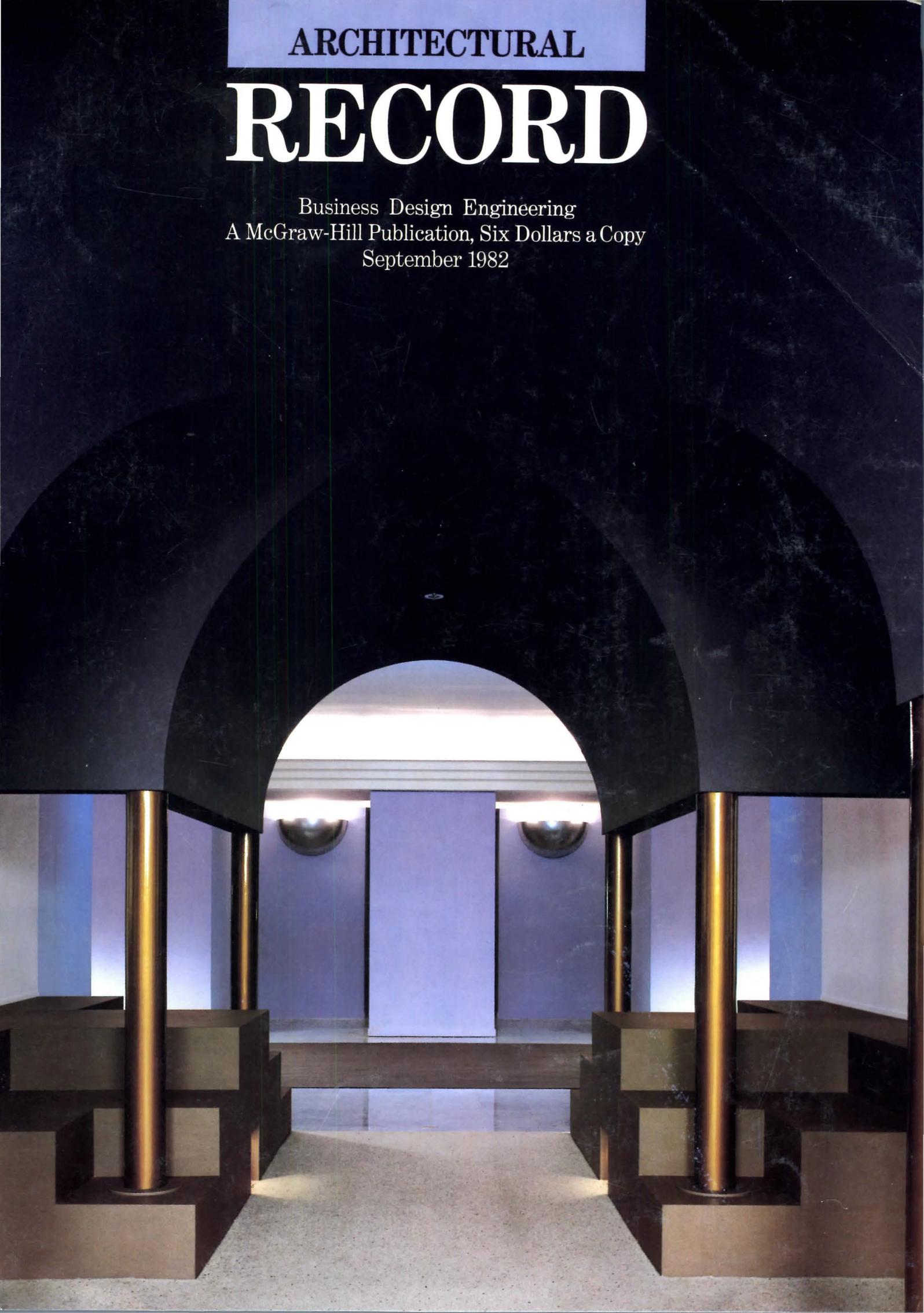


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Business Design Engineering
A McGraw-Hill Publication, Six Dollars a Copy
September 1982



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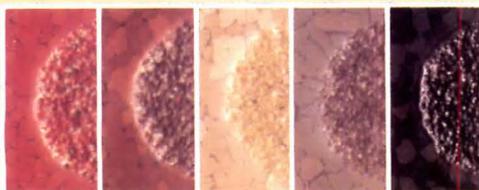
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U.S. Pavilion

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GLASS DIVISION

1982 Regional Estimates Dodge Construction Potentials

North-east	Connecticut, District of Columbia, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Eastern Pennsylvania, Rhode Island, Virginia, Vermont	1981	1982	Percent Change 1982/81
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$ 7,489	\$ 5,975	-20
	Institutional and Other	4,406	4,375	-1
	Total	\$11,895	\$10,350	-13
	Residential Buildings			
	One-Family Houses	\$ 5,791	\$ 5,925	+2
	Multifamily Housing	3,242	3,350	+3
	Nonhousekeeping Residential	726	850	+17
	Total	\$ 9,759	\$10,125	+4
	Nonbuilding Construction			
	Highways and Bridges	\$ 1,897	\$ 2,050	+8
	Other Public Works	2,775	2,825	+2
	Utilities	441	1,100	++
	Total	\$ 5,113	\$ 5,975	+17
	Total Construction	\$26,767	\$26,450	-1

Mid-west	Northern Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, North Dakota, Ohio, Western Pennsylvania, South Dakota, Wisconsin, West Virginia	1981	1982	Percent Change 1982/81
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$ 6,658	\$ 6,825*	+3
	Institutional & Other	4,281	4,450	+4
	Total	\$10,939	\$11,275*	+3
	Residential Buildings			
	One-Family Houses	\$ 5,956	\$ 5,850	-2
	Multifamily Housing	2,773	2,375	-14
	Nonhousekeeping Residential	549	525	-4
	Total	\$ 9,278	\$ 8,750	-6
	Nonbuilding Construction			
	Highways and Bridges	\$ 2,854	\$ 2,775	-3
	Other Public Works	2,699	2,600	-4
	Utilities	1,475	3,200	++
	Total	\$ 7,028	\$ 8,575	+22
	Total Construction	\$27,245	\$28,600*	+5

*1982 estimate includes \$2.0 billion synthetic fuel plant

Second Update
July 1982

South	Alabama, Arkansas, Florida, Georgia, Southern Illinois, Kansas, Louisiana, Mississippi, Missouri, North Carolina, Nebraska, Oklahoma, South Carolina, Tennessee, Texas	1981	1982	Percent Change 1982/81
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$14,279	\$12,325	-14
	Institutional and Other	6,900	7,325	+6
	Total	\$21,179	\$19,650	-7
	Residential Buildings			
	One-Family Houses	\$17,043	\$19,400	+14
	Multifamily Housing	6,996	7,625	+9
	Nonhousekeeping Residential	1,552	1,600	+3
	Total	\$25,591	\$28,625	+12
	Nonbuilding Construction			
	Highways and Bridges	\$ 4,275	\$ 4,250	-1
	Other Public Works	4,563	4,750	+4
	Utilities	1,285	2,000	+56
	Total	\$10,123	\$11,000	+9
	Total Construction	\$56,893	\$59,275	+4

West	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming	1981	1982	Percent Change 1982/81
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$10,105	\$ 8,400	-17
	Institutional & Other	4,131	4,350	+5
	Total	\$14,236	\$12,750	-10
	Residential Buildings			
	One-Family Houses	\$ 9,573	\$ 9,825	+3
	Multifamily Housing	4,810	4,400	-9
	Nonhousekeeping Residential	1,052	875	-17
	Total	\$15,435	\$15,100	-2
	Nonbuilding Construction			
	Highways and Bridges	\$ 2,100	\$ 2,425	+15
	Other Public Works	3,531	3,375	-4
	Utilities	3,982	2,200	-45
	Total	\$ 9,613	\$ 8,000	-17
	Total Construction	\$39,284	\$35,850	-9

++ = Over 100% increase.

Getting there won't be easy, however. Interest rates are pegged to inflationary expectations more than they are to the prevailing rate of inflation, and the financial community (including the Fed) isn't convinced that 7 per cent inflation is here to stay. The cause for doubt is the prospect of a series of \$100 billion deficits which the Fed interprets as fuel for another round of double-digit inflation once the economy recovers.

Under the "optimistic" assumption that lingering excess capacity throughout the economy will hold inflation to 7 per cent for the next couple of years despite huge deficits, the conventional mortgage rate is projected to decline gradually from its peak of 17 per cent at the start of 1982 to the range of 13 to 14 per cent by the end of 1983. This "stickiness" of mortgage rates offers little opportunity for the recovery of housing starts in the rest of 1982.

With almost half the year's housing activity already on the books at an average rate of less than a million dwelling units, 1982 begins to look like a replay of 1981—the industry's worst year in three decades. The President's veto of Senator Lugar's \$3-billion mortgage-subsidy bill pretty well assures that it will be.

It's not likely that the defeated Lugar bill will be Congress' final attempt to provide homebuyers (and builders) some relief from current credit conditions. The odds are better than ever that a substitute will surface before the November elections. Nevertheless, even a casual reading of the report of the President's Commission on Housing makes it clear that any housing aid program acceptable to the Reagan Administration would be one that did not require Federal outlays.

The mathematics of the housing market in 1982 requires that in order to reach a total of even 1.1 million units this year, the seasonally adjusted rate of housing starts must rise to 1.3 million by the fourth quarter. But without a significant decline in mortgage rates, and lacking the temporary help of mortgage subsidies, a jump to this rate of building in so short a time is not very likely. Under the conditions now assumed for 1982's second half, the fourth-quarter rate of building is more likely to be 1.2 million. This would leave the year's total somewhere above 1.05 million but short of 1.10 million units (and below 1981's total as well).

Provided that a rate of 1.2 million units can be reached by 1982's final quarter, a steady decline of mortgage rates through 1983 would put a total of 1.4 million housing starts within reach.

Nonresidential building
If the Reagan economic program were on schedule, commercial and industrial building would now be in the initial phase of a strong cyclical advance, responding to the multiple stimuli of tax cuts, accelerated depreciation, and deregulation. Instead, chronic recession has this volatile building market in the second stage of a decline that began in 1980.

The bottom of the commercial and industrial building cycle was probably reached at the middle of 1982 when contracting slid to a seasonally adjusted rate of 650 million square feet. Recovery from that point will depend on the timing and strength of the recovery of the economy as a whole; the normal lag of the commercial and industrial building cycle; and a special situation that applies to office building.

The stage is set for a recovery of the economy soon after midyear. The decline of the GNP apparently ground to a halt in 1982's second quarter, and the \$33 billion tax cut and a \$12 billion hike in Social Security benefits scheduled for the third quarter are the ingredients of a widely anticipated advance in consumer spending. With inventory liquidation largely completed, spending gains should quickly be transmitted to production and employment. Only one thing stands in the way of the cumulative process that normally converts recovery into expansion: high interest rates. Because of this handicap, recovery from the recession of 1981/82 will not be all it could be.

Like most other forms of business capital spending, contracting for commercial and industrial building consistently lags general economic activity. One feature of this lag is a long, flat trough, characteristic of the cycle once its decline has ended.

The place to look for the first sign of recovery of commercial and industrial building is in retail building, which is a derived demand of housing. As the housing market begins to recover in the second half of 1982, it would be reasonable to expect improvement in contracting for stores and warehouses early in 1983. But while 1983 offers the potential for recovery, 1982 will be the cyclical low point for retail building—an estimated 315 million square feet.

At the other end of the spectrum is manufacturing building—notoriously the last of the commercial and industrial building categories to respond to improving economic conditions. Capacity utilization is the critical factor that governs industrial building, and it will require the rest of 1982 and

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The Outlook**Nonresidential Building****Contract Value**

Seasonally adjusted annual rates, in billions of dollars

Year/Quarter	Total	Commercial/ Industrial	Institutional	
1981	I	\$58.3	\$37.8	\$20.5
	II	57.6	38.9	18.7
	III	58.6	38.7	19.9
	IV	58.4	38.6	19.8
1982	I	\$51.9	\$32.2	\$19.7
	II	49.5	30.0	19.5
	III	61.1*	39.9*	21.2
	IV	53.4	31.8	21.6
1981	\$58.2	\$38.5	\$19.7	
1982	\$54.0	\$33.5	\$20.5	
% Change	- 7	-13	+ 4	

* Includes \$2.0 billion synthetic fuel plant (annualized)

Residential Building**Contract Value**

Seasonally adjusted annual rates, in billions of dollars

Year/Quarter	Total	One Family	Multi- Family*	
1981	I	\$69.3	\$46.0	\$23.3
	II	62.7	41.3	21.4
	III	56.6	35.5	21.1
	IV	51.8	30.8	21.0
1982	I	\$54.0	\$36.0	\$18.0
	II	58.0	37.0	21.0
	III	65.0	42.5	22.5
	IV	73.5	48.5	25.0
1981	\$60.1	\$38.4	\$21.7	
1982	\$62.6	\$41.0	\$21.6	
% Change	+ 4	+ 7	—	

* Includes Nonhousekeeping Residential Buildings

Nonbuilding Construction**Contract Value**

Seasonally adjusted annual rates, in billions of dollars

Year/Quarter	Total	Public Works	Utilities	
1981	I	\$36.0	\$27.6	\$ 8.4
	II	35.3	22.4	12.9
	III	25.6	23.5	2.1
	IV	30.8	25.4	5.4
1982	I	\$37.6	\$25.6	\$12.0
	II	29.7	25.7	4.0
	III	32.8	23.8	9.0
	IV	34.2	25.2	9.0
1981	\$31.9	\$24.7	\$ 7.2	
1982	\$33.6	\$25.1	\$ 8.5	
% Change	+ 5	+ 1	+18	

most of 1983 to absorb the excess capacity that currently abounds in the manufacturing sector. The bottom of the industrial building cycle will span both 1982 and 1983 at an average level of about 125 to 150 million square feet per year. The first significant gain (to above 175 million square feet) is not expected until 1984.

Somewhere between the dependable cyclical behavior of retail building (the early cycle) and manufacturing building (the late one) lies the maverick of the commercial and industrial building group: offices.

As the result of an unprecedented boom which lasted all the way through 1981, office building was not only late in joining the recession but brought a surplus of unfinished buildings along with it. The price of having the unexpected support of office building in 1981, when most other building markets were falling apart, will be paid in 1983 when a moderate surplus of office space becomes a drag on recovery.

Bleak prospects for employment growth over the next eighteen months imply rising office vacancy rates, as last year's record volume of newly started projects becomes available for occupancy later this year. It is estimated that the cyclical adjustment to a temporary excess of office space, compounded by high unemployment, will bring the volume of office contracting down from its 1981 peak of 317 million square feet to 230 million in 1982, and down further in 1983 before turning up again in 1984.

Although the likelihood of further decline in the rate of total commercial and industrial building is small, recovery remains several quarters into the future as the normal lag of this market is extended by the aftereffects of an office boom that stayed too long. In 1982, it has to be enough that the long and steep decline of commercial and industrial building appears to have ended, and the conditions for recovery are taking hold.

Total nonresidential building, including both institutional and commercial/industrial building, now appears to be reaching its cyclical bottom in 1982 at 925 million square feet—a point that is astonishingly close to the low point of the mid-'70s cycle.

Nonbuilding construction

One construction market that cannot anticipate a change in the circumstances that brought it down is public works. From a record \$29 billion of contracting for highways and bridges, sewer and water facilities, and other public works construction in 1979, successive

rounds of budgetary restraint have reduced the annual value of its contracting by 15 per cent to its current \$25 billion. After adjustment for inflation, public works construction is now only two-thirds its former peak volume.

The future of this construction market rests with the ability of state and local governments to provide additional funding for programs that the Federal Government is "retargeting" and "stretching out."

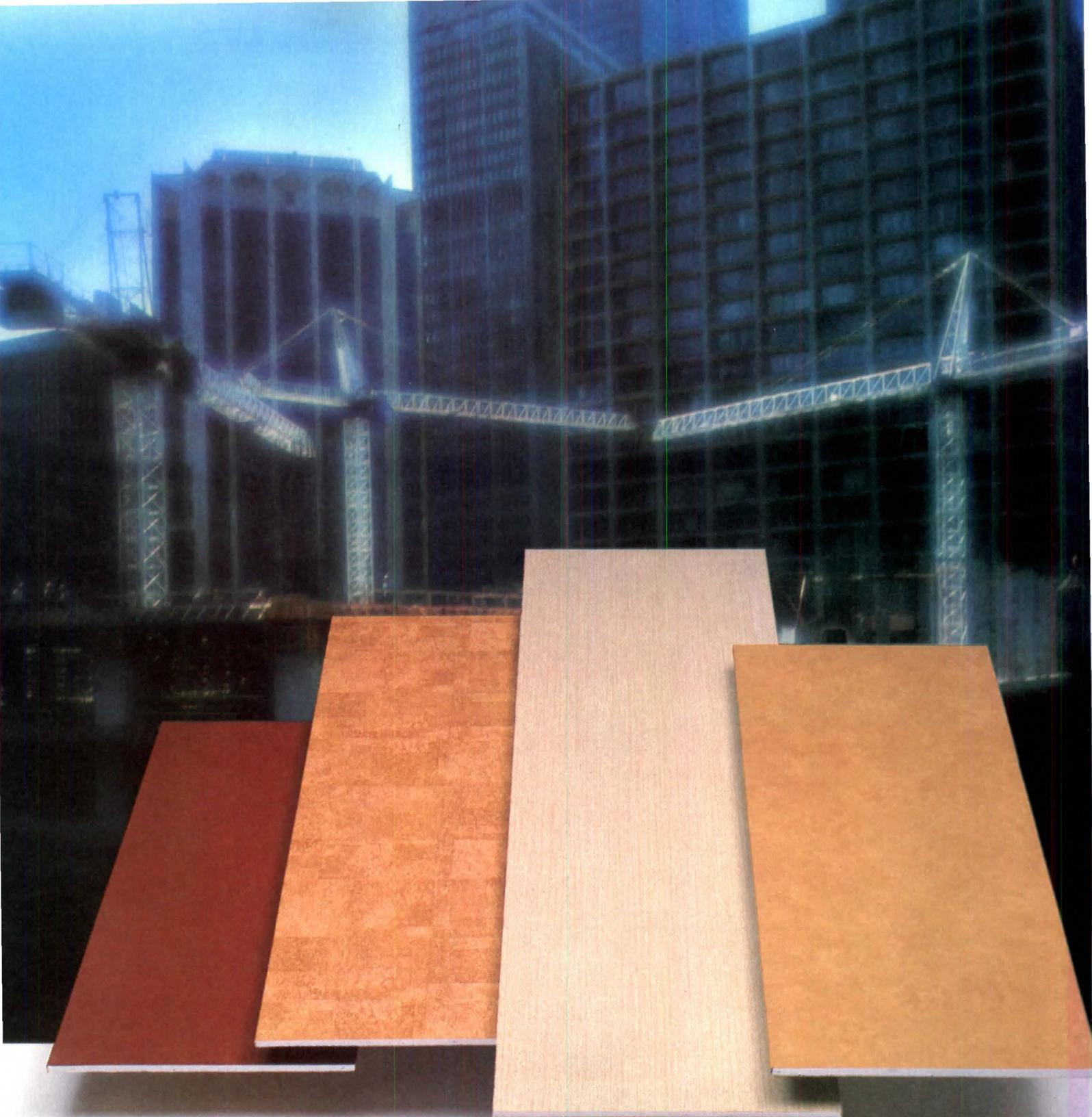
Budgeted outlays of the Federal Government in fiscal years 1982 and 1983 show an unchanged total of funding planned for public works programs at the reduced rate reached in the beginning of 1982. Meanwhile, state and local governments are exploring all possible sources of new revenue to cover shrinking Federal grants-in-aid. The promise of new and higher taxes in the future is little consolation in 1982, however, when the combination of recession and high interest rates are squeezing revenue and inhibiting bond sales.

In the short run, at least, this transfer of responsibility for public works construction from Federal to local government isn't working too well. The "best case" scenario is that contracting will increase enough to cover inflation (i.e., steady in constant dollars) for the next few years, until local governments are better adjusted to the New Federalism.

Transition to 1983

Two important changes in the environment for the depressed construction industry will be taking place in the second half of 1982. The economy will be working its way out of the on-and-off recession that has blighted two of the past three years. Interest rates should begin a downward adjustment to a more reasonable relationship with the rate of inflation. It would also be nice if public works programs were to be better funded—but two out of three are better than none.

Except for a barely noticeable improvement in housing starts by the end of the year, these events won't bring an immediate change in total construction contracting. What they will do is prepare the way for a better 1983 for the construction industry.



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Promotion: So you want to write a book

An architect and senior editor of Whitney Library of Design gives his inside views on getting published

by Stephen A. Kliment

If you have ever been tempted by the prospect of having your name on the spine of a book, realize that you are in good company.

What spurs design professionals to write a book falls readily into six categories:

- You have developed a certain expertise in a design specialty (such as specifications, ambulatory-care centers, offices with automated equipment), and you want to record what you know, in case you are run over by a truck or in order to raise your profession;
- You have worked up a theory or philosophy of design, and you want to let others know;
- You or your firm have designed or completed a fair volume of work, and you want to proclaim the meaning or rationale behind the brick, mortar and furnishings;
- A book will impress clients and prospects and bring in new work;
- You are after fame;
- You are after fortune.

Most books written by design professionals tend to combine these motives. But before you begin to write—even before you mail your first letter to a publisher—observe certain cautions which will save a great deal of frustration.

First, you must find a topic and an audience

Having, as best you can, decided why you want to write, make clear in your mind what the topic should be, and who should read it.

For example, you or your firm may have designed an impressive series of business offices for small manufacturers throughout the Midwest, and you feel your designs and ability would be a good book.

But before you lift a pen, check out the subject. Look in *Books in Print*, a big reference published once a year (and available for inspection in all libraries and bookstores) that lists (by subject, title and author) every book on the market. If you find there are already 13 books in print on designing offices for small manufacturers, you are wasting your time. Unless—

Unless you have an angle. In many cases, what separates one design book from another is not so much the topic as the approach. If you have picked a common subject

like offices, do not throw them together as a coffee table picture book. Think of a special twist:

- How to market interior design to small-business people;
- How the small businessman can work with an interior designer;
- Controlling costs and schedules on small commercial contract design;
- Lighting small office interiors.

Next, think audience. The subjects listed above are obviously given with different audiences in mind. Are you writing for other designers? For the business person looking for design services? For the lay person? For the student? Or should you do a so-called “cross-over” book that hits two or more of these audiences? Straighten out these concerns in your mind before you move on to the next questions.

Second, your commitment must be firm

Writing a book is quite unlike writing a report, a letter, or even an article. For one thing, you must have (or be able to develop in a hurry) a *consistent* style, simple, without any but the most necessary professional or technical jargon. Above all, you must have the staying power to write not 1,000 words, or 4,000, but often 25,000 or even 50,000. If you have doubts—or, more to the point, your colleagues, spouse or friendly editor have doubts—team up with a writer and attack the project jointly.

Writing a book is more than writing. No matter what your skills, you will need to do extra research. You must assemble illustrations—from your files, or from others' files, in which case you will require written permission to use the material—or commission a photographer. You may need to make new drawings. None of these tasks is insuperable in time and funding. But they must be spelled out and planned for.

Then, you must “sell” the book

Having put your own house in order, you now must approach a publisher with your idea. (Sometimes a publisher will approach you. Feel flattered, but do not think you can skip those early steps.)

Browse through the shelves at your local store that carries books on design—most major cities have at least one—or the library. Size up the handful of publishing houses in the design field. Are they well laid out? How do the prices relate to the perceived value of the book? Above all, do the books come across as *books*, with a clear theme, presentation, intelligent writing and organization?

Make a list of the publishers and write to the first, care of the senior

editor. (Avoid a broadcast mailing to the whole list; it's a fast way to antagonize them all.)

- Describe your topic. Keep to a paragraph or two;
- Describe your audience(s) in detail;
- Point out why the audience(s) would be interested in your topic;
- List competing books, and why yours is better or different;
- Develop an outline of chapters, with principal subdivisions;
- Indicate illustrations;
- If you have already worked up a sample chapter, send it. If not, wait for a reaction to the other items;
- Send published articles if you can, but remember editors know that articles as printed have often first been heavily edited.

Wait until you hear from House No. 1 before you approach House No. 2. But don't wait too long. True, the major houses receive a lot of proposals, and all have some kind of internal procedure for gauging the book's title, author, and profit potential. This takes time.

Get a good contract

Once the publisher has agreed to take on your book, he will offer you a contract. This contract has, under the influence of lawyers and copyright insurance companies, grown to an impressive document—often longer than an owner-architect agreement for a 100,000-square-foot shopping center. Do not be cowed by the length. Basically, the contract spells out:

- Your deadline for delivery of text, captions, artwork and written permission to use the artwork;
- Your royalty as a percentage of money the house receives on the book; (As a rule you begin at between 8 and 10 per cent.)
- An advance (This money is billed against your royalties and the amount is usually tied to estimated first-year sales.)
- Copies for your own promotional use; (You will need to convince the publisher that you are not planning to hand out free copies to the same market he is trying to sell to.)
- A copyright; (It can be in your name or the publisher's.)

After several thousand copies are sold, your royalties may take a hike to 12½ per cent; and eventually to a possible 15 per cent on hardcover books—less on paperbacks. You also get a share of revenues your publisher is able to generate through sales to bookclubs, schools and libraries, through serial rights via excerpts published in magazines, through sales of overseas rights—to name a few. Such sales usually bring lower royalties, due to lower profit margins. Royalty checks generally are mailed twice a year.

The decision to publish involves a

hefty investment by the publisher in paper, ink, typesetting, printing, and the staff time of editors, promotion and marketing people. Your contract will therefore contain provisions dealing with such matters as to who has the final say regarding text and layout, liability in case your material “borrows” from others' copyrighted work or says nasty but untrue things about individuals, and—since this is often an author's first book and its publication can make him famous—the right to an option on your next book.

Work effectively with your editor

Publishing houses differ. At some, the editor with whom you discussed and sharpened up your book idea and negotiated your contract stays with you until you deliver the manuscript and artwork. At others, as soon as the contract is signed, you are handed over to a so-called development editor, who will help you as needed in developing your manuscript.

Either way, as soon as your manuscript is delivered, it is reviewed, and possibly sent back for more work. Eventually, it is copy-edited for style and consistency, and sent to typesetting. You are then sent galley proofs for inspection. Don't try to rewrite your book on the proofs. It will cost you dearly.

Once the proofs are corrected, the art department lays out the book, and prepares so-called camera-ready mechanicals. These are carefully checked and sent to the printer, who converts them into film and then printing plates. There's a final checkpoint: the printer sends the editor page proofs just before going on press.

The entire process, from delivery of manuscript to delivery of finished books, can take as few as five months to as many as 24.

Promote your product

Some of the success of a book, though not as much as authors think, depends on good promotion. You, as author, can play a big part here. Give the publisher lists of friendly magazine and newspaper editors, reviewers, and bookstore owners. Tell your publishers about your travel and lecture plans, so they can tie in some sales promotion. An enthusiastic author can be his own best promoter.

Writing a book can be exhilarating, frustrating, financially rewarding (sometimes), good for your ego, good for your practice, or all of these. Do not embark upon it lightly. But once you have, give it all the élan you can. You owe it to your publisher, your profession and yourself.

Mr. Kliment is an architect and the senior editor at Whitney Library of Design, an imprint of Watson-Guptill Publications in New York. He is the author of several books, including Creative Communications for a Successful Design Practice, Neighborhood Conservation (with Robert McNulty) and Into the Mainstream, a primer on barrier-free design.



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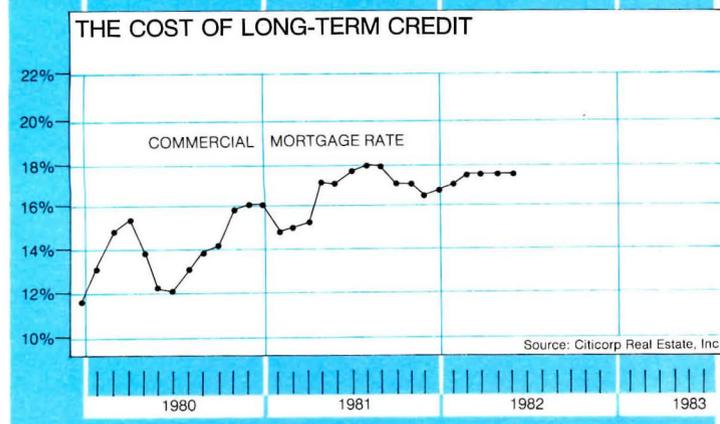
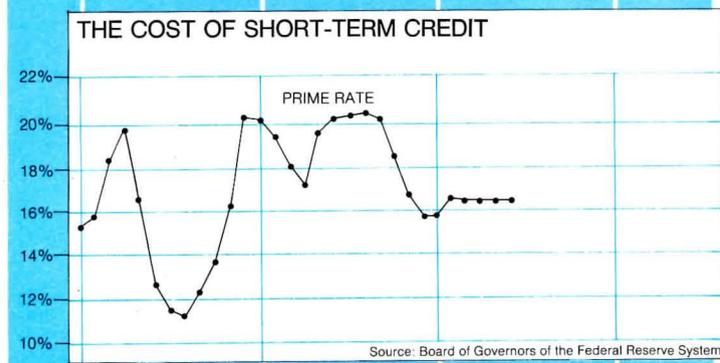
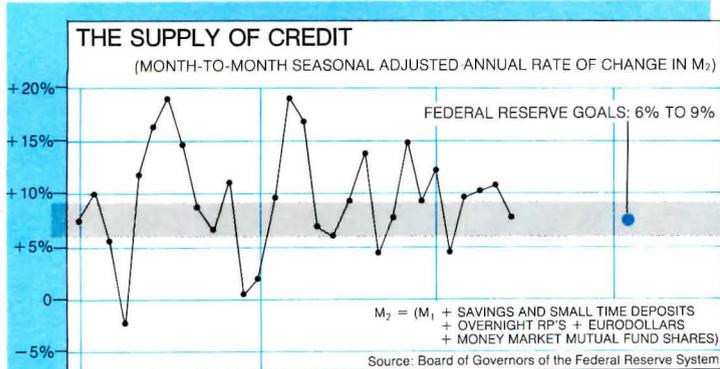
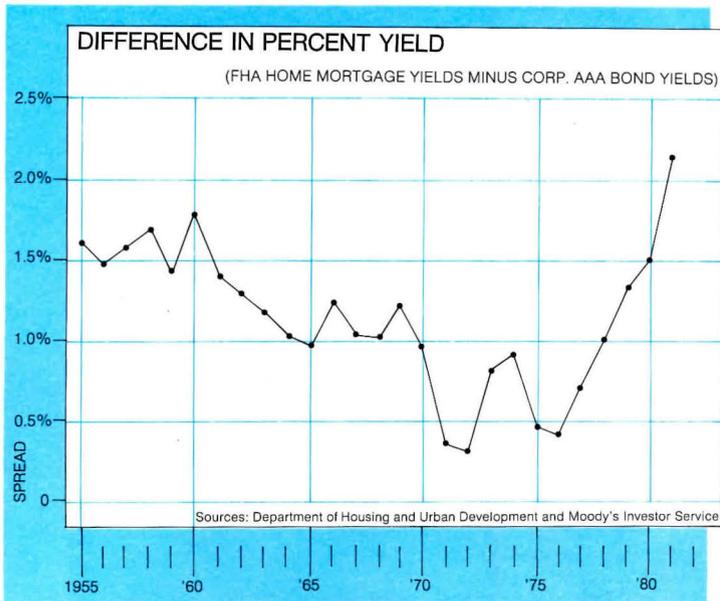
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The yield-spread graph below reveals a large difference between the interest gained by investing in relatively safe instruments, such as bonds, and yields obtainable in the housing mortgage market, which—as Mr. Kidd explains—is rife with uncertainties and complications.



Finance: Further intelligence on housing-mortgage sources reveals their short-term weakness

by Phillip E. Kidd

For years, the housing market has relied extensively on thrift institutions and commercial banks for its financing. Nevertheless, it has always sought ways to attract funds from other financial institutions, particularly life insurance companies and pension funds. This has meant that single-family mortgages had to compete in part for their investment dollars against corporate bonds.

For a while in the 1970s, after the introduction of guarantees by the Government National Mortgage Association, home mortgages improved their appeal with the other financial institutions, and the yield spread between mortgages and bonds narrowed (see top graph). In the past few years that trend has reversed, and now the gulf between the two is even larger than in the 1950s, when a housing boom was in progress.

This widening gap reflects several fundamental changes that are reshaping single-family mortgage lending. Until the changes are settled, mortgages will be a less sure investment. How quickly and how effectively the changes fall into place will greatly affect the timing and strength of the next housing recovery.

For more than a decade and a half, investors watched inflation erode the value of their fixed-rate, long-term portfolios. During the midst of the previous economic expansion (1976-79), institutional investors began switching away from mortgages, and into financial instruments with returns that adjust to inflation.

Currently, they want investments that can provide protections against the current rate of inflation, any future upshoots in inflation, and secure a real return as well. The single-family mortgage market has responded to this new investor attitude through the introduction of a bewildering variety of adjustable mortgages, including renegotiated and variable-rate loans and share appreciation mortgages.

Meanwhile, successive deregulations of rates on savings and time deposits at commercial banks and thrift institutions have systematically removed the low cost of these housing funds. Thrift institutions—the housing market's most important and familiar lenders—have experienced an increasingly severe financial squeeze as earnings from their accumulation of relatively low-rate mortgages lag behind the cost of attracting and holding deposits.

Even with a considerable drop in short-term rates, their problems will not disappear quickly. They accounted for almost 50 per cent of the growth in housing mortgages in

the 1970s, and less than 25 per cent of last year's net new housing debt. This year and next, their contribution could be even smaller.

Now the housing market must find another major supplier of funds before a solid recovery can take hold. Because their assets are projected to almost quadruple from \$600 billion in 1980 to \$2¼ trillion in 1990, pension funds—public and private—are the logical choice.

But, in an economy where all credit is exceptionally scarce relative to demand, pension funds will be aggressively courted by every economic sector—business, government and construction—that needs long-term funds for growth. The funds will pick and choose among many investment options, seeking those that provide the surest combination of adjustable returns (including equity ownership) and marketability.

In the housing market, the methods of sharing interest-rate risks and home appreciation are still unresolved, with neither borrower nor lender satisfied with the new mortgage instruments or, often, fully understanding them. The lack of standardization and comprehensibility among these mortgages makes them difficult to package for sale in the secondary market, hurting their attractiveness to investors.

The "free market" will need time to work out an efficient solution to these problems. In the meantime, pension funds and other lenders will demand a higher yield to invest in single-family mortgages. And, even when other long-term rates fall, the spread between mortgages and bonds will be much larger than in the past, keeping mortgage rates higher than in the early and mid-1970s. Home buyers may well continue to have trouble locating affordable housing finance well into next year.

Poor financing, coupled with the difficulty of retooling the home-building and building-materials industries in an uncertain environment, will more than offset the positive effects on new construction of the accumulating demographic demand for home ownership. In the near-term, the outlook is for a weak housing recovery that struggles to maintain its upward course throughout 1983. In the longer-term—as the economy works out of its doldrums and the mortgage market improves its fund raising ability—rising real personal income, better financing and demographic demand will revive the home building industry.

Mr. Kidd is a prominent economic consultant and former Director of Economics Research for the McGraw-Hill Information Systems Company.



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Because of the fatigue produced by sitting in one position and because of the different dimensions of both the users and equipment, furniture for computers must be adjustable. The diagram on the previous page shows various desirable adjustments and dimensions.

These specifications are sometimes so comprehensive that beyond electrical and telecommunication, temperature, humidity and anti-dust specifications, requirements may include instructions concerning raised-floor construction, furniture, and even lighting in the room. These instructions must be followed or warranties and guarantees may be abrogated.

Computer rooms should never be located in proximity to radio-frequency generating equipment as interference can result. Radios, televisions, stereo systems and most electronic gadgets can create radio signals which interfere with the sensitive computer operation.

The opposite can also occur. Some computer programs cause computer circuitry to resonate at radio frequencies that interfere with the operation of various electronic equipment.

Computer rooms do not have to be as cool as before, but...

The rooms are usually placed where direct sunlight can be avoided. Sunlight causes heat which plays havoc with the air conditioning system, and also adversely affects storage media. Excessive heat of any kind is detrimental.

The more electrical energy the equipment consumes, the more heat generated (1.0 watt equals 3.41 Btus). As disk and tape drives are mechanical and function at high speeds, they often produce substantial heat. That heat must be dissipated.

It is not uncommon to find older computers operating in rooms which are very cool. Today, requirements are less stringent. The seventy five per cent and even fifty per cent relative humidity is the median for most operating limits, although, once again, the designer is cautioned to carefully follow manufacturer's specifications.

In very humid areas of the nation, it is necessary to dehumidify air over and above the operation of the air conditioning system. Otherwise, droplets of water may condense on very sensitive circuitry. In the drier areas, moisture may be added to the room atmosphere using steam grids or jets, because the static in drier air can also disrupt computer functions.

If the incoming air is dusty, mechanical air filtration is necessary. A rating of at least 20 per cent efficiency in the Bureau of Standards discoloration test is suggested. If an electrostatic plate filter is used, the rating should be at least 85-90 per cent. Dirty filters will cause damage.

Power is a big consideration

Power requirements vary depending upon the type of equipment used and the manufacturer. Typically, requirements for power are 115 volts, one- or three-phase at 60 cycles. Total power can be estimated easily by adding the KVA ratings of each device.

Power must be carefully regulated and monitored. Computers are sensitive to short-term voltage variations and very high speed pulses or transients with durations of only a few microseconds. Many of these line disturbances go undetected. They do not dim lights or even shut down equipment, but they can result in computer malfunctions.

Such malfunctions require considerable trouble-shooting and valuable time is lost. Monitors designed to detect power line disturbances are usually installed in computer rooms.

For maximum efficiency, the electric power panel in the room should connect to feeders that serve no other loads. The branch circuit panel should be placed in a well-lighted area and be unobstructed. Individual branch circuits must be protected by circuit breakers. Branch circuits should terminate under the raised floor as close as possible to the equipment to be supplied, and run in metallic conduits.

Several convenience outlets should be placed in the room at strategic spots to be used by computer-room staff, building maintenance personnel and engineers. These outlets should be independent of the computer branch circuits.

Power failure must be anticipated

Because of the possibility of malfunction, each major device in

the computer room should have its own on-off emergency power control. In addition, controls must be provided which disconnect the main service. Controls should be within plain sight and easily used.

Lightning is one such emergency. Where brownouts and blackouts bring computer operations down, lightning-caused power surges can fuse a computer. Lightning protection should be installed wherever necessary.

Several corporations use uninterruptible power supplies. As brownouts or blackouts threaten, a battery pack takes over operation. If the electricity is not restored in a few minutes, a generator begins. Ironically, since such systems tend to be expensive, most major corporations do not use them except to protect their most important computers.

Fire is obviously an emergency

Computer rooms must be constructed of materials with 1½-hour fire rating. Adjacent spaces must not be used to store highly flammable materials or volatile chemicals. This is a problem as some of the cleaning fluids required for disk and tape drives or storage media are flammable. Print-out paper is also flammable.

The walls enclosing the computer room should extend from the structural floor to the structural ceiling. This ensures security protection as well. *Halon-gas-fire-extinguishing systems* are recommended. Water systems should be avoided.

Raised computer floors are recommended

They are usually made out of steel, aluminum or fire-resistant wood tile resting on a subframe, and are rated in terms of floor-load capacities. The hardware, disk and tape drives, telecommunication and air-conditioning equipment can be very heavy. The same can be said of other computer-room equipment.

Safes and files commonly used to store important storage media are also heavy. A high-speed printer (often placed in an enclosed room within the computer room) may use reams of paper. All too often, boxes containing print-out paper end up stored in the room, at least temporarily.

Unfortunately, the more weight the computer floor is required to bear, the more expensive the floor tends to be. Where computer floors are constructed for security, expenses also increase.

Although wood floors avoid the need for floor covering because they are inherently insulating, metal floors are more often chosen because of price. Where metal floors are used, they must be

covered with an insulated floor covering certified as anti-static. The nature of anti-static carpet tiles may require humidity to be kept at a specified level.

All computer floors must be cleaned regularly to keep the room as dirt-free as possible. Care must be taken to avoid electric shock or the build-up of static electricity. Vacuum cleaner nozzles, for example, must be non-conductive and scrubbing brushes non-metallic. Even the furniture used in the room must be anti-static. Wood furniture is recommended.

Secure access can be done in a number of ways

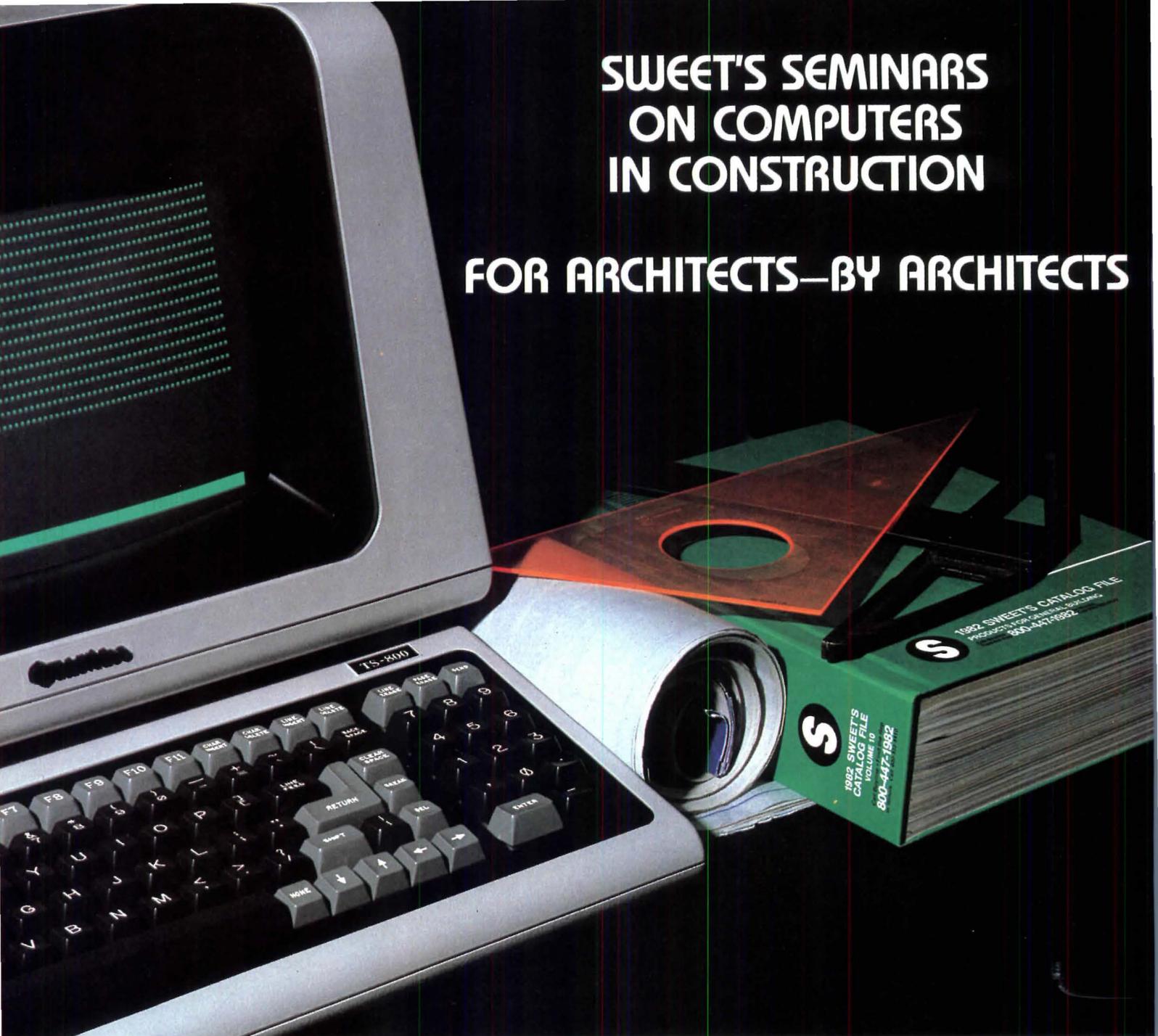
For very small installations, a key-and-buzzer system may be the only thing required. For larger systems, combination locks using keypads or computer-card access systems are commonly used.

Computer-card access systems have been refined so that employees can be given cards that contain personal codes which are impossible to duplicate. The code can be deleted from the central memory bank if necessary.

Even more secure systems use a card combined with the outline of the user's hand. The hand is traced electronically on a special plate. Computerized systems which recognize a human voice are beginning to appear on the market, and in a few years may dominate.

Computers are making and will continue to make profound changes on how offices are planned. The factors currently up in the air range from the per cent of floor area in which it is desirable to have natural light to what happens when computers enter the executive office. We have given you a few of the established problems and solutions on which you can start to build your research into the right electronic office for you.

Mr. and Mrs. Cohen are interior designers and library and management consultants with offices in Croton-on-Hudson, New York. They have done extensive research into the current state of the art in office design, and have helped to pioneer research in how that design is affected by the advent of computers.



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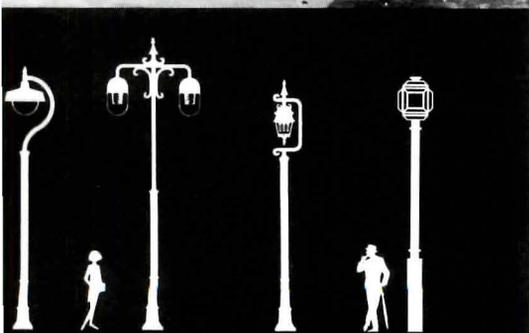
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Office notes

Offices opened

Cecil Baker announces the formation of a new architectural firm, Cecil Baker & Associates located at 616 South American Street, Philadelphia, Pennsylvania.

Ronald S. Briggs announces the formation of Ronald Briggs & Associates for the practice of architecture and planning located at 13522 East Palm Place, Cerritos, California.

CAD, Incorporated (CADI) has opened an office located at 1325 Fourth Avenue, Suite 210, Seattle, Washington. They will provide computer services for the architectural, engineering and construction industries.

Tiberiu Edelstein has established a new mechanical engineering firm, Edelstein Associates located at 21751 West Eleven Mile Road, Suite 101, Southfield, Michigan.

Williams, Shields, Snyder & Goas of Harrisburg, Pennsylvania has merged with the building design division of Engineers Incorporated of Newark, New Jersey to form EI Associates. Offices are located at 904 North Second Street, Harrisburg, Pennsylvania.

B. Wayne Fishback announces the formation of Fishback & Associates Architects and Engineers, 205 West Wacker Drive, Suite 522, Chicago, Illinois.

Richard M. Adler Associates, P.C. and Geller & Termotto, Architects and Planners announce the creation of Geller & Termotto/Adler, P.A. with offices located at 2 Phelps Avenue, Tenafly, New Jersey, and at 175 Great Neck Road, Great Neck, New York.

Ted Montgomery announces the opening of his new firm, Local Star Ltd., Coxbrook Road, Northfield, Vermont.

Ruegger Architects has opened offices located at 321 Hampton Drive, Suite 103, Venice, California.

Jon Brees Thogmartin, Architect announces the opening of an office located at 818 Fifteenth Street, Santa Monica, California.

Peeter E. Villomann announces the formation of Villo Designs-Architecture & Interiors with offices located at 924 St. Johnland Road, Kings Park, New York.

Firm changes

ANPH, Inc. Architects, Planners and Interior Designers announces the addition of Bill Herbert, Kevin Kerchaert and Kim Wouleking in the architectural division, Donna Claustre as administrative assistant/bookkeeper and Sherry Turner as secretary.

Ronald Briggs & Associates has named Daniel E. Clark an associate.

Continued on page 173

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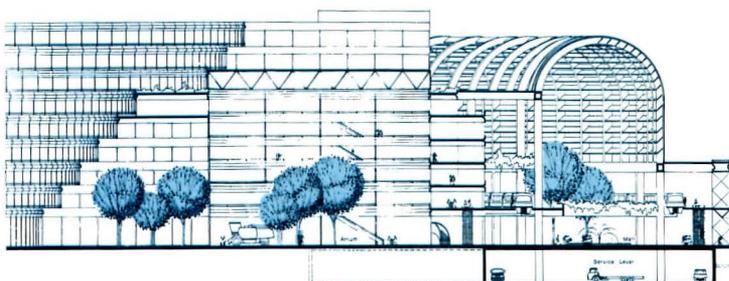
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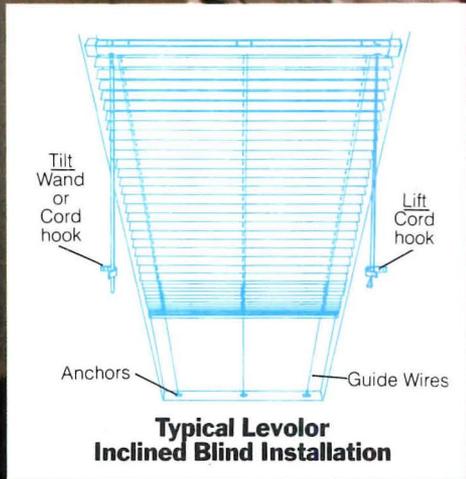
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A giant supermarket and exhibition center for international agribusiness to join Florida attractions



Agriplex—a gigantic 7-million-square-foot, \$800 million venture in Orlando, Florida—will be the world's largest trade mart solely for international business and conventions related to agriculture. Scheduled for a 1983 construction start and completion in 1986, the center will be built on 400 acres of a 1600-acre site at the edge of Turkey Lake, not far from tourist spots like Disney World, EPCOT and Sea World. The complex resembles a self-contained city organized around a 250-foot-wide, six-story-high, S-shaped enclosed central mall. A one-and-a-half-mile-long monorail/people-mover will transport visitors from the parking lot through the mall to a variety of exhibition and hotel destinations. Flanking the mall will be 3 million square feet of permanent showrooms for machinery and equipment, agronomy, and livestock science, as well as support services such as multimedia auditoriums and meeting rooms. Three separate buildings will provide 1.25 million square feet of office space. Adjacent to the mall is a 1.8-million-square-foot piano-shaped exhibition center for temporary exhibits and conventions. Visitors will be accommodated in four hotels—one near the entrance to the site, two anchoring the mall, and one positioned atop the exhibition center. Each will have 500 to 700 rooms. A circular 16,000-seat arena will host everything from rodeos to tractor pulls to auctions and livestock shows. In addition there will be 400,000 square feet of retail space. Master architects are Gale, Hornberger & Worstell. Engineering consultants are Syska & Hennessy, Cygna Consulting Engineers, and Burns & McDonnell. *Janet Nairn*





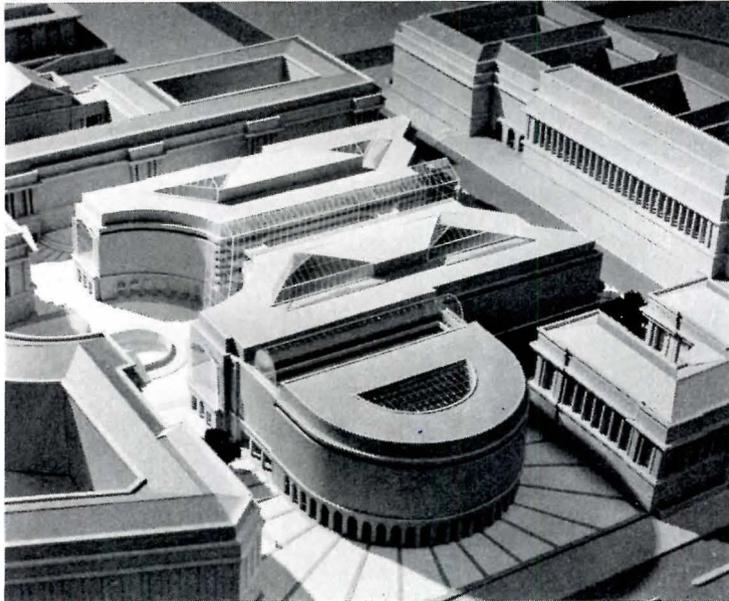
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Office complex proposed for last leg of Federal Triangle



A ten-story office building-cum-galleria in the historic Federal Triangle heads the National Capitol Planning Commission's annual shopping list of some 180 buildings in the Washington area that the government would like to build or renovate at a total cost of more than \$2 billion by 1987.

Designed to fill the last large plot remaining in the Federal Triangle, the 1.3-million-square-foot office complex would cover what is now a parking lot. The master plan drawn up for the General Services Administration by architects Harry Weese and Associates envisions a building accommodating some 9,000 people, with the three lower floors used for retail shops and the seven upper floors for government offices. The galleria bisecting the building would be used to display historical items from the National Archives

depicting the "historical interaction" between the states and the federal government and its branches. The plan also entails sprucing up existing courtyards and plazas, making them more accessible to the public. In fact, according to Weese vice president Robert J. Karn, a main objective of the project was to ease pedestrian circulation by breaking down the "Chinese wall" created by the parking lot and Treasury-ICC complex between Pennsylvania and Constitution avenues.

The master plan still must be approved by the Commission of Fine Arts, the planning commission, and Congress. If all hurdles are cleared, GSA plans to hold an architectural competition to select a firm to come up with a definitive design for the \$350 million project. *Peter Hoffman, World News, Washington, D.C.*

In Denver bigger gets better



Tabor Center, the latest and largest among the developments sprouting like giant's teeth in Denver's once-sleepy downtown, promises also to strike a distinctive note in the emerging skyline. Planning for the \$260 million hotel-office-retail project is under the charge of the Urban Design Group of Tulsa, as is the design of the 450-room hotel and three-level retail complex. The most prominent elements, two

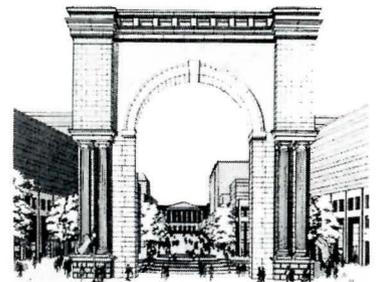
office towers of 32 and 38 stories, are Kohn Pederson Fox Associates' second notable contribution to the Denver skyline, the first being the Amoco building. On the towers, glazed facades that curve toward one another across a plaza are combined with punched masonry designed to complement the landmark D & F Tower (far right in photo).

AIA labels proposed changes in Vietnam Veterans Memorial "a breach of faith"

The AIA has taken up the cudgels in protest against the "ill-conceived" addition of a flagpole and a sculpture depicting three combat soldiers to Maya Ying Lin's design for the Vietnam Veterans Memorial, selected last year through a national design competition. In a letter to members of the federal Commission of Fine Arts, which will review the proposed changes on September 13, AIA President Robert M. Lawrence argued that approval of any modification in Lin's original design would not only "cut the soul out" of her brilliant and moving conception but would also threaten the integrity of the entire design competition process. "What we have here," Lawrence declared, "is a breach of faith: the effort . . . to compromise the design breaks faith with the designer who won the competition and all those who

participated in [it]; it breaks faith with the jury; and it breaks faith with America's veterans . . . To break faith in this manner says to those who would participate in future competitions that their best efforts can be overturned by a small, vocal minority." Commission members were urged to resolve the controversy by rejecting "any dilution of the project as originally designed." Construction of the proposed "improvements" would require a go-ahead from the National Capitol Planning Commission and the Secretary of the Interior as well as the Commission of Fine Arts.

D.C. watchdog to Naval Arch: "Avast and belay there!"



The National Capital Planning Commission has rejected as inappropriate, and in effect killed, a proposal for a ten-story mock-classical Navy Memorial Arch for downtown Washington (RECORD, April 1982, page 35). The arch was to have been a memorial to Navy men and women and was also to have functioned as a band shell. The estimated \$4 million cost of the project, which was designed by the

New York architectural firm of Conklin Rossant, was to have been raised by private donations.

The commission told the sponsors, the U.S. Navy Memorial Foundation, that the arch should either be modified to more modest proportions and a more suitable design or built at a more congenial location. *Peter Hoffmann, World News, Washington, D.C.*

Chicago premieres an annual exposition in celebration of the house

Chicago Design Fest, a major residential exposition set for September 30 through October 2 at the Merchandise Mart, is intended to establish for residential furnishings an annual design event with a role similar to that played by NEOCON for the contract furnishings industry. Sponsored by Chicago Design Sources and the Merchandise Mart, the exhibition will offer in addition to previews of

new home products a full schedule of seminars, tours, award events, and other festivities. The design fest is being held in conjunction with the annual state conference of the Illinois Council/American Institute of Architects, which will offer a separate architecture program.

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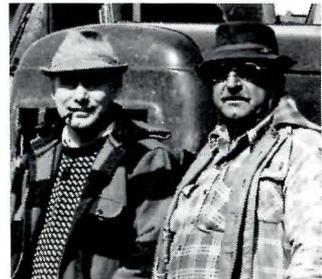
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We'd like to hear from more architects who have a job we can be proud of.

"This marks the beginning of the third year of this little advertising program. As I hoped, it's brought a good number of phone calls (even before we put in our

new toll-free number), and as a result I've met a good number of architects with very interesting work on their boards, and brought some good sales. But we've got enough slate in the quarry for another hundred years or so, so here's our story one more time: Up here in Vermont, I own a quarry full of good quality slate. Some 60 of us work here—eight in the mill, 30 in the quarry, four in the office, others driving trucks and doing maintenance. Lew Sheldon, who's in the picture with me, is the quarry superintendent—in charge among other things of keeping the men in the quarry supplied with explosives and drills and jackhammers and water



—which is something like his job as a marine sergeant in World War II. He's the kind of guy who leads the snowmobile pack to the top of the mountain at midnight—but also helps organize the snowmobile drive-in for crippled children. My name is Bill Markcrow, and I spend most of my time on the telephone. We cut and hand-split about a million square feet a year of stock slate—the kind you buy at the lumber yard. That's our bread and butter, and makes us a proper profit. But . . .

Which would you rather do? Work on do-it-yourself slate for a lumberyard, or be part of a fine project like this?



"The picture shows part of the new faculty and student housing at Deerfield Academy, designed by Timothy D. Smith & Associates. Deerfield has been there almost as long as Massachusetts has, and this project is amidst houses going back to the days of an Indian massacre. To me, Tim Smith did a fine job of creating a contemporary building that is most appropriate to the historic environment in scale, and massing, and materials—including, happily, a roof of our mottled green slate, set off by ice edges of lead-coated copper.

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"Our slate is all unfading color, and we've got mottled, purple, greens and reds. If you're considering slate for a job you're designing, don't worry about the budget until you've talked to me. I'll make a good price for a job my people will take pride in working on. Call me at 1-800-343-1900."

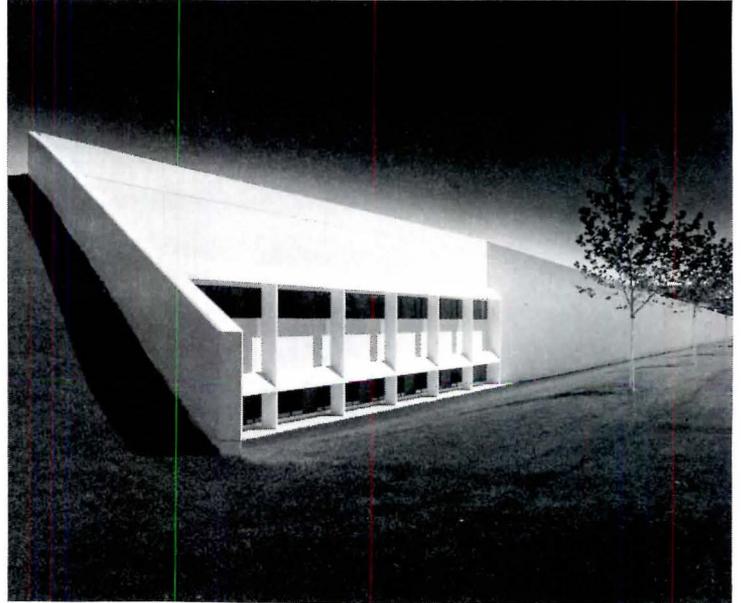
—Bill Markcrow

VERMONT STRUCTURAL SLATE COMPANY FAIR HAVEN, VT 05743 1-800-343-1900

Design awards/competitions: Northwest Regional AIA Energy in Design Awards



1



2

Photography Unlimited



3

Herb Franklin

1. University of Puget Sound Law School, Tacoma, Washington; The Burr Associates, architects. The combination of basic energy-efficient design with an advanced hvac system distinguishes the recycling of this historic commercial building, a 116,000-square-foot masonry structure in downtown Tacoma. Heat pumps transfer solar warmth that penetrates the building to water collected in a 36,000-gallon storage system. Individual water-to-air heat pumps connect with a two-pipe perimeter water loop. Interior and exterior renovation preserved as much as possible of the building's original character. Civic leaders have welcomed the law school as a symbol of regeneration in a declining business district.

2. Central Pre-Mix Concrete Company Corporate Headquarters, Spokane, Washington; Walker, McGough, Foltz, Lyerla, P.S., architects. Central Pre-Mix asked that its new offices display the structural and sculptural potential of concrete, as well as a corporate commitment to energy conservation. The project's earth-sheltered enclosures and passive solar design are especially effective in the extreme climate of eastern Washington. Mechanical installations include a hydronic terminal heat-pump system with a load-shedding economizer and a 3,000-gallon heat storage tank. With use of daylight the general artificial lighting provided need be only 50 footcandles. The 160,000-square-foot building was cited for its "elegant design and powerful feeling."

3. Federal Building/U.S. Courthouse, Anchorage, Alaska; John Graham Company and Associated Architects of Alaska, architects. The complex was built in two stages. The first, completed in 1979, consists of six modular structures linked by a four-story skylighted atrium. Housing offices, courtrooms, dining facilities, and parking, these buildings comprise a total of 696,000 square feet. A variable-air-volume system incorporates some 3,500 micro-zones, to permit flexible temperature control and space planning. The second phase of construction, finished last year, is a 65,000-square-foot "terra set" with a glass-enclosed winter garden. A central computer control system monitors energy use for the entire project at a level of 40,200 Btu per square foot per year.

4. City Limits, Bellevue, Washington; The Mithun Associates, architects. Bordered by single-family homes on one side and a busy arterial thoroughfare and commercial zone on the other, the site posed a complex challenge for proposed residential development. Since neither P.U.D. nor zero-lot-line development were authorized for this location, and vehicular access was minimal, the architects clustered six houses in pairs with common parking courts. Garages and solid fencing act as visual and acoustic buffers against nearby traffic. Glazed southern exposures afford maximum solar gain and enhance the sense of flowing space within the 1,300-square-foot dwellings.

The Northwest Council of the AIA has conducted its first regional Energy in Design Awards program this year, in response to the concern of Council members that energy conservation is still too often regarded solely as a technological problem, without proper consideration of its esthetic implications. Along with the Seattle Chapter of the AIA, co-sponsor of the awards, the Council solicited entries from

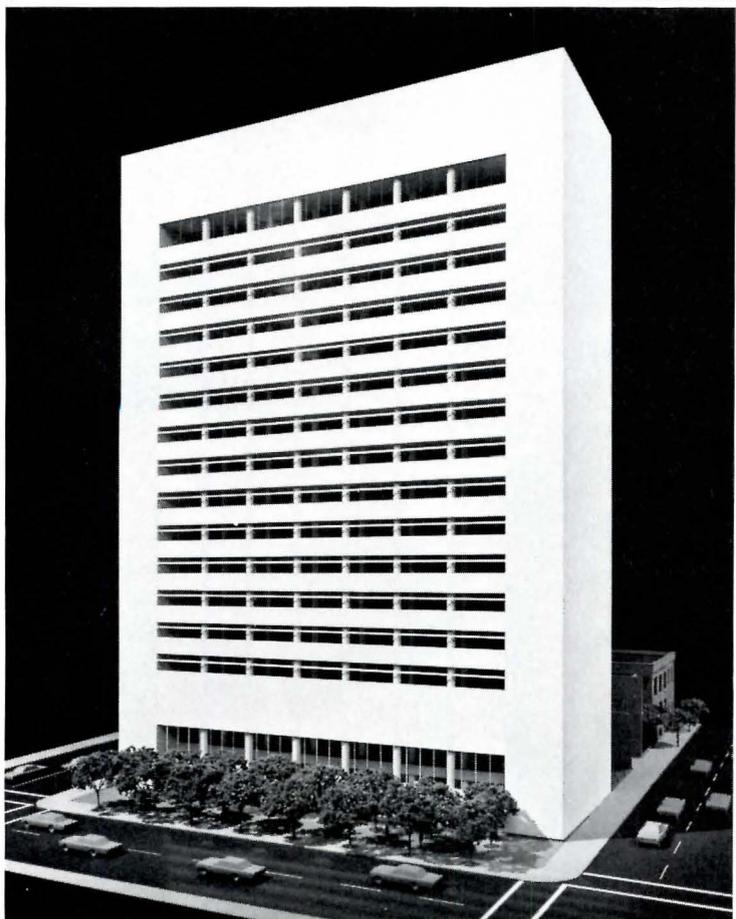
architects in Washington, Idaho, Western Montana, Alaska, Hawaii, and Guam. Illustrated below are the seven Honor Award winners selected by jurors Ralph Knowles, FAIA, of California; William Church, AIA, of Oregon; and Larry Palmiter, an ecological research scientist in Washington. On the following pages we show projects cited by the North Carolina Chapter of the AIA in its 1982 awards program.



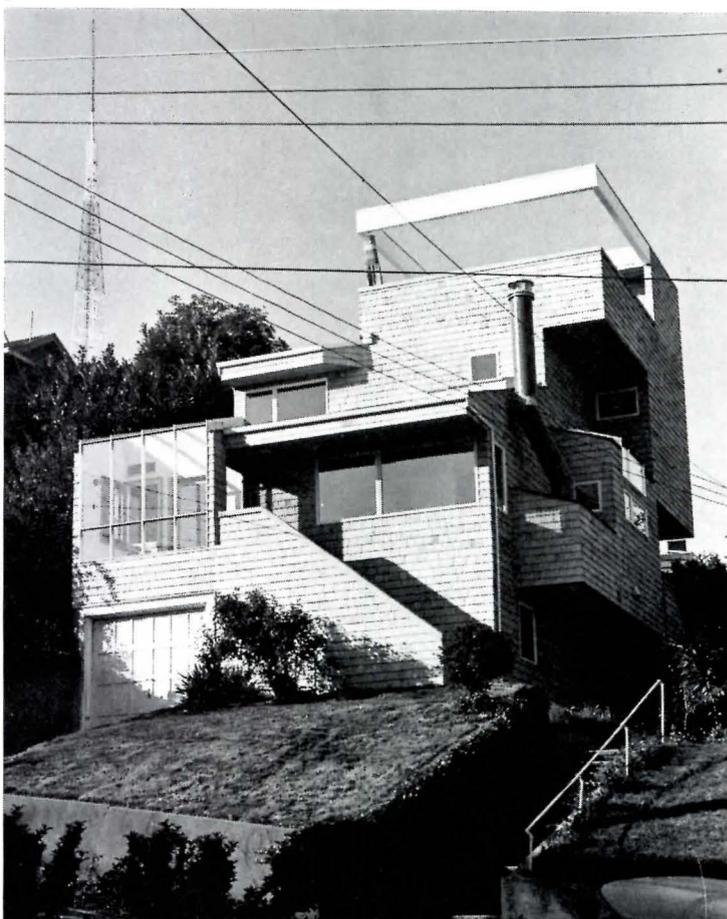
4 ©Charles R. Pearson



5



6 Photography Unlimited



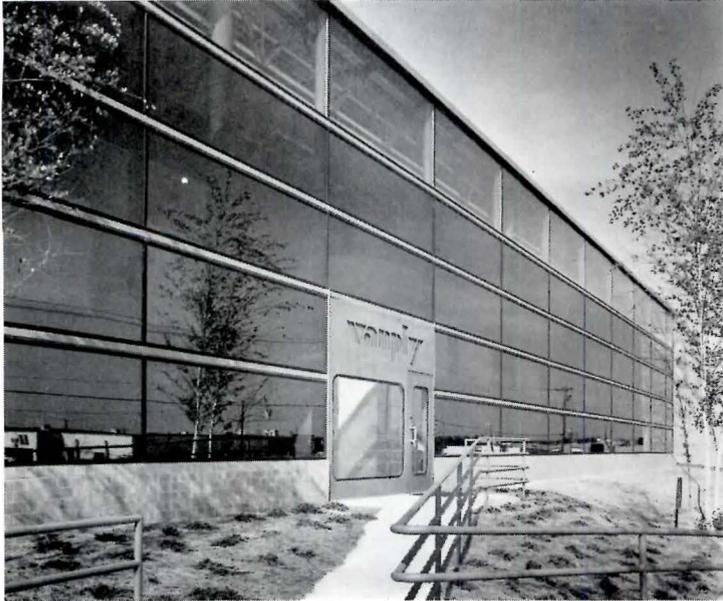
7

5. Chillless Residence, Portland, Oregon; Chillless/Nielsen, P.C., architects. Built at a cost of \$50 per square foot, this house takes advantage of passive solar heating with earth-sheltered walls and a greenhouse. The roof was constructed of 2-by-12 rafters, a three-inch topping slab, insulation, and 15 inches of earth. Walls are 2-by-6 studs with rigid and batt insulation, achieving an R-value of 31. Windows are glass block or triple-glazed. The jury admired the effective use of daylighting and a rhythmic facade treatment.

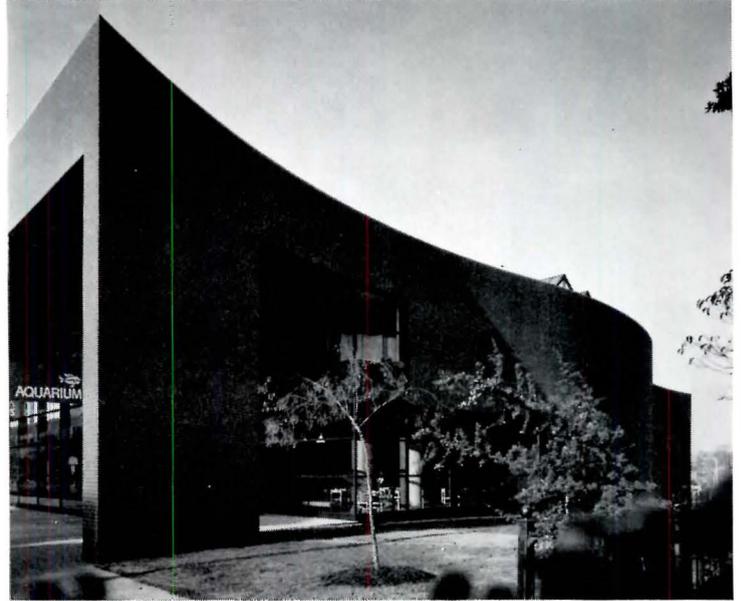
6. Farm Credit Banks of Spokane Office Building, Spokane, Washington; Walker, McGough, Foltz, Lyerla, P.S., architects. Computer simulation techniques played a key role in planning office layouts and mechanical systems. A long east-west orientation was adopted for efficient exposure to daylight and solar energy. Vertical circulation and mechanical areas occupy the ends of the building. It is estimated that the 18-story tower will consume 40,000 Btu per square foot annually, only two-thirds of the amount required by conventional systems in a structure of comparable size.

7. Kaplan House, Seattle, Washington; Martin Henry Kaplan, architect. The project began as a simple kitchen remodeling in a 58-year-old house and grew into a total solar retrofit design. Vertical organization of interior spaces on the hillside site gives views and optimal solar exposure to south-facing living areas. Every room in the house is oriented to the prevailing winds for cross-ventilation. During the winter, a single-glazed solarium forms an entry airlock, and the floor of a recycled fireplace provides the necessary thermal mass. Thermostatically controlled dampers and fans collect warm air in a basement plenum and distribute it through the house. In the summer, fans draw cool air from a northern stairwell.

North Carolina Chapter of the AIA 1982 Design Awards



1 Rick Alexander



2 Rick Alexander



3 John Warner



4 Joann Seiburg-Baker

The NCAIA invited four Washington, D.C., architects to serve on its design awards jury: David Condon, FAIA; Paul Spreiregen, FAIA; Frank Schlesinger, FAIA; and Arthur Cotton Moore, FAIA. The jury chose two Honor Award recipients and three Merit Award winners out of the 60 entries received. Wes McClure, AIA, who served as chairman of the awards program, reports that, while jurors "gave much attention to both the neighborliness and humaneness of the submittals . . . [they were] concerned that the projects which really cry out for humane treatment are not getting it: e.g., hospitals, elderly housing, churches, and schools."

1. Vanply Corporate Offices, Charlotte, North Carolina; Dalton-Morgan & Partners, P.A., architects (Honor Award). Owing to the unexpected loss of leased offices, Vanply needed a new facility within six months. Fast-track design and construction produced a finished building in 178 days. A brightly painted steel frame and ceiling system are exposed within the exterior skin of brick and glass. The jury cited the "sensible and enriching use of readily available building components and methods. . . . It was a relief to see a project that got away from the usual suspended ceiling and used a sophisticated, sheer curtain wall that floats freely."

2. Discovery Place, Charlotte, North Carolina; Clark Tribble Harris & Li Architects, P.A. (Honor Award). This 80,000-square-foot barrier-free museum of science and technology comprises flexible exhibition space, a natural habitat, a 200-seat demonstration theater, and offices. Purposely informal in character, the brick-faced museum was intended to create a focus for revitalization of the surrounding retail district. The building is a full-scale exhibit of energy efficiency, tapping underground wells for its heat pump system. According to the jury, the design of Discovery Place "addressed the street and the problem directly, making a museum that . . . attracts, arouses curiosity, and continues to stimulate the visitor, living up to its name."

3. Reynolds Office Building, Mint Hill, North Carolina; Dalton-Morgan and Partners, P.A., architects (Award of Merit). Telephone pole columns, timber beams, split-ring trusses, and 2-by-6 wood deck compose the structure of these offices for a general contractor. Exterior walls are clad with a metal skin. The jury praised the combination of traditional and contemporary materials, executed with a careful attention to detail that displays the client's own standard of craftsmanship.



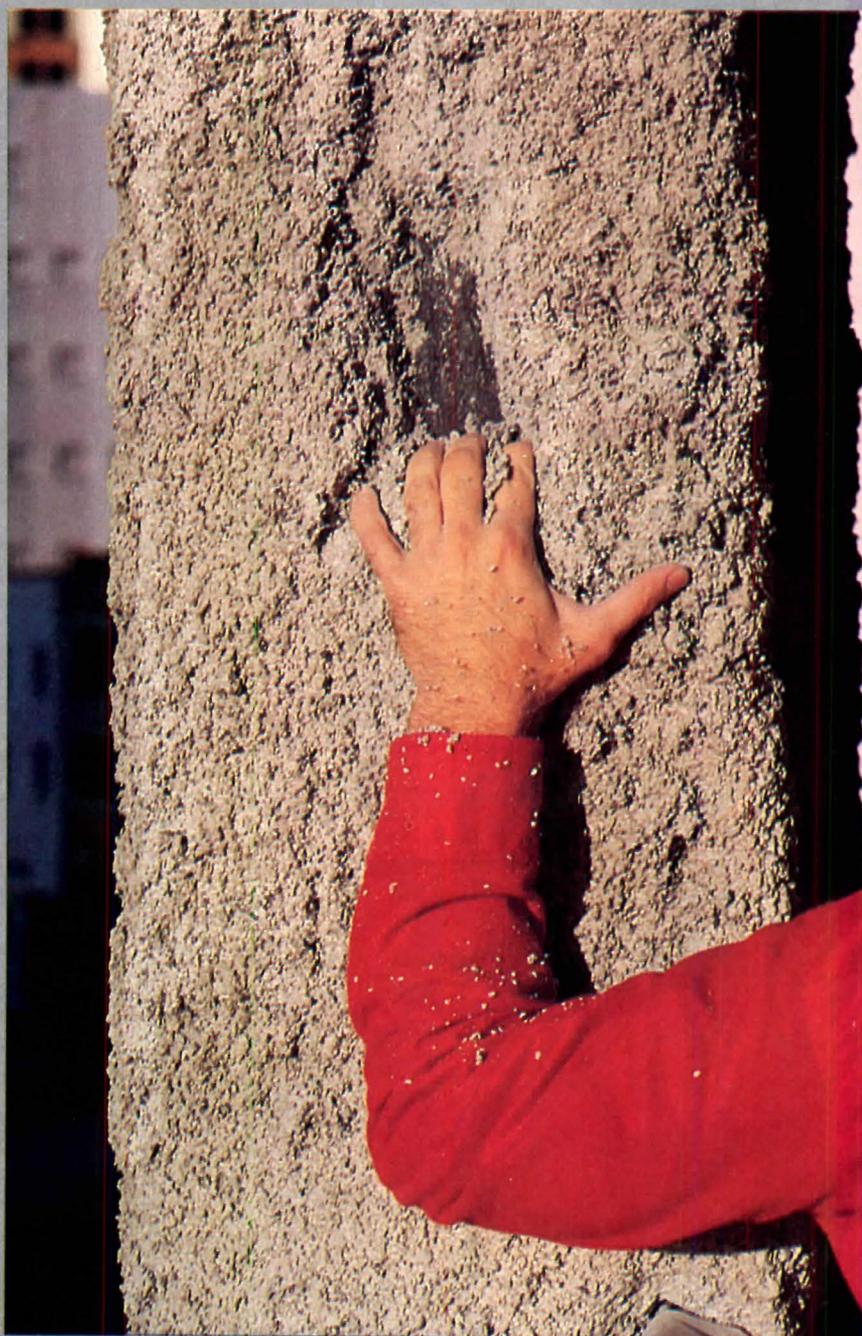
Rick Alexander

5

4. Fryar Dental Clinic, Mooresville, North Carolina; DW Design, P.A., architects (Award of Merit). "This project's domestic shape and scale help the large clinic be a good neighbor in a residential area," the panel observed, noting "the scale-giving elements of columns and windows, and the notion of entry through the porch. . . . A very pleasant waiting room has been produced by the playful facade."

5. Tenth Avenue Townhouses, Charlotte, North Carolina; Reg Namour/The Architectural Group, architects (Award of Merit). Below-rate mortgage loans for new construction in Charlotte's historic Fourth Ward encouraged the development of these row houses. The frame structures have factory-built floor and roof trusses, with painted hardboard siding and fish-scale patterned cedar shingles. The jury remarked on the "skilled manipulation of a number of materials and colors in a picturesque composition, reflecting the traditional, and particularly Victorian, architecture [of the Fourth Ward] without becoming a slavish imitation."

***This
fireproofing
passes
UL fire tests.
Is that
enough?***

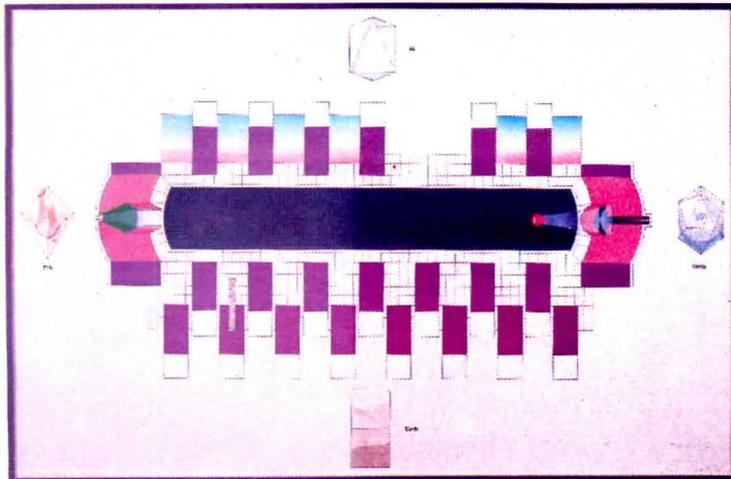


Sprayed-Fiber Fireproofing

Architecture on display

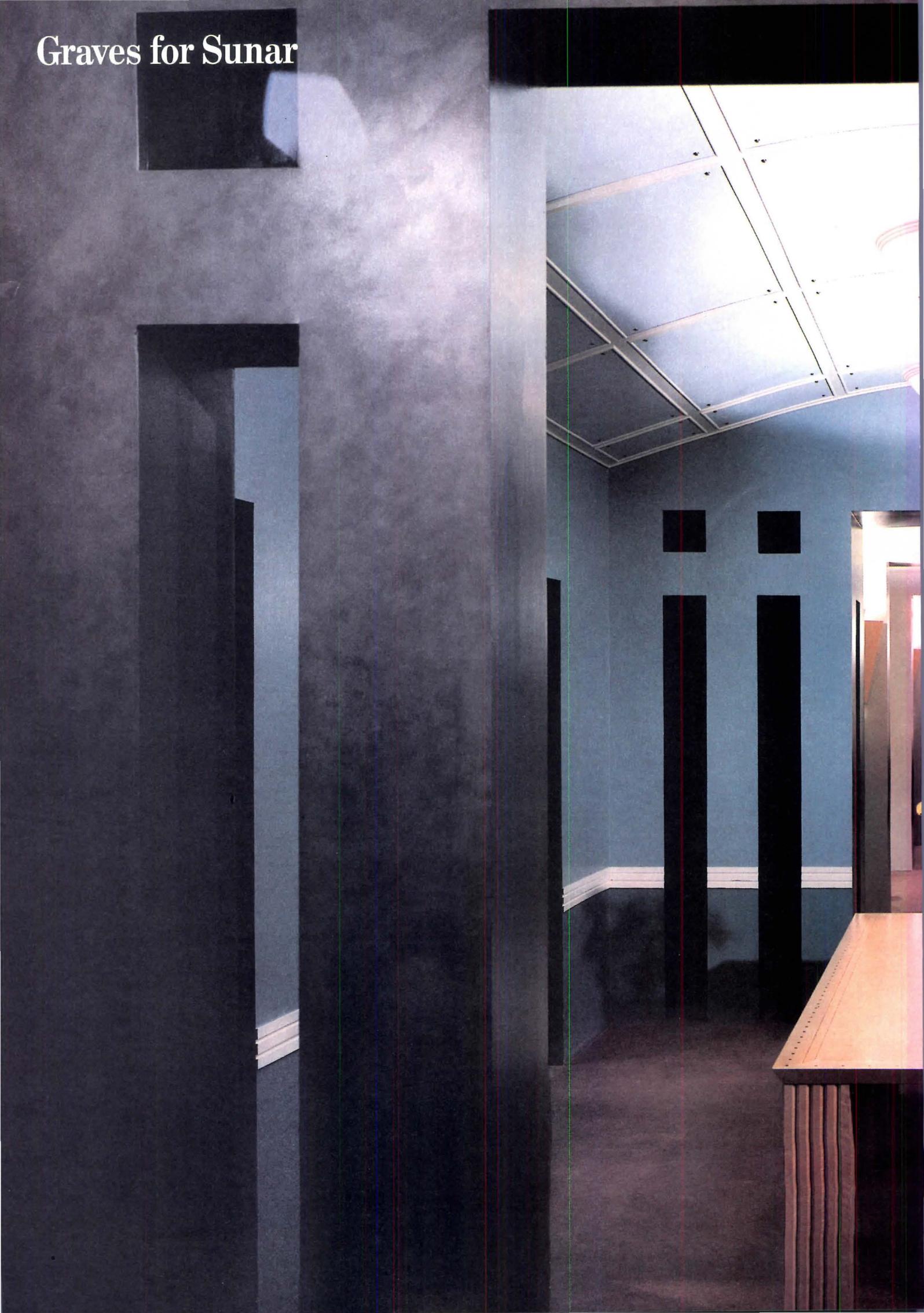
Remember when the walls were white and the floors were gray? Remember when there was nothing to look at that wasn't for sale? Remember when furniture showrooms just showed furniture? Times have changed. There is a new breed of showroom currently making the Designer's Saturday-West Week-NEOCON circuit (in case you've been dozing), wherein the display vies with the displayed for center stage. It's not that manufacturers are shy about their product lines. On the contrary. Manufacturers want their product lines to be seen, remembered, and specified by the multitudes. The question is how to woo the multitudes to the marketplace. For some the answer is to hitch the commercial wagon to an architectural star.

Gaining the competitive edge with cutting edge design is not a new idea: in 1948, Bernard Maybeck fashioned an automobile showroom for Packard in Oakland, and five years later Frank Lloyd Wright did the same for Mercedes-Benz in New York City. The current roster of architects and designers who have applied their considerable talents—if not lent their considerable cachet—to merchandising includes no lesser luminaries than Michael Graves, Gwathmey Siegel, Arata Isozaki, Robert Stern, Stanley Tigerman, Venturi, Rauch and Scott Brown, Massimo and Lella Vignelli. . . . The collective interest the resultant showrooms have garnered for their respective owners and product lines is staggering—which, not incidentally, is at least part of the point. One has only to think back to June and NEOCON '82, where the three most frequently asked questions were: "Have you seen Hauserman? Have you seen Sunar? Have you seen Italcenter?" The next 16 pages will allow you to answer yes. *Charles K. Gandee*



Architect Arata Isozaki's plan for Hauserman's Chicago showroom includes the four elements—earth, air, fire, and water.

Graves for Sunar





In 1979, Sunar chairman Robert Cadwallader and Princeton architect Michael Graves sat down to co-author a chapter in the history of showroom design. That chapter is as of this writing an eight-volume tome, and the prolific pair have outlines for . . . more. The Sunar Saga is a best seller.

Remember when Volume I, a \$15-per-square-foot temporary textile exhibit in New York, went to press? It was the merchandising, and architectural, shot heard 'round the world—launching Graves's then radical historicist vocabulary and seductive muted palette into the mainstream, and Sunar, then a relatively obscure Canadian-based furniture manufacturer (just acquired by Hauserman, Inc.), into the limelight. Subsequent syndication of the six successive showrooms has further ingrained Graves and Sunar in the mind of every architect, interior designer, and furniture specifier who has opened a professional journal (or Newsweek, or TWA's Ambassador for that matter) in the last 36 months. Only mega-manufacturers (which Sunar is not) could afford to purchase the publicity Cadwallader has enjoyed as a direct consequence of his Graves-designed showrooms. And only a devoted architectural Medici (of which there are precious few) could afford to hand Graves eight high-profile commissions in three years. It's as if back in 1979 when the Princeton architect and the Sunar chairman met, they simultaneously said "I'll make you famous." Then did.

Though Graves's idiosyncratic classical idiom is too well known in 1982 to spark a 1979-style stir (the price of success), Sunar number eight—a major expansion and renovation of the three-year-old Chicago showroom—neatly supplants esthetic revolution with suave execution. (Which, all things considered, is not a bad trade—for an architect interested in building, or a contract-furniture company interested in selling.) Comparing this most recent showroom to earlier Graves-Cadwallader collaborations (Houston for example, *RECORD*, June 1980), we find the palette more somber, the sheet rock more articulated, and the over-all level of detailing and finish more sophisticated. The signature allusions, metaphors, references, and symbols, however, are still in full tilt; as are the tripartite-anthropomorphic division of walls and columns, the hierarchical spatial sequences, and the over-riding emphasis on "rooms" versus "spaces." We also find Graves's service as Sunar architect now expanded to include furniture and fabric design. What better setting for a Graves lounge chair than a Graves niche (photo below, near right); for a cascading display of Graves casement fabrics than a Graves gallery (photo above, near right); or for a Graves dining/conference table than a Graves conference room (photo above, far right)?

If it's beginning to look and sound like too much Michael Graves, remember that contract-furniture specifiers—like editors—focus on memorable images.





*Sunar Furniture Showroom
Merchandise Mart, Chicago*

Owner:

Sunar

Architect:

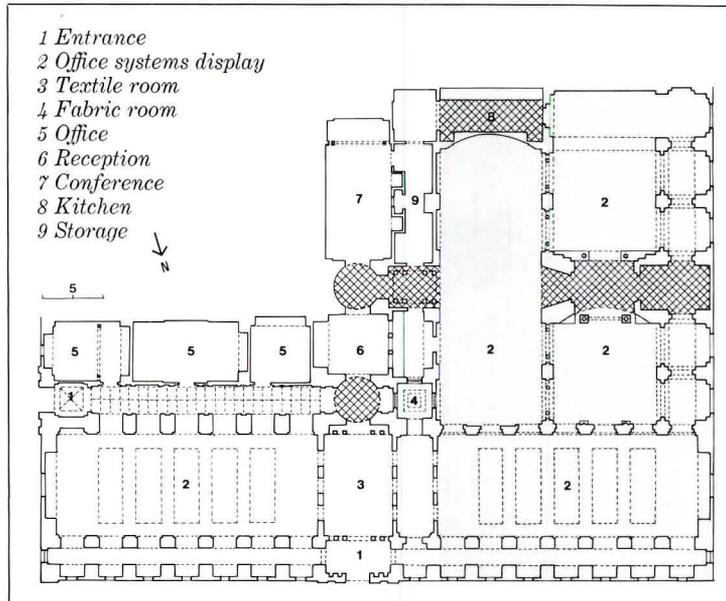
Michael Graves—Theodore L. Brown, job captain; Peter W. Twombly, Mason Perkins, assistants

Engineer:

Thomas A. Polise, Jr. (mechanical/electrical)

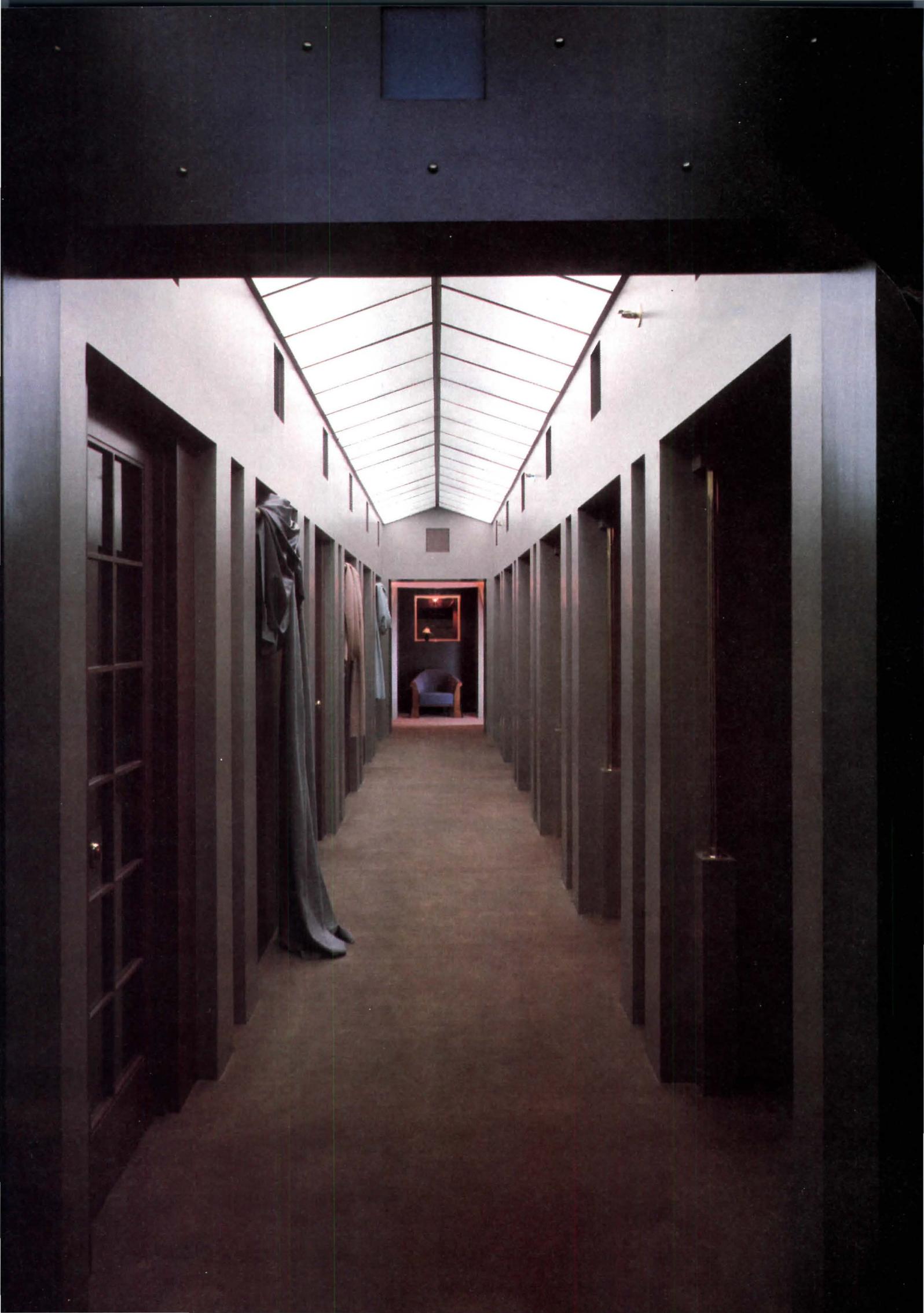
General contractor:

Merchandise Mart; Triangle Grand Construction (carpentry, millwork, drywall)

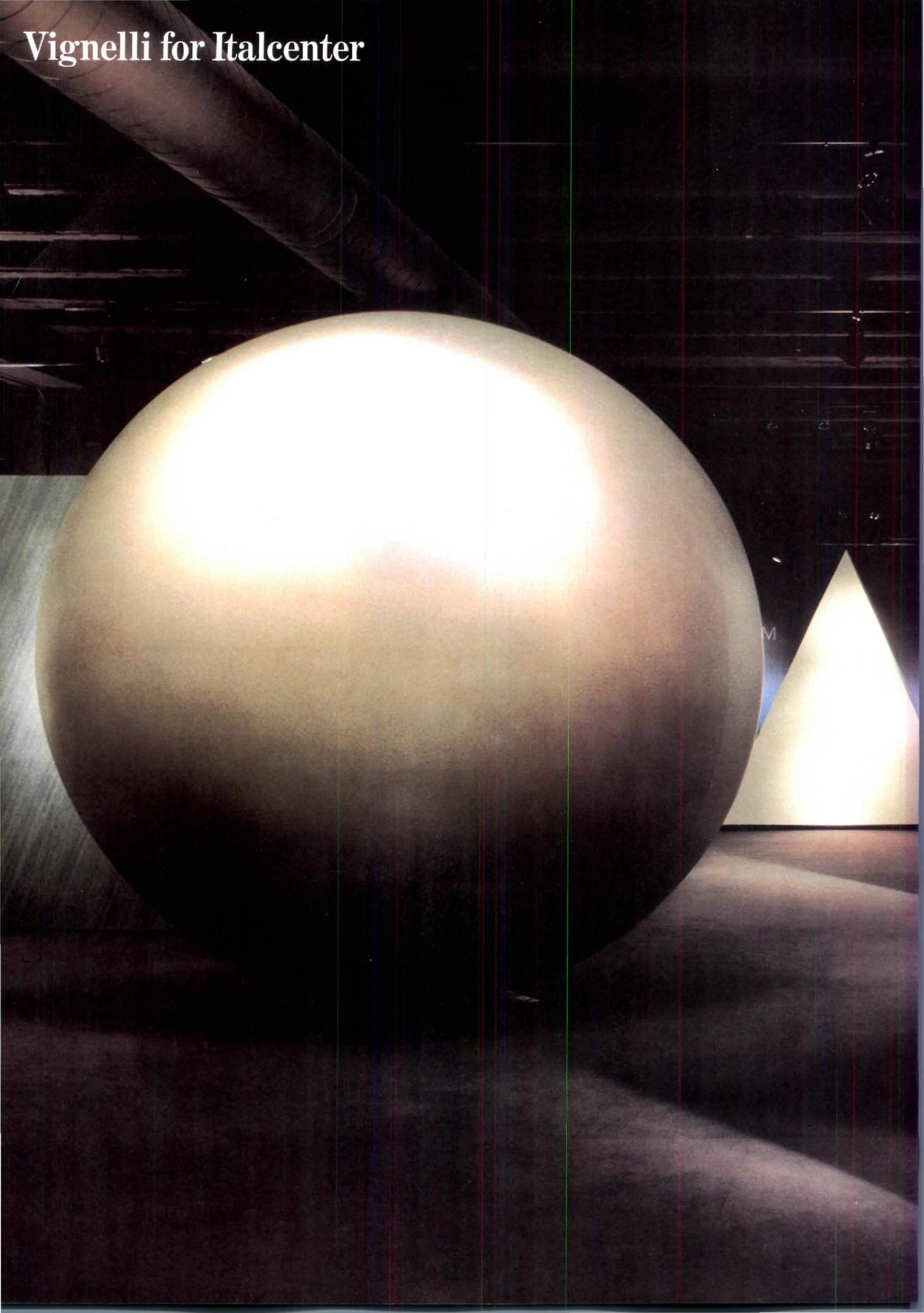


The original 4,000-square-foot Sunar-Chicago showroom took NEOCON '79 by storm: "It was Graves's first serious effort," recalls company chairman Cadwallader. In the three-year wake of that (and successive) storm(s), Sunar quadrupled sales, and, for NEOCON '82, annexed 6,000 square feet of adjacent showroom space. The expanded and renovated Sunar-Chicago accommodates a more complete product line display—

including large-scale installations of Sunar's Race, PAS, and wood office systems. Graves was concerned that with the increase in size, the showroom would appear "too jazzy;" he responded by lowering the rheostat on color and lighting—"I may have missed by 10 to 15 per cent." As always, Sunar's extensive line of textiles is displayed to sculptural effect—both draped in galleries (photo right) and installed in mock place (photo above).



Vignelli for Italcener



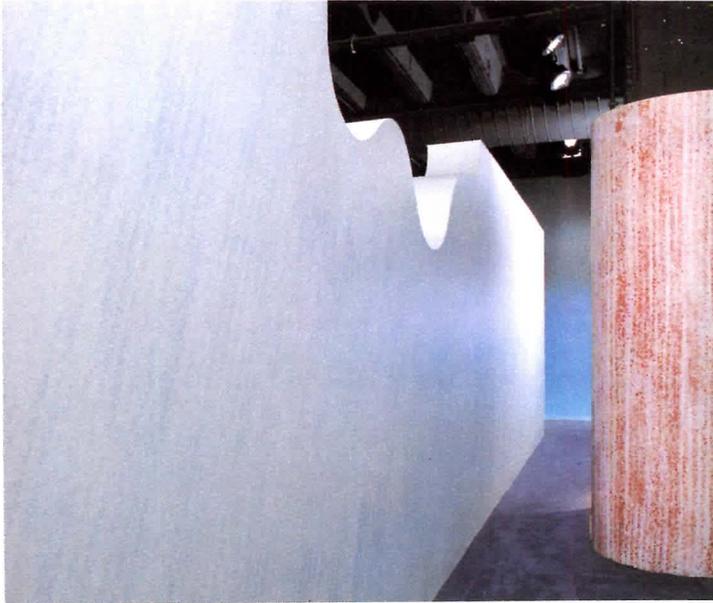
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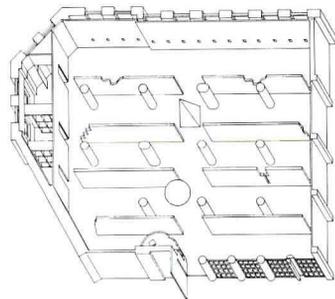
© Francis Robert photos



"A showroom is like a stage set, and furniture like characters." If we allow designers Lella and Massimo Vignelli their simile, then we must regard Italcenter as a play in nine acts—10 with the prologue. There are dramatic elements, and there are comic elements, and, true to Vignelli form, the cast is minimal.

Our story begins with a consortium of nine Italian furniture manufacturers making their U.S. debut at NEOCON '82. The curtain rises on a dimly-lit corridor in Chicago's Merchandise Mart. Behind the scrim of a "Piranesian" (according to Vignelli) window wall loom a Brobdingnagian sphere and companion pyramid. Intrigue. Past the massive glazed grid—punctuated with sonotubes and a Gucci-green-and-red "Italcenter" sign—lies a surreal de Chiricoesque landscape: moody twilight-blue perimeter walls and a midnight-black ceiling render the boundaries of this 8,000-square-foot stage uncertain. Though the 8-foot sphere and pyramid steal the show (as well as a fair portion of the central circulation spine), they provide a riveting focal point from which attention ripples outward to the nine spot-lit display bays. (The tenth, communal bay fronts the window wall; next year, nine television monitors will lodge here as high-tech furniture catalogs.) The muslin-covered sheet-rock partitions feature whimsical bon mots for those well versed in current architectural events: a sinuous curve alludes to Stanley Tigerman's Library for the Blind; an end step, to Arquitectonica's Palace condominium; an eroded corner, to SITE's "Indeterminate Facade" BEST showroom. . . .

Italcenter was produced for \$26 per square foot.



Italcenter
Merchandise Mart, Chicago

Owner:

Italcenter

Designer:

Vignelli Associates—Lella and Massimo Vignelli, principals in charge; John Enright, project manager

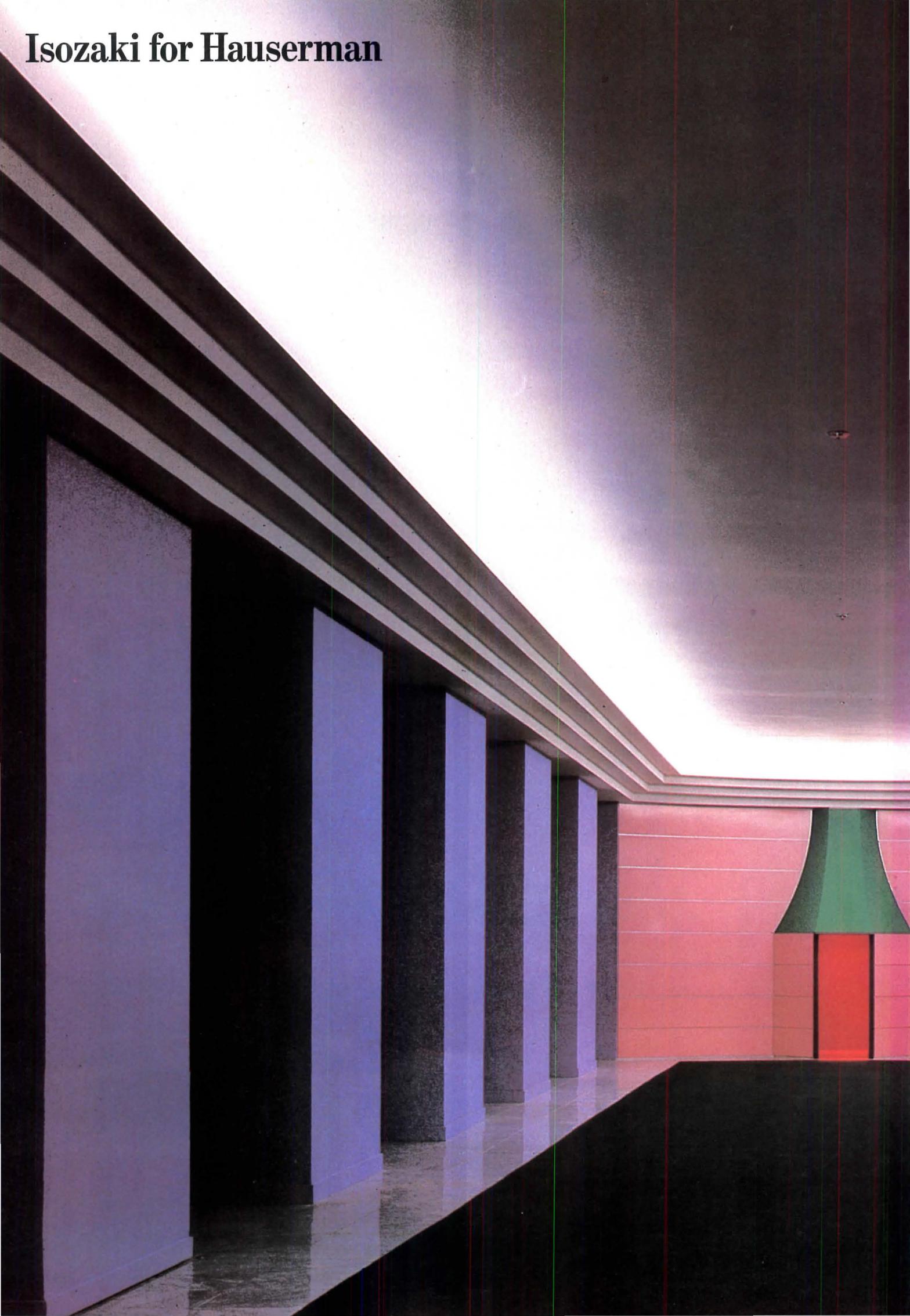
Consultant:

American Scene (surfaces)

General contractor:

Merchandise Mart

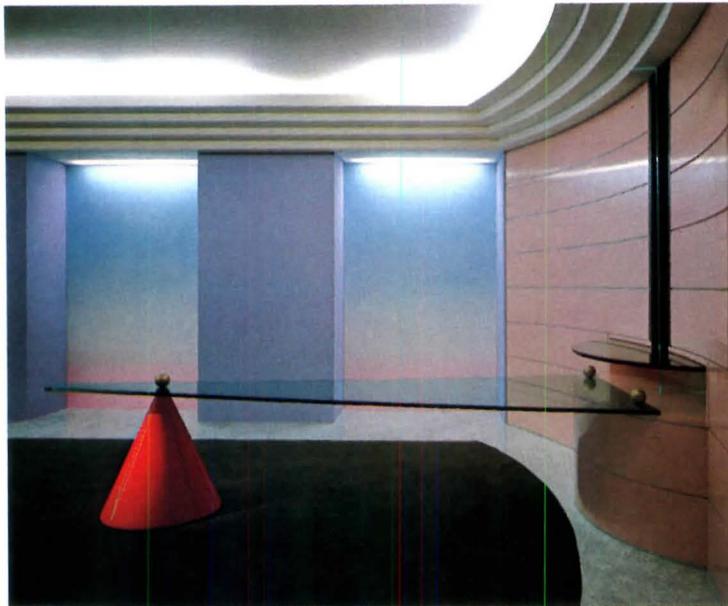
Isozaki for Hauserman



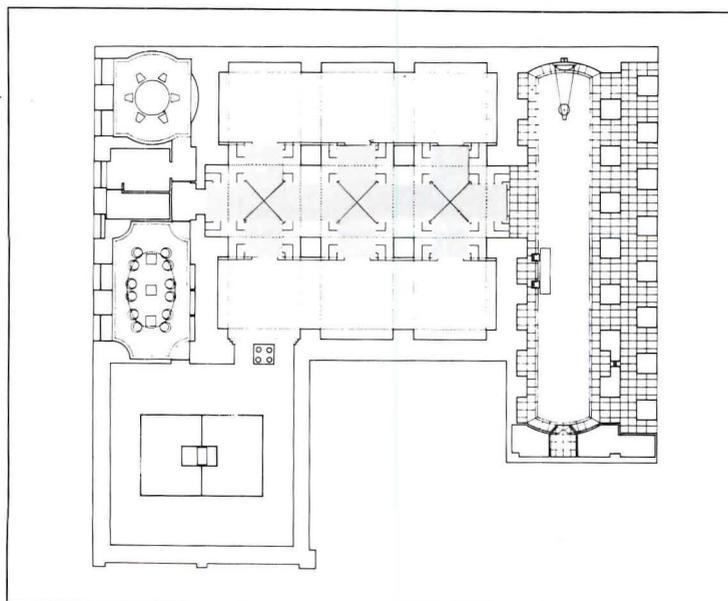


You don't exactly walk into Hauserman's Chicago showroom, you filter in, through a double colonnade of monumental slipped columns (plan below). So effective is the linear labyrinth as psychological decompression chamber, as esthetic palate cleanser, that by the time you navigate any one of the available nine—channeling to seven—oblique entry sequences (three 90-degree turns) and cross the icy-white marble threshold, all memory of the Merchandise Mart's din and disorder, of other showrooms just visited, is erased. Though Japanese architect Arata Isozaki does not require potential contract furniture and demountable partition specifiers to leave their street shoes outside along the 10th-floor corridor, he would prefer that his first U.S. commission, and Hauserman's product line, are viewed with, if not deference, at least expectantly wide eyes and an uncluttered mind. The tortuous violet maze—by blocking direct visual and physical access—accomplishes both.

A grand and luminous anteroom is the first reward for perseverance. While contract-furniture-showroom traditionalists will balk at the lavish expenditure of costly commercial space (2,079 square feet) for noncommercial purposes, NEOCON '82-weary architects and interior designers were clearly delighted to find an oasis where they could muse not on ergonomic seating and open-office systems but on the four elements: an over-scale hearth with pagoda roof symbolizes fire (photo previous page); a decidedly New Wave triangular glass table with "frozen stream" symbolizes water (photo far right); a collection of rocks encased between glass between



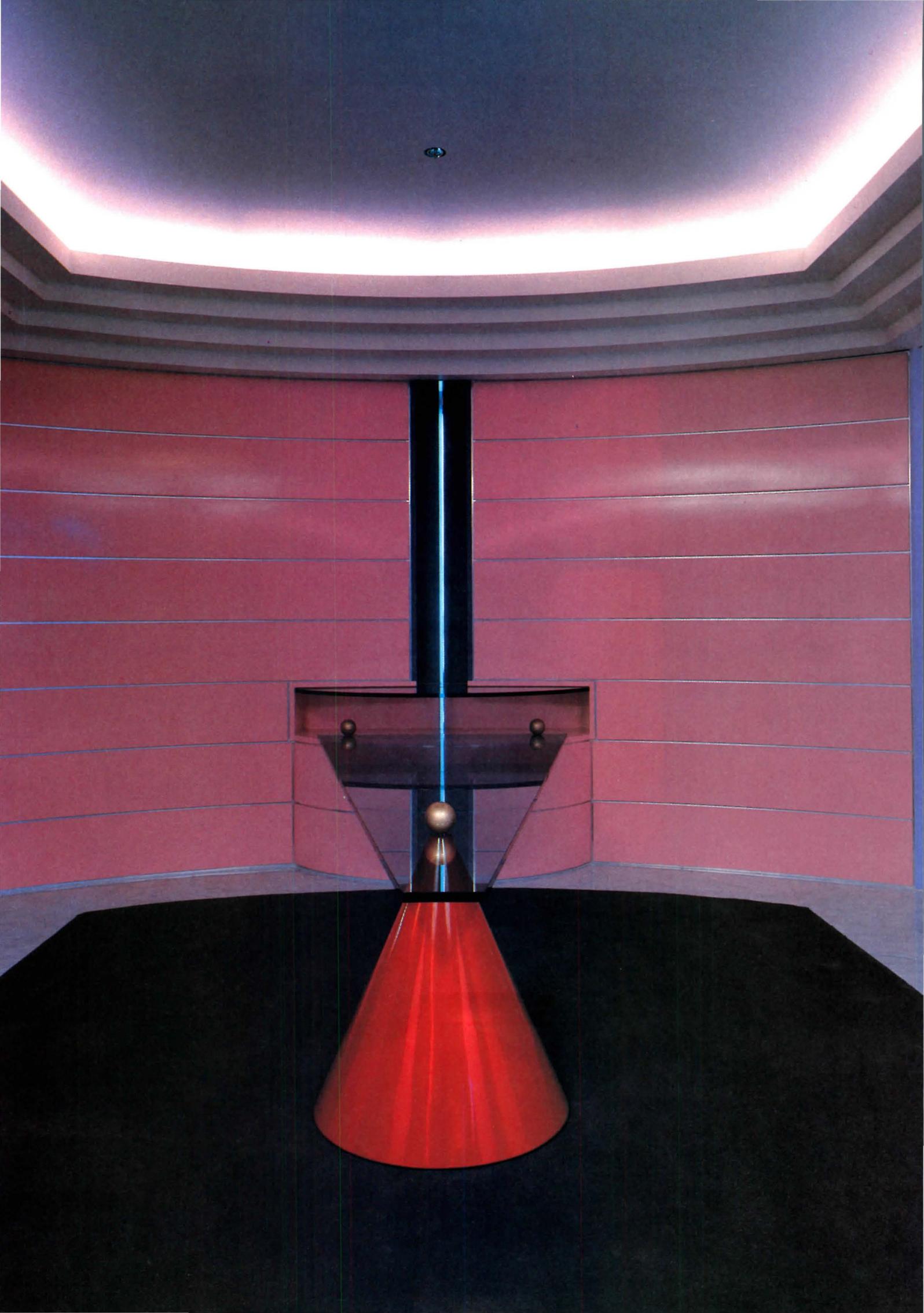
©Peter Aaron/ESTO



columns symbolizes earth (plan, page 95); a series of red-filtering-to-blue-filtering-to-white "horizon" murals symbolizes air (photo left). The transition from art to industry, from symbol to sale, from Isozaki on display to Hauserman on display, is made through a tunnel vault supported by metallic-gold columns (photo below left).

Whereas, according to Isozaki, the "loggia" leading from the public corridor to the gallery-anteroom is "in some ways inviting, in some ways not so inviting," the tunnel vault leading from the gallery-anteroom to the product displays is unequivocally compelling. For whereas a coy now-you-see-me-now-you-don't, between-the-columns perspective glimpse of the expansive light-filled anteroom is responsible for enticing pedestrians off the dark and confining public corridor, the bold profile of the tunnel vault entry (complete with jazzy neon arch) exerts an almost physical suction, drawing art/symbol aficionados out of the gallery-anteroom. (That suction is all the more powerful, remembering that the showroom "entrance" is blocked by 15 4- by 4-foot columns.) A between-the-vault-and-stepped-platform perspective glimpse of the brilliantly illuminated product displays (photos overleaf) counters any lingering aversion to moving from the anteroom's light to the vault's relative darkness.

©Barbara Karant, Sadin/Karant Photography, Inc. photos (except as noted)



Hauserman's marketing analysts will be happy to hear that there's zero attrition between the architects and interior designers who filter into Hauserman's anteroom, and the architects and interior designers who file into Hauserman's tunnel vault; curiosity impels the curious to investigate, always. And they will be even happier to hear that, once in, no one leaves before seeing the entire range of Hauserman's product installation: the magnetic pull of the central axis and cross-axes is too powerful. Five office arrangements and a pair of demounted office partitions terminate the three cross-axes (photos far right); here again, Isozaki exploits our natural inclination to gravitate from darkness to light, from the protective enclosure of the deep-violet vault to the brilliantly illuminated display areas. Though the Tokyo-based architect first considered fabric to backdrop the contract furniture displays, he wisely reconsidered and specified rear-lit translucent sand-blasted glass panels (backed with milky plastic) for additional (and even) luminosity. To ensure that the light at the end of the three tunnel vault cross-axes would not be too dim, megawatt fluorescents blaze overhead.

Exercising classic Oriental reserve and discretion, Isozaki saves the best until last; when you come to the end of the central axis, face to face with a lead laminate relief plan of the showroom, you either turn right to the small conference room (photo top right) or left to the large conference-audiovisual-fabric room (photo below right). Both are extraordinary, near magical in their serene calm.



© Elizabeth Ervini, Sadin/Karumi Photography, Inc.



"By collaborating with designer affiliates in the vanguard of their profession, we are extending our marketing capabilities," reads the introduction to Hauserman Incorporated's 1981 annual report. And that's not just something to make the stockholders feel good. They mean it. As anyone who picked up a professional design magazine this year will tell you, Hauserman has changed: No more Mr. Low Profile. The venerable Cleveland-based manufacturer of office partitions and contract furniture is repositioning itself in the marketplace. Destination? A prominent place at the "leading edge" of design, according to Charles Saylor, vice president in charge of marketing and product development. Why the shift? Saylor is as succinct as he is straightforward: "Good green metal walls are not enough anymore." He adds, not incidentally, that the phenomenal success of a certain Hauserman subsidiary helped strengthen the parent company's resolve to strengthen its design image. (From "Sunar who?" to "SUNAR!" in three years does make for a persuasive argument.)

Hauserman introduced itself as a champion of design early this year with a radical, near abstract advertising campaign featuring not products but a corporate philosophy—"People, Space, Technology." The dramatic graphics of master-of-the-corporate-identity-program Massimo Vignelli and the highbrow, noncommercial tenor of the accompanying text served as a fitting prelude to a second Hauserman-Vignelli (Massimo *and* architect-spouse Lella) collaboration—a 5,000-square-foot Los Angeles showroom that opened to awestruck crowds at West Week in February (RECORD, July 1982). Saylor appropriately refers to the California showroom not as a showroom but as a "gallery" for artist Dan Flavin's mesmerizing fluorescent light sculptures. The purpose? To emphasize Hauserman's commitment to design, here art. For neophytes to the West Coast contract market event, however, there was some initial confusion—more than one newcomer was overheard asking, standing awash in light: "What are they selling?" Quite simply, Hauserman is selling Hauserman.

Four months after the lights went on in L.A., they opened the doors to the Merchandise Mart in Chicago for annual contract market event number two—NEOCON. The star attraction of the 1982 National Exposition of Contract Furnishings? This much-publicized showroom designed by Japanese architect Arata Isozaki. Though it's unfair to compare Hauserman-L.A. to Hauserman-Chicago, let it suffice to say Isozaki rose to the occasion of his first U.S. commission. He began, as all good architects do, by understanding the program—not merely the program that specified *x* amount of display space for office furniture and *y* amount of display space for demountable partitions (though *x* and *y* are addressed) but the more important program, the one that carefully specified "showcase," as opposed to showroom. The distinction is more than semantic, remembering that Hauserman's success in jockeying into a "leading edge" of design position is contingent upon Hauserman's success in convincing the design community that Hauserman has done so. And while some may shudder to see 25 per cent of a costly 8,000-square-foot showroom appropriated for an interpretive homage to the four elements (earth, fire, air, water), the same *some* would be hard pressed to name a more heavily-trafficked room in Chicago's behemoth Merchandise Mart, during NEOCON. And while computer-drafting equipment scored high marks as most-talked-about subject at NEOCON, it proved no match for such questions as whether the Hauserman showroom is Modern, Post-Modern, Classical, or New Wave; whether the tunnel vaults refer more directly to ancient Japanese cave dwellings or to garden pavilions set into a mountain landscape; whether the Isozaki-designed chairs in the small conference room (photo top left) are modeled after Mackintosh or Marilyn Monroe; whether the "light column" leading to an "Office of Tomorrow" display symbolizes. . . .

Lest we think Hauserman is in the business of sponsoring spectacular showrooms, vice president Saylor hastens to report that major product introductions are in the wings. Joining them is another showroom, scheduled to open next spring in Boston. The architect? Hauserman has our attention.



*Hauserman Showroom
Merchandise Mart, Chicago*

Owner:

E.F. Hauserman Co.

Architect:

Arata Isozaki & Associates

Associated architect:

Kenneth N. Folgers Architects

Consultants:

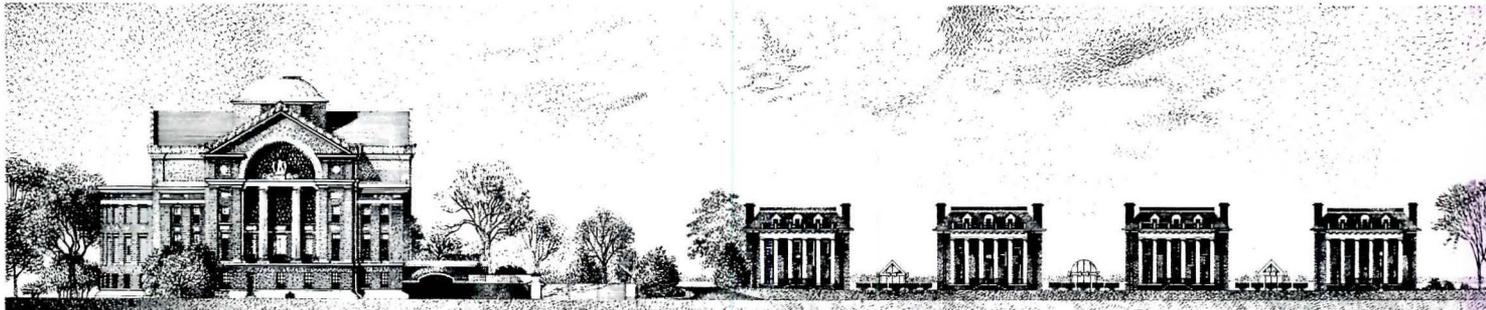
Hauserman facilities design group—David E. Hooper, IBD, project designer; Christine A. Zajac, design assistant (product display); James C. Smith (murals)

General contractor:

Merchandise Mart

The gentle art of abstraction

Renderings by Steve Evanusa



WAR COLLEGE

NEW ACADEMIC BUILDING

FORT MCNAIR · WASHINGTON, D.C.

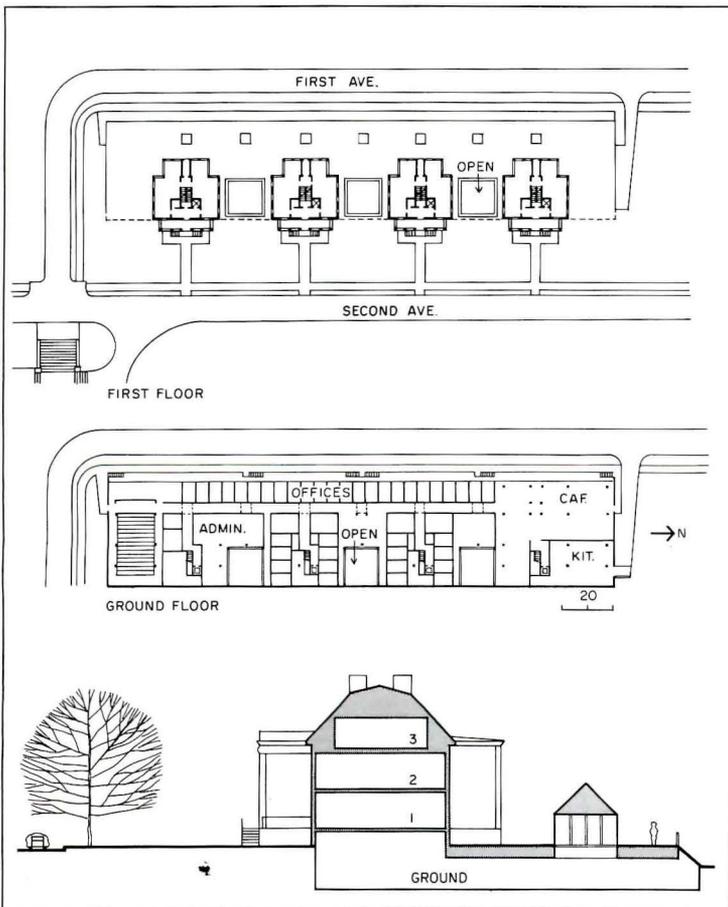
HUGH NEWELL JACOBSEN F.A.I.A.

Six recent projects
Hugh Newell Jacobsen, architect

Throughout his career, Hugh Jacobsen has stepped jauntily to a different drummer, practicing a distinctive and intensely personal brand of contextual and allusionist architecture long before those terms came to fall so trippingly from critical tongues. Many of the themes that now distinguish his work are therefore familiar: the formal play with pavilions of various shapes, and with the gabled saltboxes that Jacobsen refers to as “Monopoly houses”; the sometimes eccentric conjunction of linked forms by their apparent detachment; the disposing of building elements with the artless (but purposeful) exuberance of a child’s block construction. Increasingly, though, the buildings also partake of a frank revivalism that includes broad references to classical (and not so classical) styles as well as the knowing use of the rich idiom of the vernacular. In Jacobsen’s hands, however, historicism is neither literal allusion nor formal appliqué, but a reaching inward to capture the informing genius of the referent. And the recent designs are marked not only by a remarkable assurance in abstracting past forms but by an evident joy in the doing.

Jacobsen notes a bit plaintively that while some 80 per cent of the work of his office is nonresidential, it is for houses that the firm is best known. This preview of buildings now under construction, then, may be something of a corrective. It shows (in addition to three villas) two projects that write large the trademarks for which the houses are so admired—including the flashes of wit. Sensitively planned and carefully wrought, the projects also share an extraordinary sympathy to site and surround—whether the built environment of historic Washington or the singular combination of myth and modernity that is Greece. As Jacobsen says, “Good architecture, like a well-mannered lady, never shouts at the neighbors.” *Margaret Gaskie*

Past as prologue



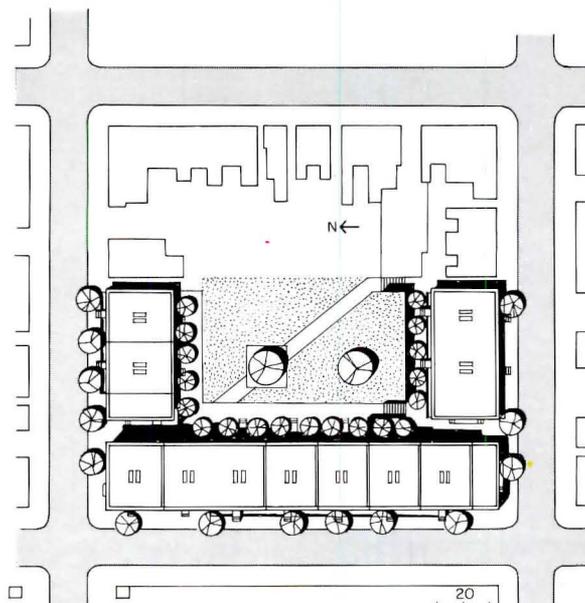
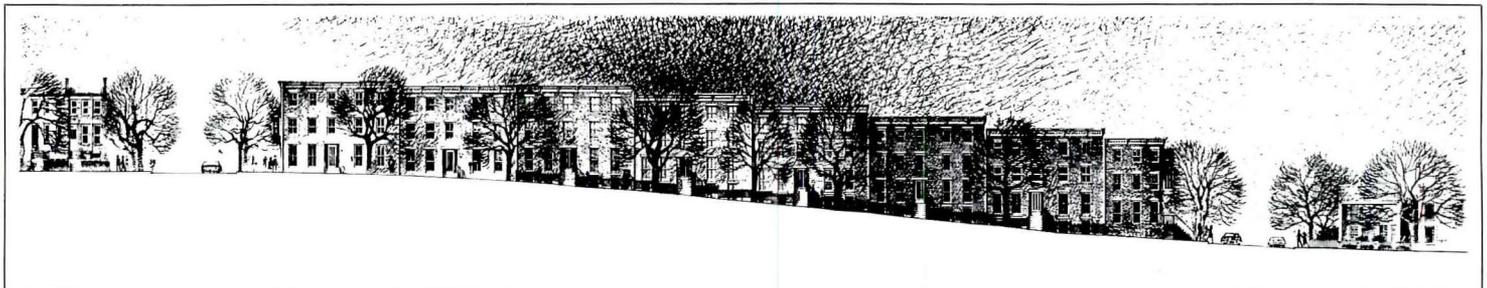
Asked to design a new academic building for the venerable National War College, Hugh Jacobsen looked first to the original college building, an imposing neoclassical pile designed by McKim, Mead & White in 1908, and to the master plan proposed by the same firm but only partially executed and since vitiated by nonconforming campus development. As first laid out, the block plan placed the college and an engineers' post at opposite ends of a long parade ground framed on either side by officers' quarters. It is to the domestic scale of these that the academic building unexpectedly but happily refers. Hitting on the expedient (obvious only after the fact) of placing the bulk of the required spaces below ground, Jacobsen was able to fill in the blanks of the master plan with four small units that echo the scale and mass of the existing houses on "Generals' Row" while handily accommodating seminar rooms and faculty and administrative offices. In detail too the "houses" recall their period predecessors, though

Jacobsen has not demurred at a translation free enough to permit a touch of whimsy—for example, rear "screened" porches with glazing stenciled to suggest treillage. The scheme thus complements and strengthens the earlier vision without compromising the demands of present-day academe. Though underground, the academic and common spaces will be washed in natural light: from a continuous clerestory over student offices; from sunken, glazed light wells between the above-grade buildings; and from a corridor pierced with skylights that surface as greenhouses elaborated to a procession of follies.

Mannerly Victoriana

On close inspection, Jacobsen says, this block of rowhouses is "about as Victorian as my Chevrolet." But the massing of the buildings and their abstracted Victorian style are persuasive enough to make this student housing complex for Georgetown University in Washington, D.C., a thoroughly acceptable neighbor to the surrounding community. The townhouse theme is borne out by a

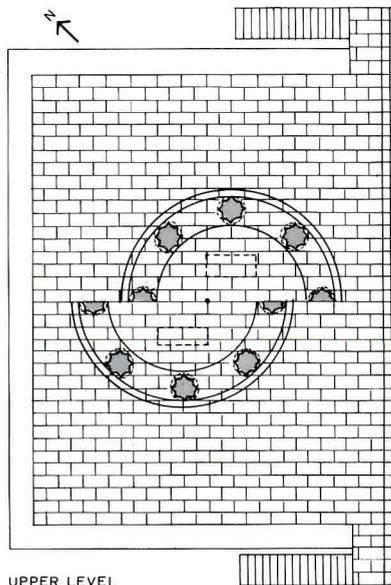
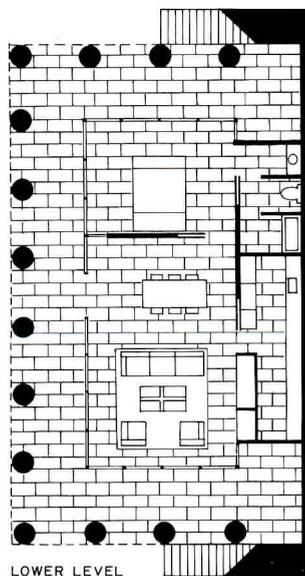
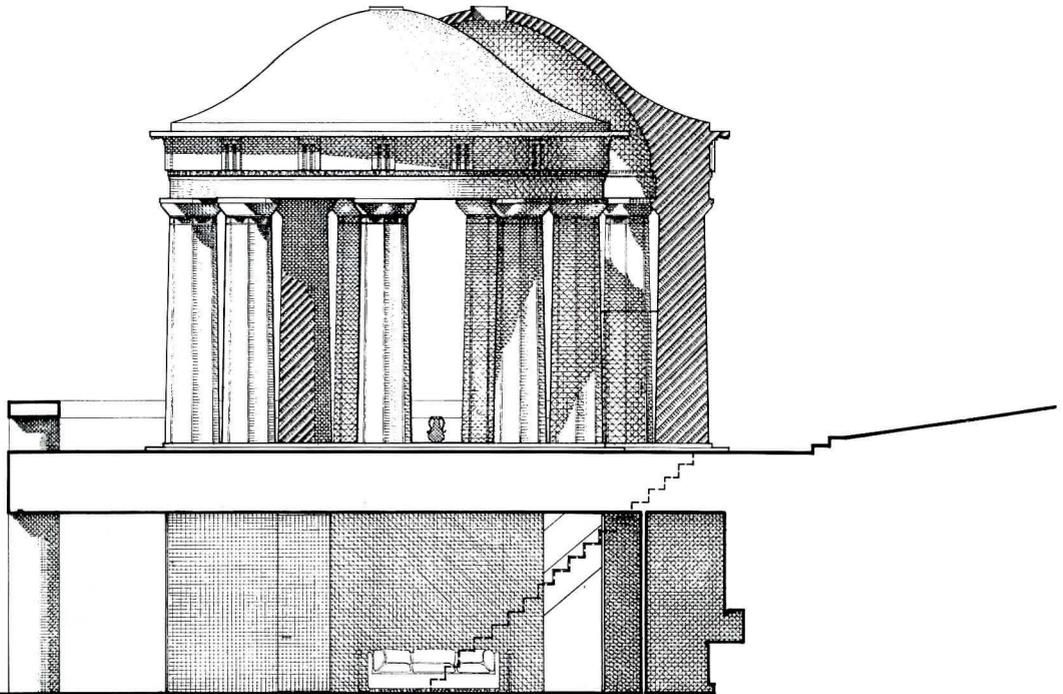
plan that groups four-student apartments—two bedrooms, living room, kitchen, and bath—in a vertical entry scheme. The buildings present a solid front to the street but back on a paved courtyard that isolates the livelier and noisier aspects of student life from the neighbors. Facades of rich burgundy brick will be warmed by Italianate moldings and such grace notes as tall parlor-floor windows.



Mausolean splendor

The site: a clifftop 20 miles south of Athens with a commanding view of the Aegean. The program: to provide two crypts, accommodation for a priceless fourth-century bronze urn, and a small apartment for the convenience of visitors. The budget: generous. Jacobsen's original response to this near-ideal (if somewhat improbable) commission was an abstraction of the Temple of the Winds at Delphi

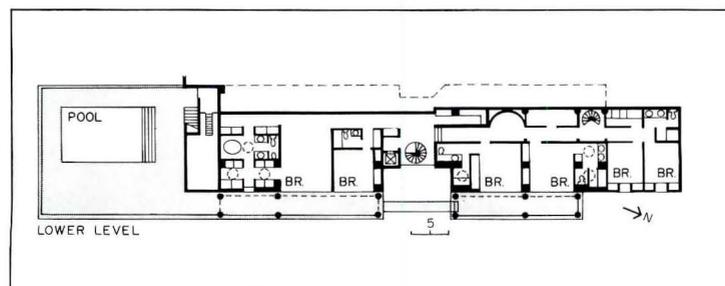
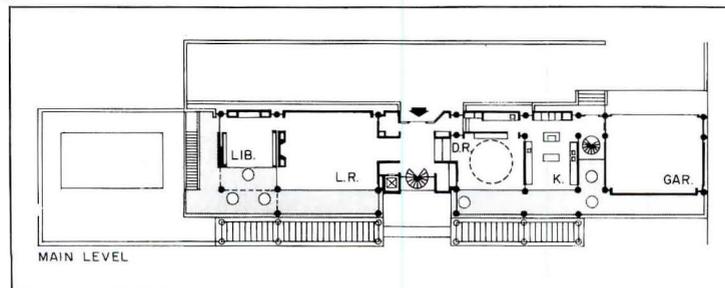
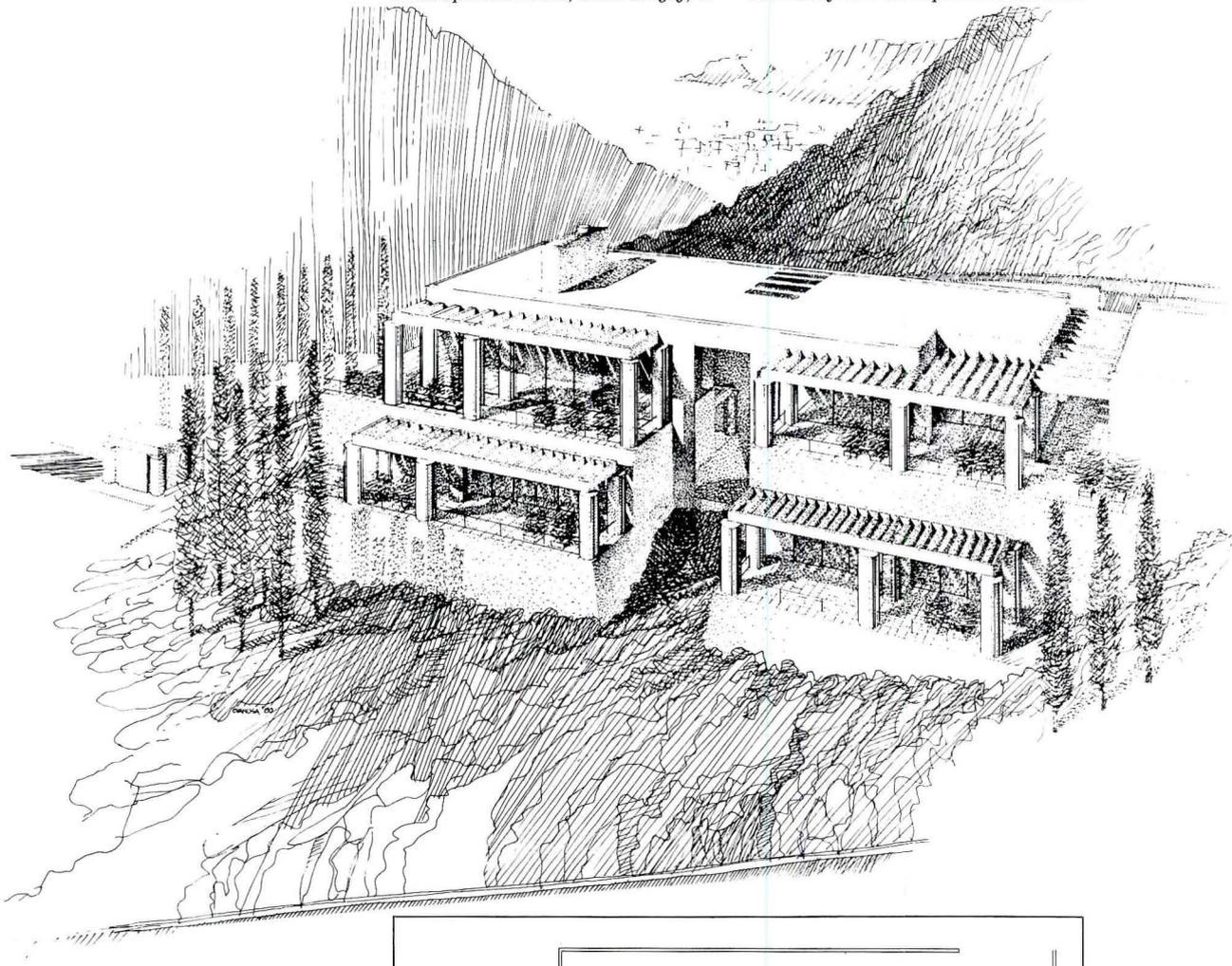
set atop a perfect Miesian box of an apartment. This elegantly pretty conception was saved from saccharinity by a godlike stroke—a literal stroke that split the domed pavilion in two and offset the halves. The result is a monument of compelling virility, in no way blunted by the richness of its materials—marble played against the brushed stainless steel of columns and dome.



A hilltop temple...

The Villa Andropoulos is one of a pair of houses (the other is shown opposite) commissioned by long-time friends and business associates to occupy adjoining plots in a mountaintop suburb of Athens. For both houses, the principal design constraint was the precipitous slope at the site—45 degrees front-to-back and 33 degrees laterally—which dictated a hill-hugging parti. The Andropoulos house, accordingly, is

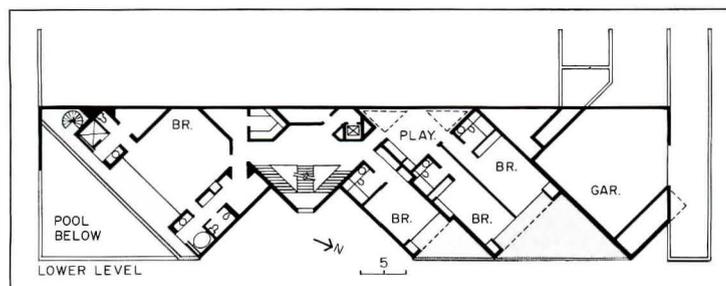
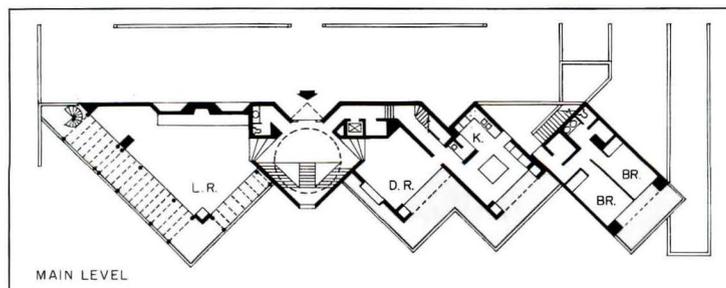
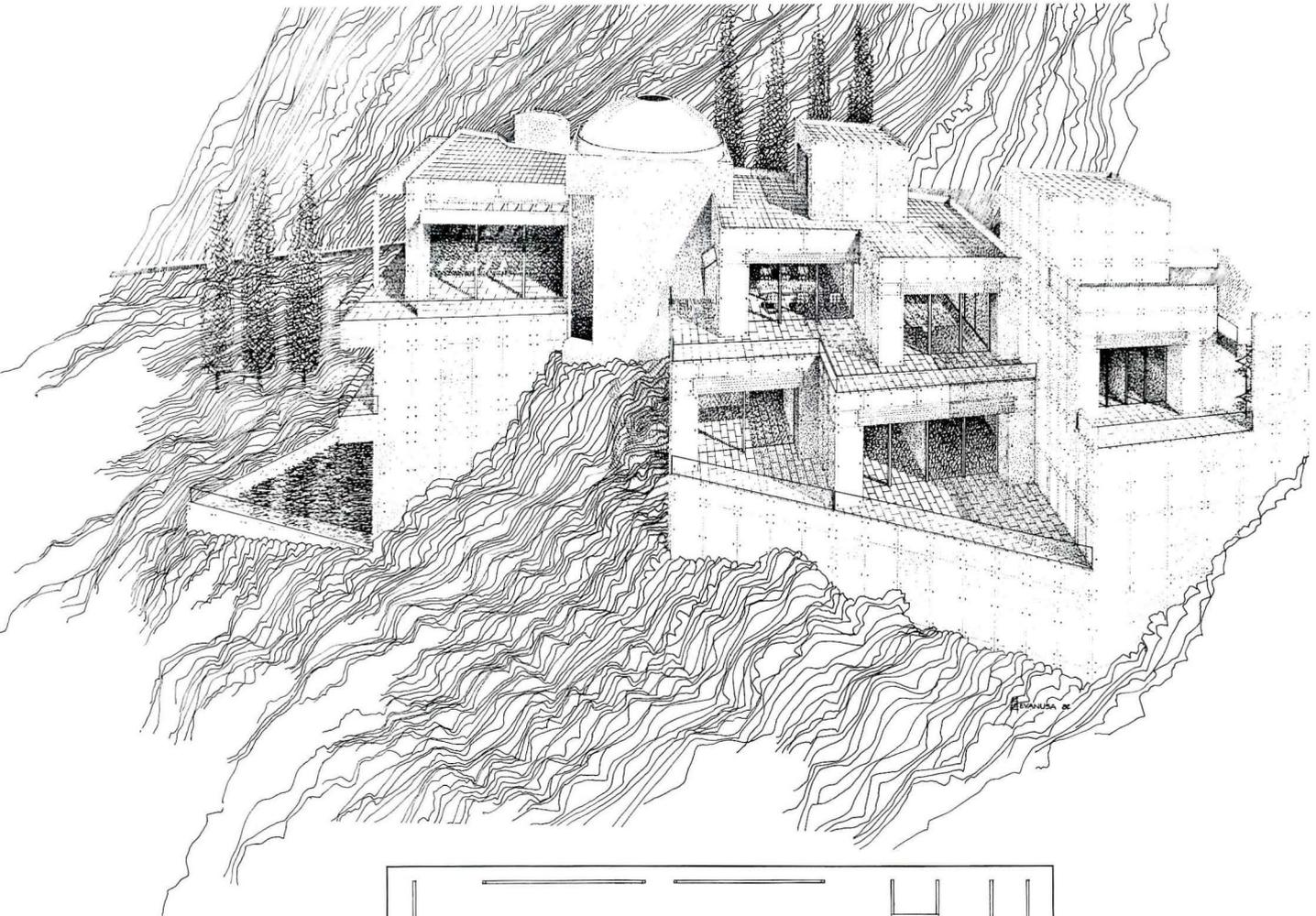
a slim rectangle wedged against the slope at the rear but gloriously open at the front in a facade Jacobsen likens to the temple at Knossos. The pergolas are an adaptation of a traditional trellis form widely used in Greece and, like the originals, will be planted with grapevines. But in sharp contrast to the raw wood of the humbler version the trellises are of concrete and the supporting columns faced with polished chrome.



...and a hilltop village

Whereas the Andropoulos villa is elegant, rational, classical, the Villa Syrigos next door is exuberantly colloquial—a free abstraction of a Greek country hilltown. Approached from above, the house seems a near-random composition of bold cubes that spill in casual ranks down the steep mountainside. Again the building hugs the hill at the rear but elsewhere embraces the sweeping view through angled

facades, at once composed and free. But if the forms of the villa speak with a country accent, the rustic analogue stops short with the choice of materials. Like the neighboring villa, the Syrigos house is rich with the gleam of concrete painted spun-sugar white, the flash of silver leaf (here, atop the dome), and the luster of antique-green polished marble.

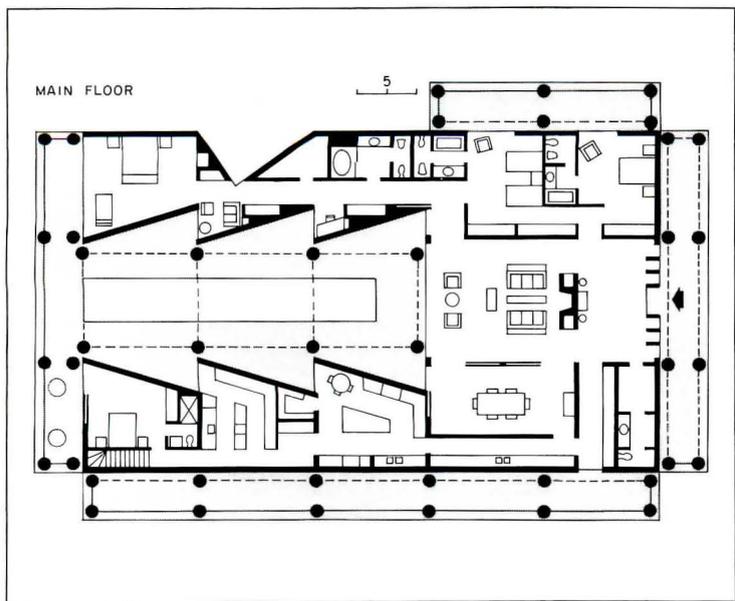
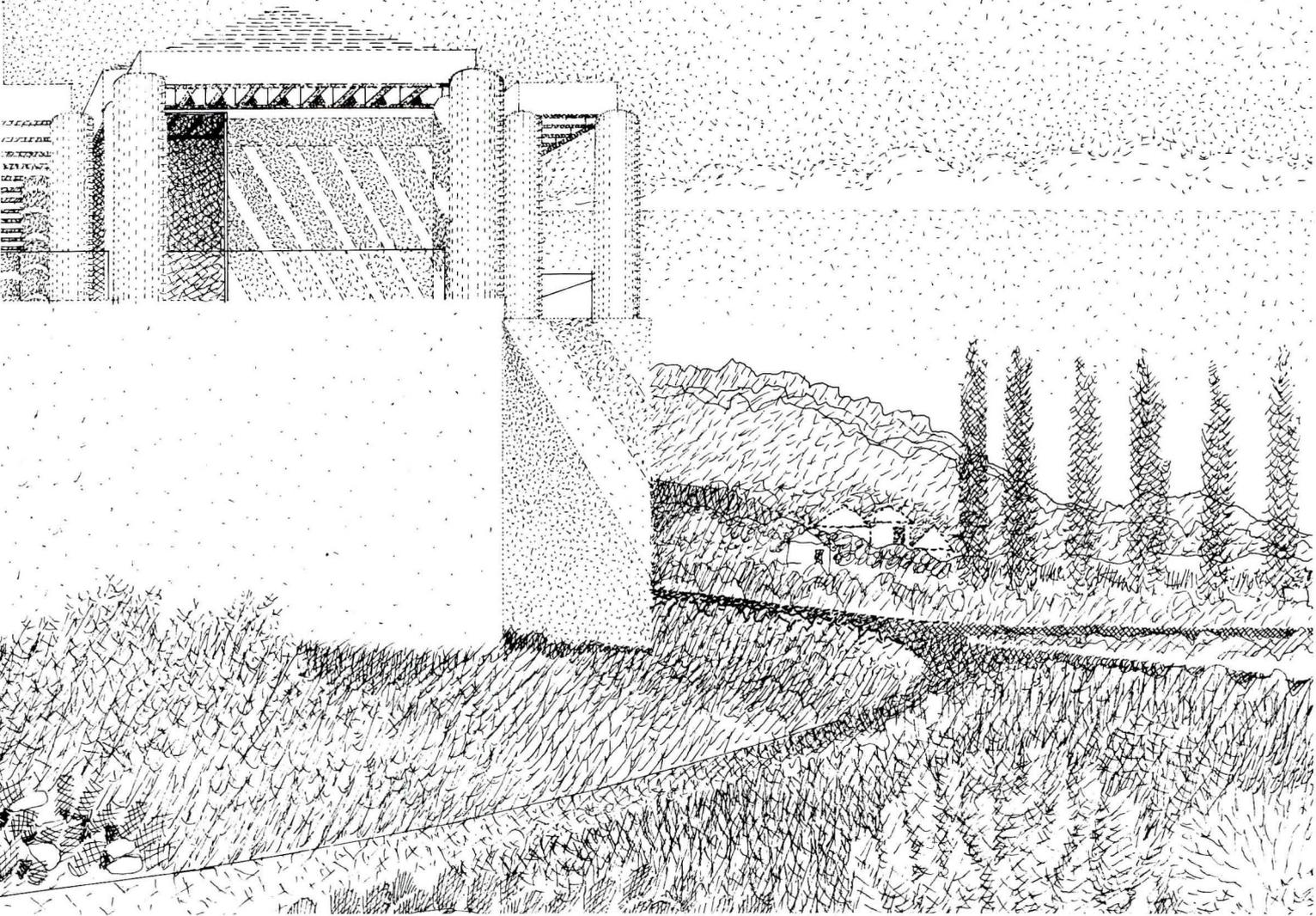




A kingly villa

Jacobsen describes this pristine villa crowning its own Acropolis in the hills of Philothei as "the place Agamemnon should have lived." But the artistic license of the rendering above notwithstanding, the villa occupies a difficult site in an established neighborhood, surrounded by residences of impressive size but uninspired mien. (To Jacobsen they recall table-model radios.) The site enjoys,

however, a spectacular one-directional view down a mountain and out to sea, and the plan exploits this feature. Principal rooms are oriented inward to a colonnaded pool court and canted to partake of the view. The motif of the central court—trellised sunscreens poised on hefty columns—is repeated in narrow exterior colonnades that add to the classical poise of the composition en suite.



Everett Needham Case Library, Charles A. Dana Addition
Colgate University, Hamilton, New York
Herbert S. Newman Associates, Architects

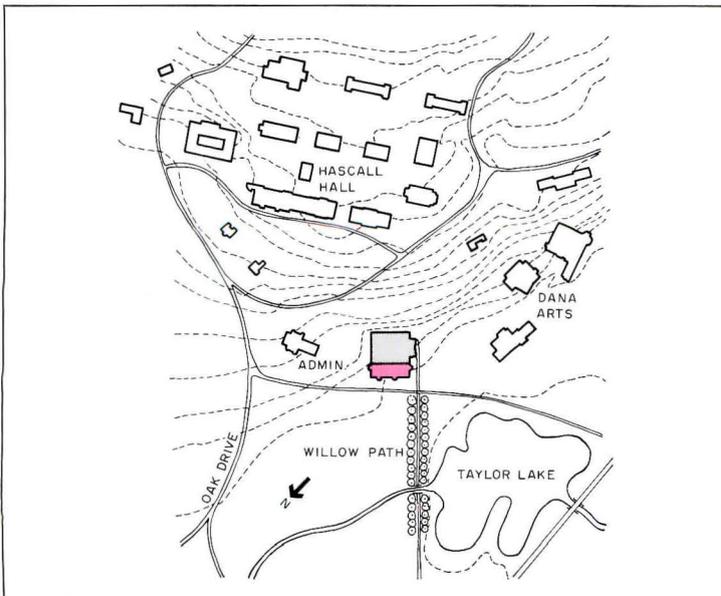
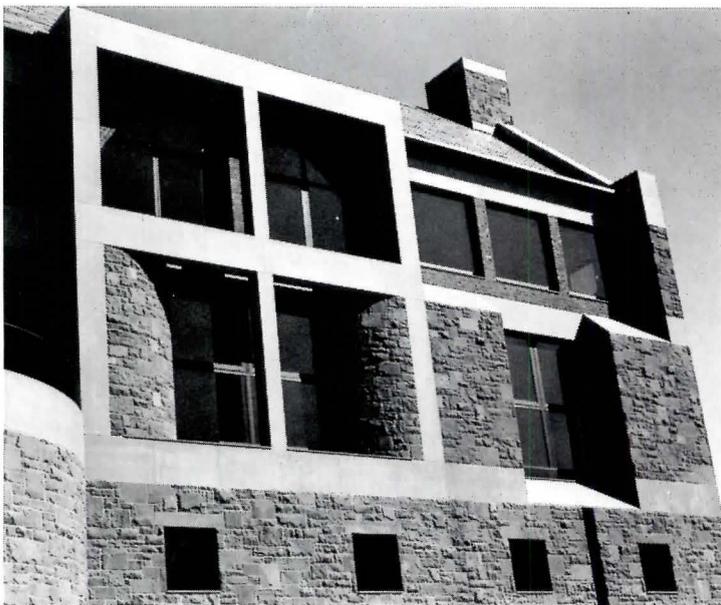


A new frontispiece transforms a college library



"Perversely adorable always—and I scarce know why—the late afternoon light in deserted haunts of study; with the secret of supreme dignity lurking above all, in high, dusky, wainscoted chambers where the sound of one's footfall lingers, to one's pleasure, like a caress, and where portraits of the appurtenant worthies, the heroes and patrons, grow vague in the twilight."
 —Henry James, *The American Scene*

© Nick Wheeler photos



James's tribute to collegiate reading rooms strikes a sympathetic note with anyone who has loved old libraries, and has vainly sought the same kind of gentle sanctuary in the cold, even glare of latterday "information resource centers." It is just this remembered aura of venerable calm that architect Herbert Newman strove to recover in his addition to Colgate University's Everett Needham Case Library. His design succeeds so thoroughly, inside and out, that, from a distance, the new brick and stone building might almost be taken for the work of one of Henry James's contemporaries, some student of H.H. Richardson, perhaps. Not surprisingly, many visitors to Colgate assume it is Newman's gabled extension rather than the flat-roofed block behind it (the main library built in 1958) that has recently been enlarged.

In its original state (left foreground of aerial photo opposite) Case Library was a banal exercise in post-World War II Modern. This plain box would have been quite unremarkable had it not been sited conspicuously near the main campus entrance and clad with yellow porcelain enamel wall panels, in strident contrast to the dour gray masonry of Colgate's older buildings. Although Newman has effectively masked the most prominent facade behind the new wing (and painted the remaining wall panels a neutral stone color), his program for the 36,000-square-foot addition was by no means merely cosmetic. Library usage had more than doubled at Colgate during the 1970s, as enrollment grew from 1,200 to 2,600 with the admission of the university's first coed classes. While the flexible warehouse-like layout of the existing open-stack library could be adapted readily to house an ever-expanding collection, there was already far too little study space—and what space did exist was depressingly spartan.

By attaching study alcoves and a two-story reading room to the north front of Case, formerly a range of offices and workrooms, Newman gave scholars idyllic views of Taylor Lake and the open lawn between Willow Path and Oak Drive. Seen from outside, the robust assemblage of bay windows, gables, and a high slate roof may not compose so aggressively individual a presence as Paul Rudolph's 1965 Dana Arts Center down the lane, but it is more at home with its neighbors. Two Victorian landmarks on campus, Hascall Hall and the Administration Building, inspired Newman's polychromatic stone-and-brick facades and quasi-Romanesque Revival massing. If the new north elevation has almost too much High Victorian "go," it is saved from busyness by rhythmic banding, a simple roof line, and the repetition of modular bays. On the east and west sides, cylindrical brick stair towers smooth the transition between the 1980s front and its 1950s bustle.

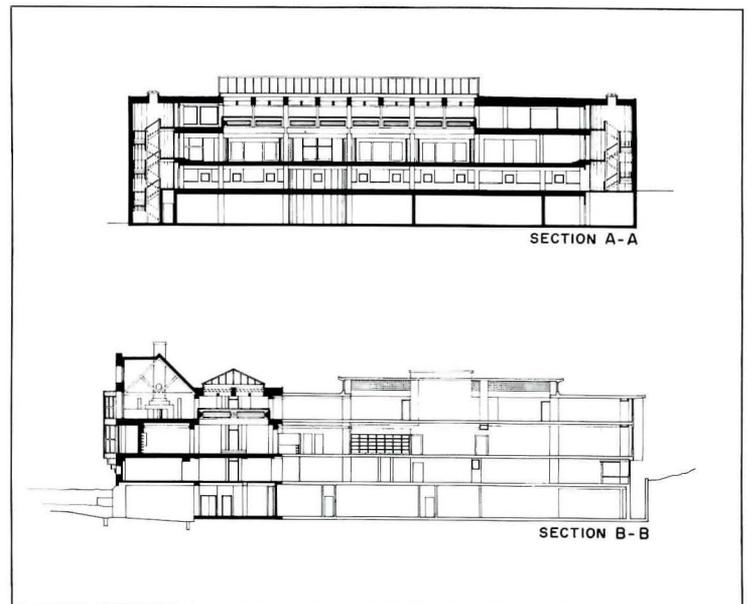
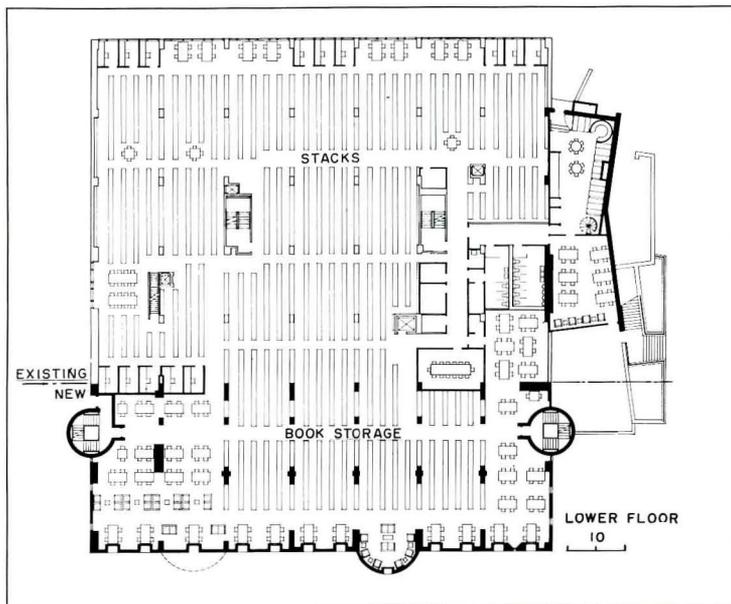
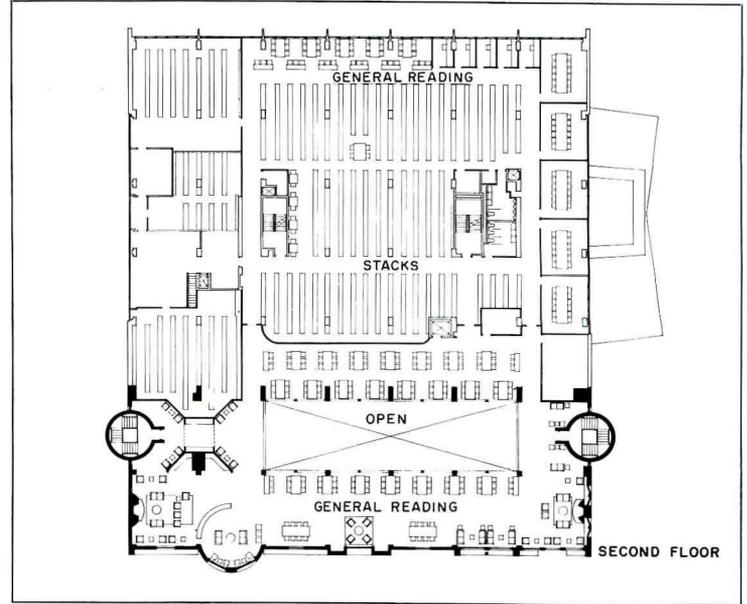
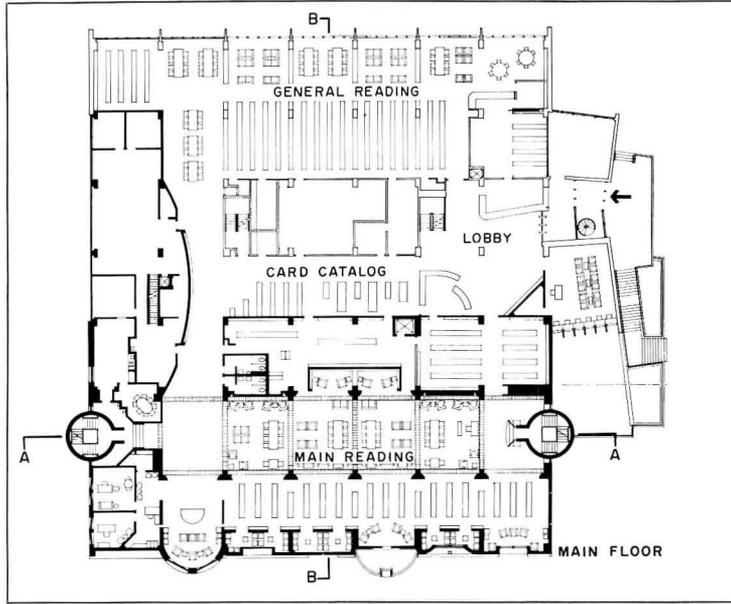
The stairways also anchor the long axis of the reading room, a grand yet comfortable chamber that gives Case Library the heart it sorely lacked. In order to create a progression of spaces from public to private, Newman adopted the parti of a lofty skylighted hall bordered by intimate alcoves, a plan that college and club librarians have revered for centuries. Brick piers imply an all-encompassing classical order, and there are subtle references to traditional decoration: a hint of coffers in the ceiling grid, a suggestion of wainscot trim in the outside torus moldings applied to balcony parapets. Movable ceiling louvers, which close to conserve heat during winter nights or cut down on summer glare, allow sunlight to play over wing chairs, mantelpieces, and "portraits of the appurtenant worthies." If there has been any persistent complaint from students, it is that the library now conduces all too well to meditative yawns on a long afternoon. *Douglas Brenner*

Before it was renovated and expanded by Herbert S. Newman Associates, Colgate University's Case Library was an architectural anomaly on campus (left foreground in aerial photo). Ashlar masonry at the corners and entrance of the original library failed to mitigate the incongruity of a yellow-paneled box among the gray stone gables and slate roofs that had been traditional here since

1827. Herbert Newman looked to two Colgate landmarks of somewhat later vintage, the Romanesque Revival Hascall Hall and the Administration Building, as appropriate models for the library's new face. Walls are of brick and quarry-faced ashlar, with limestone belt courses. In order to avoid the layer-cake effect of stark white bands, limestone slabs were tinted a warm buff by applying sealant

mixed with brown pigment. Pink mortar tones down the pointing of ashlar infill. These stone surfaces cut back two inches at window reveals to expose a substratum of brick, emphasizing that the ashlar is not loadbearing. Mannerist devices such as the window inserted through the corbels of a bowed oriel, and a flying stone transom in front of a recessed brick arch (photo opposite below), also express

the discrepancy between apparent tectonic logic and actual structure. Round brick stair towers form visual links between the two segments of the library, and minimize the contrast of old and new stonework. Newman retained the existing library entrance (photo opposite above) while deploying his own interior stairs, curved partitions, and recesses to establish axial circulation patterns.



Everett Needham Case Library,
Charles A. Dana Addition,
Colgate University
Hamilton, New York
Owner:
Colgate University
Architect:
Herbert S. Newman Associates,
AIA, P.C.—Herbert S. Newman,
FAIA, architect-in-charge; Don
Cosham, AIA, vice president; Peter
W. Clement, job captain; Glenn H.
Gregg; Barry Svigals; Kevin
O'Connor; Robert Godshall

Engineers:
Eckerlin, Klepper, Hahn & Hyatt
(structural); Helenski-Zimmerer,
Inc. (mechanical/electrical); Donald
L. Bliss (lighting)
Interiors:
Herbert S. Newman Associates—
Herbert S. Newman, Kathy Kuryla,
Edna Newman, Glenn H. Gregg
General contractor:
Murnane Associates
Architect of original library:
O'Connor & Kilham



The reading room is a fresh variation on the well-tried theme of alcoves and galleries flanking a navelike hall. Brass lamps designed by Alvar Aalto hang below a pitched skylight, and the open ceiling grid is inset with movable lowers controlled by a timer and light sensors. Browsing areas occupy the south side of the lower tier; on the north side, periodicals shelves and reading nooks overlook the campus. Upstairs in the balcony

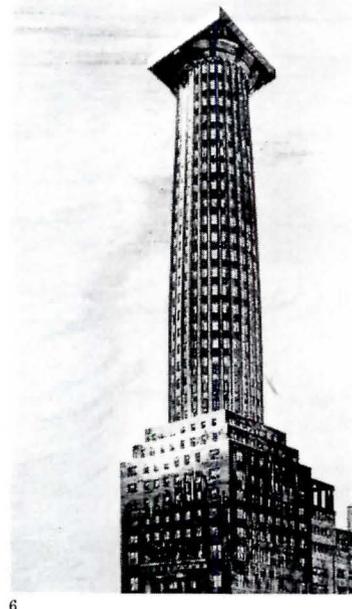
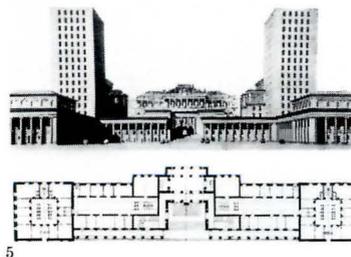
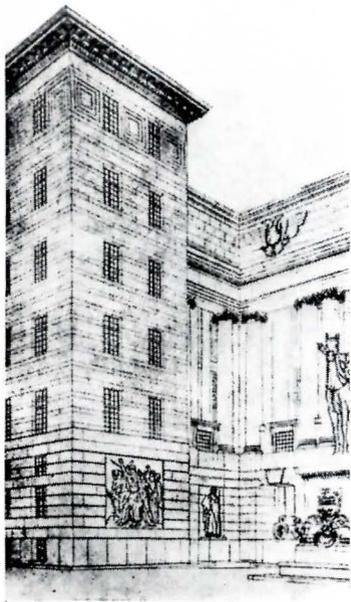
(photos above and opposite), scholars have the choice of settling into a fireside couch or a club chair near the window. Like the surprisingly white (rather than wood-finished) trusses and the exaggerated parapet moldings, the massive brick fireplaces at either end of the north gallery hark back to classic collegiate décor without reproducing specific prototypes. Exposed ductwork fits comfortably into this studiously eclectic setting.



The real importance of Adolf Loos

By Carter Wiseman

The architecture and writings of Adolf Loos have been credited with no small role in stripping architecture of ornament. Thus in recent years, he has often been cast as a villain. In this essay, Carter Wiseman, architecture critic for New York Magazine, re-examines Loos's thought and work. Wiseman, whose interest in Loos first took form in a master's thesis he wrote at Columbia University in 1972, argues that in fact the Viennese architect played a role not unlike that of today's post-modernists. . .



1. Competition drawings for the War Ministry, Vienna (1907)
2. Steiner House, Vienna (1910), garden facade
3. Steiner House, street facade
4. Scheu House, Vienna (1912)
5. Horticultural Association Grounds (1916-17)
6. Entry for the Chicago Tribune Building Competition (1922)

Poor Adolf Loos! Long hailed as a prophet of Modernism for his austere white houses and his attacks on the frivolities of 19th-century design, the Austrian architect and author of the famous essay, "Ornament and Crime," has, with the eclipse of Modernist doctrine, been recast by many as a villain. In recent years he has been called "fanatical" and "hysterical," and now that ornament in architecture has been rehabilitated he is being flailed anew in some quarters as the person who did most to deprive us of it in the first place.

In fact, though, Loos was neither quite the Modernist form-giver nor the devoted foe of ornament he has so often been made out to be. Indeed, a growing body of scholarship (including the new Rizzoli volume, *Adolf Loos: Theory and Works* by Benedetto Gravagnuolo) reveals an architect who not only favored certain kinds of ornament, but in his admiration for the enduring values of Classicism, was surprisingly close in spirit to many members of today's post-modern generation.

The important thing to remember about Adolf Loos is that his reputation is based to only a small degree on his buildings, of which he did relatively few, and of which even fewer are well known. He was born in what is now Brno, Czechoslovakia, in 1870, and after architectural studies left for a three-year trip to the United States. Following his return to Austria, in 1896, his career as a builder began, but slowly. (His first important commission was for the interior of a café, in 1899.) His greatest energies at the time were devoted to writing. A friend of Oskar Kokoschka, Ludwig Wittgenstein and Arnold Schoenberg, Loos became a central figure of the intellectual elite in Vienna and developed into a prolific polemicist, turning out scores of essays on design and related matters. It was largely from these writings, rather than his architecture, that he became known.

In 1921, the essays Loos had written between 1898 and 1900 were collected in a single volume and published under the title, *Ins Leere Gesprochen (Spoken Into the Void)*. Until that time, however, only a few of the architect's writings had been circulated outside Vienna. In 1912, Herwarth Walden, owner of the "Der Sturm" gallery in Berlin, and publisher of the magazine of the same name, had printed five of Loos's essays, including "Ornament and Crime," written in 1908. But only this essay and one other entitled "Architektur," of 1910, saw further publication until a second collection of Loos's writings, from 1900 to 1930, was published under the title *Trotzdem (In Spite Of)* in 1931, just two years before his death. "Ornament and Crime" appeared in *Les Cahiers d'aujourd'hui* in 1912, along with "Architektur," again in 1920 in *L'esprit Nouveau*, the French publication edited by Amédée Ozenfant and Le Corbusier, and in *L'architecture Vivante* in 1923.*

Thus Loos's reputation outside Austria and Germany was based on the circulation of only two essays which constituted but a small fragment of his written work. Nevertheless, on the basis of these articles, that reputation was remarkably widespread. In the introduction to the 1912 French reprint of "Ornament and Crime," the editor described Loos as "the most discussed, the most solitary, the most imitated architect of modern Austria," and claimed that "everything reasonable and enduring done in architecture in Austria in the past fifteen years has been done under his influence." Le Corbusier, in a tribute to Loos after his death, described him as someone who "appeared unexpectedly in the middle of our architectural preoccupations with a marvelous article published in 1908, 'Ornament and Crime,' and created 'an Homeric cleansing' of the architectural slate.

What, precisely, did Loos say in his seminal essay? Well, it was not altogether coherent, but it was very colorful. He said, among other things, that "... the man of our own times who covers the walls with erotic images from an inner compulsion is a criminal or a degenerate." He said that ornament "... commits a crime, by damaging men's health, the national economy and cultural development." He went on that, "As ornament is no longer a natural product of our civilization, it accordingly represents backwardness or degeneration. . ." He said that "Modern men who revere ornament as a sign of the artistic

* The first English editions of *Ins Leere Gesprochen* and *Trotzdem* are only now appearing, published by the Institute for Architecture and Urban Studies and the MIT Press.

expression of earlier generations will immediately recognize the painfully labored and sickly ornament of today." And he concluded that, "Lack of ornament is a sign of spiritual strength. Modern man uses the ornaments of earlier and foreign cultures as he thinks fit. He concentrates his own powers of invention on other things."

On the basis of these steamy pronouncements, Loos rapidly came to be known as an opponent of ornament in any form. But a close reading of even these words shows that the architect was leaving himself an "out" on the ornament question. His aim was to banish the sort of unthinking ornament he perceived to be inappropriate to his time. The surface play of decoration favored by Josef Hoffmann and the Wiener Werkstaette, to take just two examples, struck him as retrograde, "something that is no longer a natural product of our civilization," and that should therefore be done away with. However, ornament used "as a sign of the artistic expression of earlier generations" was not out of bounds, nor, by implication, was ornament that *was* "a natural product of our civilization."

The finer points of Loos's argument were lost on much of his local readership, including the Vienna tourist board, which persisted in referring to the essay in its literature as "Ornament Is Crime" (which he never actually said). Readers outside Austria eagerly made the same mistake, and critics have been perpetuating it ever since, despite the architect's own vigorous efforts to clarify his meaning. In 1924, Loos wrote another essay in which he said, "I never meant, as the purists have carried on ad absurdum, that ornament should be systematically and consistently abolished. Only when its time has passed should one not revive it, just as man will not go back to tattooing his face."

Loos was trying to restate what had been so misinterpreted: that *imitative* ornament is superficial and dishonest. He never claimed that forms of the past were in themselves inferior or that they should not be re-used in their original sense and for their original purposes. As early as 1898, he had written: "Everything that earlier centuries have created may be copied today, as long as it is still useful."

Despite Loos's attempts to separate himself from the many architects and theorists who so freely invoked his example, the identification of him with the leaders of later stylistic developments continued. An examination of some of his more important built work shows how superficial the similarities often were. Even in his early projects, which were limited mostly to the interiors of shops and cafés, there is evidence of a kind of ornamental *esthétic*, although it was not expressed in conventional form. Loos's father had been a stonemason and sculptor, and from his early years, the architect was intrigued by the visual potential of natural materials, particularly wood, stone and leather. In a 1917 essay, he wrote: "Noble materials are wonders of God. Happily would I give all of Lalique's artwork or the whole of the Wiener Werkstaette's decoration for a string of genuine pearls." Well before that, he was making his feelings clear in the Vienna shop for Goldman & Salatsch (1898), a gentleman's outfitters, the Steiner Plume and Feather Shop (1907) and the (1913) Knize & Co. clothing store (see photos 10,11). His palette included snakewood, satinwood, cherry, polished brass, mirrors, and, above all, veined marble.

One of the most enduringly successful interior spaces in 20th-century architecture is Loos's Kaerntner Bar (1907), which is embellished with lustrous mahogany, brass-trimmed leather banquettes, marble coffering on the ceiling and translucent panels of onyx over the door. The delicate amplification of the tiny (11 feet 6 inches by 11 feet 6 inches by 23 feet) space with the help of mirrors set above head height is a triumph in itself, but what can only be called the flagrantly ornamental use of materials just a year before the publication of "Ornament and Crime" helps set the architect's apparently doctrinaire thoughts on the subject in perspective (photos 8,9).

Perhaps the most striking example of Loos's fondness for the appropriately ornamental use of natural materials is the Villa Karma on Lake Geneva (7), a major expansion and renovation of an older structure. Completed just a year before the Kaerntner Bar, it shows a fascination with complex patterns of stone so

intense that it borders on the indulgent. The flame-like marble used in the library and bathroom, if not ornamental in the 19th-century sense of the word, is no less decorative in its power.

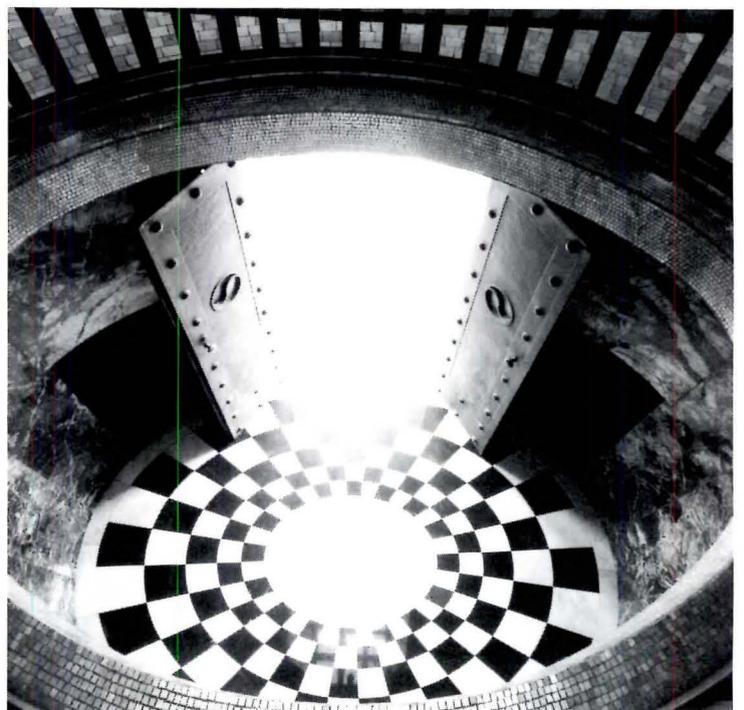
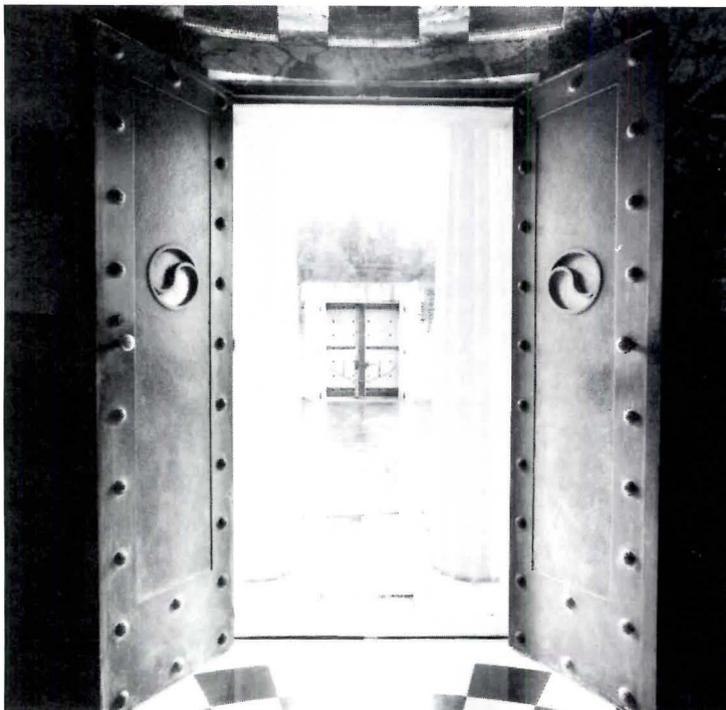
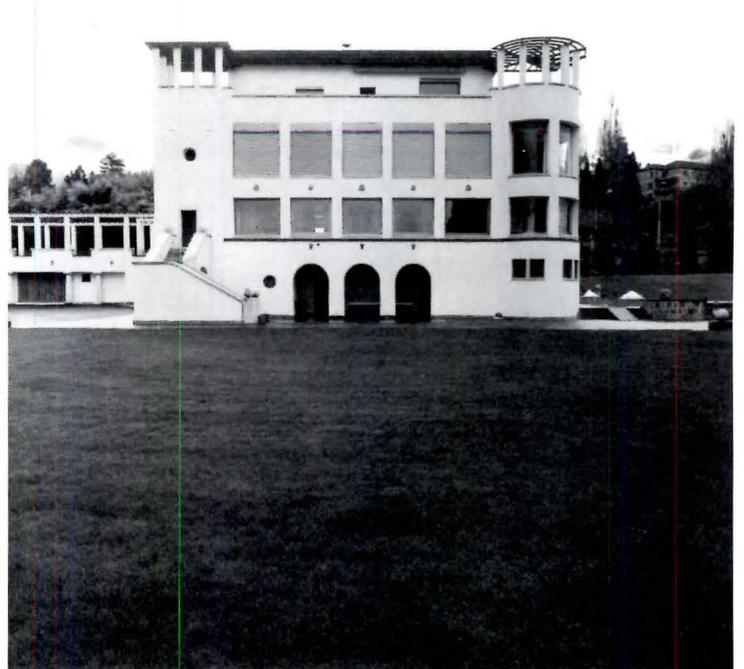
Among Loos's house designs, the best known as an example of his Modernist austerity is the Steiner House in Vienna (1910). It is important to note, however, that the photographs most often published of the building show only the rear portion (2), not the street facade (3), where one would expect the architect to make his public statement. The building code of the district of Hietzing, in which the Steiner House was built, required that the street elevation be low, allowing only an attic to be set above the ground floor. Loos's solution was to curve the roof back and up, in a sort of arched set-back, thus conforming to the zoning regulations, and still providing the maximum amount of space on the second floor. The famous facade was what was left by this canny skirting of the local ordinance.

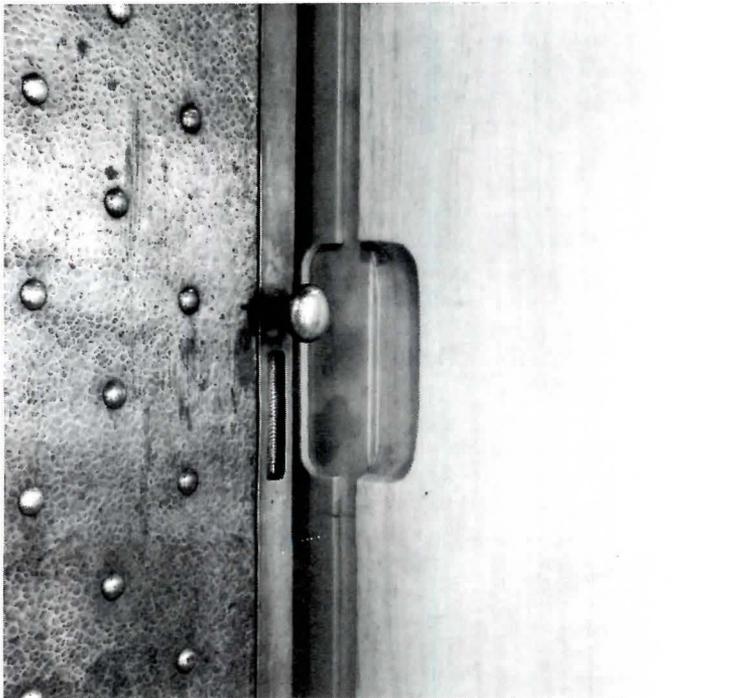
As is the case with so many of Loos's houses, the interior of the Steiner House presents a sharp contrast to the exterior. The articulated beams of the ceiling, the natural wood paneling, and the extensive use of unfinished brick give the rooms a comfortable, even humble, appearance. Accentuating the feeling is the built-in furniture of the traditional Austrian seating alcove by the living room window. There is a clear sensitivity here to the social functions of the environment, and the contrast with the grimly ascetic facade suggests that what appears to be a precursor of International Style planarity is to a great degree the simplest possible cladding for the interior spaces, a sort of architectural afterthought not intended as a primary aesthetic statement in itself.

An article in a 1934 issue of *The Architectural Review* concluded that Loos's Scheu house (1912) was "the first in the whole world of which we can say without any sort of mental reservation that it is 'modern' in our own specific sense of the word." There is indeed an apparent similarity between this building (4) and the houses by Le Corbusier and others with which it has been associated as a precedent. But the essential difference is clear from Loos's own comments on the controversy which greeted this design in the press. The stepped-back massing, writes Loos somewhat archly, "occasioned general head-shaking. It was thought that this type of building might be all right in Algiers, but not in Vienna. I had not even thought of the Orient in designing this house. I only thought it would be agreeable if one could go out onto a large common terrace from the bedrooms, which were situated on the (second) floor."

After turning out several more boxy white buildings, Loos in 1930 suddenly produced the Khuner Villa in the wooded mountains of Lower Austria. The contrast of this rather traditional chalet with his earlier Vienna buildings is surprising, but inconsistent only if one expects of the architect a constant design vocabulary regardless of the site, the purpose, or the needs of the user. This is a country house, and the design responds admirably to the locale in what today might be called a contextual fashion. In 1913, Loos had written, advising architecture students on the problems of building in the mountains: "Don't think about the roof, but about the rain and the snow. That is what the farmer does, and therefore in the mountains he builds the flattest roof possible according to his technical abilities. In the mountains, the snow should not slip off when *it* wants to, but rather when the farmer wants it to." The materials in this building are natural and local, and the design is intended to accentuate the feeling of being a part of the surroundings. Once again, the form of the house is primarily a response to what the house is for. That such apparently dissimilar buildings as this and his austere Vienna houses should coexist in the same portfolio certainly rattles the assertion by Henry-Russell Hitchcock that Loos was making "an effort, definite and cumulative, to found a new style."

For all Loos's emphasis on the usefulness of his architecture, it would be unfair to think of him as a functionalist. The term implies mechanical efficiency at the expense of what makes a building a successful human environment. And Loos was never drawn to the call of the "machine aesthetic." At least as important to him as the working quality of a building was its





impact on those who used it. The interiors of his shops, cafés and private houses all show a remarkable concern for his patrons' physical comfort. His larger works address the question of user needs in a no less concerned manner, but with an acute awareness of the building's role as an image. If some of his domestic exteriors seemed to be afterthoughts, the facades of his public structures were primary.

There is a clue to this "imagistic" sensitivity in Loos's public work as early as the large store for Goldman & Salatsch (12,13) on Vienna's Michaelerplatz (1911), his first large urban commission. (There are domestic clues as early as the Villa Karma.) Here he used Doric columns to frame the entrance and the second-story windows. Although these were among the first major Classical elements to appear in Loos's built work, they were by no means rare in his designs, particularly those for large municipal complexes. Loos was a literal-minded man, and to his way of thinking, while a house may have been an environment for private lives, a public building was meant to impress. Thus his 1907 project for a new War Ministry in Vienna (1) was a grand scheme in the old manner: muscular blocks of offices with overhanging cornices, heroic friezes, pairs of Ionic columns ringing a courtyard before which was to stand a thoroughly traditional equestrian statue. His 1916-17 plan for the Horticultural Association Grounds (5) shows a rigorously symmetrical complex of buildings that included Classical colonnades leading to a memorial to the emperor Franz Josef. "Classical ornament," explained the author of "Ornament and Crime," contributes discipline to the shaping of objects we use. It contributes order to our lives."

Fair enough for a showplace of Imperial Vienna. But for an American skyscraper meant to house the offices of a major newspaper? Surely the hardest of Loos's projects to integrate with his Modernist persona is his entry for the *Chicago Tribune* competition (6) held in 1922. In *The Architecture of Fantasy*, Ulrich Conrads and Hans Sperlich wrote: "A man who had spent years working out a faultless structure of reason and had challenged, indeed exorcized, the 'style of his time,' suddenly was seduced by an image which has no place in his rationale."

The apparent conflict between Loos's Classical "lapse" and his earlier modernity is, in fact, no conflict at all. But the reasons involve more than the architect's appreciation of Classical elements as symbols of order and discipline. The three years that Loos spent in the United States before beginning his practice in Vienna made a deep and lasting impression on a young man frustrated with the social and artistic limitations of imperial Austria. America represented to him, as it did to many Europeans at the time, a place where everything was possible, where class strata had vanished, and where the scale—of land, of opportunity and of buildings—was enormous. It was also the land of practicality, where people attended to basic issues and use was the principle that determined design. (Like Le Corbusier and so many after him, Loos was fascinated by American machinery and industrial buildings.) Richard Neutra, a pupil of Loos in Vienna, once wrote of him: "Never have I met a man who was so enthusiastic about 'The States' as Adolf Loos. . . . The people in America, as he saw them, had returned to a healthy, unburdened attitude, which we, in the 'old country,' had lost."

But for Loos, the United States was also a land that desperately sought association with the great traditions from which it had become separated, an impression reinforced by a visit to the mock-Classical buildings of the 1893 Chicago World's Fair. Thus it is entirely logical that Loos should later propose for the *Tribune* competition a design that, as he saw it, combined American scale and the stylistic verities of the European past. The Doric column form had remained unchanged for centuries. "This being so," Loos asked, "shall we erect another of the skyscrapers that are so characteristic of the American people's outlook on life, but which are so numerous that it would puzzle even an expert to differentiate between those of San Francisco or Detroit?"

Loos chose the column because it was to him unique in its physical and psychological impact and in its historic permanence. An American eye finds it naive, even laughable.

For Loos, it was entirely serious—and entirely in keeping with the views expressed in "Ornament and Crime" that, while imitative ornament should be shunned, an element "of the artistic expression of an earlier generation" need not be, especially if, as he had said even earlier, "it is still useful." And for the newspaper company in Chicago, the Doric column seemed consummately useful. "The idea underlying the plan is," he wrote, ". . . to erect the most beautiful and distinctive office building in the world . . . which should indelibly impress all beholders. . . ." It was the War Ministry writ large, and an act of cultural charity in the bargain.

Compared to Johnson/Burgee's AT&T Building in New York, with its classicizing top, Loos's scheme for Chicago no longer looks as shocking or as foreign as it did even a few years ago. Perhaps the reason is that Loos in his time—and the post-modern generation in our own—occupy related historical positions. Loos in turn-of-the-century Vienna was striving to shake off the legacy of an exhausted architectural tradition without knowing exactly what would replace it. The replacement was what came to be known as Modernism, but Loos could not have predicted its ultimate form. To steady himself, he turned to what he perceived to be the enduring qualities of Classicism. Is not the post-modern generation in a comparable fix? Today's avant-garde has been shucking off the tired rules of Modernism with no less vigor than that with which Loos abandoned 19th-century Vienna, and with no more certainty than he had of what may lie ahead. So it is hardly surprising that Classicism has again become the "latest" source of inspiration.

In the writing of architectural history, there is a persistent urge to classify architects and their works by movements, schools or styles. This can make the study of the field easier by relating architects to each other and to their times. But it often obscures the identity and importance of each by imprecise or strained association with others. Thus we have such new books as *Free-Style Classicism*, by Charles Jencks, which seem to suggest that Classical elements—however broadly defined—if tossed aloft, ennoble any designs on which they happen to settle.

Loos would, I think, have sympathized with the renewed search for enduring Classical verities, but, earnest renegade that he was, I suspect he would have insisted on greater rigor. The "wit" displayed in the "Late Entries" rerun of the *Chicago Tribune* competition staged two years ago would have escaped him. More to his liking might have been the attempts by Michael Graves to find what the Princeton architect calls "archetypal," forms in the distillation of architectural history. And I think Loos would have been intrigued by the current experimentation that one skyscraper architect calls the "careful misuse of Modernism," or exploiting modern materials (particularly reflective glass) for their decorative potential in ways not unlike Loos's own innovatively decorative use of wood and stone.

It is ironic that Adolf Loos's name has for so long stood for "fanatical" attacks on ornament and for pioneering ascetic design, when in fact his real importance lay elsewhere. He was fundamentally concerned with creating buildings that would serve their purposes in the simplest and most literal way. His misfortune was that the polemics he issued to highlight the corruption of a preceding tradition succeeded too well. He was innovative, but only in that his commitment to function in a broad sense proved different from, and more lasting than, the design philosophies of his day. But he was not really a revolutionary in the sense that he has been portrayed. Nor was he even single-minded in his opposition to ornament. And, although an admirer of Classical example, he was far more than a traditionalist.

Loos's most outstanding characteristic was that, in his attempt to make architecture responsive to human needs as he saw them, he failed to fit any of the categories since created to classify architects of his generation. That *Chicago Tribune* column is looking more contemporary every year.

8. Kaerntner Bar, Vienna (1907)

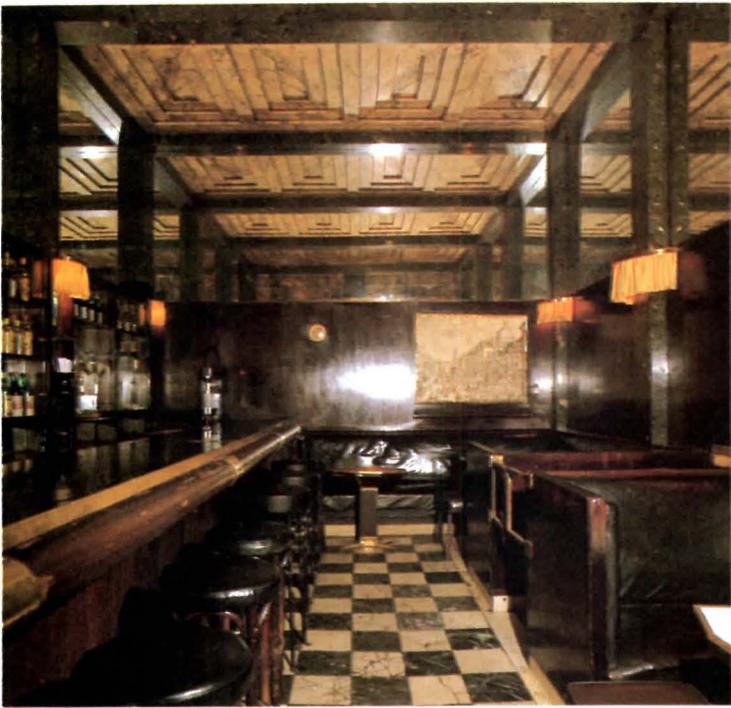
9. Kaerntner ceiling detail

10. Knize shop, Vienna (1913)

11. Knize shop interior

12. Goldman & Salatsch store (1911)

13. Goldman & Salatsch store detail



8



9



10



11



12

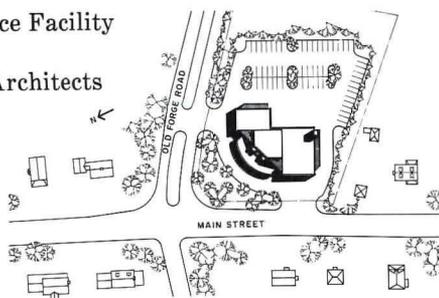


13

A New England town parks its fire trucks in style



Rocky Hill Fire/Ambulance Facility
Rocky Hill, Connecticut
Hartford Design Group, Architects



©Nick Wheeler photos

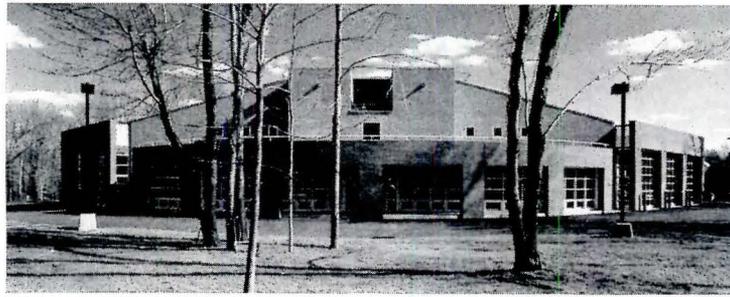
Any evening in Rocky Hill, Connecticut, one is likely to find a group of teenagers at the fire and ambulance station on Main Street, washing a fleet of bright yellow engines. As wholly volunteer services, whose membership spans several generations in this town of 15,000, Engine Company Three and the Rocky Hill Ambulance Association play a central role in community life. Their new joint headquarters opened last February, and it is already a local landmark. When the town fathers first discussed the project with Hartford architect Tai Soo Kim, they asked him to design two buildings, recognizing the separate identities of the organizations that would occupy them. Kim persuaded his clients that a single 18,500-square-foot steel-frame structure would satisfy their program just as well, and better suit their budget (the ultimate construction cost was \$1.4 million). Responding to the configuration of the corner site, 2.5 acres of publicly owned land at a major intersection, Kim developed an L-shaped plan that creates a distinct facade for each client group: the triple garage in one wing is the firemen's, the double garage in the other belongs to the ambulance squad. The central two-story structure houses shared functions of the two companies as well as general community facilities.

Tai Soo Kim extended the series of garage portals as an architectural motif, bending it around the outer face of the building as a screen wall. Reminiscent at once of the wrap-around verandahs of old houses on Main Street and the grander porticoes of municipal buildings downtown, this rudimentary arcade is dignified yet modest. Kim was determined that the new structure should not overwhelm the unpretentious one- and two-story suburban houses that surround it. To maintain this residential scale, Kim articulated the building as an aggregate of small components. The contrast of two kinds of brick—a deep red in the front wall, a light pinkish-brown in the higher mass behind it—emphasizes the separation of facade and background. Pitched roofs reflect the architectural vernacular of the neighborhood (Rocky Hill's two older fire stations are conventional neo-Colonial structures). Approached head-on from the northwest, the building appears to be almost perfectly symmetrical, but the picturesque irregularity unfolds as one walks around the site (photos overleaf). Kim preserved a stand of trees at the front corner of the lot to further soften the visual impact of the street elevations.

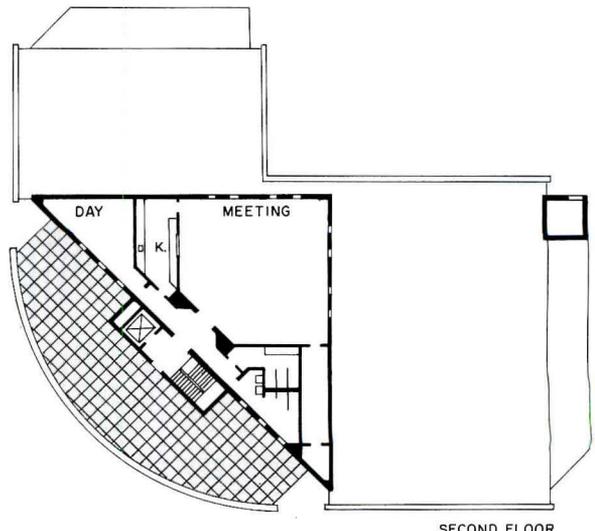
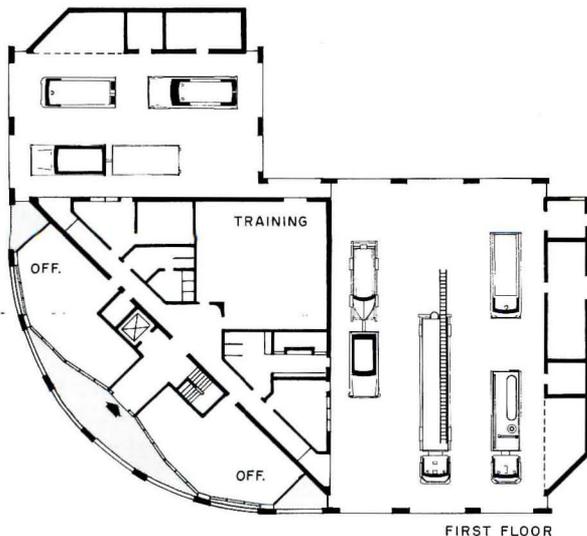
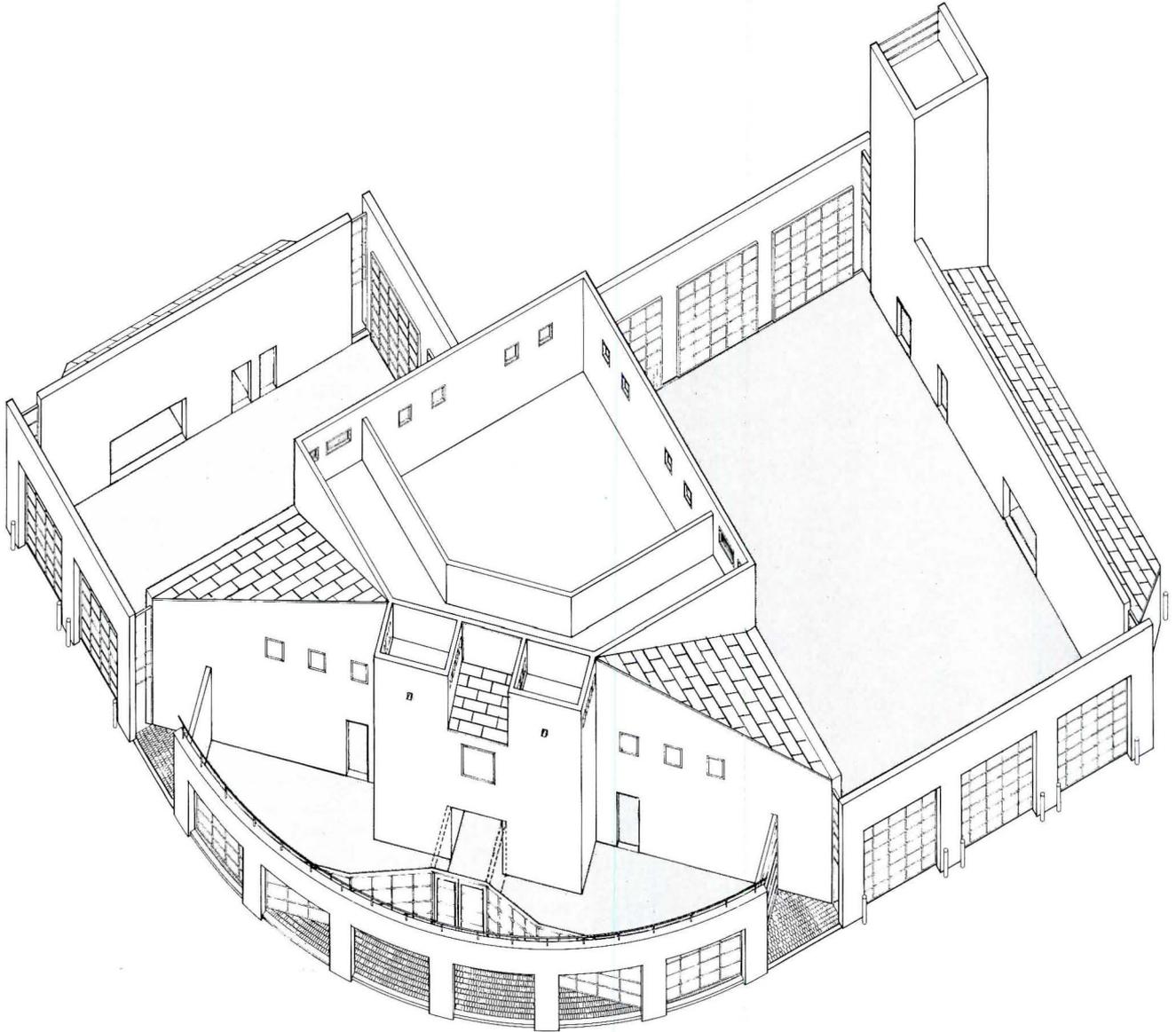
The interior layout is straightforwardly utilitarian. Garages have front and rear entrances so trucks can drive through without backing up or turning. The office for each company is down the hall from its garage, with a common training room in the center. When training classes require simulated fire conditions for exercises in how to scale a wall, enter a burning building, or operate a hose, the four-story tower at the rear of the building provides a realistic practice ground. Intended primarily as a place to dry hoses (over 1,000 feet of hose can be lifted onto drying racks by a hydraulic motor), the tower is outfitted with sprinklers, a siamese connection, and samples of the casements and sash that firemen are likely to encounter in the line of duty. Smoke bombs set off inside the tower enhance the authenticity of mock conflagrations.

The principal spaces on the station's second floor are a day room where crews can socialize and watch television, and a large meeting room. Originally intended for emergency shelter, the latter room is used for fire and ambulance company business meetings, community get-togethers, and an extensive public education program that ranges from "Learn-Not-to-Burn" classes for kindergarten and grade-school teachers to cardiopulmonary resuscitation training. *Douglas Brenner*

Serving a 13.6-square-mile area, the fire and ambulance facility operates as a year-round community center performing a variety of functions beyond the day-to-day needs of the two brigades. In the completed building, open offices have been partitioned into smaller units, one of which houses a disaster center to be used in the event of hurricanes or other emergencies.



Rocky Hill Fire/Ambulance Facility
 Rocky Hill, Connecticut
Owner:
 Town of Rocky Hill
Architect:
 Hartford Design Group—Tai Soo Kim, principal-in-charge; Peter Chow, project architect; Neil R. Taty, project manager; Richard McClurg, Margaret Yuen, Vicky



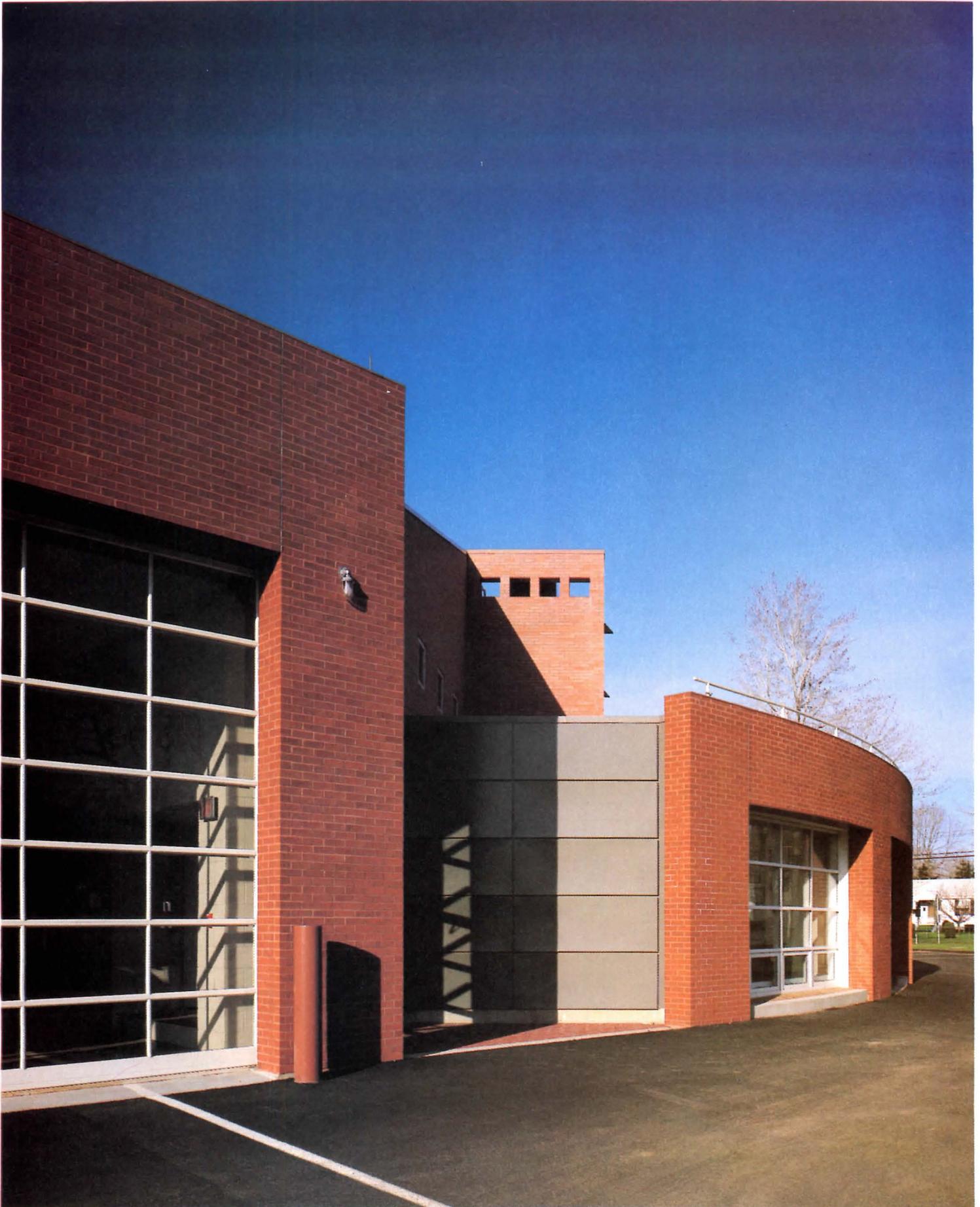
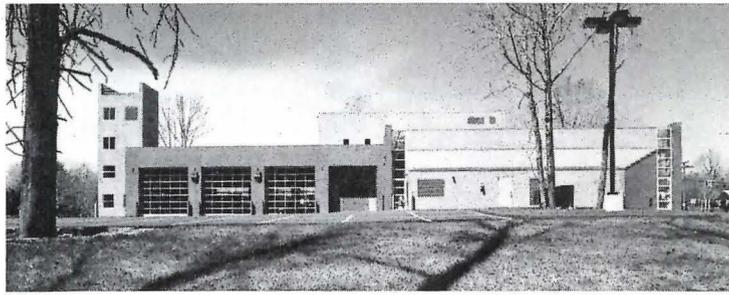
Stevens, Robert Gilleau,
project team

Engineers:

Burton and Van Houten, Engineers
(mechanical); R.A. Goodell &
Associates, Inc. (structural)

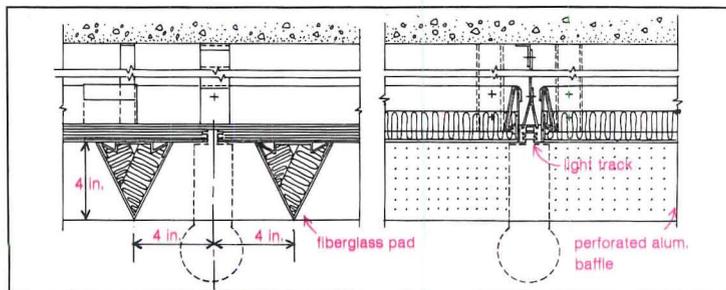
General contractor:

Fred Brunoli & Sons, Inc.





Photograph © 1982 Wolfgang Hoyt/ESSTO



Mill-polished aluminum baffles pick up the green and white of furniture, columns and plants, creating sparkle and interest in a huge cafeteria by I. M. Pei & Partners for the National Gallery of Art. Specular, perforated tent baffles alternate with satin anodized, perforated flat panels in a custom system by Simplex. The design seems to "lift" the ceiling in a 10-ft-high room that is 150-ft long at one point of its staggered plan. Further, the baffle system gives $1\frac{2}{3}$ times the surface area of a flat ceiling for sound absorption. (Acoustical consultants: Cerami Associates.) Site and design conditions precluded space for ducts above the ceiling, so air is delivered to oversized columns from a 4-ft-deep hollow floor.

A kaleidoscope of ceilings

By Peter George

in collaboration with ARCHITECTURAL RECORD

Architects seem to have a mind-set about ceiling products, limiting themselves to a few approaches to which they are predisposed. But as the kaleidoscope of examples on the following pages show, there is a wide range of both stock and custom solutions they could exploit for manipulation of scale and space, for functional sound absorption, and for esthetic expression. "Ceilings are tremendously important," says Randy Gerner of Kohn Pedersen Fox Associates, "for they are the only uninterrupted planes in most spaces and have a major impact on how occupants perceive the room. But, unfortunately, ceilings often are not conceived as an integral part of the architecture. Designers are looking for something that complements both the building architecture and the interior architecture. We like to modulate the ceiling to give a sense of scale. For example, metal slats can modulate a space if linearity is desired. On the other hand, perhaps we would like to express each bay."

Products have changed to be attune with the times. Acoustical materials have come a long way since Celotex introduced a perforated cane-fiber tile, Johns-Manville pioneered a metal-pan ceiling, and U. S. Gypsum brought out a fissured mineral tile, which in multifarious forms is available from the several major manufacturers. In a different material development, Owens-Corning Fiberglas 30 years ago introduced a 2- by 4-ft fiberglass panel which has yielded products with high sound absorption and made possible panels as large as 5- by 5-ft.

Acoustical tiles and panels today are more versatile with their bold textures, scored patterns for scale, with their pastel colors (some of the post-modern variety) and bold accent colors, with their concealed grids and accent-type grids, with etched tiles to divert attention from the grid, with the use of aluminum extrusions to give clean, precise hairline edges to grids, and with fabric-wrapped panels. And manufacturers took advantage of panel-size products for the development of integrated ceilings.

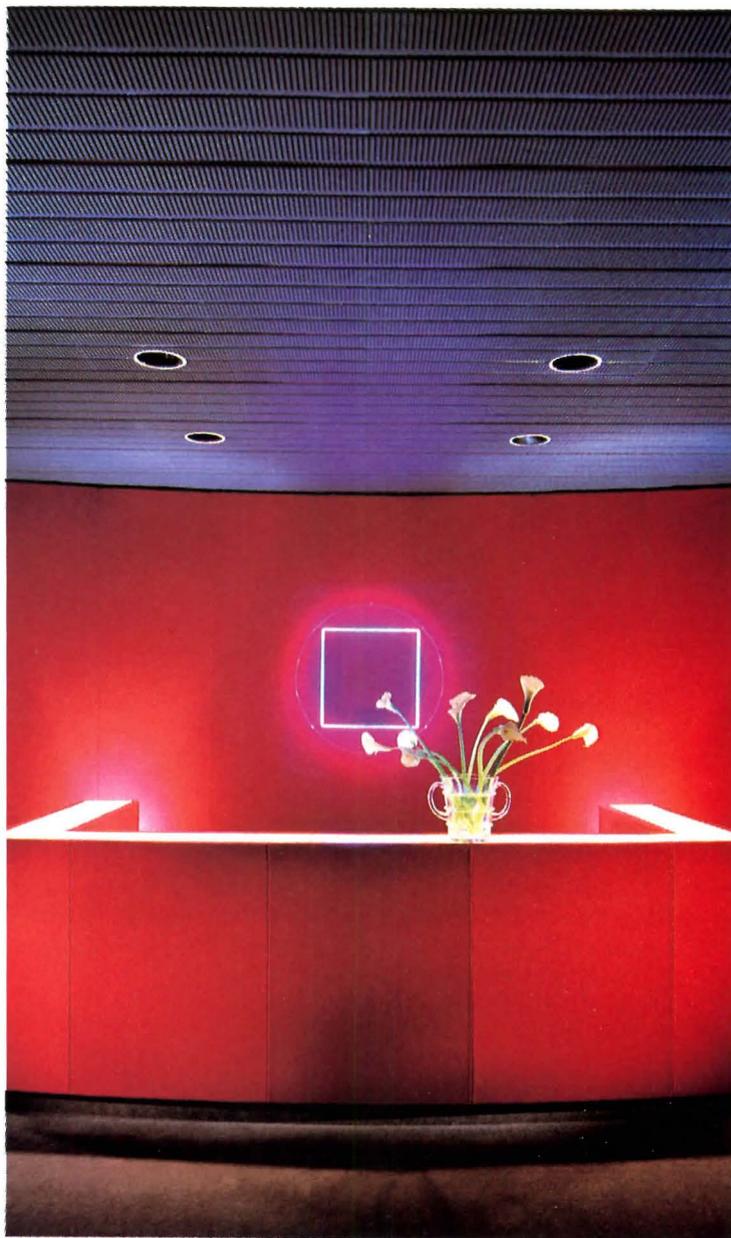
Once considered more or less a utilitarian product, perforated metal ceilings have become high style with three-dimensional configurations, and with new integral and painted finishes on aluminum and vinyl-film surfacings on steel. Manufacturers of linear-panel metal ceilings offer not only a wide spectrum of colors, but mirror-type finishes, compatible lighting fixtures, and details for easy use of the systems in remodeling.

The warmth of wood is more affordable with prefabricated systems of slats, grids, and eggcrates. And several manufacturers offer factory-made ceilings in the tradition of salon and reading-room paneled ceilings. One shown in this article permits components that produce a coffered wood ceiling to be attached simply to a conventional T-bar grid.

As the tide of post-modernism has altered architects' and the public's perception of what makes spaces more liveable, architects have sought less clinical approaches to design, and in ceilings this may suggest a softer, warmer appearance for some applications. An example is the use by Bill Brown of Swanke Hayden Connell of stretched fabric in square domes and half-cylinders with backlighting for the ceiling of a corporation dining facility. The fabric is backed only by a translucent plastic sheet to help diffuse the light and to prevent transfer of air through the fabric to the plenum.

Of course, for some time, soft appearance plus bold colors have been available in standard and custom fabric-wrapped fiberglass panels for ceiling inserts and flat and molded-shape baffles.

And, finally, as architects find growing opportunities for sculptured ceilings, they may wish to consider products that use fiberglass-reinforced gypsum—which can produce lightweight vaults, delicate trellises, or tradition-inspired decorative ceilings.



In this chromatic reception area created for Armstrong by Angelo Donghia, the company demonstrates how its cross-etched linear ceiling plays down the formality of the "grid." The 24- by 24-in. tiles, kerfed and cut back on two sides, and square-cut on the other two, rest on exposed flanges of a color-coordinated, exposed-grid suspension system.

The metal and mirror look for elegance and serviceability

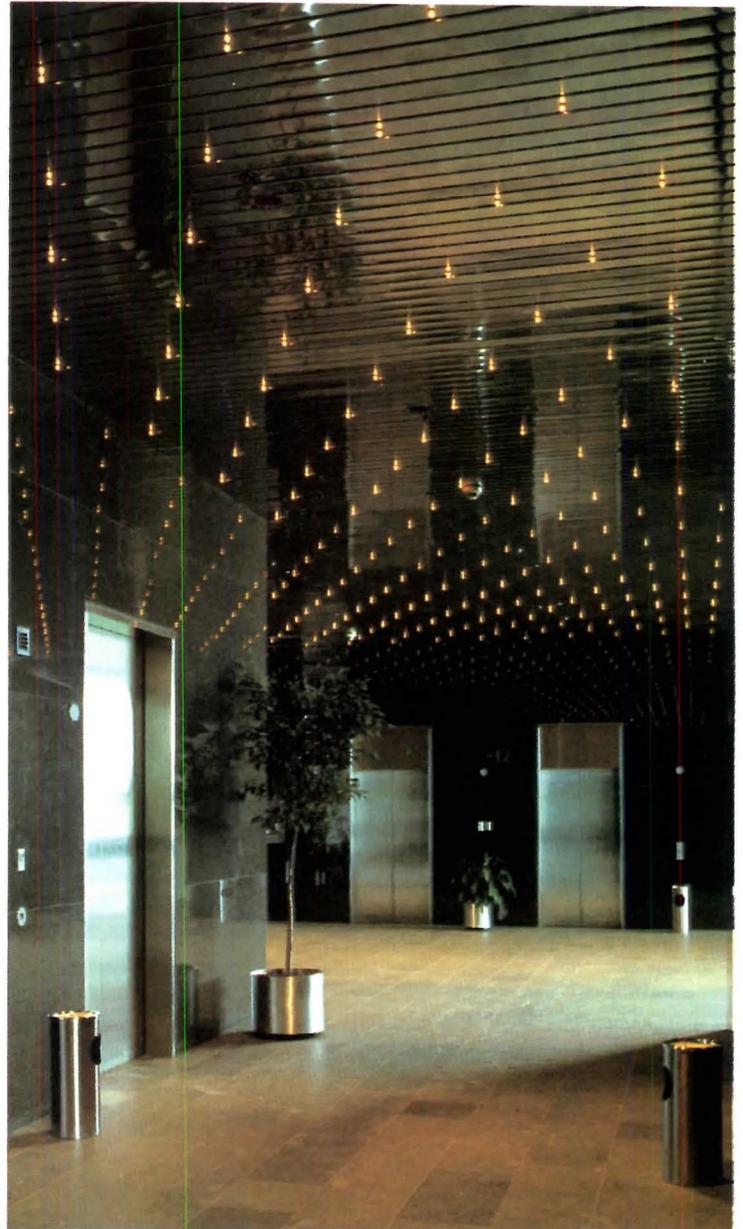
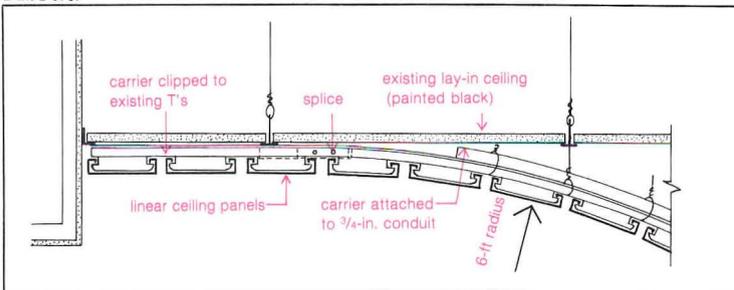
Linear metal ceilings, with their lath-like architectural character, have become a standard in the designer's "repertoire" because of their sleekness, wide range of colors, adaptability to a variety of applications, and quick installation. They can be acoustical or non-acoustical. They can be used both indoors and out. They can be strengthened for use in gymnasiums. They hide utilities in

new construction and remake spaces in remodeled buildings such as the Hollywood Mall shopping center (Florida) by Eubanks & Associates (top, left). Existing T-bars are used to suspend flat panel areas, and pieces of conduit support panel carriers for the reverse curve

Because linear panels are of aluminum, and finishes can withstand adverse environmental conditions, the material is suited to outdoor use. In Houston's Wesleyan Towers, the reflective ceiling by Levolor Lorentzen continues outside as a soffit. Architects: Pierce, Goodwin, Alexander.



Dan Forer



Acoustical requirements and service conditions for swimming pool ceilings preclude most conventional acoustical materials. Linear metal ceilings are an exception. For the Ceritas Park Community Pool in Palo Alto, architects Johnson/Anderson chose Alcan perforated panels and closure strips, with PVC-enclosed fiberglass for sound absorption.

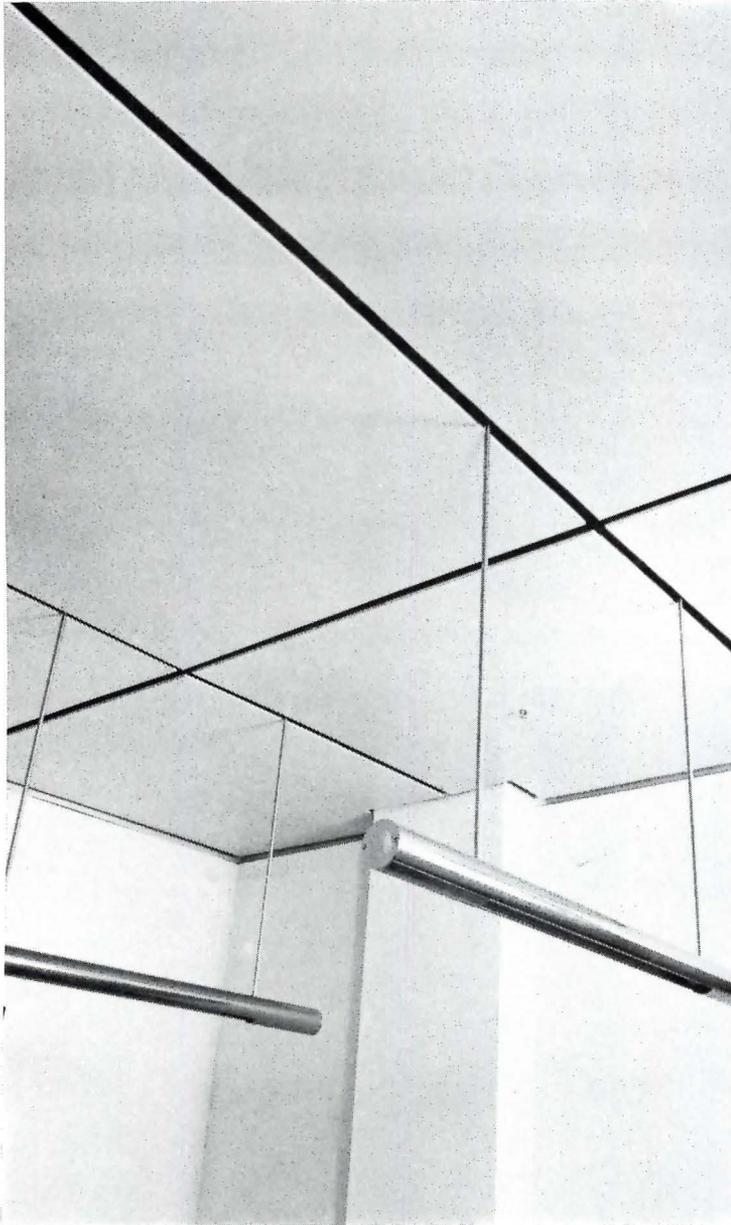


For the AT&T headquarters building in New York City, architects Johnson/Burgee have set a very high quality standard for materials. This custom ceiling fits the building module—5 ft by 5 ft 6 in. The performance specification called for ease of maintenance, access, long life, and acoustical privacy which led to this custom solution by Industrial Acoustics Company. Panels are sheet metal

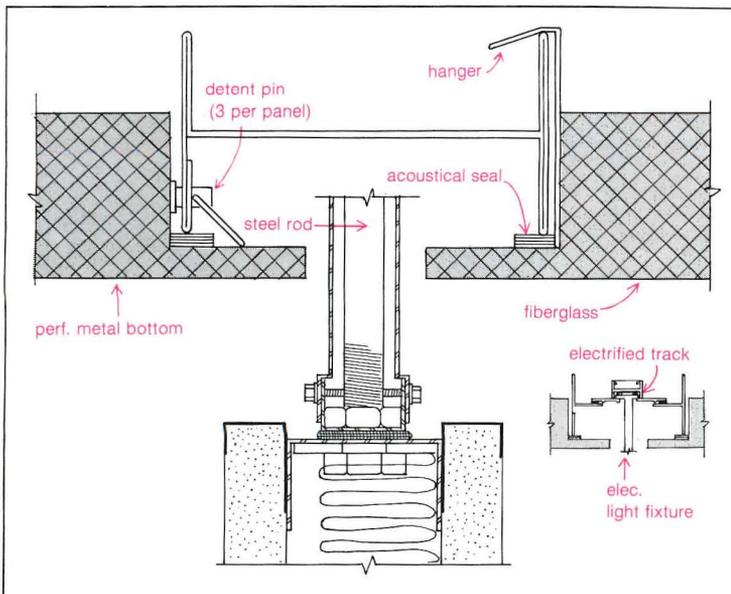
filled with fiberglass, and are perforated on the bottom but solid elsewhere to give an unusually high room-to-room STC rating of 52, eliminating the need for solid barriers above the ceiling between offices. (Acoustical consultant: Lewis Goodfriend.) Partitions attach to the track, which has electrified sections interspersed with custom air diffusers.

The mirror look without the cost of mirrors is achieved in mineral-board panels enclosed in aluminized-back-surface polyester film by U. S. Gypsum. Panels have an NRC range of 0.45 to 0.55.

Interior designers ISD favored high-gloss black enamel on perforated metal pans by Simplex to enhance the suavity of a reception area in a building for BASF chemical company. Simplex now also offers a mirror-black ceiling made from Alcoa's specular Coilzak sheet.



Thomas Navarre



Large panels and integrated systems sidestep insistence of the small module

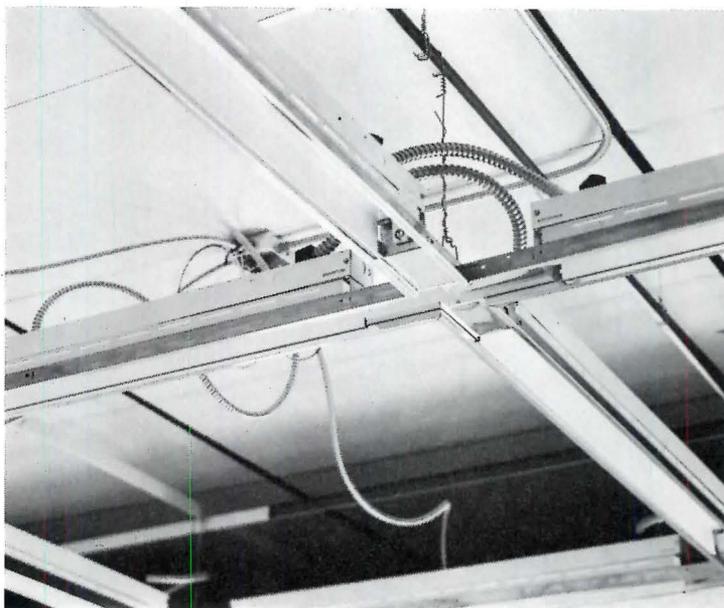
Large-area (5- by 5-ft) glass-cloth-covered white ceiling panels by Owens-Corning Fiberglas mitigate the concern of architects for "tyranny of the grid." Because of their high sound absorbency (NRC = 1.00 and NIC' = 20) these fiberglass panels helped the designers achieve a high degree of speech privacy in open-plan offices. In designing this space for their own use, the Toledo space-planning

firm of Fulton + Partners expanded the huge columns of the existing building to create cabinet space and utilized them as a strong design element.

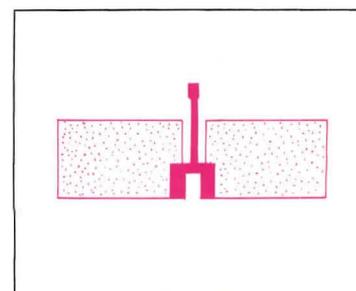
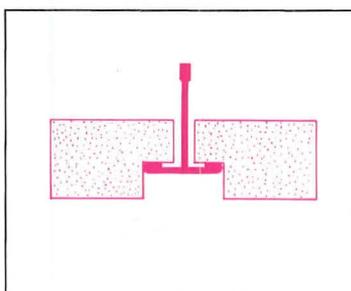
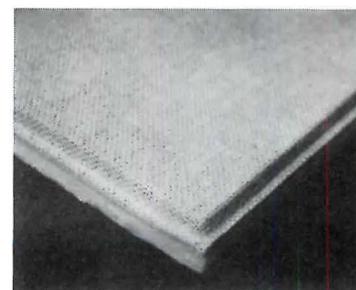
A clean, unencumbered look is achieved in Donn Corporation's large panel (5- by 5-ft fiberglass) system that integrates lighting, air handling, sprinklers and speaker outlets in the metal grid. Created specifically for the open office, the system allows lighting and air units to be easily moved. A blank section of runner is replaced with a slotted runner and the unit is snapped in.



Jay Langlois



Large-dimension, fabric-wrapped fiberglass panels by Capaul Ceilings are made with bold-reveal edges for dramatic three-dimensional effect, or with flush-reveal edges to create a more monolithic appearance with only a "hairline," sharp-edged grid showing. Panels are backed with foil to block passage of air into return-air plenums.

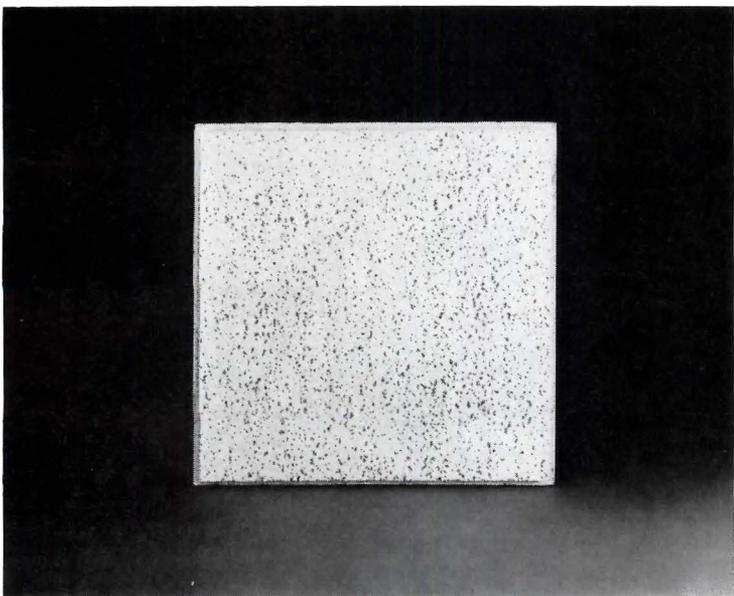


Another large-panel approach, also an integrated ceiling, is the 5- by 5-ft coffer from the Holophane Division of Manville Products Corporation. Linear air diffusers deliver conditioned air through the black regress of the modular suspension grid. The grids can accept individual sheet metal plenum boxes or continuous fiberglass ducts. Normally, air is returned through the lighting

fixtures, but if additional or total air return through the grid is required, a snap-in return-air baffle is used to avoid light leaks and to minimize sound transmission. Lighting fixtures can be either deep-cell parabolics or prismatic-lens units.

In remodeling their own offices, Integrated Ceilings, Inc. sought to "practice what we preach," and use the ceilings as a key element of the interior design. "The exercise proved," says company president J. H. Blitzer, Jr., that the ceiling surface has a largely underestimated, but rewarding potential for design attention." In the administrative area, the company used a newly-developed 4-

by 4-ft luminous-frame-and-diffuser assembly that lays into any standard acoustical grid and is lighted from above by fluorescent strips. The ceiling infill is standard 2- by 4-ft acoustical panels with a linear look which draws attention away from the T-bars. A pre-engineered assembly facilitates use of the system with existing T-bars.



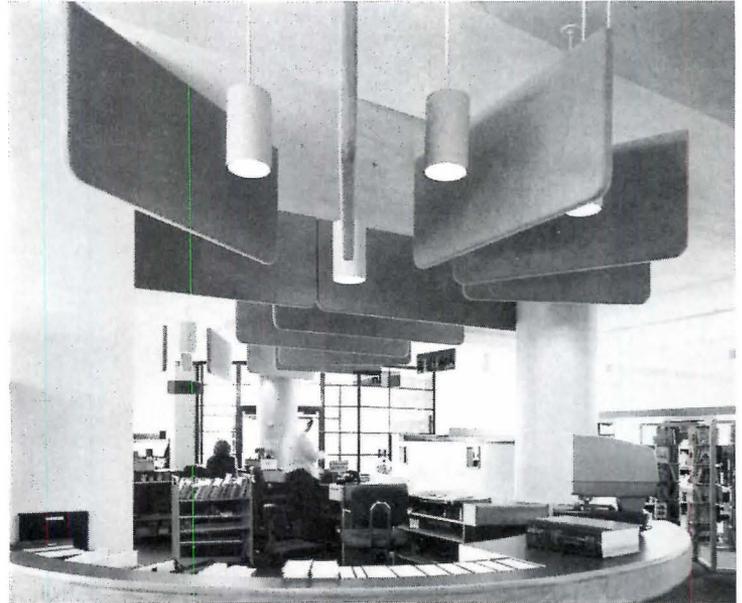
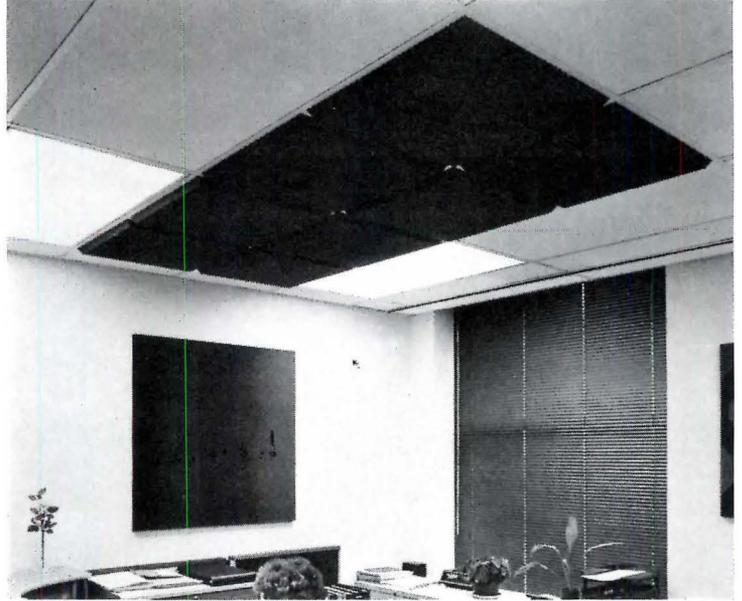
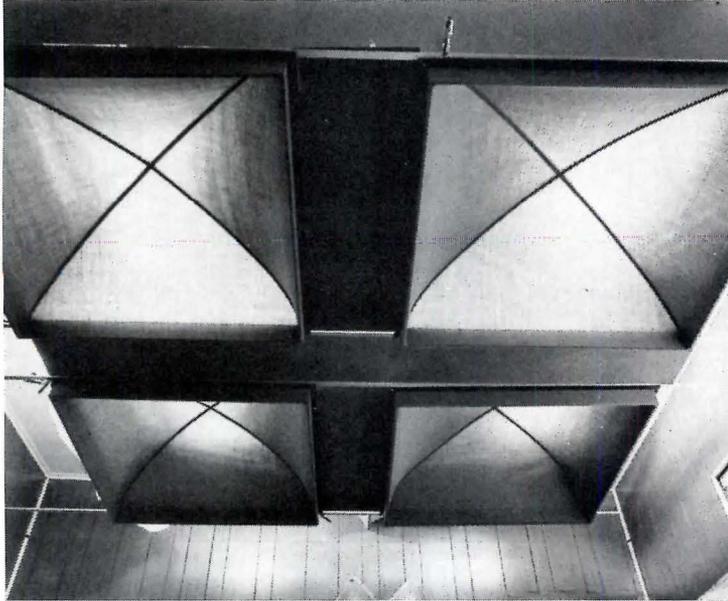
To broaden the designer's options for ceiling materials in open-plan offices, several mineral-board manufacturers have raised the sound-privacy ratings of their products by manufacturing board with more hole space to dissipate sound. Conwed has achieved an NRC range of 0.75-0.85 and an NIC' (speech privacy) rating of 18 with their "deeply punched" fissured tile called Premier, shown here, which is available in 2- by 2-ft reveal-edge tile and in 2- by 4-ft and 20- by 60-in. lay-in panels.

Panels and baffles react to sound, and taut fabric works for design

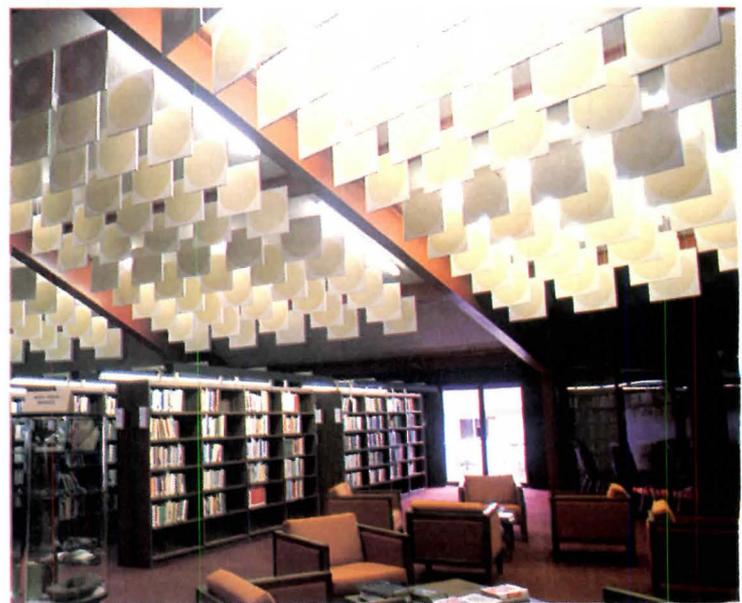
For a cafeteria ceiling, architects Swanke, Hayden, Connell are using square domes (mock-up shown) of modacrylic fabric stretched over curved, E-section aluminum extrusions that anchor and seam the fabric. White polyurethane film tight against the fabric will diffuse light from fluorescent lamps. Fabricator is Architectural Fabric Systems, Inc.

Fabric-wrapped fiberglass ceiling inserts, 2- by 2-ft and 2- by 4-ft, fit conventional ceiling grids, have high sound absorbency, and are available in bright and contrasting colors. The inserts are 1 1/4-in. thick and have reveal edges to project below the ceiling plane for accent. They are from Noise Control Products Division of Industrial Noise Control Products, Inc.

Fabric-wrapped fiberglass panels by Decoustics signal the central desk in the Deer Park (Toronto) library (center). Architects: Shore Tilbe Henschel Irwin Peters. Acoustical baffles of perforated, vinyl-covered fiberglass by L. E. Carpenter in the Roseville, California library (bottom) shield strip fluorescents. Architects: Botsai, Overstreet & Rosenberg.



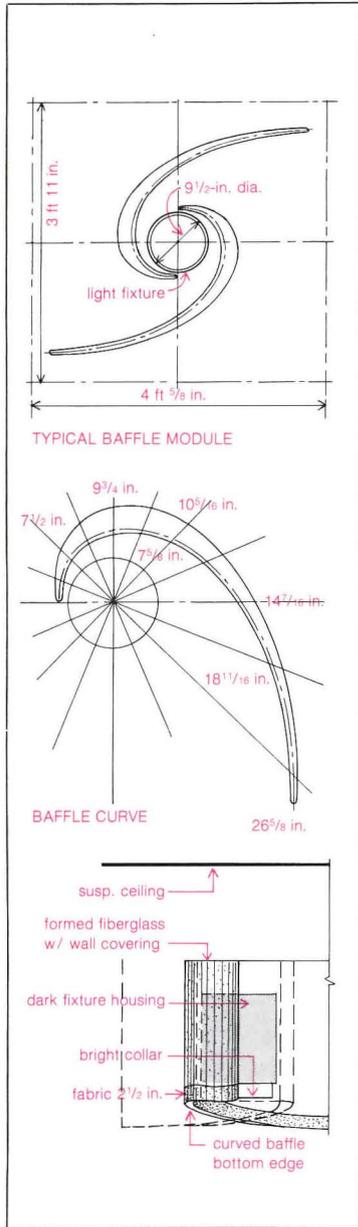
Above: Auditoriums sometimes need overhead reflectors to redirect musical sounds from stage or pit, while preserving overhead volume. For a remodeled high-school auditorium in Scarsdale, New York, acoustician Peter George specified custom plywood reflectors from Wenger. Architect: Lothrop Associates.



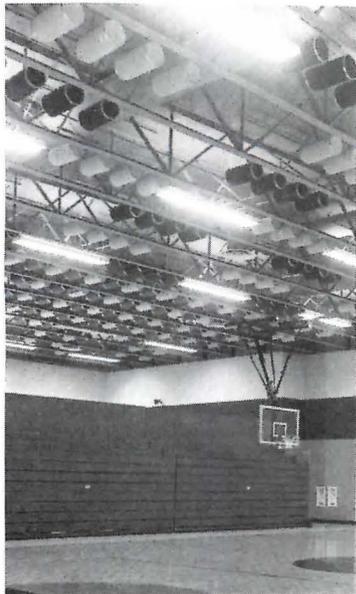
The trochoid curve served as architect Roger Ferri's design basis for fabric-covered wall panels and the dropped ceiling of the main ballroom in Fort Worth's new Americana Hotel, fabricated by Art Upholstery Studio Division, General Drapery Services, Inc. The curves are generated from a mathematical equation, but their esthetic appeal to Ferri stems from their occurrence in nature—an

ocean wave has the shape of a trochoid. The trochoid ceiling baffles conceal downlights, and, because they are made of fabric-wrapped fiberglass, help prevent noise build-up in the space. The condition one wants in this kind of space, says David Green, who was with Acoustic Design Associates of Dallas when this project was designed, is a balance of low-, mid- and high-frequency absorption to

tame noise that occurs during mealtime. But, on the other hand, one doesn't want to soak up so much sound that the space is dead, or not live enough for other functions.



Cervin Robinson



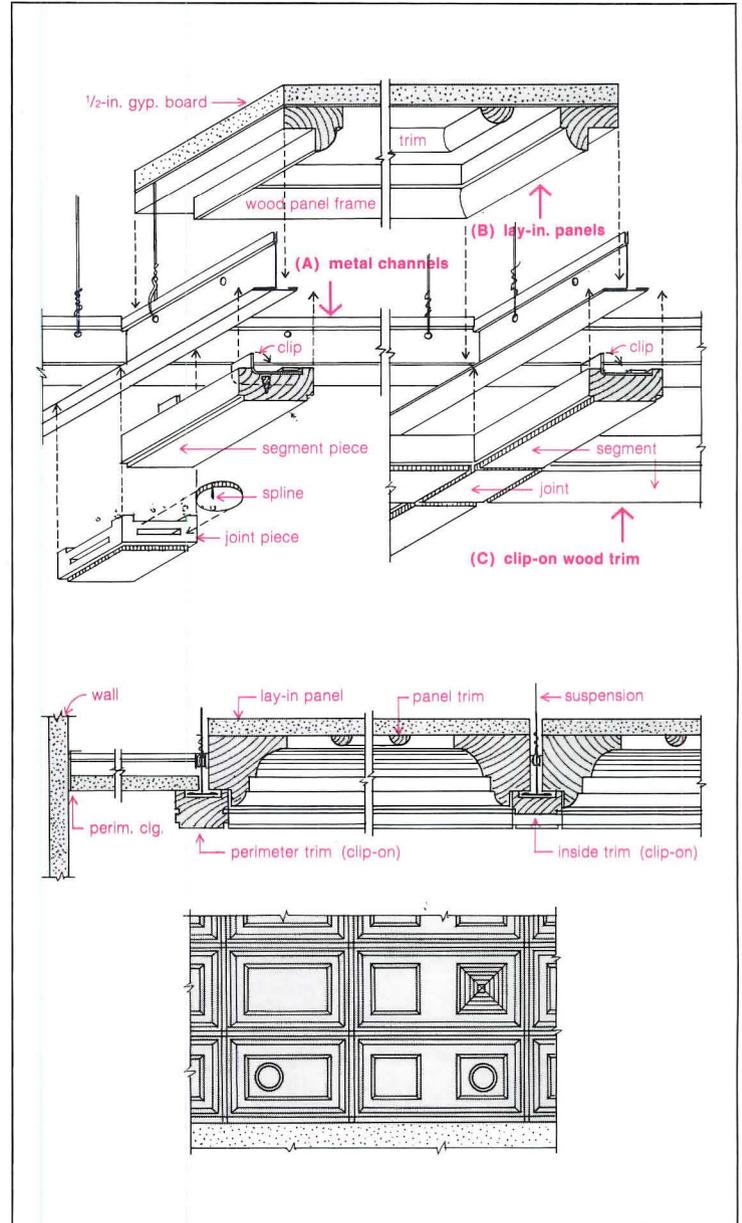
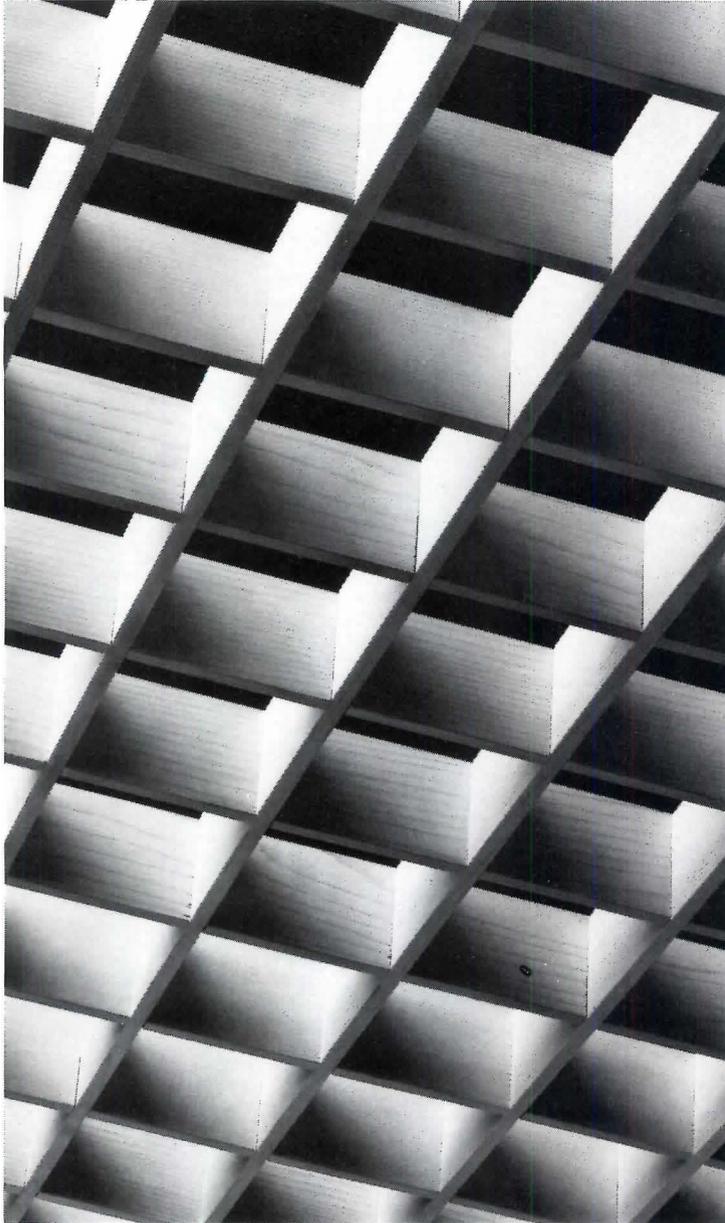
Resonator-type sound absorbers by the Proudfoot Company reduce noise and reverberation and add to the design of a Garrisonville, Virginia gymnasium by architects Brown/Ryon Associates. The sound absorption of the 12-in. diameter by 24-in. units is achieved by two tuned resonators for low frequencies plus a measured amount of fibrous filler material inside the casing.

Technology modifies wood and plaster for both new and old esthetic approaches

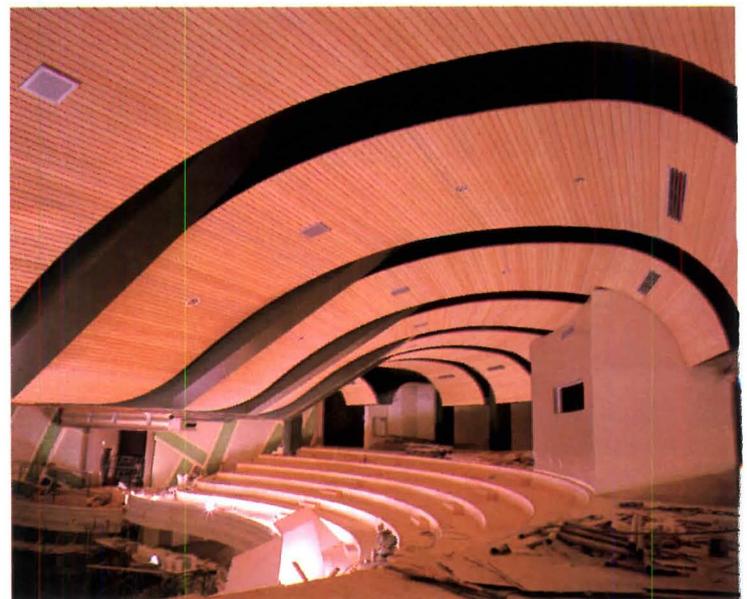
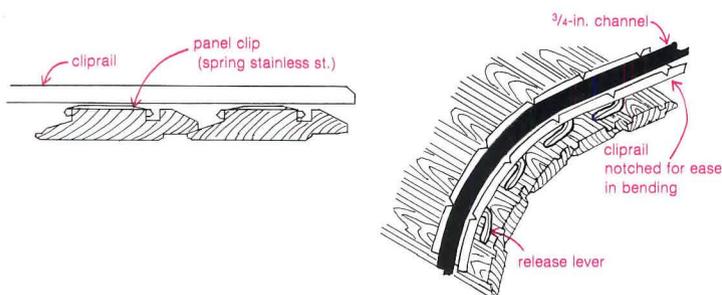
The Forms + Surfaces company, long known for its broad range of wall surfacings, doors and hardware, turned its attention in 1977 to products for the ceiling in both wood and metal. The wood eggcrate system shown here comprises 2- by 4-ft and 4- by 4-ft units that are easily installed in (and removed from) a standard T-bar suspension system. Woods offered are white fir, redwood, and

white Port Orford cedar. Various fire-rated materials are available. These eggcrates permit installation of acoustical treatment, air distribution, lighting and sprinklers without disturbing the design discipline.

Imagine a "traditional" wood ceiling that is prefabricated—actually comprising a kit of parts that can be clipped to a T-bar grid. Such a system is Capaul/Baymiller, with which an architect might create his own baroque images. A music room perhaps, with the character of an 18th-century salon? Traditional coffered ceilings emerge from a new technology.



For the concert hall of Eugene, Oregon Performing Arts Center architects Hardy Holzman Pfeiffer Associates chose this closed wood-slat balcony ceiling that met acoustician Christopher Jaffe's needs for a sound-reflecting surface. The unique carrier/clip design of the Con/Tech system allows wood slats to be tightly butted, or spaced apart, with fiberglass behind.



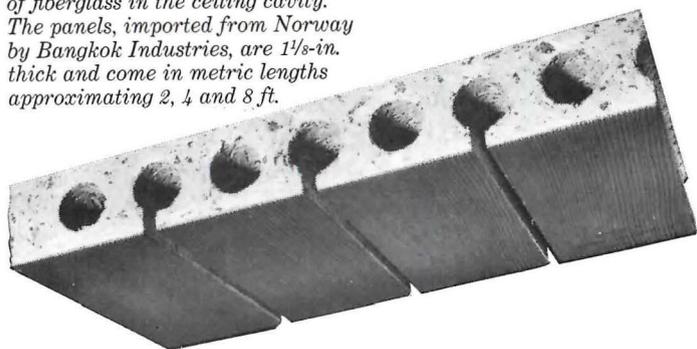
These ceilings are fiberglass-reinforced gypsum—individual pieces having been cast in steel molds in Zerodec's Pennsylvania factory. The process produces modern sculptured designs shown below, or replicates ornate classical elements for old or new buildings. The restaurant, by Roger Ferri, in Fort Worth's Americana Hotel, has an oversized triangular trellis, whose V-shaped elements are

curved in section. On top of these elements are fiberglass pads for a modicum of sound absorption.



Mark Ross

Trysil acoustical paneling comprises a wood-chip block with veneer surfacing that has been cored and slotted to yield sound-absorbing qualities. The slotted holes act as resonators, and added sound absorption can be achieved by leaving a 1- to 2-in. space between the 2-ft wide panels and backing them with 1- or 2-in. batts of fiberglass in the ceiling cavity. The panels, imported from Norway by Bangkok Industries, are 1 1/8-in. thick and come in metric lengths approximating 2, 4 and 8 ft.

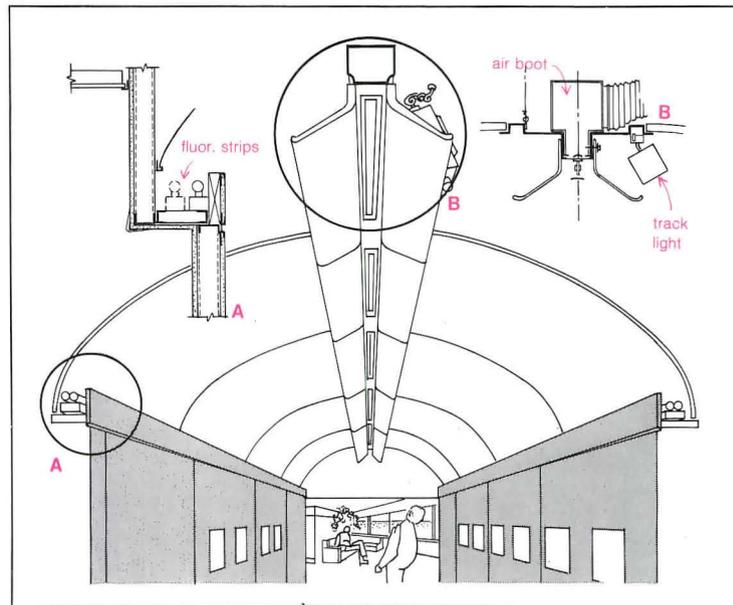


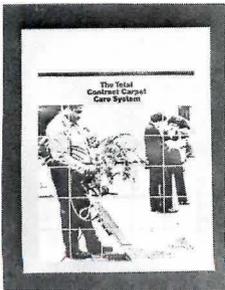
For a corridor in the Continental Group office building in Stamford, Connecticut, Hellmuth, Obata & Kassabaum, architects for the interior, designed a vaulted ceiling of the product because other alternatives were impractical or too expensive. Bending gypsum board is not easy. Neither gypsum board or lath and plaster ceilings are accessible—a necessity for a building with lots of mechanical

equipment and electronic wiring. The ceiling system comprises two parts—the vault and a fin section for air distribution, for integration of sprinklers, and for concealment of track lights. The vault sections are 30-in. long and have flanges at each end so they can be aligned easily and bolted together.



Jaime Ardiles Arce

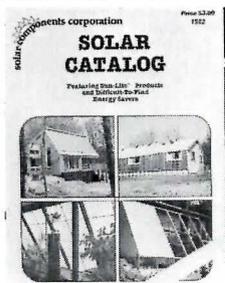




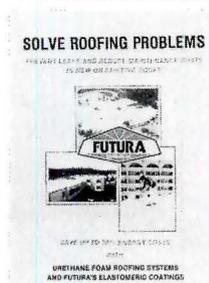
Carpet care
An 8-page brochure describes the *Capture* soil extractor, a dry powder cleaning product made of absorbent particles that contain water-based cleaning fluid. Milliken Contract Carpets, LaGrange, Ga.
Circle 400 on reader service card



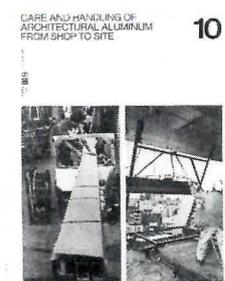
Deck coating
Two-component elastomeric urethanes designed for waterproofing decks are outlined in a 4-page brochure. Performance characteristics and application techniques are illustrated. Futura Coatings, Inc., Hazelwood, Mo.
Circle 403 on reader service card



Solar components
A 1982 catalog features products for solar energy system installation and maintenance. Among the products shown are collector cover material, insulated glazing panels, heat absorbent coatings and storage tubes. *Price is \$3.00; available from Solar Components Corp., P.O. Box 237, Manchester, N.H. 03105.*



Roof coating
An 8-page brochure describes an elastomeric roof coating. Primers and elastomers for urethane foam roofing systems are highlighted. Charts compare these systems to alternative roofing and insulation methods. Futura Coatings, Inc., Hazelwood, Mo.
Circle 404 on reader service card

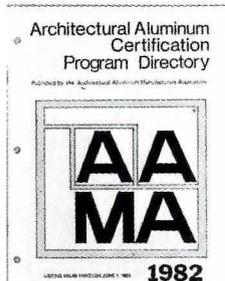


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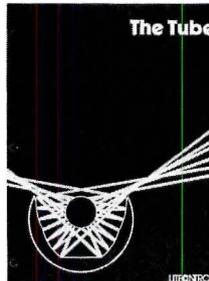
Architectural aluminum
A 29-page publication entitled "Care and Handling of Architectural Aluminum from Shop to Site" describes precautions to be taken against finish damage to components that can occur at each step of the distribution process. *Price is \$5.00; available from AAMA, 35 E. Wacker Drive, Chicago, Ill. 60601.*



Task lighting
A 12-page booklet shows examples of Inlite indirect HID lighting and describes its advantages over fluorescent lighting. Five pages are devoted to photometric, economic and payback analyses. Sterner Lighting Systems, Inc., Winsted, Minn.
Circle 405 on reader service card



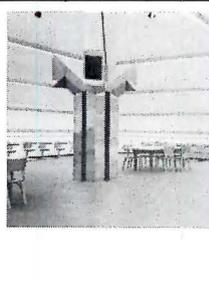
Aluminum
The latest edition of the Architectural Aluminum Manufacturers Association's *Certification Program Directory* contains the names and addresses of participating manufacturers as well as the brand names of their certified products. *Price is \$2.00; available from AAMA, 35 E. Wacker Dr., Chicago, Ill. 60601.*



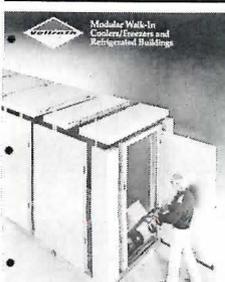
Lighting system
Tube 9, a linear system of indirect lighting featuring a variety of options in colors, lamps and fixtures, is described in a packet of literature. Three lamp types—high-pressure sodium, fluorescent and metal halide—may be used together in any combination. Litecontrol Corp., Hanson, Mass.
Circle 406 on reader service card



Laminates
The 1982 Design Group One collection featured in this 6-page color brochure is an updated sampling of 108 laminates. Included are 8 additions in woodgrains, patterns, marbles and leathers. The collection is designed for both residential and commercial applications. Wilsonart, Temple, Texas.
Circle 401 on reader service card



Lighting
A packet of literature describes a pendant or surface-mounted modular system, "MOD 66," which may be used for general or task illumination. The system is designed for the creation of unique shapes and sizes in lighting. Litecontrol Corp., Hanson, Mass.
Circle 407 on reader service card

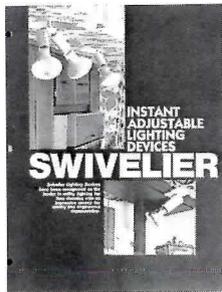


Refrigeration
A 12-page four-color brochure illustrates the ease with which Vollrath modular walk-in coolers, freezers and refrigerated buildings may be assembled. Also shown are options in installation. Vollrath Refrigeration, Inc., Sheboygan, Wisconsin.
Circle 402 on reader service card



Tiles
A 27-page color brochure illustrates glazed ceramic tiles, all monocottura (single-fired) for impact resistance. Tiles come in 3 product lines, both semi-vitrified, and fully vitrified—with water absorption ratings of less than 2 per cent. Marazzi USA, Inc., Dallas.
Circle 408 on reader service card

More literature on page 153



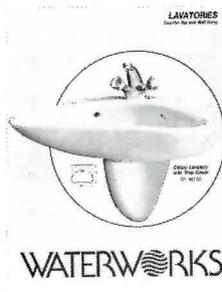
Flexible lighting

As shown in a 6-page color foldout brochure, "Lite-Flex" fixtures adapt to a variety of moldings. Available in black or white finishes, they come in 1- and 2-in. clamp-ons, hook-ins, pin-ups, screw-ins or plug-ins as well as 1-, 2-, and 3-light canopies. Swivelier Co., Inc., Nanuet, N.Y.
Circle 409 on reader service card



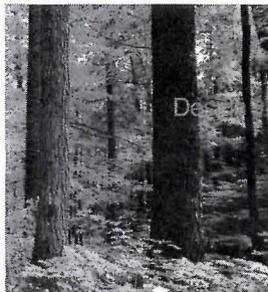
Roofing system

An 8-page color brochure describes the Perma Plus-2 roofing system. Featured as an alternative to conventional 3- and 4-ply systems, this system requires less asphalt and no aggregate. A porous top sheet is designed to vent gases and a bottom ply to maintain inner-ply asphalt integrity. Owens-Corning Fiberglas Corp., Toledo, Ohio.
Circle 415 on reader service card



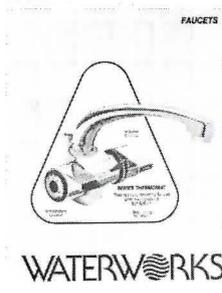
Lavatories

A 4-page brochure illustrates countertop and wall-hung models in 8 designs which are in a variety of shapes from scallops to rectangles. Front-to-back depths range from 19 in. to as narrow as 9 in. Diagrams with dimensions are included. Waterworks, Danbury, Conn.
Circle 410 on reader service card



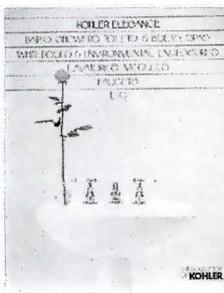
Wood systems

A 16-page color brochure describes "Design 9" wood systems furniture, which features a veneer providing matched color and grain patterns in light or dark oak finishes. Included are panel-hung and freestanding pieces that can be combined into a work station or arranged in a fixed wall office. Steelcase, Inc., Grand Rapids, Mich.
Circle 416 on reader service card



Faucets

Over 12 designs featuring either standard hot and cold knobs or temperature control dials with volume-control levers are illustrated and described in two brochures. The range of designs shown covers both classic and modern series with either single hole or wideset fittings. Waterworks, Danbury, Conn.
Circle 411 on reader service card



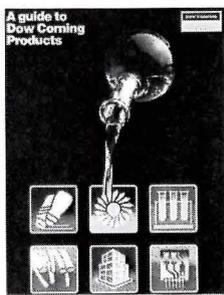
Lavatories

A 44-page color catalog features baths, bidets, faucets, sinks and toilets. Pictures illustrate the variety of models available while text gives dimensions. A color guide is included. *Cost is \$2.00; available from Kohler Co., Kohler, Wis. 53044.*



Wallcoverings

A foldout color brochure describes *Thermodecor* wallcovering, which is fabricated to serve a dual purpose as insulation. This is accomplished by a thin layer of heat-reflecting aluminum bonded to a paper base. Enertec Systems, Inc., Barrington, Ill.
Circle 412 on reader service card



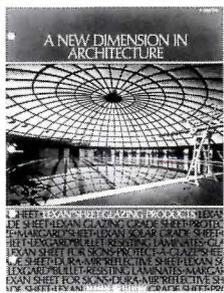
Silicone

A 48-page guide covering nearly 300 silicone products is arranged in two sections: one industry-related and one for product selection. Applications in 27 major industries are featured. Reader service cards bound into the guide offer additional sources of information on silicones. Dow Corning Corp., Midland, Mich.
Circle 417 on reader service card



Doors

A line of over 30 exterior and interior doors is described in an 8-page color brochure. Made in France of kiln-dried solid mahogany, all doors are supplied as complete sets, including frames. Doors are pre-hung and come fitted with locks and double glazing where applicable. Gimm, London.
Circle 413 on reader service card



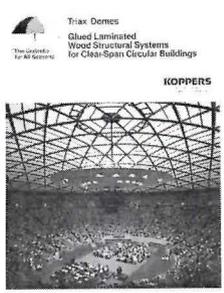
Sheet glazing

A 16-page brochure describes *Lexan* polycarbonate products and their applications. Photographs, illustrations and properties charts present uses for and benefits of the products. Also included are building code ratings and installation guidelines. Commercial Plastics & Supply Corp., Cornwells Heights, Pa.
Circle 418 on reader service card



Mobile storage

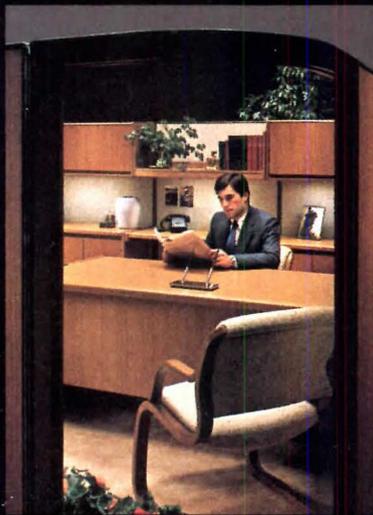
The Guide No. 8202 presents high-density mobile storage systems as a solution to space problems, library planning considerations, security and preservation. Case studies provide detailed bookstack storage criteria, while schematics illustrate conventional layouts and compact book storage. Spacesaver Corp., Ft. Atkinson, Wis.
Circle 414 on reader service card



Timber domes

Wood building systems, called Triax domes, are described in a 4-page color brochure. These glued-laminated wood structures are arranged in triangular modules and are suitable for diameters of up to 600 ft. Koppers Co., Inc., Pittsburgh.
Circle 419 on reader service card

Introducing Design 9.™
**It adds the rich,
fresh look of wood
to open office planning.**



This new concept blends the modular efficiency of our Series 9000 systems furniture with the look and feel of fine wood.

Aesthetically, it provides a richer, more inviting environment that helps people feel like they're worth more. Which, in turn, is reflected in how they work.

Functionally, Design 9 adapts to the varying dimensions of people and equipment, yet offers all the important features and benefits for which our systems furniture is known.

New Arrondi™ seating (foreground), with its flowing lines and rich wood tones, can be used as a striking accent piece, or serve as the finishing touch for Design 9 or Steelcase Designs in Wood series.

Design 9 and Arrondi. See them at our regional offices, or contact your Steelcase representative. For world-wide product and sales information, write Steelcase Inc., P.O. Box 1967, Grand Rapids, MI 49501. Or, call free 800-447-4700. In Illinois, 800-322-4400.

Circle 68 on inquiry card

Steelcase



DESIGNER'S SATURDAY

1

Designer's Saturday 1982—the largest interior furnishings show in the Northeast—will have 44 manufacturers opening their showrooms to exhibit their newest products to architects and interior designers in New York City on October 14-15-16. The kick-off day, October 14, is being called Facilities Management Day and starts with a morning seminar on the electronic office. The agenda features two main speakers: Thomas Lodahl, former director of Diebold Office Automation Consulting and currently a consultant on office automation, will speak on "The Office of the Near Future"; and Wilford Lewis, a consultant for advanced communications systems and former vice president of General Learning Corporation, will address "Creating Conceptual Space." Discussion will continue with a panel composed of Garvin Nathaniel of AT&T; Mike Woodford of Merrill Lynch, Pierce, Fenner & Smith; and Neville Lewis, designer and chairman of the board of his own firm.

This year marks the biggest expansion in Designer's Saturday 15-year history, with the addition of eight contract furniture companies. These new members are All Steel, Alma Desk Co., Artemide, Brayton Int., Corry Jamestown, Howe Furniture, Kimball Office Furniture, and Kinetics.

On the following pages is a selection of some of the product highlights to be exhibited in the 44 showrooms.

1. Lounge chair: In the continuing furniture design effort of Michael Graves, this, his latest lounge chair, is quite formalistic in appearance with bird's-eye maple veneer frame and upholstered seat and back. The corner beads at the feet are made of ebony as are the embellishments of the spandrel fascia. Sunar, Norwalk, Conn.

Circle 300 on reader service card

2. Table: The "Saturn" table is available in round (45½-in. or 51½-in. diameter) and square (42-in. or 48-in.) shapes, at cocktail or conference table heights. Tops are parquet mahogany veneer with a solid mahogany prow edge and are available in four different finishes. Bases are available in mahogany veneer with parquet top pattern, bronzed aluminum, or filled travertine. Harvey Probbler, Inc., Fall River, Mass.

Circle 301 on reader service card

3. Lounge furniture: Part of the "Arolla" group of the El International Collection, this chair and sofa are covered in a wide range of Swiss cowhide leathers, all chosen for texture and comfort. Jack Lenor Larsen, New York City.

Circle 302 on reader service card

9

4. Lights: The "Aton" wall and track lighting series, designed by Ernesto Gismondi, has diffusers in diecast aluminum with white, black, or red lacquer finishes. The black support arm is equipped with an attachment for mounting on all Lightolier track systems. Artemide, Inc. New York City.

Circle 303 on reader service card

5. Executive chair: The high back chair with pneumatic height adjustment is one of eight versions of Raftery Executive Seating. Designed by William Raftery, the seating features Vectaflex, which allows the front edge of the seat to tilt downward. Vecta Contract, Grand Prairie, Texas.

Circle 304 on reader service card

6. Screen: A self-standing divider screen designed by Achille Castiglioni, the "Vela" comes with a black enamel painted steel base and frame. The fabric is washable white nylon ripstock. Beylerian Limited, New York City.

Circle 305 on reader service card

7. Fabrics: This collection of textiles was designed and developed by Ursula Dayenian specifically for furniture applications. It includes "Montana," a wool/viscose blend in four colors; "Aston," a long-staple matte-finish spun nylon in 16 colors and neutrals; and "Ridgeway," a wool/cotton twill in 10 colors. Stendig International, Inc., New York City.

Circle 306 on reader service card

8. Seating group: The "Mattatore" collection consists of a lounge chair, love seat, and three-seat sofa. It is upholstered in glove leather but is also available in a variety of fabrics. The Pace Collection, Inc., Long Island City, N.Y.

Circle 307 on reader service card

9. Desk: The "Kane" desk collection panels and fronts of high-gloss polyester resin available in 19 colors; tops are available in marbles, lacquered oak, leather-wrapped, or in matching high-gloss cast polyester resin. Metropolitan Furniture Corp., South San Francisco, Calif.

Circle 308 on reader service card

10. Arm chair: The #2636 arm chair has a width of 24½ in., a depth of 26 in., and a height of 33 in., and features a curved 1½-in. diameter solid walnut or oak frame. Cumberland Furniture Corp., New York City.

Circle 309 on reader service card

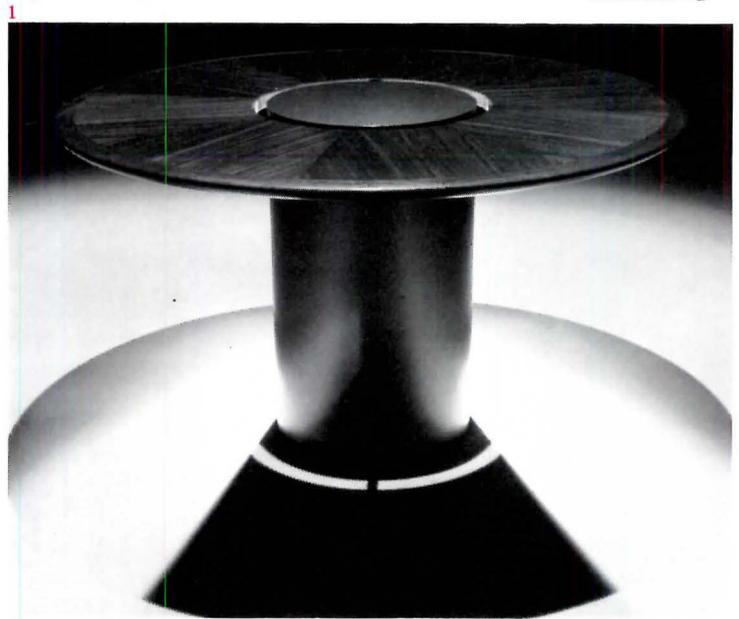
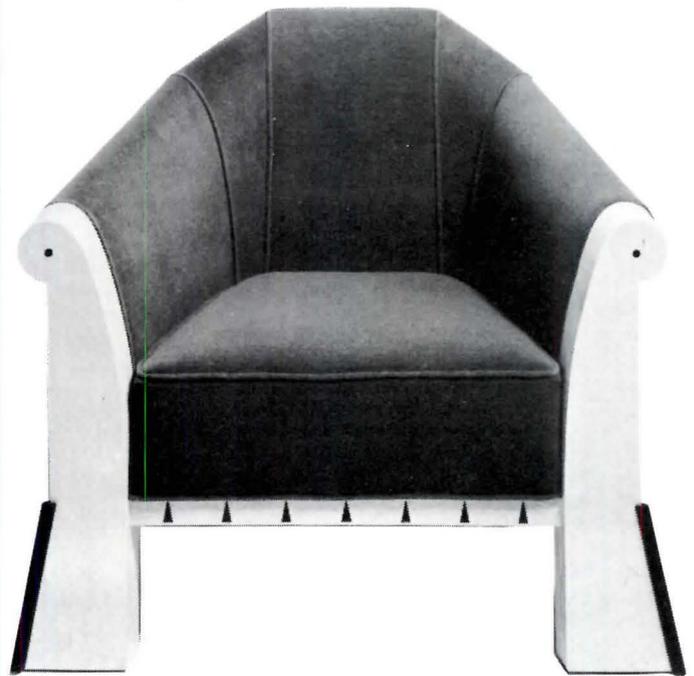
11. Seating: Part of the Stellans Collection, this chair features a fanshell-shaped back, with either a walnut or mahogany frame. Designed by Dewey Hodgdon, the chair fits into office, residential, or restaurant settings. Kimball Office Furniture Co., Jasper, Ind.

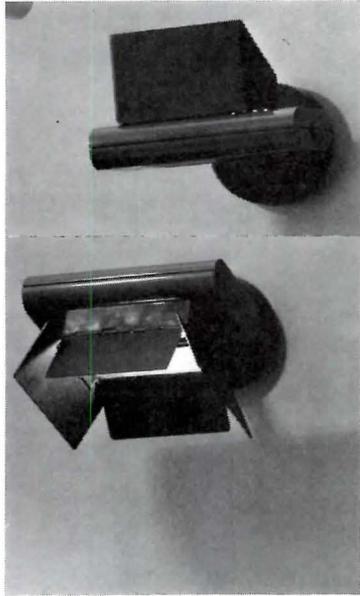
Circle 310 on reader service card

Continued on page 159

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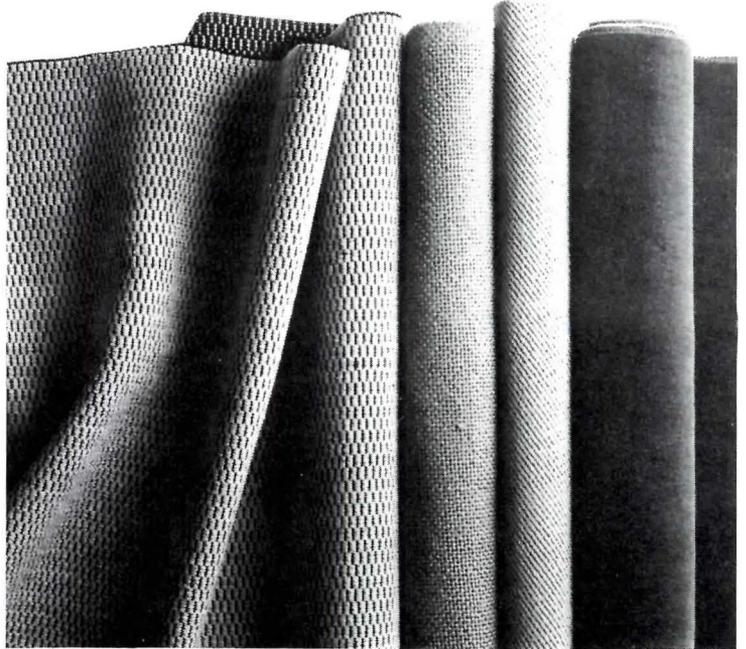




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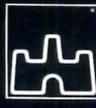
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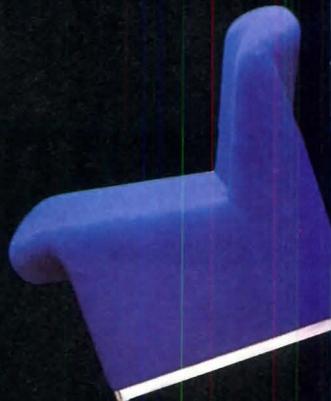
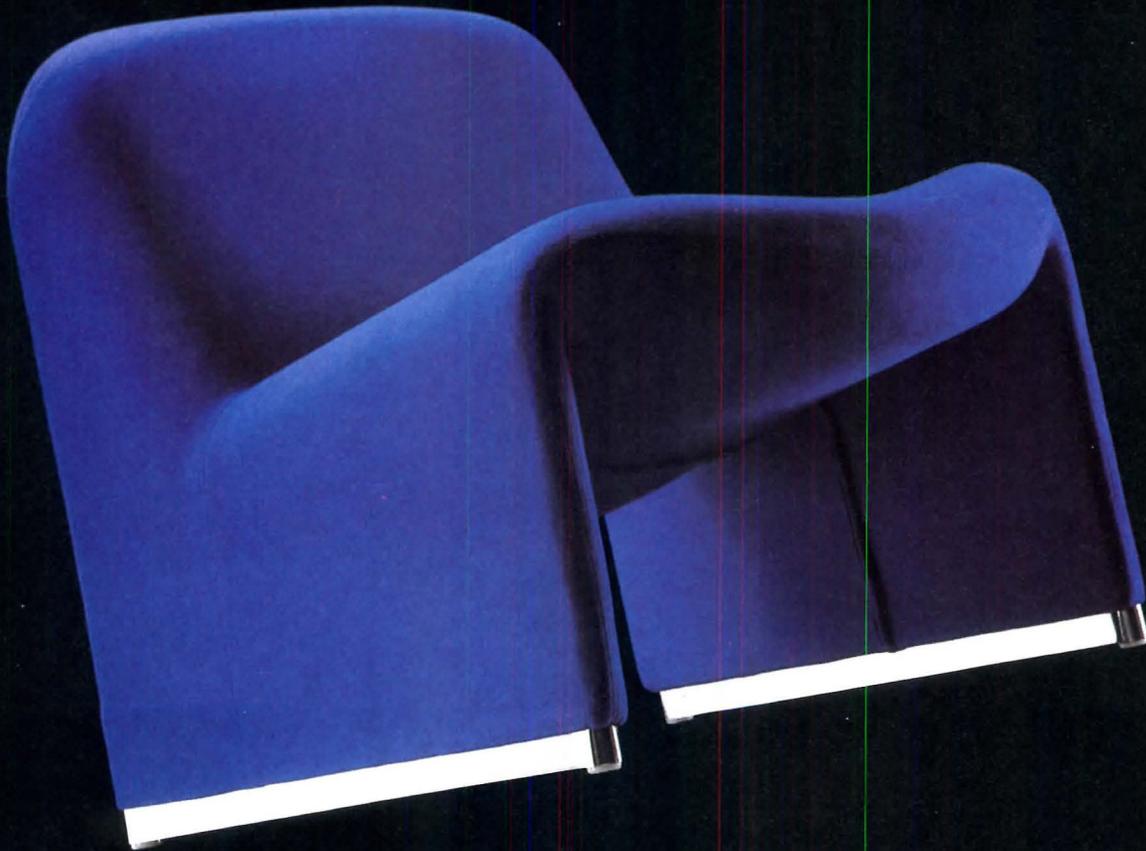
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DESIGNER'S SATURDAY

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2

12. Wood chairs: Designed by Richard Meier, this wood chair is characterized by strong vertical and curved horizontal lines, and can be used in either contract or residential interiors. Chairs are hand-finished in black, white, or natural colors. Knoll International, New York City.

Circle 311 on reader service card

13. Moving chair: The "Moving Chair," designed by Richard Schultz, features arms and back which independently move while the seat remains stationary. Appropriate in office or conference room, the chair is available in mirror chrome steel or black fused epoxy on steel. Arms can be walnut, oak, maple, or upholstered; and bases come with four or five prongs. Stow/Davis, Grand Rapids, Mich.

Circle 312 on reader service card

14. Table desk: Part of the "Aurora Collection," this table/desk has a solid brass base topped by burl cabinetry. A wide variety of lacquer finishes is also available. Designed by Robert and Bruce Mulder, the rest of the series includes a credenza, console, and brass étagère. John Stuart/John Widdicomb, New York City.

Circle 313 on reader service card

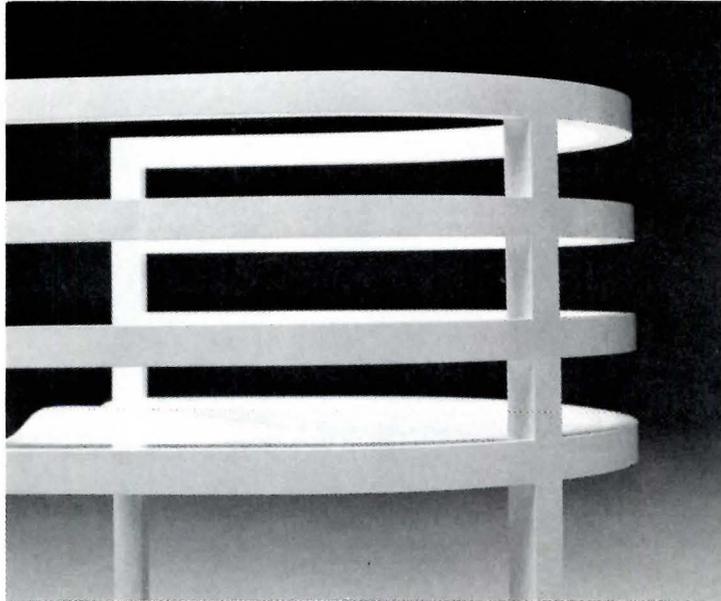
15. Seating series: Burkhard Volgtherr designed the "Lines" collection with a slim profile and a spring system which absorbs the impact of an individual sitting down. In either high back or low back, the chair comes with a tilt-locking system, height adjuster, and a mechanism that tilts the seat downward. Arm finishes range from ash wood to cast aluminum, while bases can be five star, four legged, or wood or mirror chrome sled design. Brayton International Collection, High Point, N. C.

Circle 314 on reader service card

16. Sofa seating: Modular sofa seating is available in three basic units—straight settee, corner settee (right- or left-hand), and hassock. Structural features of the seating group include tubular steel construction with flexible polyurethane. Steelcase, Grand Rapids, Mich.

Circle 315 on reader service card

Continued on page 161



12



13



14



15



16



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Chaise
Part of the "Spider" grouping, this chaise lounge by Kenneth Bergenblad is a new design utilizing an upholstery technique with spiral springs. Chairs and a side table in black carrera glass are other pieces available in the series. Dux Interiors, Inc., New York City. Circle 316 on reader service card



Bed
The Alanda Series bed, designed by Paolo Piva, has individually adjustable headrests and dual nightstands which link together and feature pivoting table tops. The nightstands are finished in glossy black, red, or white polyester. The bed frame is foam over steel. B&B America, New York City. Circle 317 on reader service card



Office conference furniture
The "S4 Series" of office furniture has a primary work surface which doubles as desk and conference table. The perimeter pieces, cube storage units, and high storage/wardrobe units are attached to a 4-in. high black platform called the "organizing element." A removable insert in each work surface allows cables to pass through. Dunbar Furniture, Berne, Ind. Circle 318 on reader service card



Office furniture
This series of furniture features a rounded work surface edge. The surfaces for CRT and EDP printout machines are 26-in.-high, while other furniture arrangements can be coordinated with 42-in. or 48-in. wide panels. All-Steel, Inc., Aurora, Ill. Circle 319 on reader service card



Stack chair
Designed by Emilio Ambasz and Giancarlo Piretti, the "Dorsal" stack chair is newly available in a monochromatic color scheme. The chair comes in a black, sand, or umber finish with fabric or leather upholstery. Krueger/IDEO Communications, Green Bay, Wis. Circle 320 on reader service card



High back seating
The "MGT High Back Management" seating collection, designed by Don Petitt, is of white oak face and core veneer, or mahogany face molded plywood with two-piece sides and closed backs. Seats and backs are molded foam over structural thermoplastic inner shells. Optional upholstered arm caps and inserts are urethane filled. Simmons Furniture Division, York, Pa. Circle 321 on reader service card



Bentwood
The "Magic Office #84" bentwood stackable armchair, designed by Warren Platner, is available in either white oak, walnut, or stained finishes. The curved seat and back are of molded foam which is upholstered in a choice of fabrics. C.I. Designs, Medford, Mass. Circle 322 on reader service card
More products on page 162

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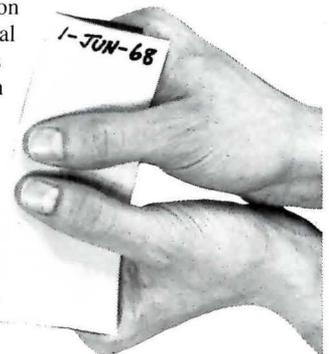
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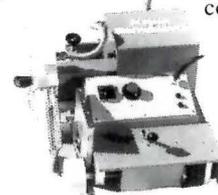


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Unretouched photo of 14 year old Sarnafil.

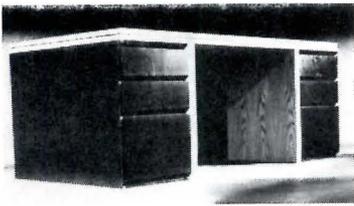


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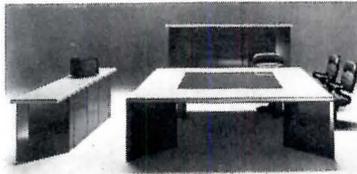
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Desks

The Walker Group's "Pinstripe" family of desks comes in veneer finishes of mahogany, black-stained ash, natural ash, walnut, or oak. The desks come in monotone or any combination of finishes. Other variations include attached and freestanding CRT terminal tables, conference tables, credenzas, and mobile file pedestals. ICF, Inc., New York City.
 Circle 323 on reader service card



Office furniture

The "Dolmen" system of office furniture is characterized by 45-degree angles in the table, desk, bookcase, and credenza bases. Each piece, designed by Gino Gamberini, is available in combinations of wood and lacquer finishes. Drawer fronts, inlays, modesty panels and other details are executed in grained leather. Castelli Furniture, Bohemia, New York.
 Circle 327 on reader service card



Office components

The Information Processing Support Equipment system provides a variety of office components specifically for CRT users. These include corner work surface, storage, swivel base and tilt adjustment for CRT, and hanging bars for printouts and manuals. Herman Miller, Inc., Zeeland, Mich.
 Circle 324 on reader service card



Wood chairs

The "Uni Chair" comes in seven models with 98 variations. Finishes range from natural beechwood or ash to a variety of matte and high-gloss lacquered colors and aniline stains, all with a top coat of polyurethane. Designed by Werther Toffoloni, the chair has passed both BIFMA and ANSI tests for strength and durability. Atelier International, Ltd., New York City.
 Circle 328 on reader service card



Lounge group

Designed by Paolo Piva, the "Marlena" group includes a lounge chair, two- and three-seat sofas, and a three-seat sofa bed, all with Velcro-secured back cushions. All pieces in the collection are covered in Nappa leather. Double-column beechwood legs are set at angles, and covered in leather to match upholstery. Stendig International, Inc., New York City.
 Circle 325 on reader service card



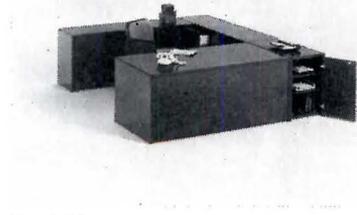
Lounge seating

The "Quorum" series in modular design with one-, two-, and three-seat units features contoured cushions and tubular chrome legs. Options include upholstered arms, seating-table combinations, and freestanding tables. GF Business Equipment, Inc., Youngstown, Ohio.
 Circle 329 on reader service card



Chair

The "Aurora," a small-scaled chair with a 19-in. seat height, has a sculptured back which flows from a convex curve on top to a concave curve at the bottom. The chair comes with either molded glides or castors set into wheel wells. Arconas Corp., New York City.
 Circle 326 on reader service card



Desk System

A new addition to the Katonah desk line is the Executive "L" which can be arranged in various configurations. The group consists of a double-pedestal executive desk, lateral file, file cabinet, filler cabinet, and filler cube. All units are available in 13 lacquer colors, five woods and five burls. Intrex, Inc., New York City.
 Circle 330 on reader service card
 More products on page 165

"Dryvit walls on the increase ..."



Joe Carpenter, President, Carpenter Plastering Co., Dallas, Texas.

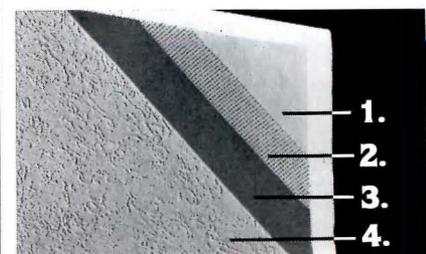
"We fabricated the Dryvit panels for the One Brookriver building, Dallas, TX. A design challenge of 126 window fins was solved beautifully with Dryvit panelization. They were finished on all 4 sides, slipped into position precisely at 45° angles and blind welded. The total wall area added up to 54,000 sq. ft. of Dryvit panelization.

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3. **Dryvit Primus®/Adhesive.** Dryvit's unique plaster material formed by mixing with Type 1 Portland Cement. Adheres Insulation Board to substrate and embeds Reinforcing Mesh to face of board.
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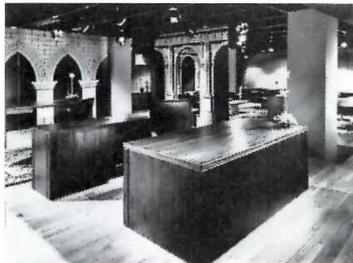
Hardwood furniture

"Elan" is a sculptured, radius-edge desk in mahogany, walnut, or oak with edges traced in curving reveals. The series includes single- and double-pedestal executive and secretarial desks, credenzas, returns, and lateral files. The Gunlocke Co., Wayland, N.Y.
 Circle 331 on reader service card



Furniture system

An executive mahogany furniture system features softened work edges and a radiused, solid top. Also included is "Remote Centra," a central locking system which has concealed cables uniting the locking mechanisms of pedestals and overhead cabinets to a central lock cylinder under the front edge of the work surface. Also shown is the Planus table desk designed by Ole Christensen, featuring a leather inlay top supported by two semispherical pedestals. Artec, Jasper, Ind.
 Circle 334 on reader service card



Executive desks

"Bloc" is a series of executive desks, credenzas, and tables with eased edges and 3/16-in. reveals which separate top and corner posts from panels and pedestals. Table desks and single- and double-pedestal desks range in size from 66- by 30-in. to 78- by 36-in. All pieces are available in white oak, or American black walnut solids and veneers. Lehigh-Leopold, New York City.
 Circle 335 on reader service card



Seating collection

The "Delphi" collection has sculptured wood frames with curved joinings. The collection consists of an armchair, a smaller-scaled chair for areas with limited space, and a settee. All of the pieces are available in maple with mahogany or walnut finish, as well as in natural ash or three types of black finish. Helikon Furniture Co., Taftville, Conn.

Circle 336 on reader service card
 More products on page 167



6000 Chairs

Designed in Switzerland, the 6000 Series Ergonomic chair, called "Zucomat," is available in six different models for operator, work station, managers, executive, director, and guest. All are available with or without arms and with a polished aluminum or brown epoxy base. A synchronized back mechanisms either allows the seat and back to maintain contact with the body as it moves or locks the seat in a position for comfort. Alma Desk Company, High Point, N.C.
 Circle 332 on reader service card



Desk and storage system

"Radius" desk and storage system combines rounded wood tops with metal pedestal. The desk and console tops are available in rift oak or walnut or non-grained laminate with wood edging, while the metal elements are available in enamel finishes. The entire series can be incorporated into Corry Jamestown's 2000 panel system. Corry Jamestown Corporation, Corry, Pa.
 Circle 333 on reader service card



Girl Scout Council Hqtrs., St. Paul, MN Bergstedt Wahlberg Bergquist Rohkol, Architects

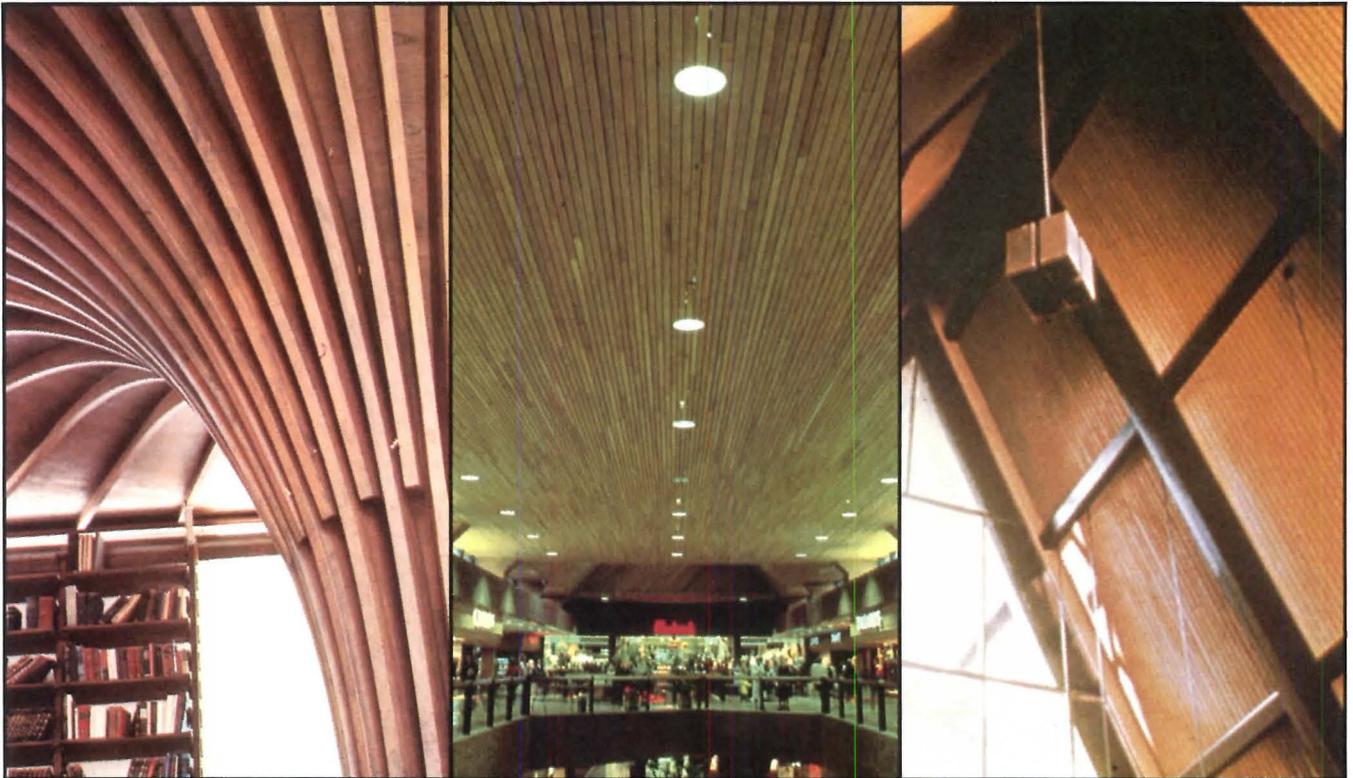
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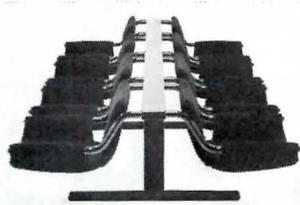
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Panel system

The "Privacy Panel" system offers four panel heights, including a full height size for enclosed offices. Both 90 and 120-deg panel configurations are available. The system includes five-sided work surface, used for electronic equipment. Adjustable in 1½-in. increments, the cantilevered surfaces allow the user to move easily. The surfaces are high-pressure laminates and come in mocha beige, oak, and teak. E.F. Hauserman Company, Cleveland, Ohio.

Circle 337 on reader service card



Seating

This series of single and double row (shown) seating is designed for waiting areas, reception centers, hospitals, and stores. Several freestanding units can be connected to modules to form continuous rows of single or double place seating. The seat is available in various upholstery fabrics. Kinetics Furniture, Downsview, Ontario, Canada.

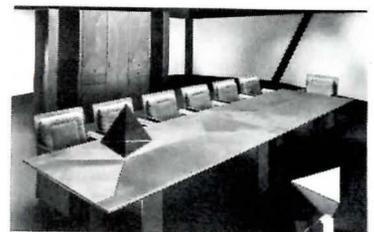
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Sofas

Part of the Bonacina BBB collection, this is the "Ternaquaterna" series designed by Carlo Santo. The series consists of a standard sofa, a long sofa, and a sofabed. Removable covers are available in fabric or leather. The sides of the sofas adjust to arm height or lay flat for additional seating. The sofabed becomes a double-bed by lowering the back. Beylerian Limited, New York City.

Circle 341 on reader service card



Office furnishings

The "Meteora" series of executive desks, conference tables, cabinets and chairs is covered with 3 mm thick saddle leather, blending new technology with craftsmanship. The group features executive armchairs with a steel frame embedded into the leather or flame resistant fabric. The Pace Collection Inc., Long Island City, N.Y.

Circle 342 on reader service card
More products on page 169



Component series

The WES-TECH Series for the electronic office is a component series featuring freestanding linkable desks and "cluster tops" for varied layout arrangements, tilt carousel CRT base, a foot-operated electric easel and a cable manager designed to conceal excess cords and cables (shown)—all able to be integrated with the company's existing open office system. Westinghouse Architectural Systems Division, Grand Rapids, Mich.

Circle 338 on reader service card



Posture support

In 3 distinct lines—"Lignas," "Polytrop," and "Monty"—the Giroflex Collection offers activated seat height adjustment. Among the options of the three lines are either natural wood or upholstered arms, either walnut or oak frames, and five-star bases either epoxy-coated or polished aluminum. GF Business Equipment, Inc., Youngstown, Ohio.

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Marine Building

Architect: McCarter and Nairne
Owner: British Pacific Building Ltd.

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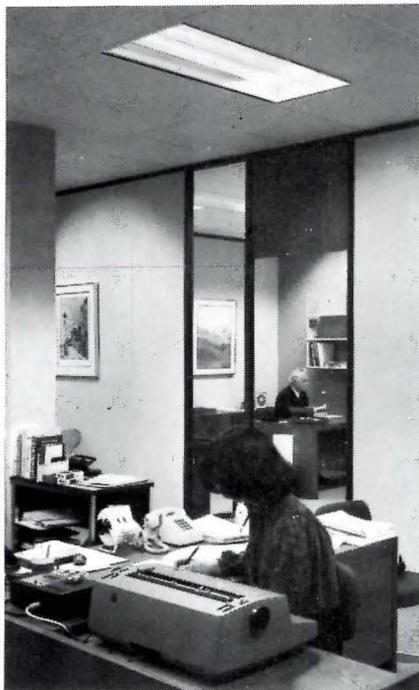


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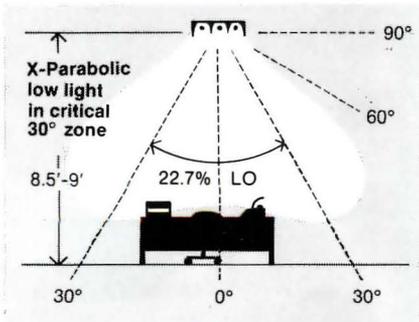


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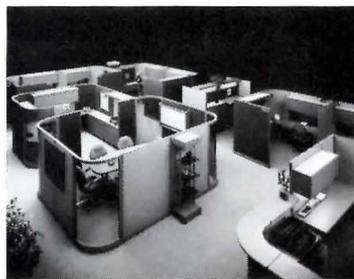
Circle 78 on inquiry card



Sled base

From the "360 Series" line of office seating, this chair is available with or without arms. The frame is of 7/8-in. round tubular steel in either chrome or a charcoal powder-coat finish. Chairs may be upholstered in vinyl, nylon, wool, or leather. The Shaw-Walker Co., Muskegon, Mich.

Circle 343 on reader service card



Lighting system

"TriAmbient" lighting comprises panel-supported and freestanding fixtures, combined with panel-supported fluorescent ambient and task lighting. The freestanding fixture (foreground left) has optional down-lighting and tinted display shelves. For task intensive situations, lights attach beneath panel-mounted storage components. Haworth Inc., Holland, Mich.

Circle 344 on reader service card



Office chairs

The new 8600 Series chair, scaled to function in both open-plan systems and in executive offices, is available in both high and low back versions. Trimmed with chrome, chairs feature open or completely upholstered arms; the five-prong base is finished in mirror chrome, oak, or walnut. Alma Desk Company, High Point, N.C.

Circle 345 on reader service card
More products on page 171

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Krueger
Jack Lenor Larsen
Lehigh-Leopold/LBF
Metropolitan Furniture Corp.
Herman Miller, Inc.
Pace Collection, Inc.
Harvey Probbler, Inc.
Shaw-Walker
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**FACILITIES MANAGEMENT DAY
OCTOBER 14**

DESIGNER'S SATURDAY

CONSERVE SPACE

WITH
**UNDER COUNTER
 or WALL MOUNTED
 STAINLESS STEEL
 Refrigerators / Freezers**

UNDER COUNTER



UC-5

UC 5 BC



The entire UC 5 series feature polyurethane insulated thin wall construction and airtight neoprene thermo-break door seals. The cooler section has 2 adj. s.s. wire shelves. Cap. -5.4 cu. ft. (155 ltr.)

UC 5 — two-tray ice cuber cooling system, manual defrost

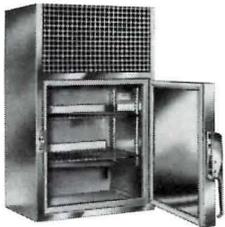
UC 5 BC — blower cooling system, auto. defrost

UC 5 CW* — cold wall cooling, auto. defrost

UC 5 CWE — totally explosion-proof, 4.9 cu. ft. (139 ltr.) cap.

UC 5 FBC — freezer, auto. defrost, 4.6 cu. ft. (130 ltr.) cap.

WALL MOUNTED



WM-CW

WM CW* series wall mounted refrigerators come in 4 sizes featuring cold wall cooling with auto. timer defrost. Two removable, adj. stainless steel shelves provided. Front grille removes for easy servicing.

WM 1 CW — Capacity -1.5 cu. ft. (45 ltr.)

WM 2 CW — Capacity -2.3 cu. ft. (65 ltr.)

WM 3 CW — Capacity -3.2 cu. ft. (95 ltr.)

WM 4 CW — Capacity -4.3 cu. ft. (125 ltr.)

WM 3 FCW freezer, man. defrost, cap. 3.0 cu. ft. (851 ltr.)

*With explosion-proof interior.

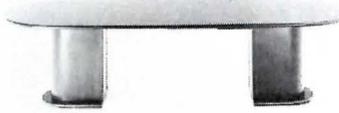
Jewett also manufactures a complete line of blood bank, biological, and pharmaceutical refrigerators and freezers as well as morgue refrigerators and autopsy equipment for world wide distribution through its sales and service organizations in over 100 countries.



Refer to Sweet's Catalog 11.20/Je for quick reference

Circle 79 on inquiry card

Continued from page 169



Oval table

The "Grand Oval Extension Table," designed by H.V. Gustedt, can convert from a desk to a conference table or can be used as a dining table. Beyerlerian Limited, New York City.

Circle 346 on reader service card



Conference and dining chairs

Beech wood dining and conference chairs with hand-rubbed finishes make up the Dettinger Collection. Covered with fabric seat cushions, their quiet silhouettes can be used in residential or office applications. Jack Lenor Larsen, New York City.

Circle 347 on reader service card



Aluminum and black seating

The 106 chair (rear) has its seat and back assembled into a side frame structure of die-cast aluminum alloy, and its legs in steel tubing. The chair may be stacked, or completed with arm rests, tablet arms, or ashtrays. Designed by Giancarlo Piretti, the 106 chair comes in wood veneer or upholstered. The Axis 306 and 236 chairs (front) are available in black polyurethane resin finish and in traditional die-cast polished aluminum. Castelli Furniture, Bohemia, N.Y.

Circle 348 on reader service card

Telephone 617 492-4000
 Telex 951650

14 Story Street
 Cambridge, Massachusetts 02138

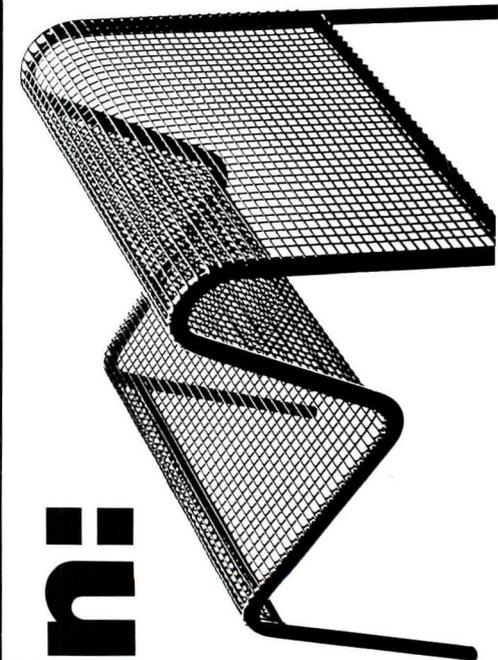
Kroin Architectural Complements

Anchors and ganging clamps insure configuration integrity and deter vandalism when moveable seating is grouped in sequence.

Mobil is part of a series of Park and Garden Furniture, manufactured in synthetic coated tubular steel and wire mesh, available exclusively from Kroin.

Circle 6 on information card

Mobil stationary and moveable outdoor seating is unique in its ability to conform to sharp angles and uneven topography. Unlimited seating arrangements facing inside or out are possible by altering the sequence of the three modules offered in this system. Simultaneous back-to-back seating is possible through the use of 2-sided Seat Bowls.



Kroin

With Buchtal, choose the color of the skyline



Cergy Pontoise Hotel, near Paris, clad in Monocolor #144 Intensive Blue and #143 Intensive Green. (Thin-set latex mortar on precast concrete. Architects: Claude Vasconi and Georges Pencreach.

Architectural ceramics from Buchtal bring new warmth to urban landscapes, new life to city skylines. Write or

call about the Keraion, Rustic, Unglazed and Monocolor lines for exterior facades or traditional uses.

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

The cost of preparation of this advertisement was paid for by the American Business Press, the association of specialized business publications. This space was donated by this magazine.

Chandler Kennedy Architectural Group announces Ken F. Austin, E. Alan Holl and Barrie Stephens as new partners in the firm.

Crain/Anderson Inc. announces that Jerry G. Barner has been elected president, Charles Graybeal has been promoted to senior associate and Ralph Anderson, former president is now vice chairman.

Chauncey J. Medberry, III has been elected as a director on the board of Daniel, Mann, Johnson, & Mendenhall (DMJM) and Robert R. Dockson has been elected to the board of directors.

Gordonn Dirkes, Architect announces that G. Thomas Dirkes has joined the firm.

Robert M. Hansen and David M. Griffin have been named partners in the firm of Ek Dahl, David, Depew, Persson/Architects, P.A.

Ellerbe Associates, Inc. announces the appointment of Frank Nemeth to the newly created position of chief designer within the institutional studio.

M. Neville Epstein has been named a partner in the architectural firm of Geddes Brecher Qualls Cunningham.

Ken Mori has been appointed a vice president of Gensler & Associates/Architects.

Goodwin B. Steinberg Associates Architects and Planners announces the appointment of Ernest T. Yamane and Roger M. Wilcox as associates.

Greenwell Goetz Architects, P.C. announces the following staff changes: Gail Pearson has been promoted to senior associate; Deborah Rachlin and Kathleen Farah have been named associates.

Skidmore, Owings & Merrill announces the appointment of four new partners to the firm. They include: Robert Armsby, Richard Foster, Richard Giegengack and Diane Legge Lohan.

New addresses

Gordonn Dirkes, Architect announces the relocation of his office to 205 Bartow Avenue, Auburndale, Florida. The mailing address for the firm is Post Office Box 2470, Winter Haven, Florida.

Howard Dworkin Architect Inc. announces the relocation of their offices to 5046 West Point Loma Boulevard, Suite B, San Diego, California.

Gale, Hornberger & Worstell Architects and Planners announces the relocation of their offices to 170 Maiden Lane, San Francisco, California.

Knitter & Associates has moved to 4242 Campus Drive, Suite E-1, Newport Beach, California.

Kenneth Mc Gahren Associates announces the relocation of their offices to Smith Ridge Road, South Salem, New York.

Stottler Staggs & Associates, Architects, Engineers and Planners, Inc. relocated their offices to 336 North Orange Avenue, Orlando, Florida.

Vollmer Associates has moved to 10 West 20th Street, New York, New York.

Weidlinger Associates has moved to 333 Seventh Avenue, New York, New York.

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Kroin Architectural Complements

Can you afford a cheap imitation?

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That takes reinforced welds at every joint, drawn steel wire mesh in every seat and back, plus a heavy tubular steel frame specially prepared to accept a sintered synthetic coating that actually becomes fused to the surface.

So the next time you specify outdoor furniture choose Kroin. After all, can you afford not to?

Choosing the right outdoor seating could mean the difference between a sound investment and a costly mistake.

Because, while companies may try to imitate the way our furniture looks, they can't match the way it lasts. And what makes Kroin Park and Garden Furniture stand out is the way it stands up: to the elements, abrasion and even the severest abuse.

Circle 7 on information card

Hewlett-Packard on the professional use of personal

There's a considerable difference between a computer that fits and one that really fits.

There are a lot of places where the basic one-size-fits-all type of personal computer fits in really well. But if you're like most of the technical professionals we know, you'd rather use a tool that was clearly designed for the job you're doing. That's why we've developed these five very different personal computers just for people like you. And configured each one specifically

just like a real craftsman's tool fits your hand.

Now we'd like to show you, in some detail, just what we mean.

The HP-41.

You might remember the series 9100 engineering computer we introduced in 1968 for \$5000. Now,

able computing system. Add a printer for hard-copy output. Or our 128k byte cassette for mass storage. Or add both; they'll only take up as much space in your briefcase as three paperbacks.

You can even use your HP-41 as a remote data collector, then link it up with any HP Series 80 personal computer via HP-IL.



ically to operate in technical environments. To interface with instruments and other computers. To give you all the computing power and all the high-level graphics capability you need.

We also offer you a full range of printers, graphic plotters, additional memory systems, input devices, and communications links. Plus over 5000 software programs at last count.

As a result, you can practically design your own system. And have a personal computer that fits your professional environment

for a base price of \$250, you can hold all the power of that system in the palm of your hand.

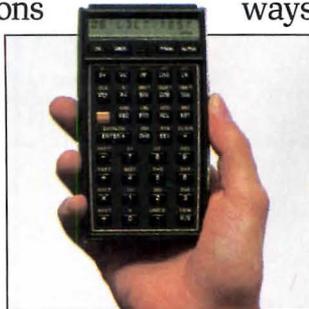
All by itself, this hand-held computer can help a petroleum engineer evaluate gas or oil reservoirs. Or help civil engineers do critical computations in the field.

Add the new Hewlett-Packard Interface Loop (HP-IL), and you can turn your HP-41 into a powerful, port-

The HP-85.

Complete with an integrated tape drive, printer and CRT, this typewriter-size system fits easily in a crowded work area. Where you can use its impressive number-crunching power any number of ways. For waveform analysis. Regression analysis. Linear programming.

Add the HP-IB interface, and you can control up to 14 instruments simultaneously. Add our Data Communications Pac and you can tie into another



All the power of our 9100 Series Desk-top Engineering Computer. Now you can hold it in the palm of your hand.