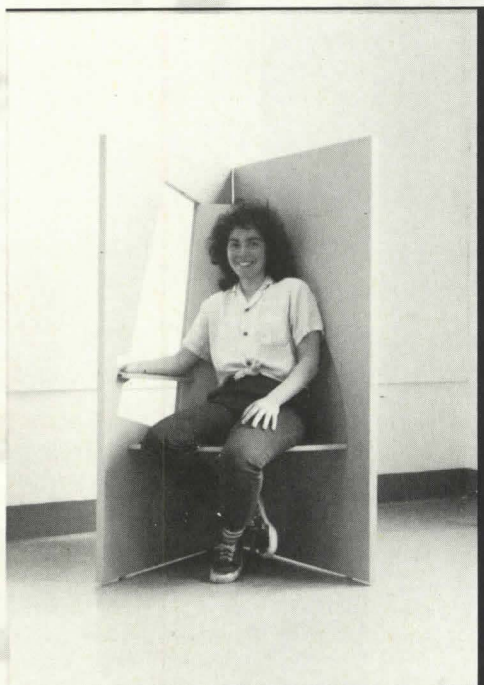
King: Are these policies enough to justify a place in an international furniture design competition?

Wurman: It says that it's a working desk, but it's a table, not a desk. . . . Those pedestals, for the size they are, should have something in them.

Beeby: Still, I think as a piece of design, it's very skillful.

Chair

Jeanine Centuori
New York, New York



Project: A plywood chair, measuring 60 inches high, 30 inches wide, 4 inches thick, and painted gray. The chair is created by elements that fold out from two planes. In the closed position, it is a flat plane that can be easily stored. When the two planes are opened, it becomes a partition. When the back and seat are in place, it becomes a chair.

Jury comments

Schultz: It's really a wing chair, isn't it?

Wurman: But it's also something like a screen. I can think of doing even more of them and making a screen.

Schultz: Yes, but imagine using it. . . . It's a very upright posture. . . . I like the idea but it should have been done on a lounge posture. This is too upright.

Wurman: I really think it's very architectural. It makes a space; it's a screen. You can sit in it . . . it's like a throne. Even the geometry shows how it's made.

King: And when you're not using it, you can put it away.

Banker's Table

Jessica Silverstein
Chicago, Illinois



Project: A dollar bill was folded into a table; it may be unfolded back into a dollar. The bill was never cut, torn, or altered. At $\frac{3}{8}$ inch = one foot, the table would measure 37 inches square and 32 inches high, and would be made of coated paper stock.

Jury comments

Schultz: This is one of my favorites. . . . my problem is, how do you lithograph . . . the image?

Gwathmey: It gives off a very secure feeling. Money and tradition, right?

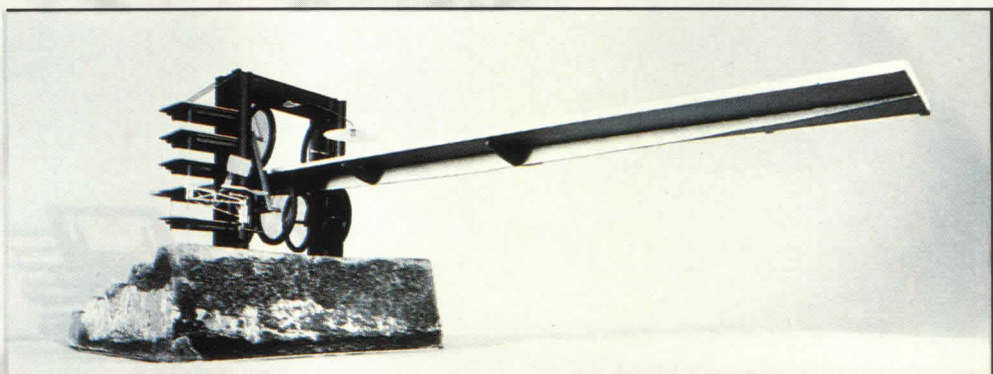
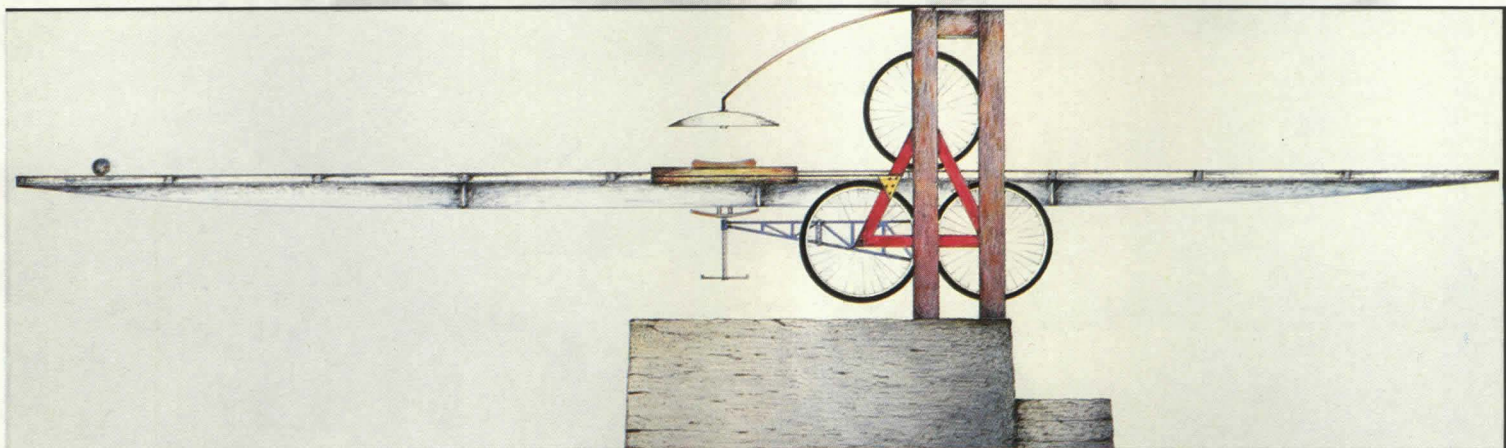
Beeby: I admire the purity of the process of actually folding up the dollar bill.

Wurman: It's really beautifully done.

Schultz: Yes, but I'm so involved in the craft of making furniture that it's a hangup with me—I just don't know how it would be made [as a conventional table]. I can see how you could lithograph a piece of material and then heat-form it . . . I'm not sure you could do all this folding.

Workstation

*Kenneth L. Kaplan
Christopher Scholz
Ted Krueger
Brooklyn, New York*



Project: A workstation, consisting of a 3-foot by 30-foot aluminum-Kevlar honeycomb work surface, supported six feet above the floor by six bicycle wheels mounted on a steel frame that also supports the seat, lighting, and information processing or drafting equipment. The work surface slides laterally past the seat, allowing various pieces of work to be laid out simultaneously. The back edge of the surface is lined with fluorescent tubes that pass through a baffle at the work position, casting light across the surface and providing ambient light. A task light is also included. The entire workstation is raised three feet on a granite plinth, with steps wrapping around two sides.

Jury comments

Wurman: This would do Burnham justice. I mean, on this he would make no little plans.

Schultz: It's a cartoonist's idea. It's incredible . . . Dada, or something.

King: It's a 30-foot-long object. It's a robot; I don't think it's a piece of furniture.

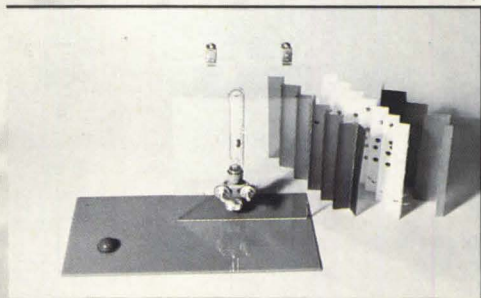
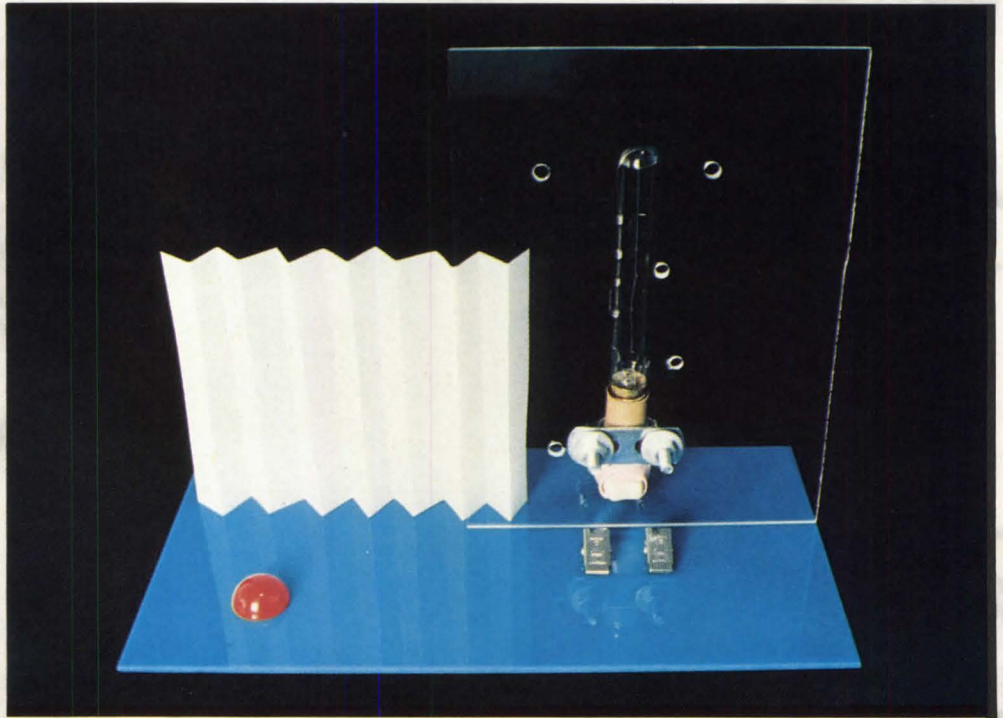
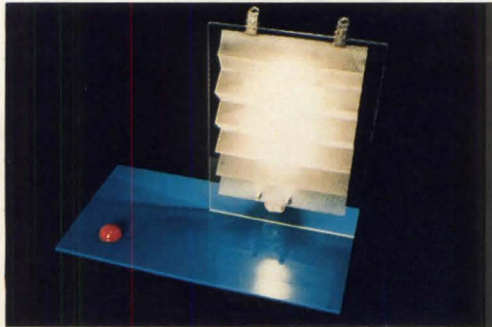
Beeby: It's a representation of design as a kind of heroic activity.

Wurman: I think this lighting doesn't make sense.

Beeby: As an image, as a poetic representation of work, it's amazing.

Light Fixture

Andrew Metter
Chicago, Illinois



Project: A light fixture of plexiglass, Mylar, galvanized steel brackets, a 40-watt tubular bulb, and chrome-plated clips. The fixture is 12 inches long, 6 inches wide, and 10 inches high. The design articulates the basic elements of the traditional light fixture: lamp; base; switch; and, especially, shade, which developed as the most important variable element. By removing it from the structure of the lamp, its true nature—that of a freestanding “screen”—could be exploited. Shades of various designs, colors, opacity, and intensity could be clipped on and off at will, with effects ranging from an opaque “eclipse” to no shade at all. The design of the shade enables it to be clipped to the backdrop or to stand on the base as a curtain. Ten shades are provided for each fixture. The lamp can also be hung by wires attached to the clips.

Jury comments

Gwathmey: I picked this . . . because you can change the pieces to make different lights as you hang them on the glass—a different screen or a different filter.

Beeby: The bulb isn't bright enough for a lamp.

Gwathmey: All the lamps we chose have a sort of sculptural, constructivist intention. We're not talking about the quality of light, *per se*, but the quality of the object with the light as an integral, or supportive, part of the object.

Beeby: The idea of a lampshade that you could change all the time is an interesting reinterpretation. The clips are wonderful.

Chair

Zack McKown
New York, New York
Model: Studio Associates



Andrew Garn

Project: A metal chair, 48 inches high, 16 inches wide, and 16 inches deep. Its surfaces are painted; the back is exposed; and edges are revealed.

Jury comments

Gwathmey: This was the best image board in the whole competition. It's so clear—the connections of the three pieces and the slot in the back revealing the other dimensions. It's great.

Schultz: I agree with Charlie; this is one of the best presentations I've seen. Whether it is a good chair or not is something else. . . . You know, you can sit on anything. Traditionally, furniture was not concerned with comfort, but now we've sort of learned how to talk about comfort. Then that takes over, and all we have left is comfortable furniture that looks funny.

Wurman: We all have some doubts about the ultimate comfort of this chair, and what ma-

terials it would be made of, and whether it would bend or give or how you'd settle into it.

Gwathmey: But the [formal] implications of it, and the various materials you could make it out of . . . are so compelling, it's hard to resist.

King: I really don't think the chair is as good as its presentation.

Wurman: You know the angle in here [the seat] . . . what really happens if you slide down in there is . . .

King: Is that you'd never get out.

Schultz: What I like to have happen in a chair is that it's more comfortable than it looks, because the opposite is devastating. The things that I've done that I felt best about are the ones with a formal look to them, but which are comfortable, as opposed to the things that look voluptuously comfortable and turn out to be miserable.

The Eidolon

William H. Grover, AIA
Centerbrook Architects
Essex, Connecticut



Project: A light, 80 inches high, 36 inches wide, and 14 inches deep, made of white fabric, and yellow, pink, and blue neon tubes. The name "Eidolon," meant to describe an image or phantom, is derived from the Greek *eidos*, meaning "form" or "shape." This fixture, which is intended to be a sculptural object rather than a source of illumination, is an exploration of the effect of light and shadows cast by three linear sources, each of a different color, as diffused by the translucent fabric. The soft shadows cast by the light are edged with a tiny colored halo. Supported by almost invisible wires and filaments, the light is free to move with currents of air.

Jury comments

Beeby: It uses light in a very evocative way . . . where you create this sculptural piece that . . . creates a kind of atmosphere.

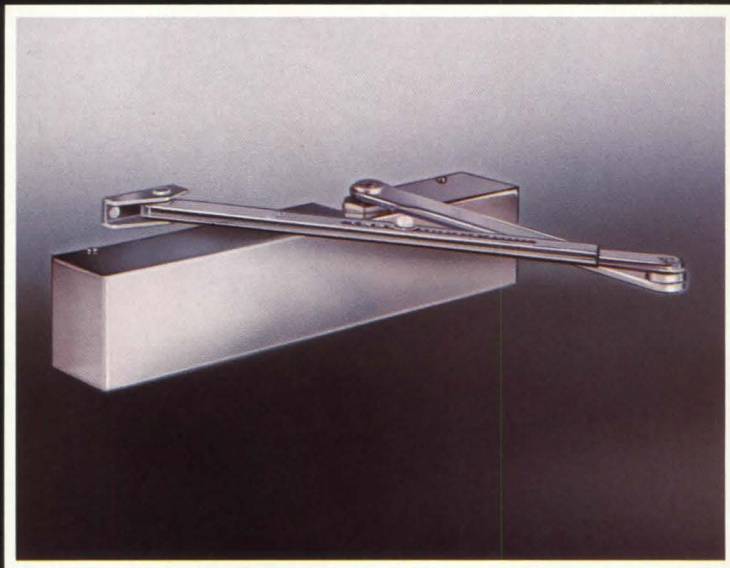
Wurman: Let me just say that I've seen so many things like it, so many lamps draped with cloth, in so many places, that I don't see the value of it. Restaurants all over Paris have napkins draped over lights.

Gwathmey: But the [neon] is the difference. Taking the neon, which is a high-powered light to begin with, . . . and diffusing it, makes it more intense at the source and then turns it pink and purple as it goes through. . . . The diffusion is the transformation.

Schultz: The fact that anyone could do it and that it's sort of offhand appeal to me.

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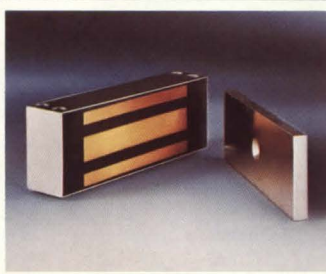
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NEOCON 17



Fred Korth

Architects, designers and contract furniture manufacturers gather in Chicago to discuss design worldwide.

NEOCON, the international contract furnishings market and congress on environmental design, takes place June 11-14 at the Merchandise Mart in Chicago. Among the conference's many events of interest to architects are a symposium on Modern architecture, and an "inventory of world architecture" presented by delegates from the Union of International Architects. The architectural symposium, entitled "Design: Reflecting the Cultures of the World," will explore the current state of architecture. A distinguished panel of architects from all over the world will be moderated by Design Critic Wolf von Eckardt.

Other highlights include an Architects Luncheon on Friday, June 14, where the Chicago Architectural Award will be presented to architects I.M. Pei, I.M. Pei & Partners, New York and Kenzo Tange, Kenzo Tange & Urtec, Tokyo. There also will be a series of seminars and workshops on the contract industry in the United States, focusing on individual firms and how they have affected the development and course of contract design. On opening day, Tuesday, June 11, there will be a Contract Furnishings Council luncheon.

On Tuesday evening, June 11, there will be a presentation of the winners of the State of Illinois Furniture Design Competition in the State of Illinois Center. The purpose of this competition was to design a suite of furniture for the Governor's office.

As in past years, the showrooms in the Mart will be complemented by the displays of contract furniture manufacturers from outside the United States in the NEOCON International Pavilion at the Expocenter/Chicago.

In addition to these activities, there will be various other seminars and workshops, many with an architectural emphasis. Please consult the following guide for the exact details of time and place. ■

Seminars and Workshops

Tuesday, June 11

9:00 A.M.

Illinois Chapter/ASID Presentation, "The South Shore Country Club Restoration." Karl Kaufman, Norman DeHaan Associates, Chicago.

10:30 A.M. Workshop

"The Single Source: Contract Dealer Forum on Achieving Excellence."

Armand Breard, President, Contract Furnishings Council, New Orleans; A. John Dodson, Governor, Contract Furnishings Forum, St. Louis; Albert Howell, President, Bank & Office Interiors, Seattle; A.J. Kaufman, President, F.W. Robertson Co., Solon, Ohio; Lawrence Ryan, President, Knoll International.

NOON

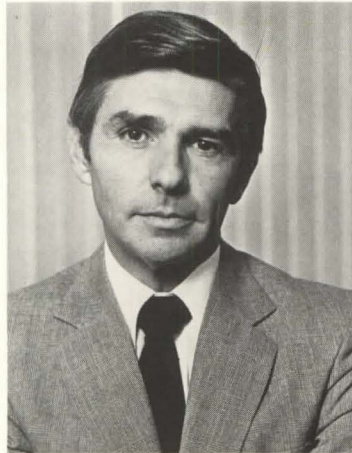
Contract Furnishings Council Luncheon.

4:00 P.M. Seminar

"Conference of Mayors: The New Economics of Urban Management." The Honorable Harold Washington, Mayor of the City of Chicago, will give the opening address.

6:00 P.M.

The State of Illinois Furniture Design Competition Awards Presentation, State of Illinois Center.



Lawrence Ryan



The Honorable Harold Washington

Wednesday, June 12

8:30 A.M. Seminar

"The Responsibility to Preserve Cultural Heritage," Dr. Alexander King, cofounder, The Club of Rome, Paris, will give the keynote address.

10:30 A.M. Workshop

"Designer Compensation/Fee Survey: Measuring Up to Industry Standards," with Justin Thompson, partner, Business Products Consulting Group Int'l., New York; Andrew Loebelson, Vice President, Building Programs International, New York; Jack Dunbar, principal, DePolo/Dunbar, Inc., New York; James Rappaport, Executive Vice President, Daroff Designs.

2:30 P.M. Workshop

"A Case Study of Historic Preservation: The Statue of Liberty and Ellis Island," John Belle, FAIA, principal, Beyer, Blinder, Belle, New York. Richard Hayden, principal, Swanke, Hayden, Connell Architects, New York.

4:30 P.M. Seminar

"The Evolution of Office Design: A Retrospective Look," with Douglas Davis, architecture critic, *Newsweek*; Lawrence Lerner, Environetics, Inc., Los Angeles; Sherman Emery, former editor, *Interior Design*; Margo Grant, Partner, Gensler & Associates, New York; Marvin Affrime, President, Space Design Group, New York.

4:30 P.M. Seminar

"Tradition vs. Innovation in European Architecture: The Past Acclaims the Future," with Leon Krier, Architect, London; Bernard Huet, Architect, Paris.

6:00 P.M.

Illinois Chapter/ASID Reception, South Shore Country Club.



Justin Thompson



John Belle

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NEOCON 17
Seminars and workshops

Thursday, June 13

8:30 A.M. Seminar

"Current Business Design Directions: The New Corporate Signature," with Karen Daroff, Principal, Daroff Design, Philadelphia; Mel Hamilton, Partner, ISD, Chicago; Gregory Landahl, Partner, The Landahl Group, Chicago. Charles Pfister, President, Pfister & Associates, San Francisco; Sandra Ragan, FIBD, President, IBD, chairperson.

8:30 A.M. Seminar

"Corporate Trans-Action: Development Trends in the United States," with Stephen Montgomery, President, The Office Network, Houston. Facility Presentation: The Procter & Gamble Headquarters Project, Kohn Pedersen Fox Conway & Associates Design Group.

8:30 A.M. Seminar

"An Inventory of World Architecture: Assessing Our Planetary Dimensions," with Anthony Churchill, Director of Urban Development, The World Bank; R. Randall Vosbeck, UIA Council Member. Special Focus on China and the Far East, with UIA Delegates.

10:30 A.M. UIA Workshop

"An Inventory of World Architecture." Special Focus on Africa, with UIA Delegates.

10:30 A.M. Workshop

"Protecting the Public: Legal Recognition for the Interior Design Professional," with Margo Jones, IBD, Associate, Thompson, Ventulett, Stainback & Associates, Atlanta.

NOON Luncheon

"Focus: Facility Management."

2:30 P.M. Workshop

"Marketing the Small Design Firm: Facing the Issues," with James Morgan, Architect, Author, New York; Debbie Weber, IBD, Treasurer, IBD, Dallas.

2:30 P.M. Workshop

"Daylighting in Design: Redis-



Gregory Landahl



Anthony Churchill

covering Forgotten Basics in Interior Illumination," with Benjamin Evans, AIA, Author, *Daylighting in Architecture*.

4:30 P.M. Seminar

"Zero Base Planning: The First Corporation of the 21st Century."

4:30 P.M. Seminar

"The Monumental American Skytower: The Next Age of the Baroque," with Henry Cobb, I.M. Pei & Partners, New York; Bernardo Fort-Brescia, Principal, Arquitectonica, Miami. Bruce Patty, FAIA, President, AIA, will act as moderator.

6:00 P.M.

Facility Management Reception, hosted by Badische, sponsored by IFMA.

Friday, June 14

8:30 A.M. Seminar

"The State of the Contract Industry in the U.S. and The World," with Dale Keller, Principal, Dale Keller & Associates, New York; Frank Hammerstrom, Corporate Director, HOK Interiors Group, St. Louis; Alan Briskman, President, CEO, Environetics International, New York; William G. Brown, Vice President/Principal, Environmental Planning & Research.

8:30 A.M. Seminar

"Culture & Vernacular: The Next International Style," with Marja-Riita Norri, Finland; Jose Linazasoro, Madrid.

10:30 A.M. Seminar

"The Interiors Profession: Milestones, Challenges and Rewards," with Arthur Gensler, President, Gensler and Associates, San Francisco.

10:30 A.M. UIA Workshop

"An Inventory of World Architecture." Special Focus on Eastern Europe.

NOON Luncheon

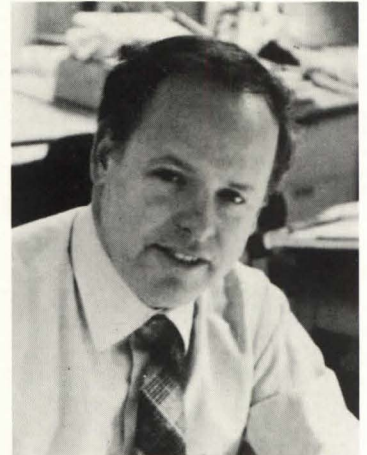
"Focus: Architecture." Chicago Architectural Award: I.M. Pei, I.M. Pei & Partners, New York; Kenzo Tange, Kenzo Tange & Urtec, Tokyo.

3:00 P.M. Symposium

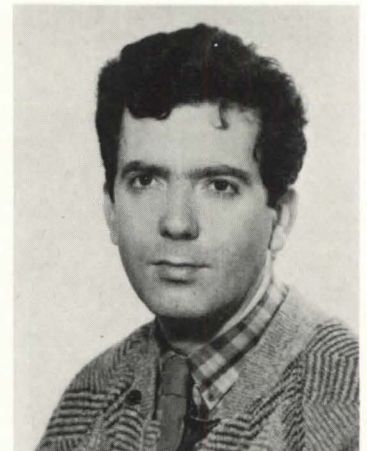
"Design: Reflecting the Cultures of the World." Wolf von Eckardt, Design Critic, will act as moderator.

5:00 P.M.

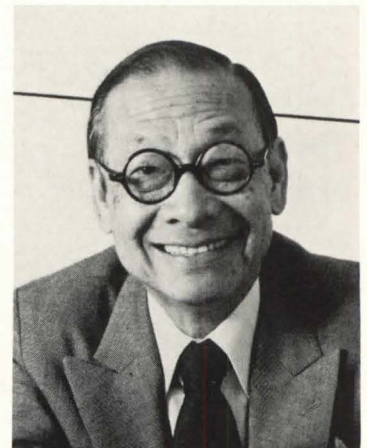
Union of International Architects Reception.



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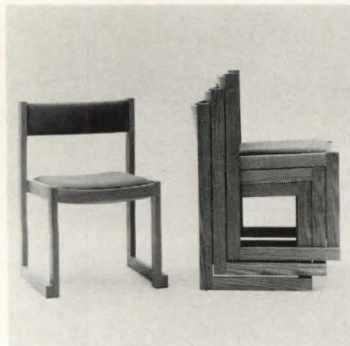
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Circle 301



Adden Furniture

Adden introduces the new Every-where armless stacking chair for use in health care facilities. The chair is available in both all-wood and upholstered versions.

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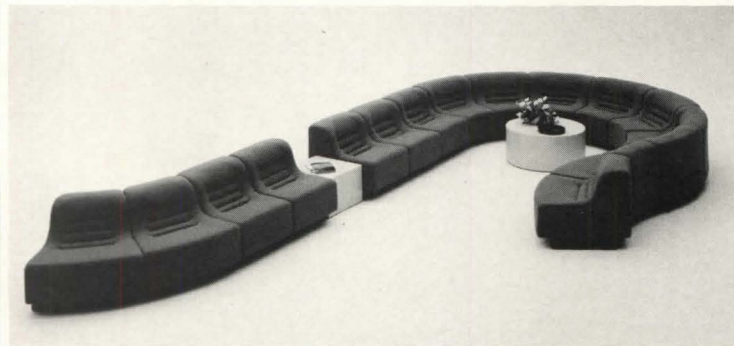
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Artec

Artec presents a new addition to the Carrington Collection, the slat-back guest conference chair. Designed by Earl Koepke, the chair is available in a choice of walnut, mahogany, cherry, or oak.

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Alma Desk

The Modulo-Nine series, designed by M. Fillmore Harty, is extremely flexible, featuring straight sections, inside and outside curves, and four different sizes of tables.

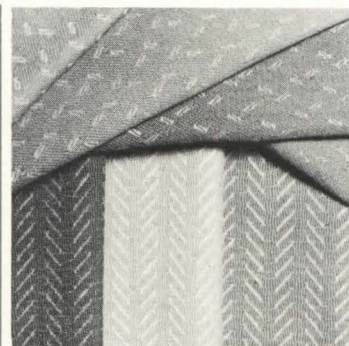
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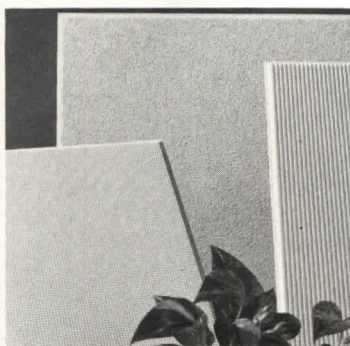
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Arconas

Gemello is designed by Conrad Marini as a contemporary version of an English club chair.

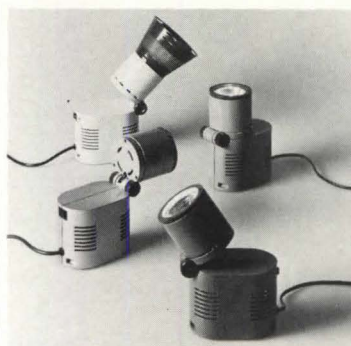
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Armstrong

Armstrong introduces Artran acoustical ceiling panels. From left to right, Fine Grid, Natural Texture, and Wrapped Linear.

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Artemide

The Pilade table spotlight is one of a series designed by Ernesto Gismondi. The body is made of diecast aluminum with a lacquer finish.

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Atelier International

AI introduces square and rectangular tables and low tables designed by Le Corbusier. The tables have polished chrome legs and table tops framed in enameled steel, available in a wide range of colors.

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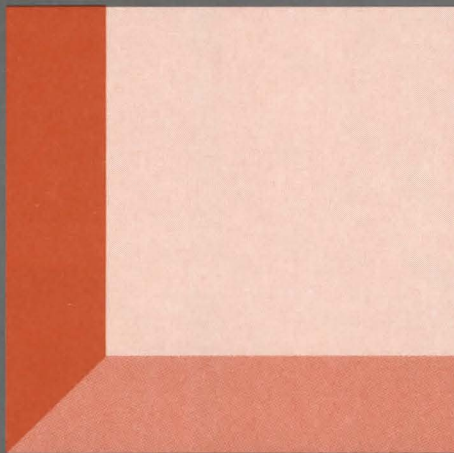
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- Reception: June 11, at 4:30 P.M.

- **Symposium: 5:30 P.M.**
"The Habitable Wall" with:

Thomas Beeby, Hammond Beeby & Babka, Inc., Chicago

Charles Gwathmey, Gwathmey, Siegel & Associates, New York

Robert H. Timme, Taft Architects, Houston

Susana Torre, The Architectural Studio and Columbia University, New York

William Turnbull, MLTW/Turnbull Associates, San Francisco

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The problem: A Wall of a Room in a Tower

The form of submission: A full-color, 20" x 30" model in a box

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To attend the opening reception and symposium, please write for tickets to:

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The exhibition will run from June 11-14.



William Turnbull

Susana Torre

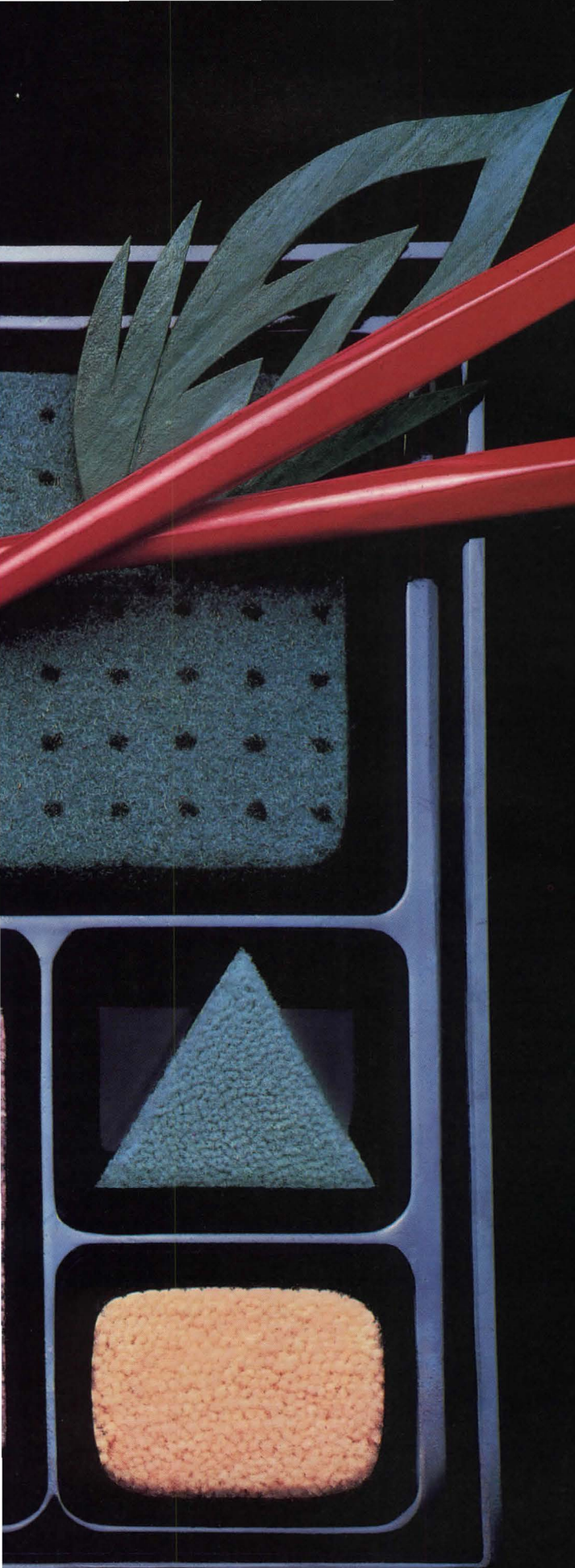
Charles Gwathmey

Thomas Beeby

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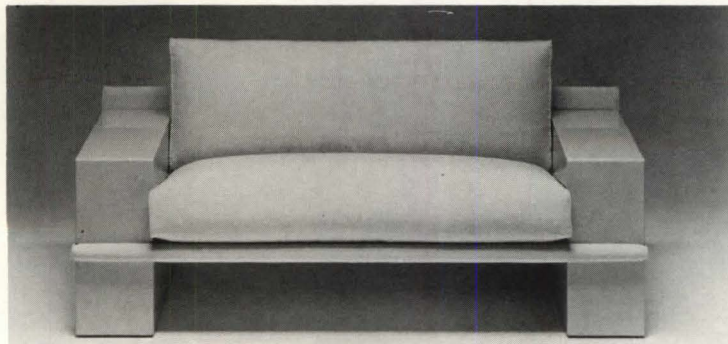
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Axiom Designs

Nilo, from the Italian-designed Brunati seating line, features high-gloss lacquer finishes and a variety of structural options.

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Beylerian

The T-Line chair is available in both low-back and high-back versions, and in either leather or fabric coverings.

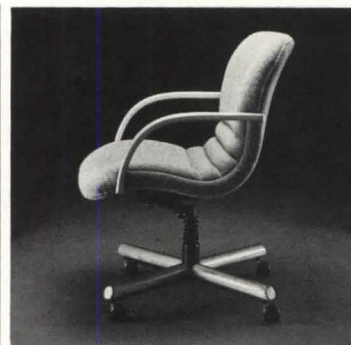
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Bigelow

New Beauvais is a collection of patterned carpets in nine designs. It is available in 45 colorways. These have been designed to harmonize with 10 coordinating solid colors.

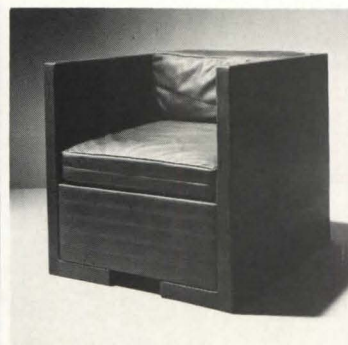
Circle 113 on reader service card



Boling

Designed by Carlos L. Lopez-Benitez, the Cobra chair features Canti-lever controls with optional gas cylinder.

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Bonaventure

The Tuxedo Junction Lounge Chair is from a collection of leather-covered seating designed by Stanley Jay Friedman.

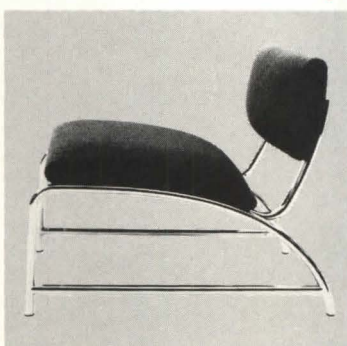
Circle 115 on reader service card



Brayton

Molded from solid beechwood, Anita is part of the Classic Designs in Wood Collection. Designed by Oswald J. Beck, Anita is available in 10 finishes.

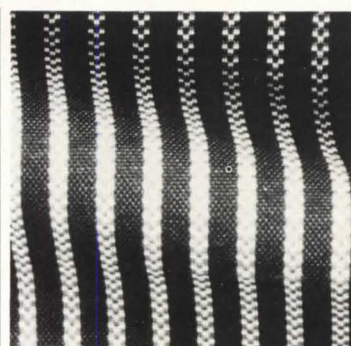
Circle 116 on reader service card



Brueton

The Empire chair, designed by Stanley Jay Friedman, is made of one-inch round stainless steel curved to form legs. It is intended for use in lounge and reception areas.

Circle 117 on reader service card



Brickel Associates

Klimt is a woven mosaic stripe on a rep background, and Sacher Cloth is a cotton/viscose faille. They are the latest additions to the Ward Bennett textile collection.

Circle 118 on reader service card



Brunschwig & Fils

Ambre is one of a group of five coordinated raised and patterned stripes, woven of 100 percent cotton. Ambre is 56 inches wide and has a 1 1/4-inch repeat.

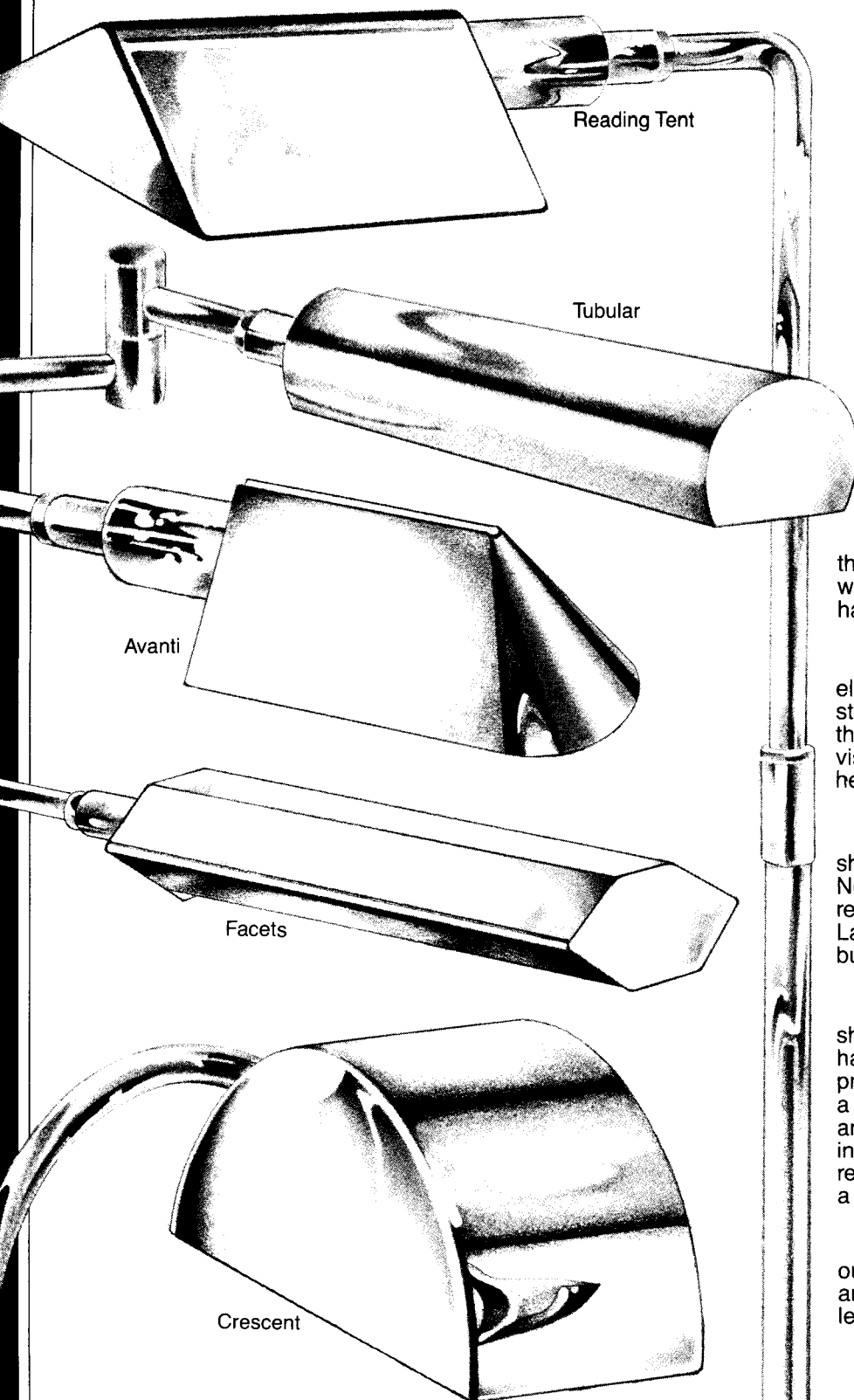
Circle 119 on reader service card

**WHEN YOU
SPECIFY LIGHT,
CONSIDER
THE SHADE.**

KOCH+LOWY INC.
THE PAST, PRESENT, AND FUTURE
OF MODERN LIGHTING

200 Lexington Ave., # 1409, New York, N.Y. 10016
Pacific Design Center, 8687 Melrose Ave., Los Angeles, Calif. 90069
10010 World Trade Center, Dallas, Texas 75258

1245 Merchandise Mart, Chicago, Illinois 60654
Galleria Design Center, 101 Kansas Street, San Francisco, Calif. 94103
C423.2 Commerce Wing, Southern Furniture Center, High Point, N.C. 27261



**You can tell a lot
about a lamp by
examining the shade.**

Take our famous **Reading Tent**. Like all our metal shades, it's made of solid brass sections, silver soldered and hand-ground to a perfect fit. The shade is then triple polished for a flawless finish.

To prevent marring even by fingerprints, the shades are tray-carried to special ovens where protective lacquers are baked to a hard, longlasting beauty.

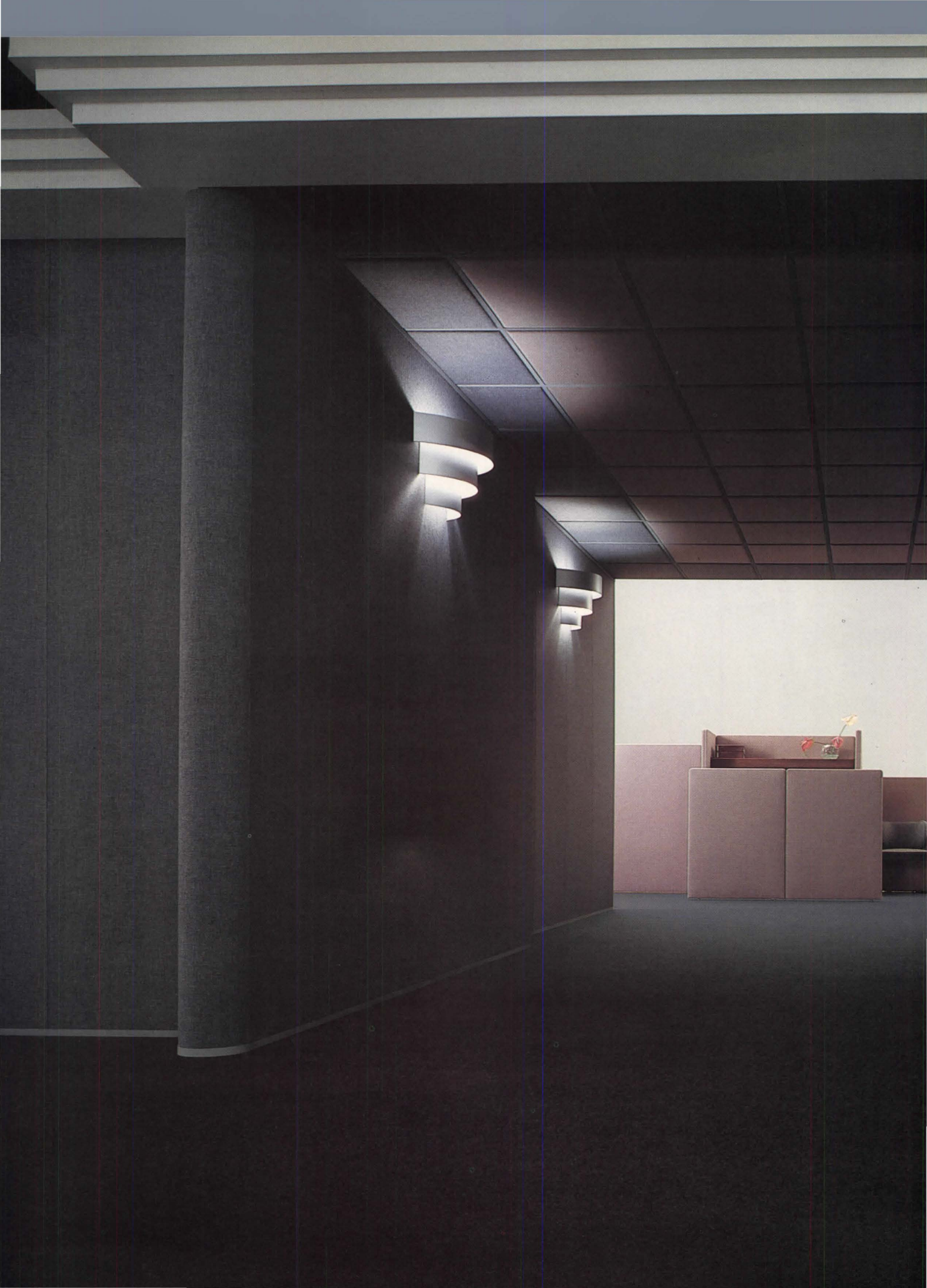
Combining aesthetics with functional elegance, our new **Avanti** shade takes a standard bulb. A slit of light passes through the top to produce a subtle effect. This visually attractive design also prevents heat buildup.

Our **Facets** shade combines gem-shaped elegance with energy efficiency. New Norelco PL9Watt Bulb is equal to regular 60 watt but without the heat. Lamp uses 80% less energy and will burn an amazing 10,000 hours.

Our classic **Crescent** and **Tubular** shades, like all Koch + Lowy swivel shades, have a *fully enclosed* solid brass swivel, precisely tooled for a full 360° rotation and a 90° tilt. They'll never sag, droop or flop, and never need adjustment. Virtually indestructible, these swivels are one more reason why Koch + Lowy lamps represent a lifetime value.

Consider these shades and examine our full line at Koch+Lowy showrooms around the country, or write under your letterhead for our catalog.

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INTERICS

The science of creating environments that work.™

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THIRD ANNUAL CONFERENCE
DEVOTED TO**

IDEA & INFORMATION EXCHANGE

**PAINE WEBBER
WORLD HEADQUARTERS**

A CASE STUDY WHICH WILL
EXAMINE THE RECENTLY
COMPLETED WORLD HEAD-
QUARTERS OF PAINE WEBBER,
INCLUDING AN 800 PERSON
TRADING FACILITY.

MODERATOR: ANNE FALLUCHI,
EDITOR, FACILITIES DESIGN &
MANAGEMENT MAGAZINE

PARTICIPANTS: THOMAS K.
FRIDSTEIN, ASSOCIATE PARTNER,
SKIDMORE OWINGS AND MERRILL,
NEW YORK; ROGER PARKER,
SENIOR V.P., PAINE WEBBER;
JOHN FACCIABEANE, V.P.,
PAINE WEBBER

TIME: 10:30 A.M.

**MERRILL LYNCH
CORPORATE CAMPUS**

A CASE STUDY WHICH WILL
EXPLORE THE PROCESSES
INVOLVED IN CREATING THIS
EXCITING NEW CORPORATE
COMPLEX DESIGNED TO HOUSE
1600 PEOPLE.

MODERATOR: CHARLES GANDEE,
SENIOR EDITOR, ARCHITECTURAL
RECORD MAGAZINE

PARTICIPANTS: S.J. MILLER,
PRESIDENT, THE MILLER
ORGANIZATION, INC.;
PAUL REISS, MANAGER OF
CORPORATE INTERIOR DESIGN,
MERRILL LYNCH

TIME: 4:30 P.M.

**AT NEOCON, JUNE 12TH, 1985
SPACE 1035, 10TH FLOOR, MERCHANDISE MART, CHICAGO.
ENTRANCE BY INVITATION ONLY. WRITE ON YOUR
CORPORATE LETTERHEAD FOR AN INVITATION TO
THE SEMINAR OF YOUR CHOICE.**

EDUCATIONAL SEMINARS SPONSORED BY

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Greeff

Silk

Entity

Du Pont TEFLON[®]
soil & stain repeller



Entity is a premiere contract line unique to Greeff—the industry—the era. From raw material to exquisite finished goods we've designed the future in contract. To appreciate the future you must visit one of our showrooms.

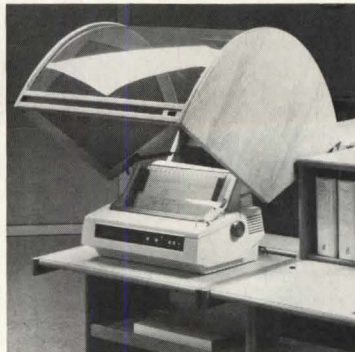
Circle No. 361 on Reader Service Card



L.E. Carpenter & Co.

Tribute Victrex is a 3/4-inch vertical stripe with a rep filler adding textural dimension. It is available in 25 colorways.

Circle 120 on reader service card



C I Designs

The Connexus Printer Station serves as both a support for large-size printing equipment and as a storage area for printer-related supplies. It features a domed acoustic hood.

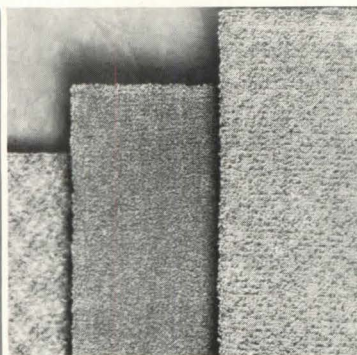
Circle 121 on reader service card



Cole Contract

The new CD2 desks and credenzas feature full wire management, laminate tops, and recessed handles and bases in a component cube design, available in a full range of finishes.

Circle 122 on reader service card



Collins & Aikman

Tex-Tiles, multicolored, patterned tiles, are available in The Square Yard, 36" x 36", as well as 18" x 18". From left to right: Director, Forum, and Colosseum.

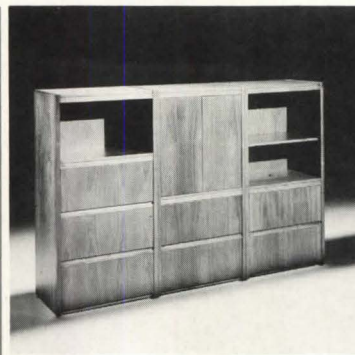
Circle 123 on reader service card



Comforto

System 25, created by Richard Sapper, utilizes a system of four movable pivot points that allow it to move the same way the body moves.

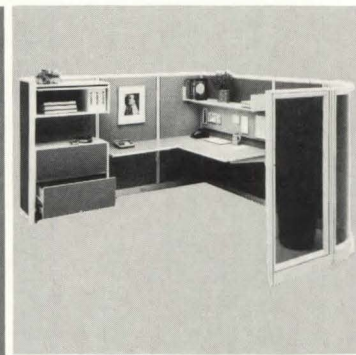
Circle 124 on reader service card



Conwed

Part of the Interics line, Conwed's new caseload accessories include a full range of wood components, designed to provide storage and equipment support.

Circle 125 on reader service card



Cramer

CramerSpace is a new office systems group designed for the electronic office. Details include a 6-wire power system with a separate circuit for electronic equipment.

Circle 126 on reader service card



Cumberland

The Futura Executive chair series features a wraparound back and is available in a choice of walnut, rosewood, black lacquer, or polished aluminum base.

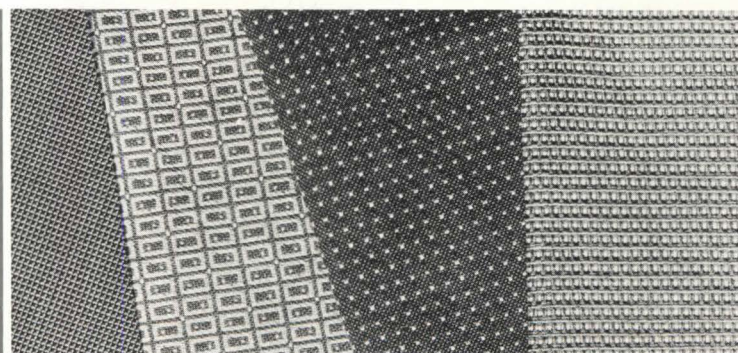
Circle 127 on reader service card



Davis

The Woodtech 4128 series is now available in Color Coate, a new opaque, damage-resistant finish available in 16 colors.

Circle 128 on reader service card



DesignTex

Micro Pyro, Pyro Puzzle, Pyro Point, and Pyro Dot are part of a group of small-scale patterns. All four are 54-inch-wide modacrylic/nylon blends.

Circle 129 on reader service card

ColorCoate™

IT'S MORE THAN JUST COLOR...

And, it's more than just a new finish with improved resistance to mechanical and chemical damage.

Davis has now made Color Coate part of a total program coordinating every stage of the office...from executive and lounge seating...to desk series...and even the entire Conference Group selections.

Color Coate has sixteen popular colors, such as neutrals, shaded pastels and deep rich tones. And, to complete the program, the Davis Textile Collection has four new fabric lines that will compliment each and every color.

DAVIS FURNITURE IND. INC.

P.O. Box 2065, High Point, NC 27261-2065, (919) 889-2009

Merchandise Mart 11-116A Circle No. 341 on Reader Service Card


DAVIS



Introducing the densest carpet



Karastan has ever woven.



Karastan has woven over 119,000 tufts of yarn into each square yard of this extraordinarily dense new High Spec Series. The yarns used, DuPont ANTRON and ANTRON XL nylon, add static-control and soil-resistance to these outstandingly durable styles.


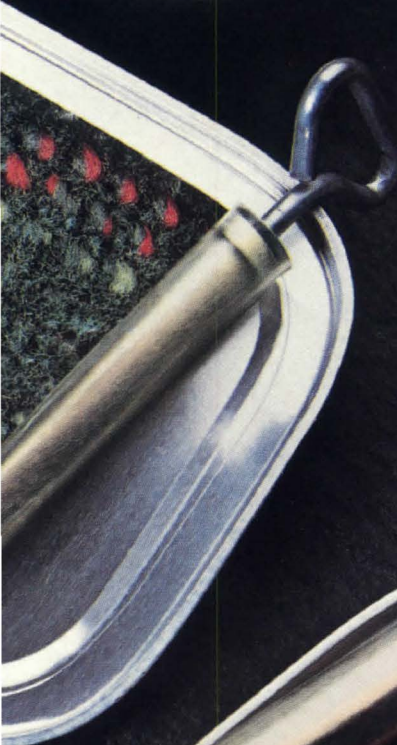
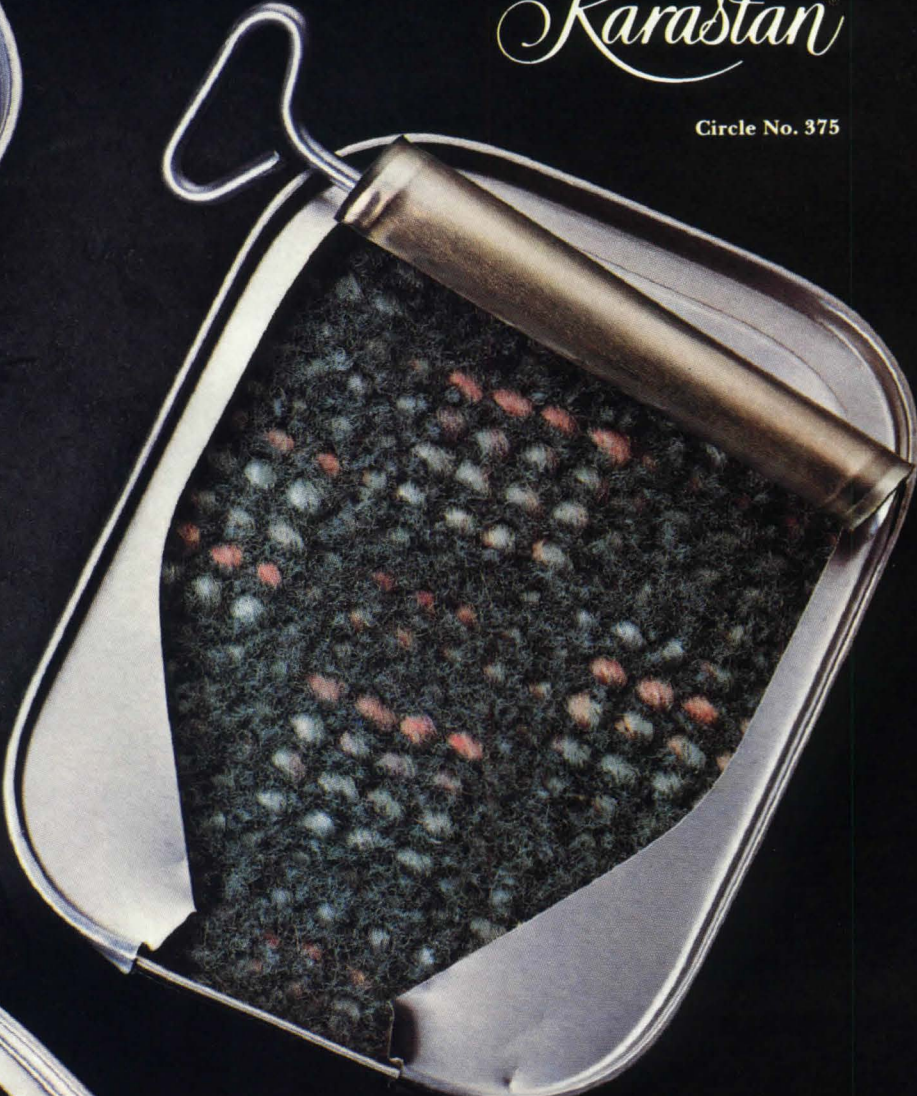
The rich, understated, coordinated colorings and tailored small scale designs work alone or with each other.

To put it more succinctly, never before has so much style been packed into so little space.

Karastan Rug Mills, a Division of Fieldcrest Mills, Inc.

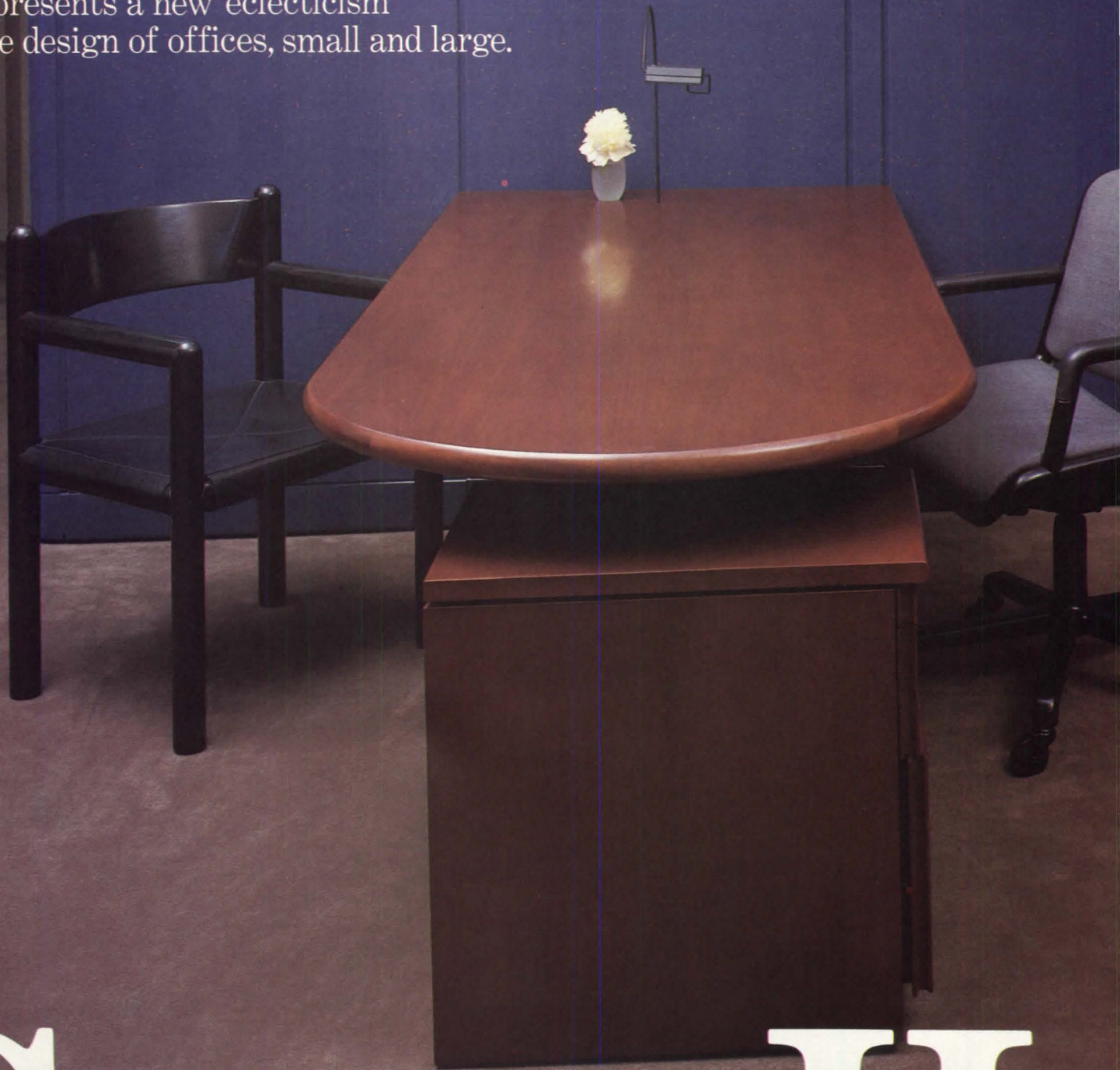
Karastan

Circle No. 375



Winning the Ball Game: Design Option/Cameron

By popular demand, SunarHauserman combines Douglas Ball's Cameron with Design Option and presents a new eclecticism in the design of offices, small and large.



Design: Bonnell Design Associates Inc.

SunarHa



In 1983, Douglas Ball returned to his first love—wood—in the Cameron group of freestanding, independent pieces: all in natural or painted wood, with a complete drawer selection—in wood or steel.

In 1984 Design Option Panels were developed as a logical adjunct to the Cameron Group. Here are steel, fabric covered, and acoustical power based panels in 5 heights and 6 widths which join easily. Panel-mounted wood or plastic work tops come in 8 sizes plus corner and printer tops. The overhead storage units are both steel and wood, open or closed.

Combine Ball's design skills and knowledge of production in wood and metal with SunarHauserman's manufacturing and engineering capability in both and you understand why there can be this immediate responsiveness to the marketplace.

SunarHauserman Inc.
5711 Grant Avenue, Cleveland, OH 44105

SunarHauserman, Ltd.
One Sunshine Avenue, Waterloo,
Ontario N2J 4K5 Canada

May we send you our *Design Option/Cameron* brochure?

Circle No. 422 on Reader Service Card

userman



Durkan Patterned Carpets

Turkish Tile is one of six new designs in the Marakesh Collection. Designed in Lyon, France, the patterns are available with a coordinated border.

Circle 130 on reader service card



Executive Office Concepts

EOC introduces a new line of integrated computer support system furniture designed for multilevel use.

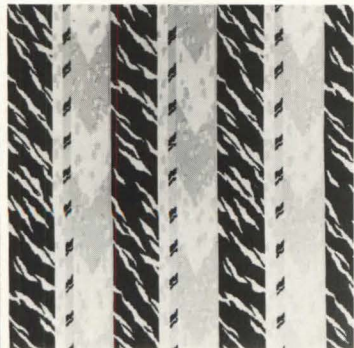
Circle 131 on reader service card



Eurotex

Acousticord, part of the Tretford Surface System of broadloom and looselay modules, is available in four new colors, making a total of twelve.

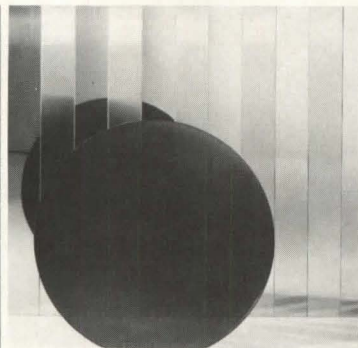
Circle 132 on reader service card



First Editions

Zanzibar, a polished cotton fabric with 36-inch repeat, features stylized animal skin patterns in vertical stripes. Matching wallcovering is also available.

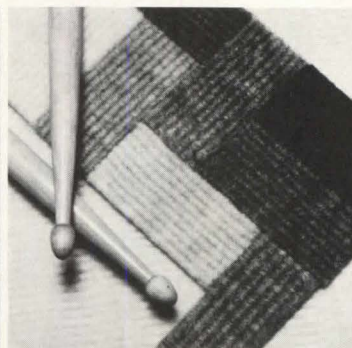
Circle 133 on reader service card



Forms + Surfaces

Tectonix is a panel system available in wood and metal in a variety of profiles, sizes, finishes, and joint details, shown here in strips of bright and satin-finish stainless steel.

Circle 134 on reader service card



Frankel Associates

Antistatic, moisture resistant, and dimensionally stable, Acousta Walls are fire-retardant and available in 12 colorways.

Circle 135 on reader service card



Greeff Fabrics

Three new fabrics from the Greeff Entity collection of contract textiles are a floral wool jacquard available in 8 colorways, a graduated thick-to-thin wool rib, and a wool moiré.

Circle 136 on reader service card



Gunlocke

The Articulated Cabinet, featuring smoked plexiglass doors, is the newest addition to Gunlocke's computer support furniture series.

Circle 137 on reader service card



Hardwood House

The Vestra Work Module is the latest addition to the Vestra Collection of executive office furniture.

Circle 138 on reader service card



Harter

Harter I/F, one of three elements of Harter Task Systems, can be arranged in a number of different combinations for flexible office interiors.

Circle 139 on reader service card

This is Nevamar



Contours Collection.™ Exclusive new tambour designs for striking dimensional surface effects. Flexible grooved surfaces developed with designer input using high gloss laminates, real wood, and polished or patterned metallics. Contours can assume various curves and shapes for a variety of interior applications. Call toll-free for more information: 1-800-638-4380. Nevamar Corporation, Odenton, Maryland 21113.

NEVAMAR
DECORATIVE LAMINATES

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Designing office space today takes more than intuition. It takes information.

And that's precisely what Survey Analysis from Steelcase can give you—without the drudgery and expense of manual fact-finding.

Survey Analysis uses a series of in-depth questionnaires to help you gather information from

your client's employees. The questions cover dozens of subjects, including individual needs for storage, worksurface area, privacy and conference space. Employees also answer questions about work patterns and interoffice communication, while managers provide input as to the best locations for specific departments.

Computer Assisted Office Survey and Space

Requestor Name/Address

SOUTHERN CALIF. MFG. CO.
1001 WARNER AVENUE
TUSTIN, CA

Analysis I.D.

000860

Worksurface

1. ACTV:	MACHI				
2. MATL:	2 FIL				
	1 COM				
	3 MEM				
3. EQPT:	CRT/V				

1. ACTV:	READI	TIME	>20	HR
2. MATL:	2 FIL		20X12	IN
	1 COM	PRINTOUT	15X22	IN
	3 MEM	L, FORMS	9X11	IN
3. EQPT:				

SURFACE REQUIRED	LENGTH:	219
	DEPTH:	30
	AREA:	6570

Equipment

DESCRIPTION	PLUG
1. CRT/VDT	
2. CALCULATOR	
3. DATE/TIME STAMP	

The resulting data is then processed by computer at Steelcase. In only five days, you receive detailed, confidential printouts showing exactly what your client will need in terms of space and equipment, as well as the best locations for people, departments and storage.

Because all data processing

is done by Steelcase, Survey Analysis requires no computer investment on your part. And because the information is so complete, you'll find that your design work can be completed in less time, with greater accuracy, and fewer unforeseen complications.

To learn more about Survey Analysis, contact your Steelcase Regional Office or Steelcase Representative. For worldwide product, sales and service information, write Steelcase, Inc., Grand Rapids, MI 49501. Or call toll-free 1-800-447-4700.

Circle No. 418 on Reader Service Card

ng

ect Number
01

ect Description
SOUTHERN CALIFORNIA MFG. CO.
STIN HEADQUARTERS

ANALYSIS

I.D.
-WA-30-1

Storage

RIPTION
R SIZE FILES STOR

USAGE LETTER
USAGE COM
Y USAGE

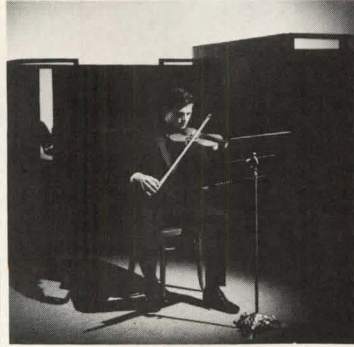
TMENT
TY

Personal Work Area

Employee Name
ZEAKENLY
060201

Title
CR

**Survey Analysis:
It lets you start with the facts
before you start on
the floor plan.**



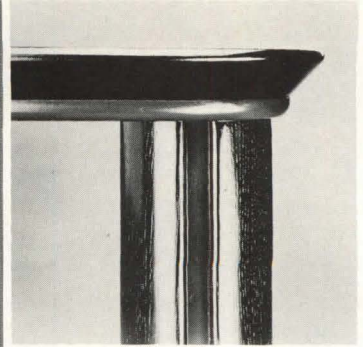
Haworth

Haworth introduces a new office interiors solution. Designed in response to feedback from the office furniture market, this product is intended to create a new standard.
Circle 140 on reader service card



Helikon

Helikon introduces the Octa chair, a transitional design available in slat-back or upholstered versions, and as a side or armchair.
Circle 141 on reader service card



Howe Furniture

The Donahue Table features a beveled edge with vinyl bumper strips and recessed leg panels. It is available in wood and colored finishes.
Circle 142 on reader service card



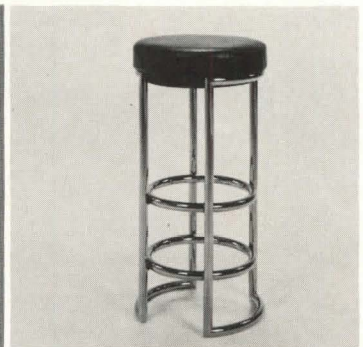
ICF

Marking the 10th year of the program, "Re-Creation: Josef Hoffmann," ICF introduces the Palais Stoclet armchair and 3-seat sofa at NEOCON.
Circle 143 on reader service card



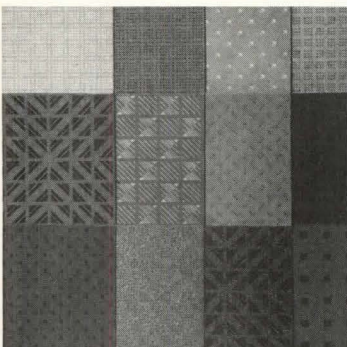
iil International

The Petri System, designed by Manfred Petri, is a modular system of multiple components, including case goods, work surfaces and vertical panels.
Circle 144 on reader service card



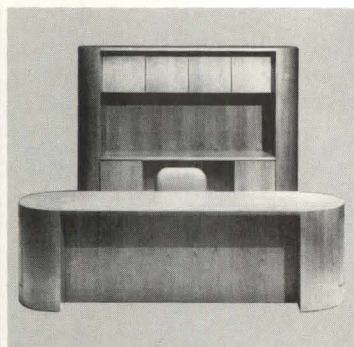
Images of America

The Joshua High Stool, designed in 1927 by French architect Pierre Chareau, is available in polished chrome with a choice of fabric or leather covering.
Circle 145 on reader service card



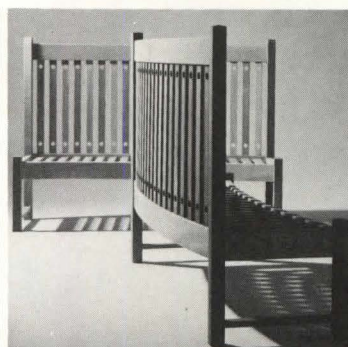
Interface Flooring Systems

Sixteen new geometric patterns are featured as part of Graphic Innovations, a new standard pattern program for carpet tile.
Circle 146 on reader service card



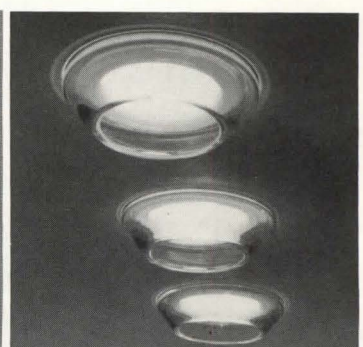
Intrex

Intrex adds to the Omaha executive furniture line with a high-back credenza which also functions as a multipurpose work center. It is available in 13 natural wood veneers and 16 Trexcole polyester-resin colors.
Circle 147 on reader service card



Interna Designs

The Liverpool Bench is part of the Peter Miles Furniture collection. A Liverpool Bench chair and table are also available in solid wood with a choice of finishes.
Circle 148 on reader service card



Innovative Products for Interiors

IPI presents Gep, a light fixture designed by Roberto Pamio. Made of hand-blown Murano glass, Gep is available in five different versions: in white glass with red, yellow, blue, or crystal glass trim, and in clear glass with gold trim.
Circle 149 on reader service card

Artemide

Light years ahead™

Flexibility Above All

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 Telephone: 214/747-6060
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During **Neocon**, please also visit our exhibition of new products in our future showroom at the Merchandise Mart, Space 808.

The Aton Modular Lighting System Design: Ernesto Gismondi

Do functions, use, and personnel change frequently in your space? Has the lighting been poorly planned or forgotten entirely? Is your space temporary; are you planning a move or expansion?

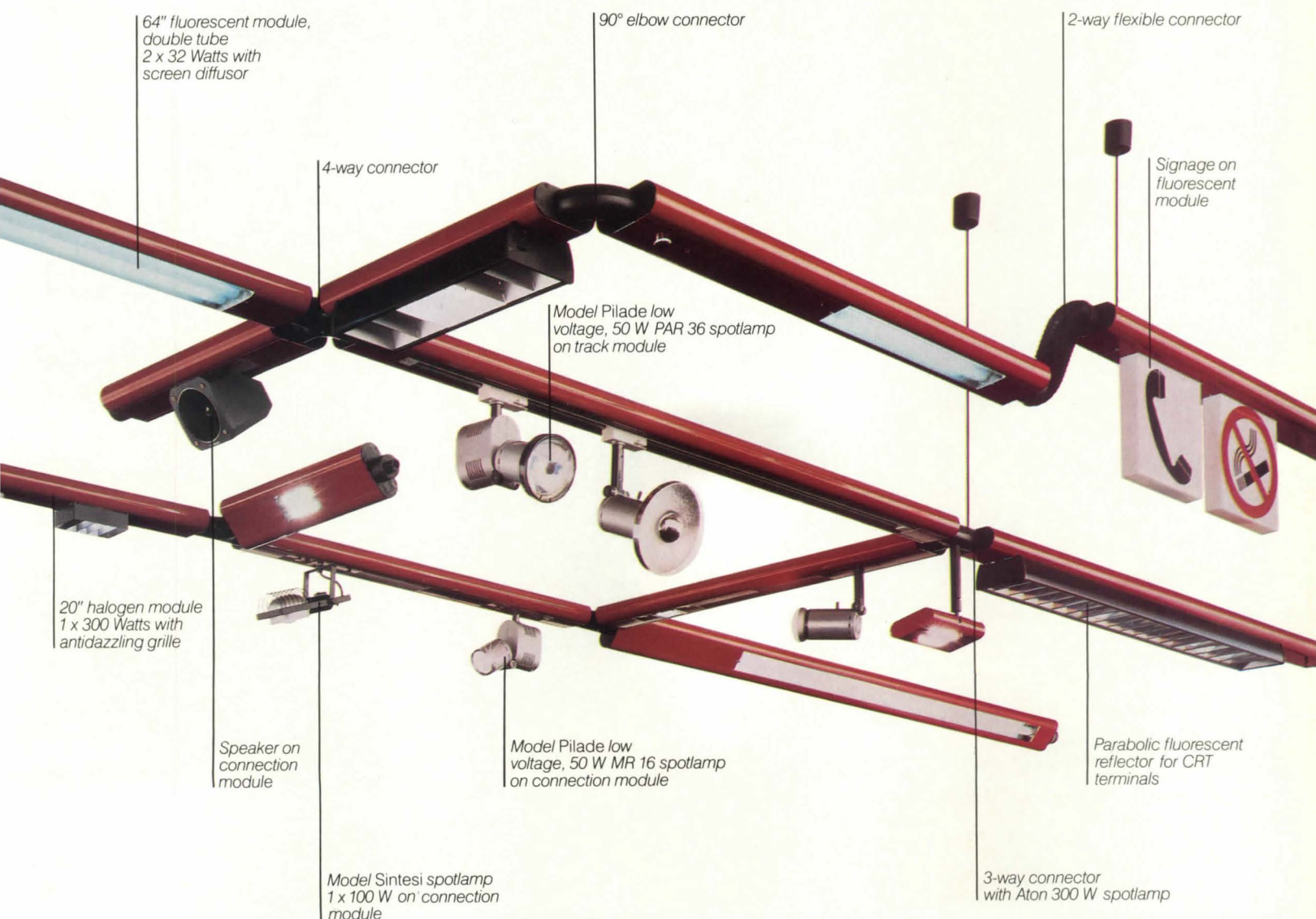
Does your space need more than just regular fluorescent lighting? Do you need lighting for CRT terminals, indirect lighting, spotlighting, track lighting, halogen lighting, incandescent lighting, signage, electrical outlets, or loudspeakers?

Finally, would you like a lighting system that, for a change, will enhance the design of your space?

If your answer to any of these questions is yes, Artemide strongly suggests that you take a close look at its Aton Modular Lighting System.

The flexibility of the Aton Modular System lets you adjust its many options to fit the changing needs of your space. Energy efficient and easy to install, the Aton Modular System helps you reduce lighting costs while increasing comfort and productivity.

Artemide can provide for you, free of charge, a computerized layout showing how the Aton Modular System can meet the lighting requirements of your particular space. Would you like a color brochure? Write to Artemide on your letterhead, or circle number **317**.



Another Original by **Vicrtex**...

A revolutionary concept in coordinated fabrics for walls, panels and seating.



'The Softech System'^{T.M.}

Create your total color scheme from one book. Systems planning is faster and easier when you specify with 'The Softech System'^{T.M.} Select from hundreds of our inter-related combinations of exclusive textures and colorways to meet your project needs. All Class A fire rated.

Intelligent estimates of costs from one supplier make budget projections easier. Worry-free, on-time delivery is made possible by dealing with one source, Vicrtex. With sales and service nationwide, you are assured of your order receiving prompt, personal professional attention.

Write for more information on 'The Softech System'^{T.M.}

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world class seating





THE SUCCESS OF A MACHINE
IS NOT ONLY MEASURED BY
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BUT BY ITS ENRICHMENT OF THE
HUMAN EXPERIENCE AS WELL.

Now there's a new system of office seating that will add beauty to its environment, while improving the productivity of those who use it. System 25 from Comforto.

Its four movable pivot points allow the chair to move as the body moves. As a result, System 25 responds and supports as well in the leaning back position as it does when upright.

System 25. World patent pending. From the world's most significant and innovative source for seating systems.

SYSTEM 25

THE CHAIR FOR EVERY BODY.

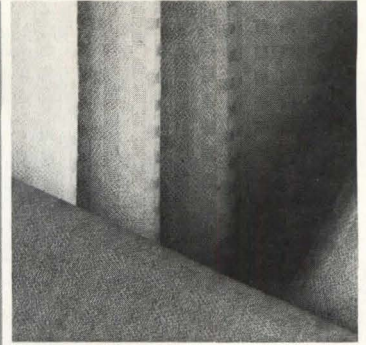
Circle No. 336 on Reader Service Card



JG Furniture Systems

New components added to the Powerflex Desk System include an offset CRT corner unit, a radius-edged desk, return and credenza series, privacy screens and accessory panels, and a double-width open Media Storage Cabinet.

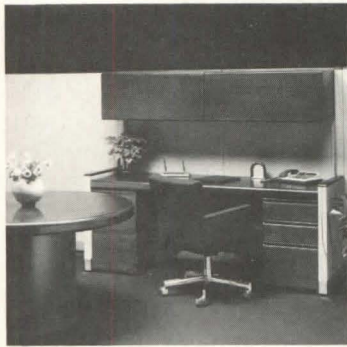
Circle 150 on reader service card



Adam James Textiles

Designed by interior designer and colorist Laura Deubler Mercurio, this textile collection features durable construction and flame retardancy in sophisticated color and weave combinations.

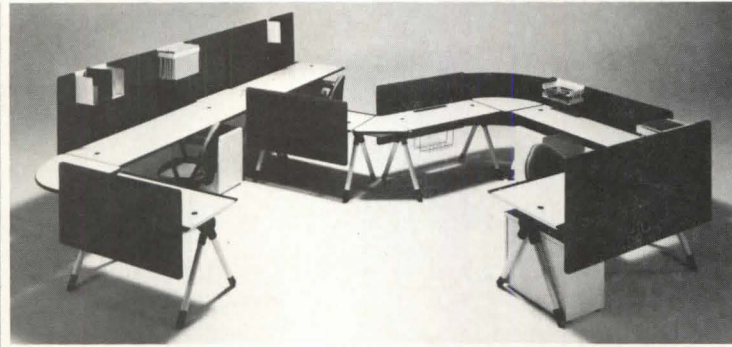
Circle 151 on reader service card



Rose Johnson

Rose Johnson will feature both the RJ Office System and the Progressions Office System at NEOCON, along with the Liffey Collection of Irish woolsens.

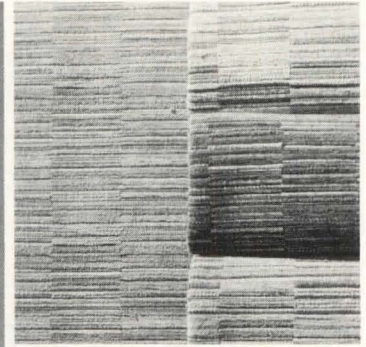
Circle 152 on reader service card



Kinetics

The Kinetics Desk-Mounted Screen System provides a wide variety of options for the office environment. Its various elements can be set up in almost any configuration from open plan to workstations.

Circle 153 on reader service card



Kirk-Brummel

Troubadour is a heavy-duty multicolor imported cotton/viscose blend, designed for both contract and residential use. It is 51/52 inches wide and available in six colorways.

Circle 154 on reader service card



Kittinger

Kittinger extends its line of computer cabinets with the 7021 Work Station series, a group of freestanding modules in the style of the Georgian Collection.

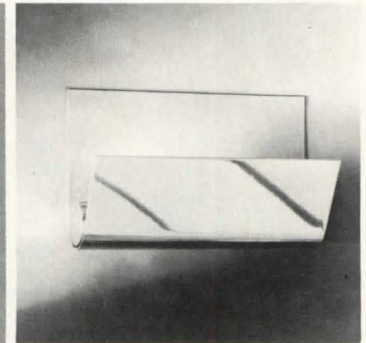
Circle 155 on reader service card



Knoll

KnollOffice, a modular steel-framed wall system, is available with a number of options. Panels can be finished in a variety of materials, and wood doors are available in an assortment of veneers and plastic laminates.

Circle 156 on reader service card

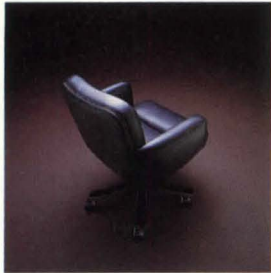
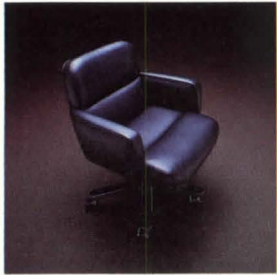


Koch + Lowy

The versatile Wave, designed by Charles Gevers, is available as both a pin-up light and a permanent wall bracket lamp, in polished brass or chrome, white lacquered enamel, and black or gray Nextel.

Circle 157 on reader service card

220 Series Seating



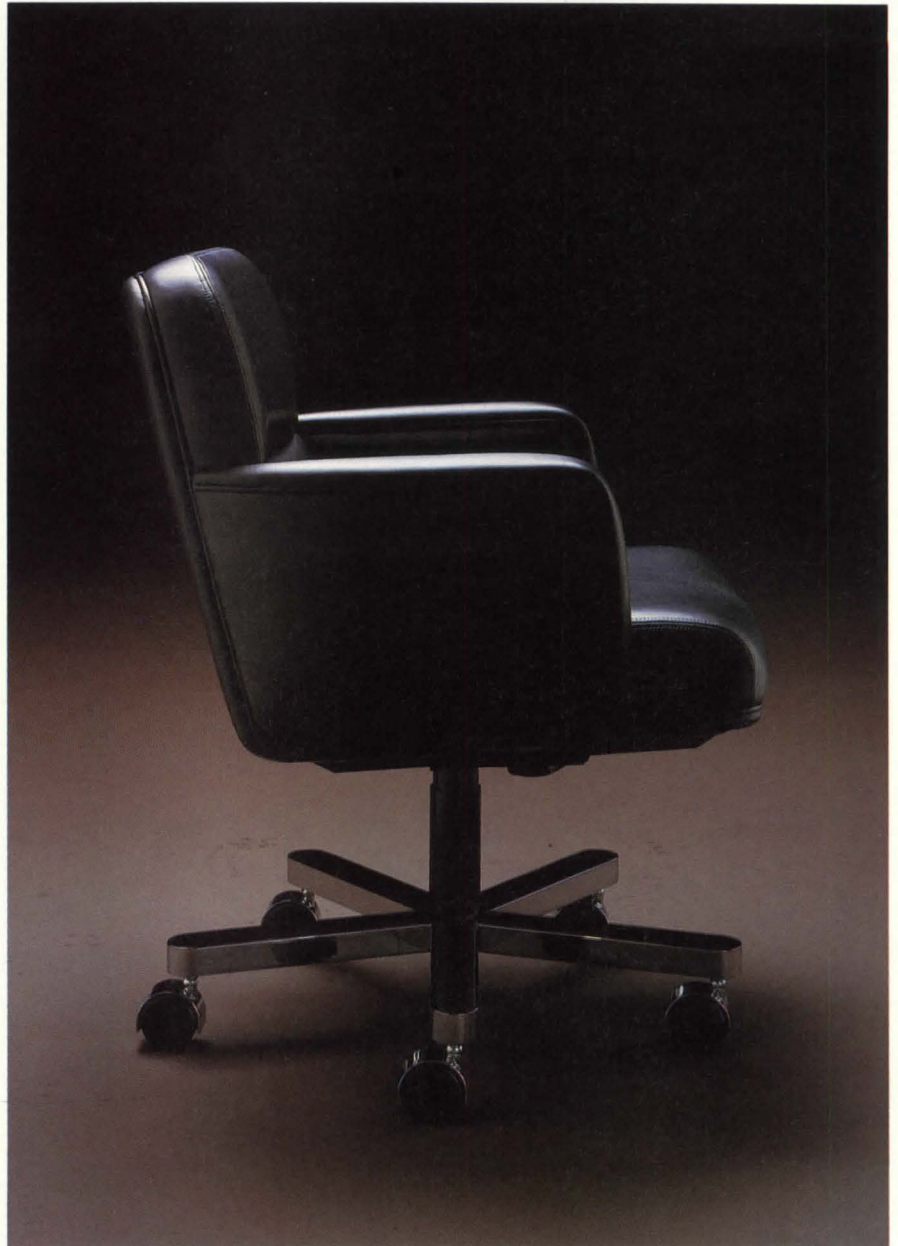
The executive chairs in the 220 Series seating range are available with a variety of functional options.

Three back heights with open or closed arms are offered in combination with swivel-tilt or rotary actions.

Four and five point bases are standard for both a wood and metal base design. Wood bases may be specified in Hiebert's standard finishes and metal bases are offered in chrome or bronze.

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Badische

The background of the entire page is a dense collage of numerous circular frames, each containing a different fabric texture. These include various patterns such as stripes, plaids, herringbones, and solid colors in a wide range of hues like red, blue, green, and brown. The circles are arranged in a somewhat random, overlapping fashion, creating a rich, tactile visual field.

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Circle No. 314



Krueger

Krueger adds new features to the award-winning Com open office systems for introduction at NEOCON. The new options include a hard wiring system for electrical management, new sizes of keyboard surrounds, and pneumatically adjustable keyboards.

Circle 158 on reader service card



Jack Lenor Larsen

Designed by German architect and designer Ernst Dettinger, the Viceroy armchair is intended for both contract and residential uses. It is available in a wide variety of finishes.

Circle 159 on reader service card



La-Z-Boy

The Upholstered Sled Base is one of two pull-up chairs in the new Forum 90 line. Also included in this line are Executive Chairs, a Wood Base Pull-Up Chair, and a Secretarial Chair.

Circle 160 on reader service card



Levolor Lorentzen

Inspiration Vertical Blinds are available in 21 colors. They are washable and fire-retardant, tightly woven to block out light, and pre-formed to hold their shape without weights.

Circle 161 on reader service card



Linguanotto

The Pompidou chair is styled after the Pompidou Center in Paris. Designed by French architect Isabelle Hebey, the chair is available in a full range of applications.

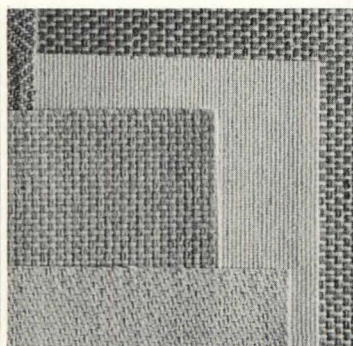
Circle 162 on reader service card



Madison Furniture

Operational chairs are a new line in the ReActa Series. These chairs feature forward seat tilt, pneumatic height controls and horizontal and vertical back adjustments.

Circle 163 on reader service card



Maharam

The Tek Wall Group features five linenlike textures in 100 percent polyolefin. These wallcoverings are abrasion-resistant and withstand abuse that would damage most other wall surfaces.

Circle 164 on reader service card



Metro

Metro features new additions to the Rubber Table Group: new shapes, including rectangles, race tracks, and ovals, in addition to rounds and squares, and new sizes.

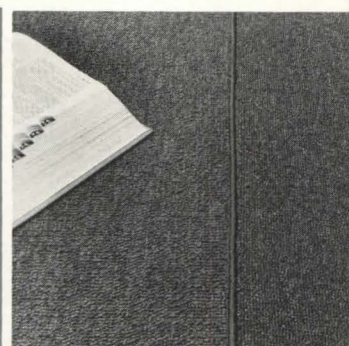
Circle 165 on reader service card



Herman Miller

Ethospace[®] interiors feature varying wall heights and removable panels. Options include full- and partial-height walls, hanging components, and freestanding products.

Circle 166 on reader service card



Mohawk Carpet

Mohawk introduces Loyalty, a 1/8-gauge tufted loop, available in 12 yarn-dyed tweed colorations, and Thesis, a 1/10-gauge tufted loop, stocked in 15 colorations.

Circle 167 on reader service card

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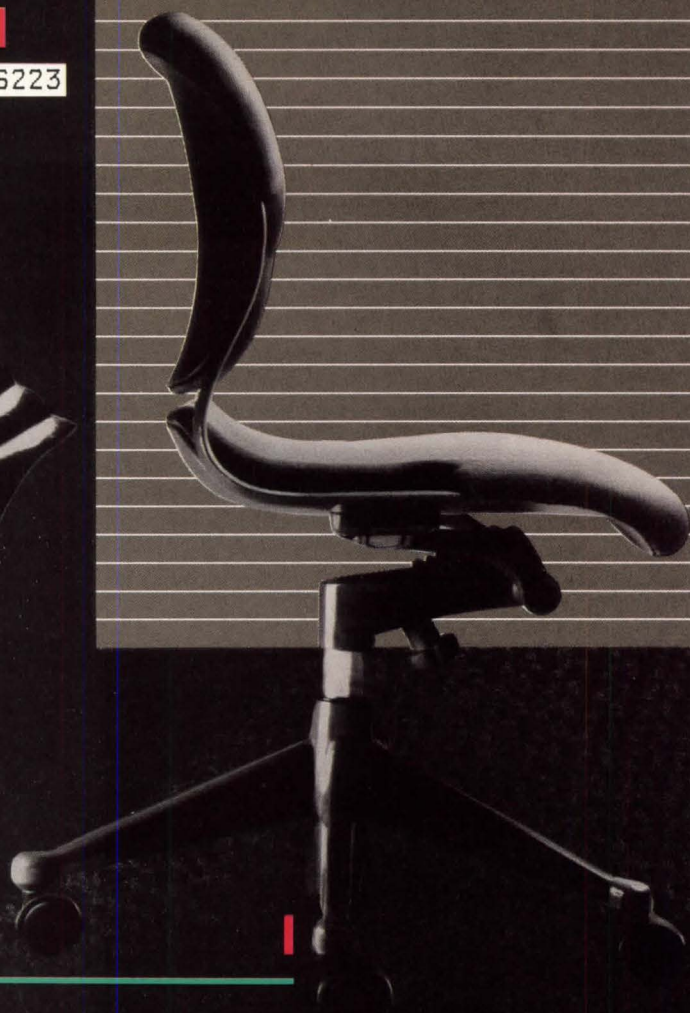
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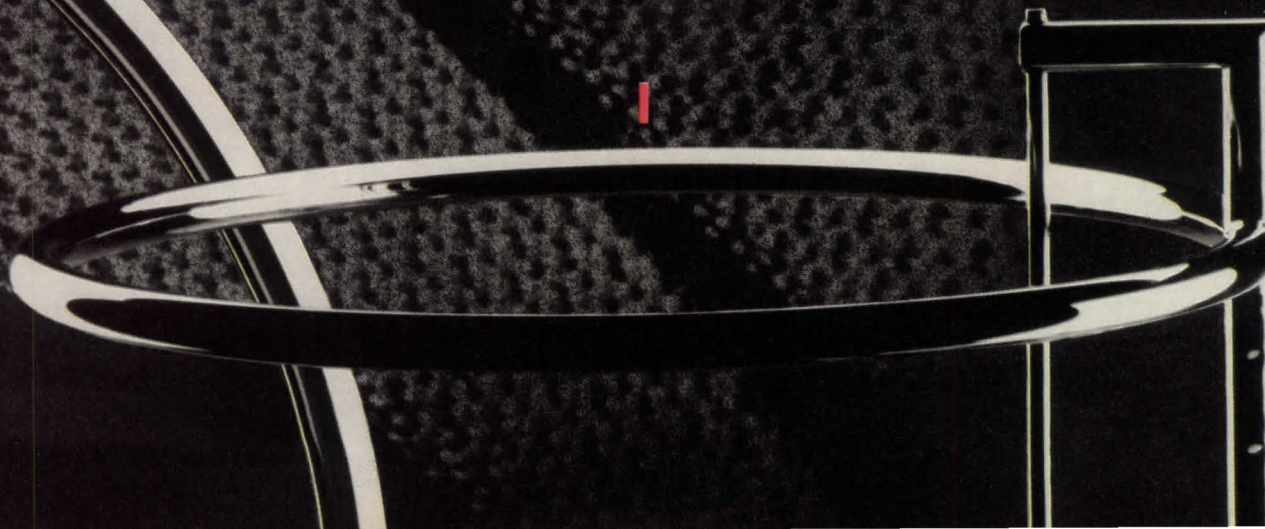
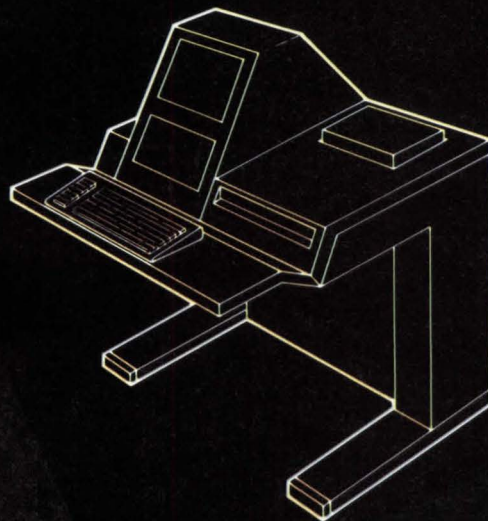
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Modern Mode

Modern Mode adds a new metal-frame chair to the 20/20 Series seating. The chair is available in 16 high-gloss painted finishes, as well as polished stainless steel.

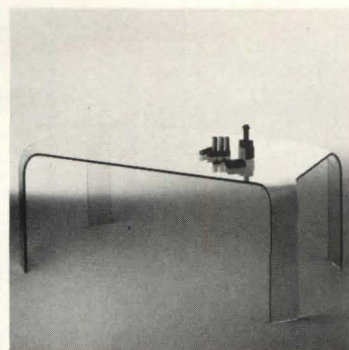
Circle 168 on reader service card



Monel Contract

The Capri side and armchair, designed by Paul Tuttle, is a small-scale upholstered chair intended for restaurant use. It is available in natural beech or lacquer finishes and a wide variety of coverings.

Circle 200 on reader service card



Pace Collection

The Ragno Table is made of bent plate glass, strengthened through the heat process of shaping it. Designed by V. Livi, it was produced in collaboration with the Italian company Fiam.

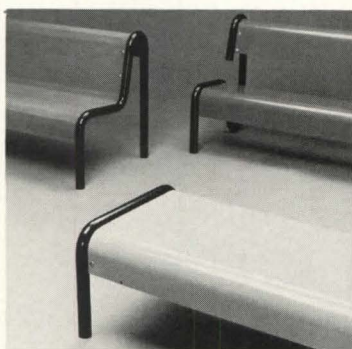
Circle 201 on reader service card



Patrician

The Olympus Series seating system features overstuffed cushions for comfortable lounging. It is available as both a sofa and a loveseat.

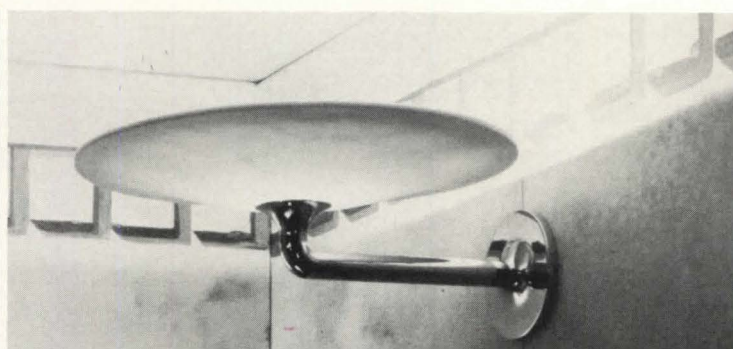
Circle 202 on reader service card



Peter Pepper Products

PPP features several new fiberglass products, including benches in 25 gel-coat colors and Glaswood, a simulated wood-grained fiberglass. The metal frame supports are also available in enamel colors.

Circle 203 on reader service card



Les Prismatiques

The Lotus Wall Sconce, designed by Jerry Van Deelen, consists of either frosted acrylic or Corian (synthetic marble) supported by a polished metal arm. Light is supplied by a quartz bulb.

Circle 204 on reader service card



Harvey Propper

The Perimeter Collection of desks and credenzas is new for NEOCON. Also featured is Kastholm Seating, ergonomically correct chairs in 22 different models.

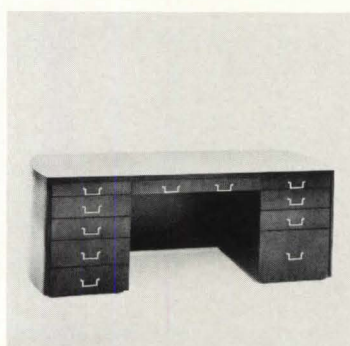
Circle 205 on reader service card



R-Way

The Premier Series of office furniture features both single and double pedestal desks in Alba Oak veneers, selected for uniformity of grain, pattern and color. The veneer can be finished to match any wood stain desired.

Circle 206 on reader service card



Roffman Associates

The Series 59 desk is a transitional design with handcrafted hardware. It is available in a wide range of sizes and finishes.

Circle 207 on reader service card



Rosemount Office Systems

New for NEOCON are adjustable-height tables, part of a line of electronic support furniture. They can be mounted on either locking casters or glides, with or without cutouts for keyboard support surfaces.

Circle 208 on reader service card

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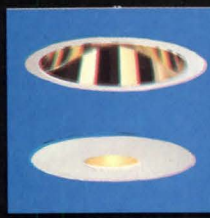
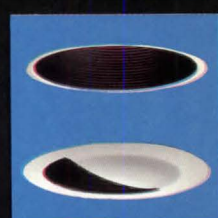


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Circle No. 324 on Reader Service Card



Scalamandré

Still Waters is a rayon/silk blend, inspired by Thai fabrics. It is suitable for light-duty upholstery, drapery, and wallcovering. Kilcooney is a cotton/silk blend. Both are available in a range of colors.

Circle 209 on reader service card



Scope Furniture

Eight table base designs by Scope, formerly available only in stainless steel and bronze, now come in 120 different colors of carbon steel.

Circle 210 on reader service card



Shaw/Walker

The Tempo 3 Radius office system is the result of research and consultation with designers, architects, dealers, and users. The flexible system is designed to interface with other Shaw/Walker lines.

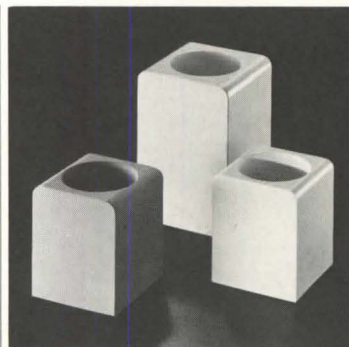
Circle 211 on reader service card



Shelby Williams Industries

The new 4650 armchair derives its style from the look of the 1950s. The wood frame contrasts with the upholstered seat and back.

Circle 212 on reader service card



Smith Metal Arts

The Radius Two Collection of stone and marble vases is available in Pietra Serena, a gray/white matte sandstone, and Trani, a light tan, minimally veined polished marble, as well as other stones. The collection was designed by William Sklaroff.

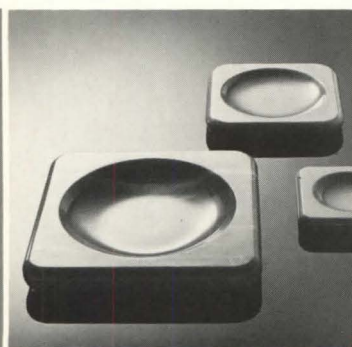
Circle 213 on reader service card



Smith & Watson

New for NEOCON is the Chippendale Stacking Chair, designed by John P. Ryan, president of Smith & Watson. The chair, available in both fabric and leather, features a mahogany wood frame.

Circle 214 on reader service card



Smokador

Modulinea executive ashtrays, designed by the Advanced Design Group, are part of Smokador's International Collection of office accessories. Marble ashtrays are hand-made in Italy; the crystal ashtrays are from Germany.

Circle 215 on reader service card



Spacesaver Corporation

Spacesaver presents high-performance E-S electrically powered high-density mobile storage and filing systems.

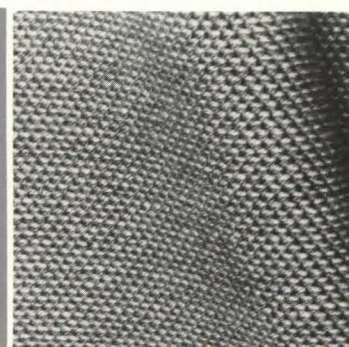
Circle 216 on reader service card



Karl Springer

Karl Springer features the Onassis Chair at NEOCON 17. Shown in goatskin and lacquer, the chair is available in a wide variety of custom finishes and upholstery materials.

Circle 217 on reader service card



Stark Carpet

New from Stark is the Woolton carpet line, made of 100 percent wool yarns in an interlocking loop Wilton weave. It is available in ten colors.

Circle 218 on reader service card

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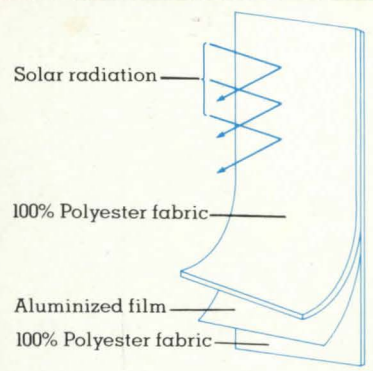
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A large, abstract, triangular graphic element with a marbled texture, set against a dark background. The triangle is oriented with its base at the top and its apex pointing downwards. The marbled pattern consists of various shades of gray, black, and white, creating a complex, organic texture. The background is a solid dark gray or black. The overall composition is minimalist and modern.

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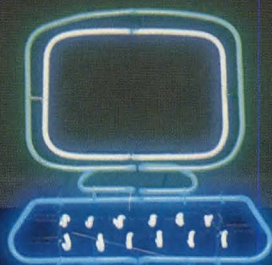
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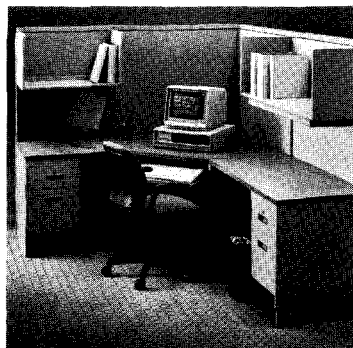
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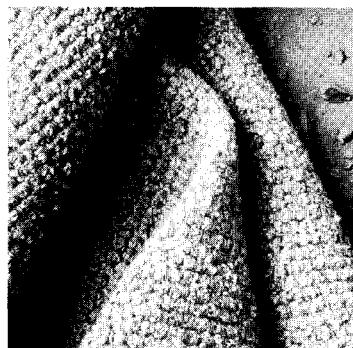
Collins & Aikman
COMMERCIAL FLOOR SYSTEMS



Steelcase

Steelcase will feature new additions to the basix program at NEOCON this year.

Circle 219 on reader service card



Stendig International

Stendig Textiles introduces the Signature Collection, featuring Andorra, a 100 percent wool woven from a natural gray warp yarn and a dyed filler yarn. The collection is available in 37 colorways.

Circle 220 on reader service card



Stow/Davis

Designed by Norman Diekman, the Canto Collection from Stow/Davis includes an executive desk, a secretarial desk, a table desk, and a series of credenzas. Four standard veneers, 20 finishes, and four base options are available.

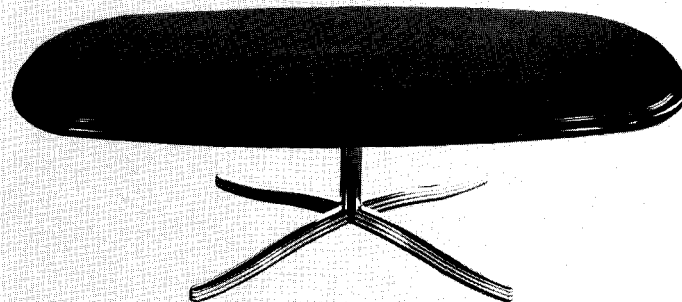
Circle 221 on reader service card



Stroheim & Romann

Tournelle, new from Stroheim & Romann, is a flame stitch tapestry that simulates needlepoint. It is constructed of spun rayon and cotton with a 2-inch repeat.

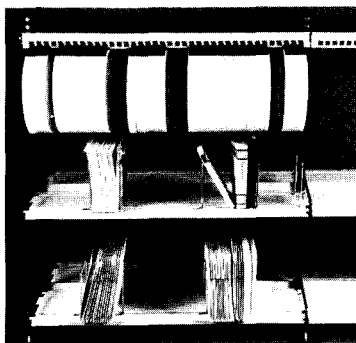
Circle 222 on reader service card



SunarHauserman

The Petitt Collection of executive tables, desks, cabinets and chairs, designed by Don Petitt, will be featured at NEOCON.

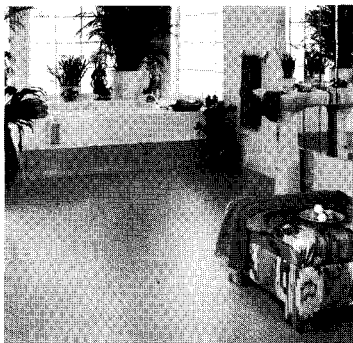
Circle 223 on reader service card



Supreme Equipment & Systems

Supreme introduces Adjustable Shelving. Space-saving and sturdy, it is intended for light- to heavy-duty filing and storage, and is easily adjustable to changing needs.

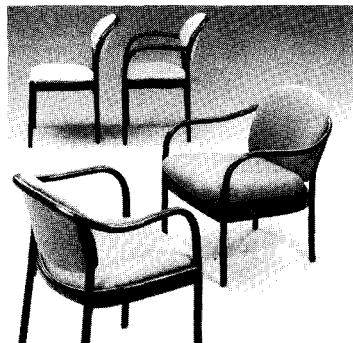
Circle 224 on reader service card



Tarkett

Peruvian is part of the Response sheet vinyl flooring collection. Deep embossing combined with pearlized dye chips provides light and dark contrast. Peruvian comes in three colors.

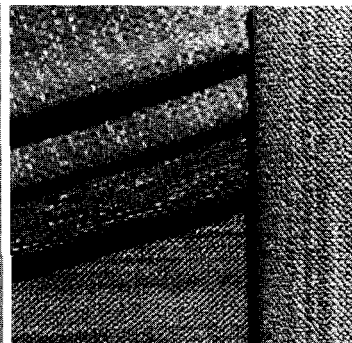
Circle 225 on reader service card



Thonet

New from Thonet is the Boppard Collection, named after Boppard am Rhein, Michael Thonet's birthplace. The bentwood chairs, designed by architect Hartmut Lohmeyer, are available in four versions.

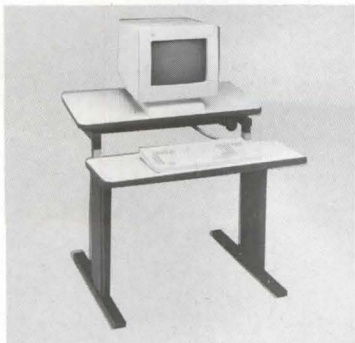
Circle 226 on reader service card



Top Grade

Varitone contract carpeting is a combination of Du Pont Antron XL and Top Grade/Scantuft fibers, available in 11 multicolored striated patterns. Echo is a coordinating upholstery fabric.

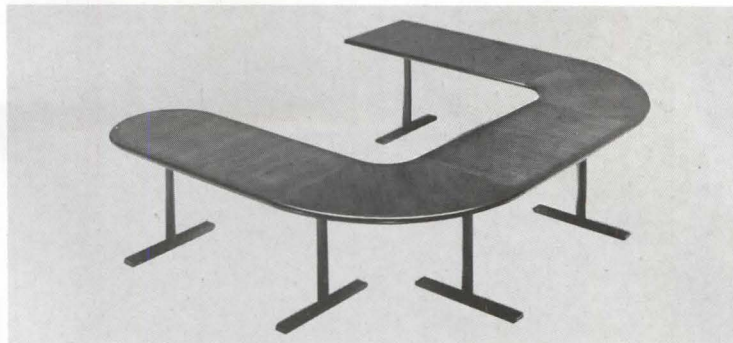
Circle 227 on reader service card



Trendway

A split adjustable electronic work surface is one of several introductions of electronic furniture and components from Trendway.

Circle 228 on reader service card



Tuohy

Proteus is a comprehensive program of modular and freestanding tables, intended for conference and general table use. The tables are available in six different shapes and a wide range of materials.

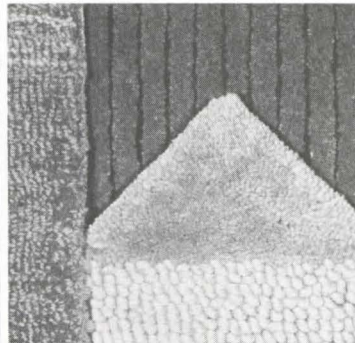
Circle 229 on reader service card



Vecta Contract

The Wilkhahn Ohl 180 line of chairs and tables is designed by Herbert Ohl. The chair features a swivel base in mirror chrome with black mesh seat and back and a leather-covered frame.

Circle 230 on reader service card



V'Soske

New from V'Soske are Delphine, a partial shear in subtle color gradations; Carlton, a linear rib in combined cut pile and loop; and Mercedes, a wide stripe of alternating full shear and heavy loop.

Circle 231 on reader service card



Westinghouse Furniture Systems

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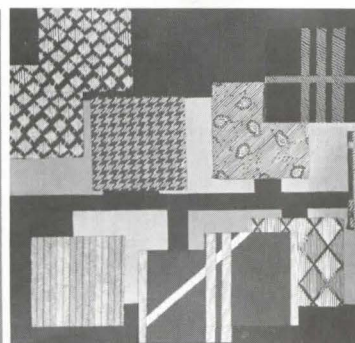
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Westin-Nielsen

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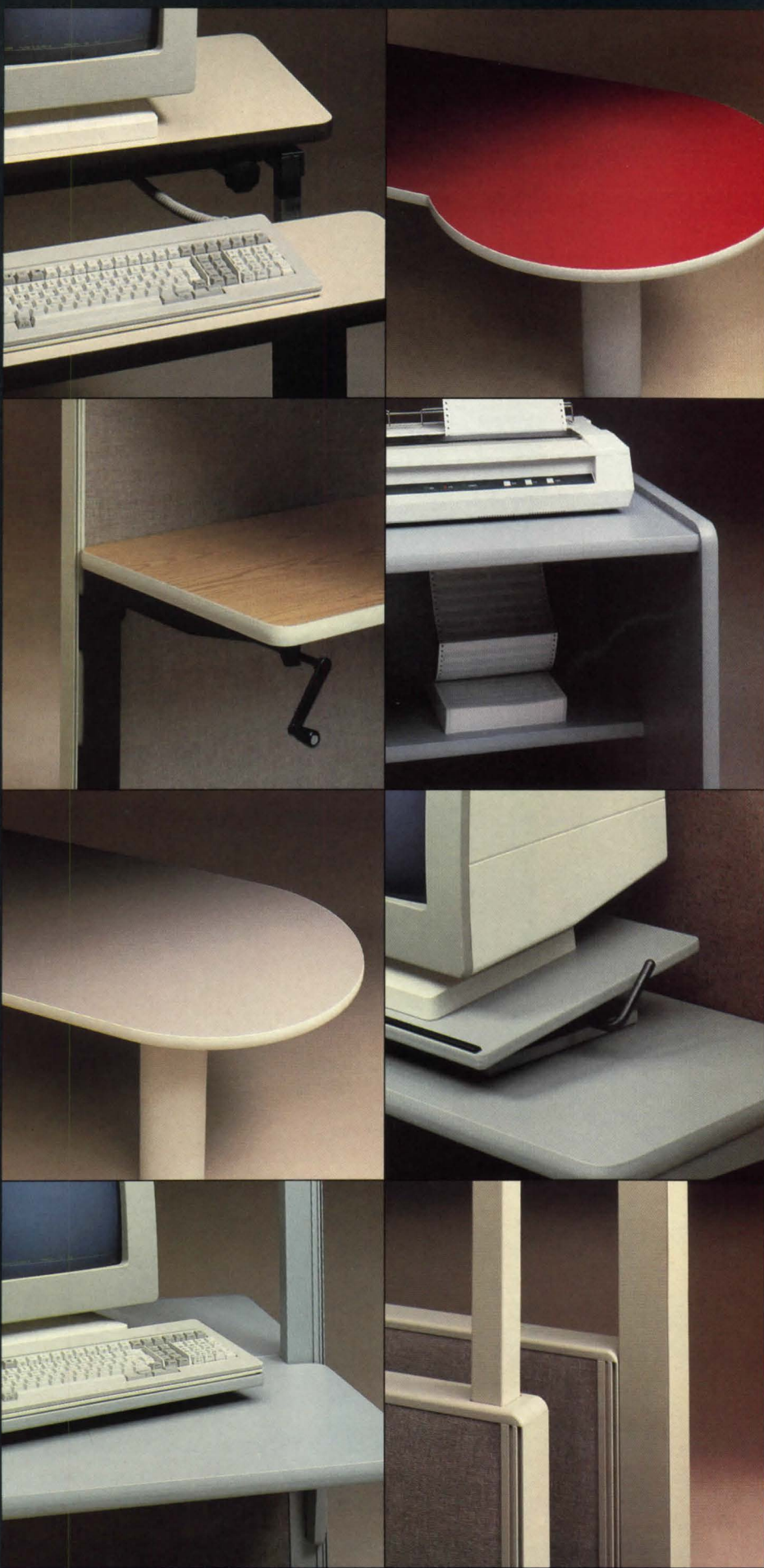
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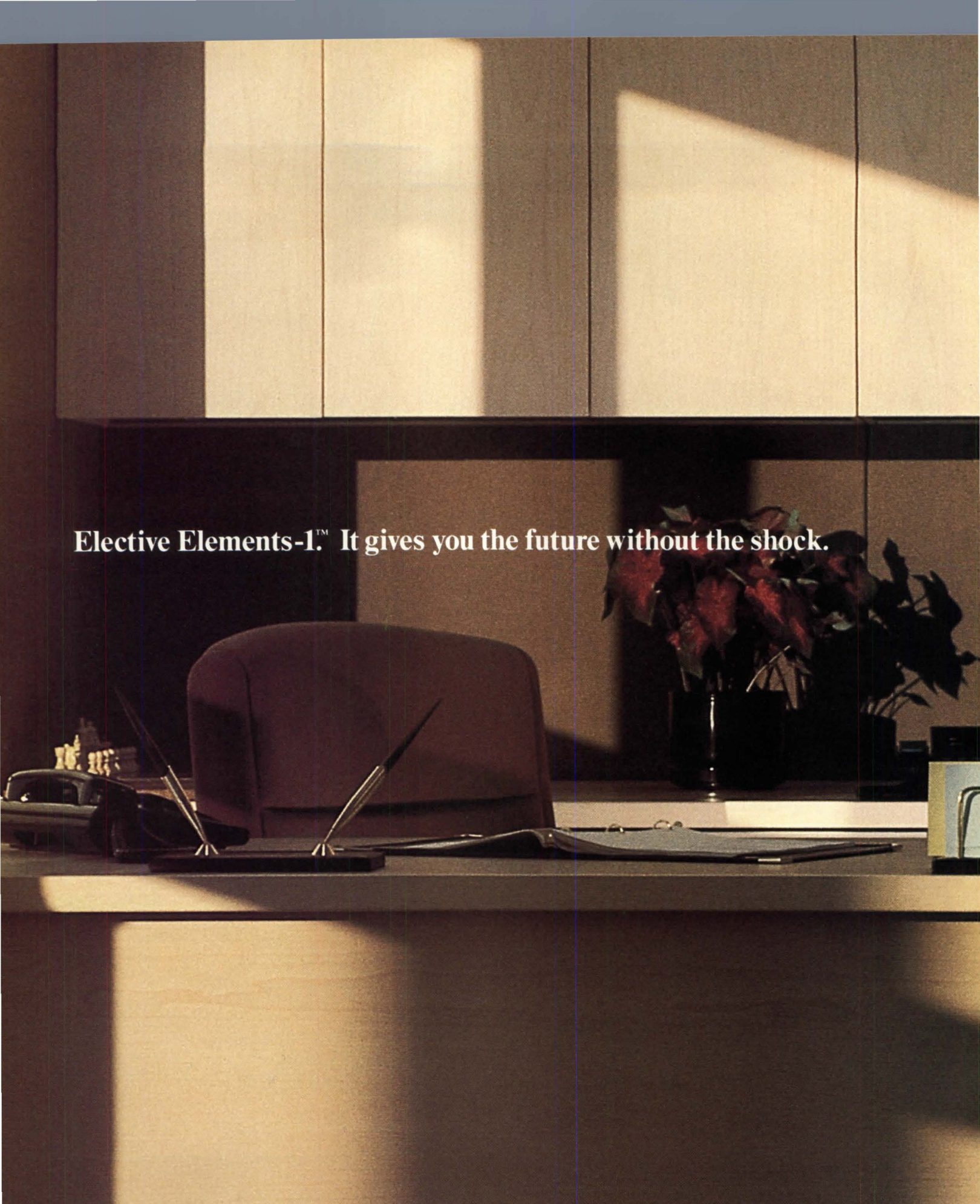
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Books

Ando's Opposition

Throughout the past decade, Tadao Ando has enjoyed a steadily growing recognition and reputation not only in his native Japan but also in the West. This is due primarily to the significance of his increasing number of works published widely in international journals and magazines. In addition to publications, there have been numerous exhibitions and lectures by Ando introducing his work and architectural thinking in various countries around the world. In 1982, for example, the Institute of French Architects arranged a large-scale, two-month exhibition in Paris, while *Electa Moniteur* simultaneously published an attractive volume on his architecture. Early this year, the Architectural League organized a similar show in New York, again inviting Ando to open the event with several lectures. One of the latest landmarks in this growing publicity of Ando's architecture is the present book, which is the most comprehensive to date and also the first one in English.

Ando's debut on the American scene, however, dates back earlier, to 1978, when he participated in the IAUS exhibit in New York of "A New Wave of Japanese Architecture," which created much sensation while traveling through several large cities from the East Coast to the West. This exhibit of some eleven young architects was the first conscious and concerted demonstration of the new generation's break with the previously strong reign of the primarily technologically oriented Metabolist movement—the last stronghold of Modernism in Japan. The exhibit thus also revealed the new directions, which had begun to evolve in the early 1970s and crystallized further in the 1980s.

What surprises one in the works of these architects, beyond the large variety represented, is how far they differ, not only from the often utopian and phantasmagoric practices of the Metabolists, but also from their Post-Modernist counterparts in the West, particularly from the populist version in contemporary American architecture. In fact, these Japanese works, as in the case of a small group of recently active architects—Kazuo Shinohara, Toyo Ito, Hiroshi Hara, Itsuko Hasegawa, and others—are often expressly and deliberately in opposition to the shallow mediocrity of populist approaches to architecture which, now more than ever, serve to mask, and so also reaffirm, the instrumental rationality and control of contemporary consumer societies and one of their ubiquitous symptoms, the fast escalating megalopolitan project.

As part of this opposition, Ando's architecture grows out of, and is guided by, a critical attitude toward both the universal techniques of an anonymous modern civilization and architecture, and also toward an indiscriminate retreat into a sentimental and nostalgic vernacular and historicism. Yet after a close examination and analysis of his designs, it becomes clear that Ando not only rejects these approaches, but also draws indirectly from both "the material conditions of modern society" and a critically deconstructed local culture. The first is evident in his distinctive use of reinforced concrete and glass-block walls and trabeated frames, and the second in his reinterpretation or reappropriation of the aesthetic, but by no means formal or stylistic, traditions of the *sukiya* teahouse and *machiya* and *nagaya* urban dwellings of the Osaka region where he lives and works.

Ando's "style" of minimalism then, following these traditions, is the outcome of the art of making, shaping, and articulating the architectonics whereby, through a "poetry of building," he intends to mediate critically between universal civilization and local culture. It is in this sense that Koji Taki writes in the book about Ando "as a builder rather than an architect," and explains that "when 'architects' are increasingly devoting themselves to superficial decoration, the appellation 'builder' may be read as a term of praise."

The first and most obvious sign of Ando's critical attitude toward the volatile megalopolitan development and the concomitant proliferation of the extremely congested suburb in Japan is the explicitly defensive character of many of his buildings. The rejection

of such an urban environment, and the focusing on the qualities and stability of the interior "human zone" instead, prompted many of his early critics to say that he was creating "hermetic microcosms."

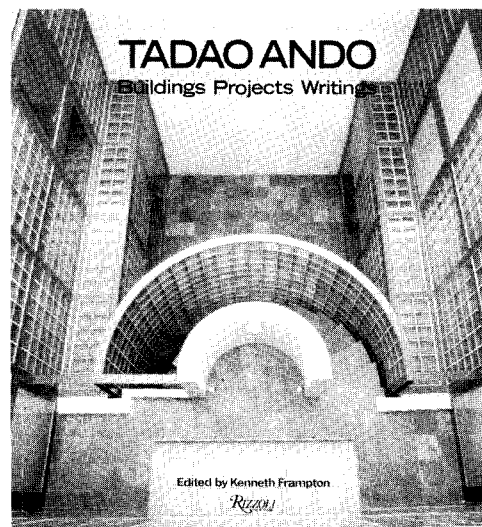
But while an interior similar to the austere and "detached" world of Sen-no-Rikyu's teahouses is always detectable in Ando's buildings, his designs also aim at mediating between inside and outside, between man and nature, as well as between private and public domains by means of filtering interstices. He says that "habitation depends on the skillful manipulation of rejection and acceptance" of certain aspects of the outside world. In his attempt to achieve this, his omnipresent, even if small, "traditional" courtyards, the layering of walls, frames, and spaces, and the careful handling of openings through the walls and roofs play extremely significant roles.

Through these interstices Ando introduces the essential elements and phenomena of nature. Yet, since nature for him means "not an artificial and domesticated nature, but a true nature that is capable of confronting the individual," it also means that Ando, with his designs, is determined to resist the often hedonistic and conformist cultures of contemporary societies. He notes that today the individual, following his increasingly unrestrained ambitions for the materialistic conditions of life, "enters a never-ending cycle and becomes dominated by his own excessive desires."

Ando, by means of his "minimalist" and austere designs brought about by his inquiry into, and sensitive response to, the essential meanings of everyday life, human nature, and natural phenomena—the sky, rain, snow, wind, and especially light and shadow—offers or, perhaps, provokes, an alternative mode of experience or living not unlike the one perceived and understood by way of the 17-syllable, simple yet succinct, Japanese *haiku*.

If we accept that poetry is always a particular use of a given language, in our case the elements of architecture, and thus it is a deviation from ordinary communication and experience, challenging the status quo of habitual or pragmatic meaning, then it is also a "defamiliarization" of a taken-for-granted reality, and a way of probing into the "life of things" as well as the prevailing human condition whereby we become not only aware of this reality and condition, but are also able to discover other modes and meanings of our existence. It is precisely this line of ontological approach that underlies Ando's intention to create "New Relations Between the Space and the Person." He also knows and proves

Tadao Ando: Buildings, Projects, Writings, edited by Kenneth Frampton. New York, Rizzoli International Publications, Inc., 1984, 144 pp., 208 illus., paperback, \$19.95.



that in our age of growing instrumental reason, the domination of optimized production and consumption and fast-disappearing public realm, poetry and criticism are necessarily complementary. The sense of poétique cannot be evoked and cultivated without simultaneously being critical, without, as he says, cutting "one wedge after another into the circumstances" of today. Therefore, the significance of Ando's architecture is that despite, or perhaps also because of, the hard-surfaced defensive geometry and the concrete, tangible architectural qualities, it is also profoundly "emotional" and deeply rooted in the intangibles and "intuitions emerging from experience." Where silence and light intersect in his spaces, these aspects of his architecture form an inseparable entity.

The present book highlights these and many other features of Ando's architecture and its way of doing it is rather convincing indeed. Kenneth Frampton, in his short introduction to the volume, focuses on "Tadao Ando's critical modernism" as both a discourse and a practice, given Ando's acute awareness of the present-day conditions in Japan whereby, in opposition to these conditions, he intends to preserve and reinforce the essential human significance of architecture. In the following essay "Minimalism or Monotony," Koji Taki, a leading Japanese architectural critic, gives "a contextual analysis of Tadao Ando's method," the particular modes and means of his operations, especially with regard to some important characteristics of the cultural and social set-

ting of his works. Ando's articulation of territory for the household (*katei*), his rhetoric with a restricted vocabulary, and the recollection of monotony of traditional Japanese architecture are pointed out as such features. Taki's text clarifies why and how Ando relies, both consciously and unconsciously, on certain preferred value systems of the local culture as opposed to the "open, internationalist vocabulary of Modernism."

Yet, Ando's own, selected writings in the book shed the most light on his approach to the realities of the contemporary urban development, the issues of tradition, his interpretation of, and distinction between, nature and culture, and the aesthetic awareness and life-styles of the Japanese people. These writings, beyond his introduction to his architecture and way of thinking, include some previously published essays, and complementing them, the book also features Toshio Okamura's "Interview with Tadao Ando," plus a short biography, and lists of major exhibitions and selected bibliographies of published articles both by, and on, Ando.

The majority of the book, however, is reserved for the introduction of Ando's actual buildings and projects. There are 21 of them, selected from the complete work, encompassing some ten years by now. The list begins with the Azuma Residence of 1976 in Osaka, which made Ando's name known for the first time, and extends as far as the Festival building, a large shopping center in Okinawa, completed just before this publication. The list also includes such famous proj-

ects as the Wall House (1977), the Glass-Block House (1978), the Kojima Housing (1981), the Koshino Residence (1981), Ando's own small office building (1982), the Teahouse addition (1983) to the previously built Soseikan or Yamaguchi Residence (1975), and the Rokko hillside housing in Kobe (1982). All of the buildings are documented with ample photographs, plans, and Ando's unique sketches and "image" drawings, and are also accompanied by his descriptions and comments. By means of these representative examples, one is able to follow up Ando's architectural development from the initial small residences, through small commercial buildings, to large-scale complexes, and find that during the years he has compromised neither the critical nor the poetic aspects of his designs, but in some cases strengthened them considerably.

This book on Tadao Ando's architecture is the first volume in a series of monographs by Rizzoli, dedicated to the work of several contemporary architects such as Rafael Moneo, Dimitris and Susana Antonakakis, B.V. Doshi, etc., "who have been individually selected for the special attention they pay to the 'poetics of construction'" and to particular local conditions. It is clear that this first volume has set a very fine example for the ones to follow, which we should be looking forward to. *Botond Bognar*

The reviewer is assistant professor of architecture at the University of Illinois at Urbana-Champaign; his Contemporary Japanese Architecture will be published this fall.

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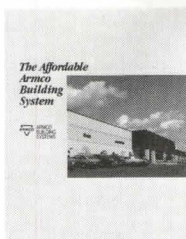
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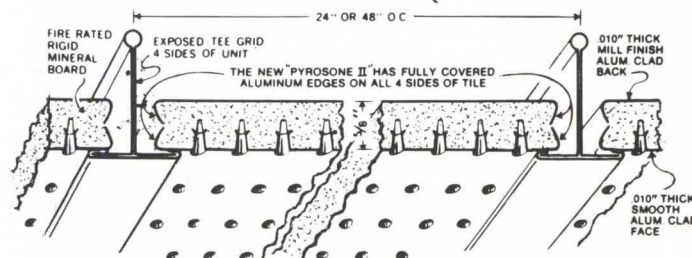
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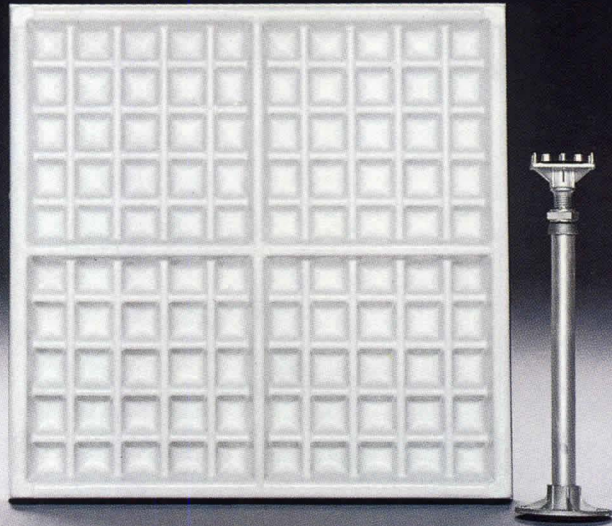
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Stephen Ogilvy

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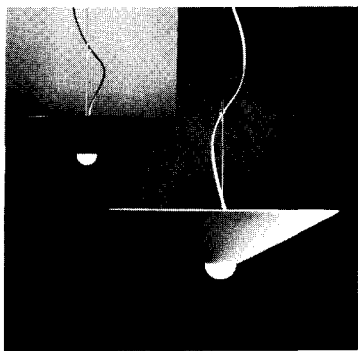
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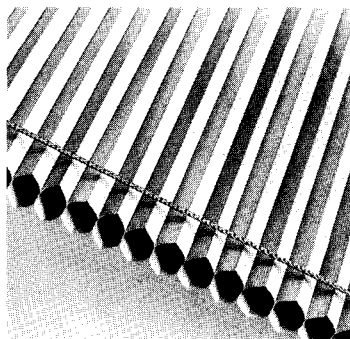
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Duette[™] double pleated shade creates a honeycomb that traps air for energy efficiency. Fabrics range from sheer see-through materials to heavier ones for privacy. The tailored shade with hidden cords can be up to 174 inches wide without tapes or lapping seams. It is available in nine colors, with off-white neutral on one side except for the very light tones. Hunter Douglas, Inc.

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EEL economy emergency light is a self-contained unit that provides automatic solid-state controlled lighting in the event of power interruption. It will remain on for a minimum of 1½ hours; after power is restored, the lamps switch off and the batteries are recharged. The housing is vinyl-coated galvanized steel. Dual lamps have sealed-beam floating heads that

can be rotated 360 degrees horizontally, 130 degrees vertically. Elan Emergency Lighting, Div. of Altus Corp.

Circle 525 on reader service card

Guideline Specifications for Exterior Insulation Systems are available for Class PB Type A and Class PM Type A and B insulations. The generic specifications establish a standard and provide a basis for competitive bidding. The specifications require applicators to be approved by the manufacturer of the system. Further information available from Exterior Insulation Manufacturers Association, 1133 15th St., N.W., Washington, D.C. 20005.

MACCS built-in cleaning system for routine cleaning of floors and carpets, walls, windows, ceilings, draperies, and upholstery, as well as emergency cleanups, is particularly suited to commercial, industrial, and institutional applications. A piping network distributes up to five different cleaning chemicals and hot or cold water. At a wall outlet, the technician selects the appropriate program for the task at hand. Special tools and attachments are available for each job. Intellivac, Inc.

Circle 526 on reader service card

Ceramic drum-shaped pedestals, hand-thrown on a potter's wheel, can be used as tables, table bases, and seats. Diameters range from 9 to 16 inches, heights from 13 to 18 inches. There are both satin and glossy finishes in many standard colors, with custom color development offered. Ceramic bowls that coordinate with the drums are also available. Design Technics.

Circle 527 on reader service card

Work station organizer provides space for reference and filed materials, clearing any 48- or 60-inch work surface. It can be customized with accessories to hold files, documents, manuals, printouts, magnetic media, etc. Corkboards and task lighting are available. TAB Products Co.

Circle 528 on reader service card

Sequentia Laminations impact-resistant panels are constructed of waferboard, oriented strandboard, or plywood with permanently bonded Structoglas[®] fiberglass reinforced skins. Applications include commercial buildings, freezer rooms, restaurants, kitchens, and similar panel installations. Sequentia, Inc.

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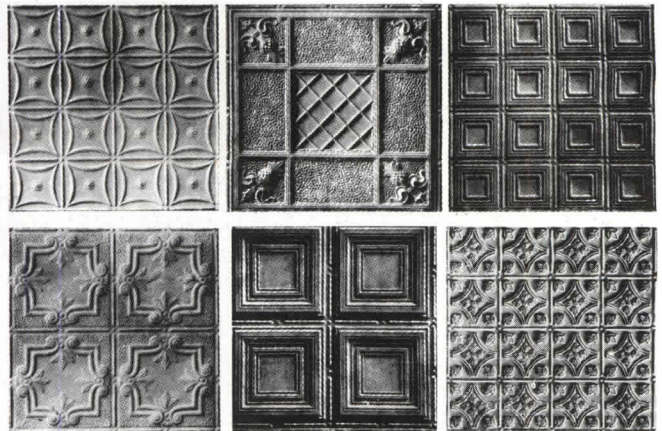
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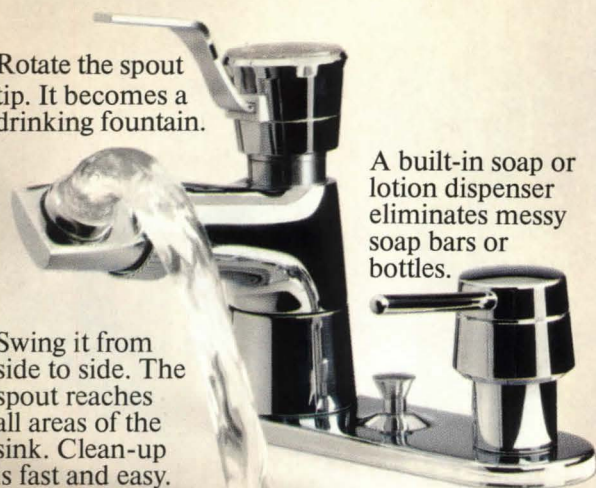
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It swivels. It swings.

Rotate the spout tip. It becomes a drinking fountain.

A built-in soap or lotion dispenser eliminates messy soap bars or bottles.

Swing it from side to side. The spout reaches all areas of the sink. Clean-up is fast and easy.



Lav Fountain-Flo.™
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Omni 120 Trac System blue-print machine operates without the ammonia odor associated with printmaking. A three-stage process removes odors from the print and neutralizes them. The Omni 120 operates at 21 feet per minute and has a 48-inch throat to accommodate large drawings. It provides roll and sheet storage, built-in paper cutter, print stacking, print proofing window, and storage for ammonia and arrestor cartridges. Diazit Co.

Circle 530 on reader service card

Linea and Linea Plus acoustical ceiling panels, with 3/4-inch deep reveals, are patterns that have been added to the Designer Series. They are easily cut, painted, and installed and offer strength, durability, and sound absorption. Both are available in natural and painted white finishes. Linea Plus panels are 2' x 2' and 2' x 4'; Linea panels are 2' x 2', 2' x 4', and 2' x 8'. Tecum, Inc.

Circle 531 on reader service card

The Caretaker™ light fixture for indoors or outdoors uses an HPS 50-watt lamp said to equal the illumination and light pattern of two conventional 150-watt PAR lamps, with lamp life averaging 6½ years. It can be used in new or retrofit installations and has a pivoting reflector

and rotatable lens for easy adjustment to any angle. A ten-page color brochure describes the light, illustrates typical installations, and provides photometric and cost and performance analysis data. Crouse-Hinds Lighting.

Circle 532 on reader service card

Skylights of glass and acrylic are described in a 16-page color brochure. Models include vaults, continuous ridge, pyramids, polygons, domes, tandems, grids, and vented models. A new thermalized skylight has an air-lock PVC curb that reduces energy loss. Plasteco, Inc.

Circle 533 on reader service card

Lockers and accessories are described and illustrated in color in a 20-page catalog. Styles include single tier, double tier, and multitier units. Among featured products are the Medallion with acoustical design to reduce operating noise, Guardian with sound deadening to reduce locker clatter, and Nu-Life locker door and frame replacements. The brochure includes color charts, detail drawings, and specifications. Penco Products, Inc.

Circle 534 on reader service card

Acoustical control products and systems brochure discusses fabricated metal noise control devices and acoustical materials. There are metal acoustical enclosures or barriers, portable personnel rooms, machine enclosures, ceiling and wall absorbers, and acoustical foams. The 60-page brochure provides technical data required for preparing specifications, OSHA regulations, and a glossary of terms. United McGill Corp.

Circle 535 on reader service card

Architectural metals brochure for architects describes systems for curtainwall framing, storefronts and entrances, fixed window framing, and exterior flush glazing. Diagrams show details of five exterior flush glazing systems and metal components. A guide to PPG glazing systems makes it easy to select the best system for a particular application. PPG Industries.

Circle 536 on reader service card

All-wood windows and patio doors equipped with Heat Mirror™ transparent insulation are described in a 20-page brochure. Previously available in the company's line of aluminum-clad

wood windows, Heat Mirror added to wood windows helps them achieve insulation values above R-4. The brochure provides product information and size charts for the entire line. Hurd Millwork.

Circle 537 on reader service card

The ThinWall® fence is a construction technique that uses less material and labor than conventional brick fences. The construction procedure is described and illustrated in a six-page brochure. Detail drawings show the method of installation, and color photos illustrate fences constructed with this technique. Acme Brick Co.

Circle 538 on reader service card

Acid-neutralizing sumps dispose of acid wastes in schools, hospitals, and research facilities. According to the manufacturer, the sumps allow such wastes to be discharged into sewage systems without further treatment. An eight-page brochure describes the system, its installation, and operation, and illustrates several models. Koch Engineering Company, Inc., Knight Div.

Circle 539 on reader service card

[Continued on page 261]

It swivels. It swings. It rises.

The spout swings from side to side for easy clean-up.

Plus it rises for shampooing hair and filling tall containers.

The spout tip swivels to become a drinking fountain.



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