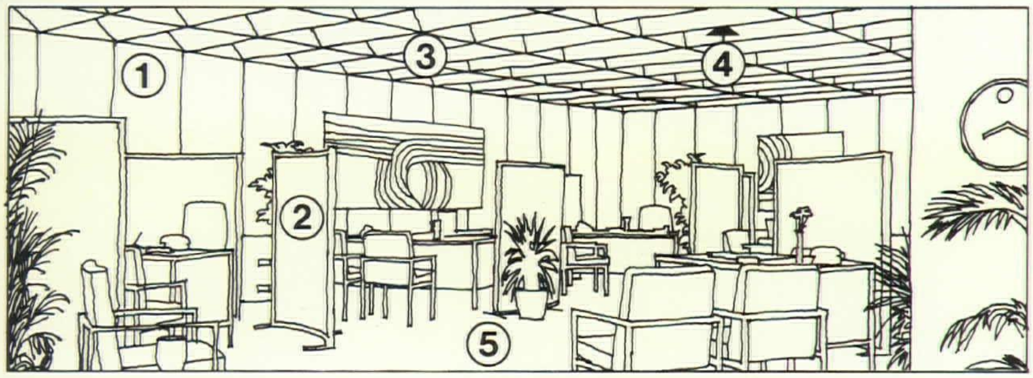
Progressive Architecture

February 1974 A Reinhold publication

Armstrong introduces the first pre-engineered package of products for the open plan office.



It combines acoustical and visual privacy, air distribution, and quality lighting, with good looks, too.

Until now, you've had to deal with as many as five or six different suppliers to put together the various elements required for a successful open-office plan.

Now, Armstrong offers a complete product package, designed not only to function well but style-and-color coordinated to look as good as it works. Armstrong provides, for the first time, a single-source supply and a single-source responsibility.

1. Soundsoak™ Wall Panels*

These panels are made of an acoustically efficient special mineral fiberboard mated to a soft modacrylic fabric. They can be easily installed on interior walls and other flat surfaces and make a substantial contribution to the control of reflected sound. (NRC range .55 to .65)

Available in a wide choice of modern colors, Armstrong Soundsoak Panels are decorative as well as functional. They're 30" wide and available in either nine- or ten-foot heights.

*Patent pending

2. Soundsoak Divider Screens

Screens are an indispensable element in efficient open-office planning. They provide effective separation of work stations, contribute to acoustical and visual privacy, and add splashes of color to the room. Freestanding and easy to move, they are covered with a tufted-nylon fabric in a wide choice of colors. Both curved and straight types are available in five-foot widths, and there is a choice of five- or six-foot heights.

3. C-60/30 Luminaire Ceiling System

The most important factor in open planning is acoustical privacy, and the ceiling is the key element in achieving that privacy. The Armstrong C-60/30 Luminaire Integrated Ceiling System provides not only acoustical efficiency but also other important open plan environmental factors such as quality lighting and draft-free air distribution.

In the 100%-vaulted configuration, using a special 1" Classic Open Plan ceiling board, the C-60/30 System complies with the GSA PBS-C.1 performance specifications for a Speech-Privacy Potential of 60.**

4. Sound-Masking System

The Armstrong open plan package includes a completely integrated and matched electronic sound system that introduces into the working area sound of the proper intensity and frequency content to help attain the desired level of speech privacy. The system can be "tuned" to provide evenly distributed, nondisturbing background sound to any open plan space.

5. Armstrong Floors

To complete the open plan visual package, Armstrong offers a selection of flooring materials. If carpet is your choice, there is a wide range of colorful Armstrong Commercial Carpets that will add warmth and quiet to any open plan.

Where the practicality of resilient floors is called for, Armstrong Quiet Zone™ Vinyl Corlon® is the answer. Thanks to its generous foam-cushion backing, it's both quiet and comfortable.

That's the Armstrong five-in-one open plan package. For more information, just mail this coupon to Armstrong, 4204 Watson St., Lancaster, Pa. 17604. In Canada, write Armstrong Cork Canada, P.O. Box 919, Montreal 101, Quebec.

** at 10' 6" interzone distance.

Please send me information on the Armstrong package of open plan products.

Name ____________________

Company ____________________

Address ____________________

City __________ State __________ Zip __________

FROM THE INDOOR WORLD® OF

Armstrong

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If you can't tile it, GLID-TILE® it.

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Glidden's new GLID-TILE Polyester-Epoxide HIPAC (High Performance Architectural Coating) system resists corrosion, stains, abrasions, and meets Federal specifications TT-C-550a and TT-C-001226.

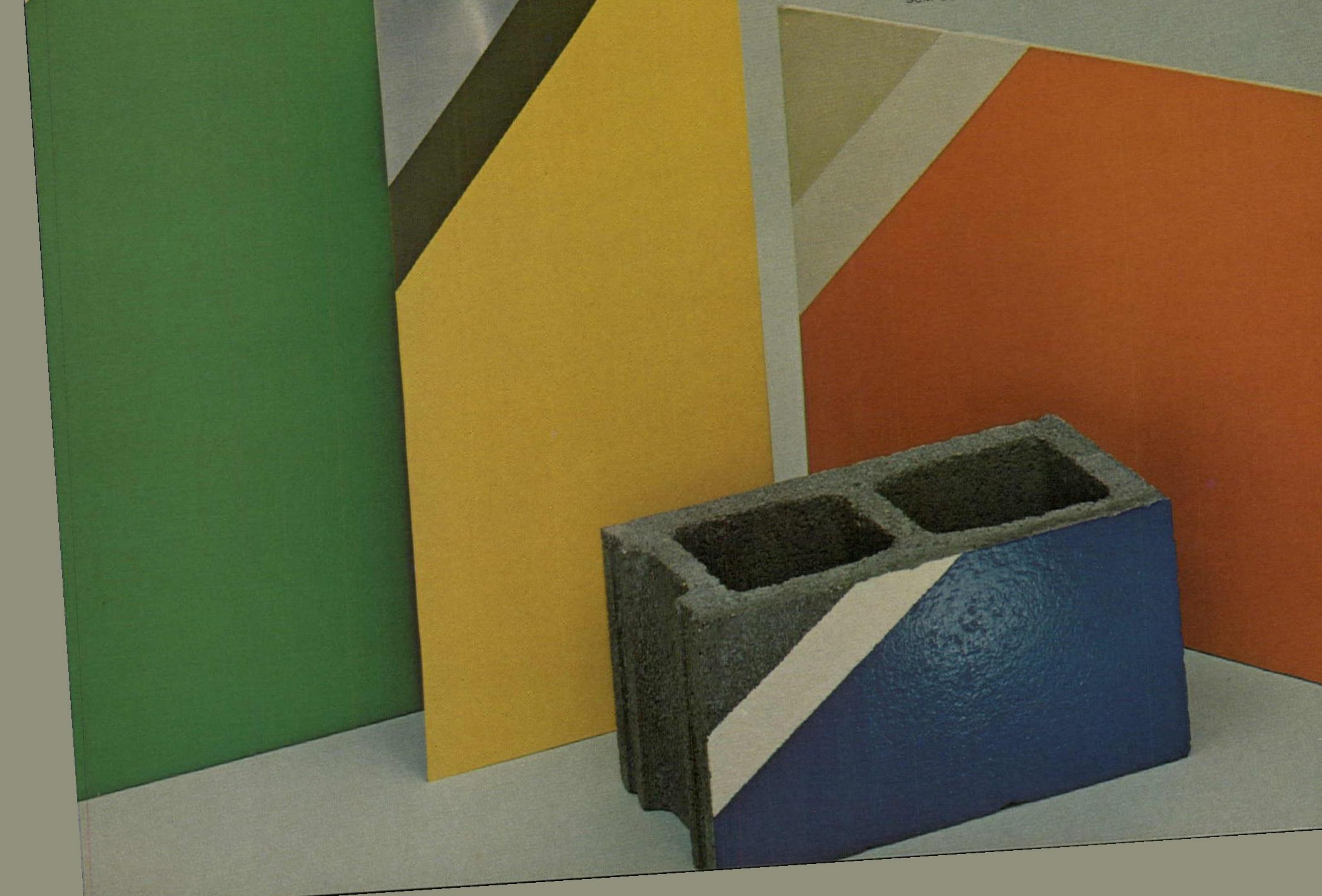
This new GLID-TILE Epoxide is a polyester-epoxy system for easy brush, roller or spray application on interior masonry, wood, metal, wallboard. Gives you high build, high solids, low odor, and a wide selection of colors. Use it anywhere highest resistance to moisture, staining or abrasion is demanded. In hospitals, schools, laboratories, lavatories, cafeterias, commercial kitchens, and high traffic corridors.

Contact your nearest Glidden representative. He'll show you GLID-TILE Epoxide's colors and document its durability against corrosive chemical stains and conformance to Federal specifications.

When tile is out of the question, make GLID-TILE your answer.

Glidden

SCM® GLIDDEN COATINGS & RESINS
ARCHITECTURAL & MAINTENANCE
SCM CORPORATION, CLEVELAND, OHIO 44115



Litton

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ABP

February 1974

Progressive Architecture

Departments

Cover: Students' Union Housing, University of Alberta (p.46).
Photo: John Fulker

KINGSWOOD

MARQUIS

FLEETWOOD

CONTINENTAL

An update

During the period in which the P/A Business Survey Forecast (P/A, Dec. 1973) was being conducted, the fuel and materials shortages were not being felt to any appreciable extent. For this reason, the amount of construction forecast for certain types of buildings during 1974 will change from what was reported in the study. Having completed a thorough analysis of what might be expected, P/A is passing the conclusions along to you.

Hardest hit will be private, single and residential building. Here, new construction will be impeded by increased interest rates, the fuel/materials shortages, and a certain amount of fear among owners caused by increased unemployment (which probably will reach the 6% level). The result is estimated to be about a 20% drop from what otherwise would have been constructed. This will be felt more heavily during the first half of 1974. A slight upturn may take place during the second half of the year.

Construction of "other" type buildings also is estimated to drop 20%, strongly influenced by the shelving of recreational building construction which had been seen as increasing sharply over last year. The gasoline shortage is the cause for this. Here, too, improvement may be expected during the second half of the year. Another influence in the "other" type buildings is the housing construction not elsewhere classified. Both commercial low rise and residential low rise also must be expected to fall below the levels forecast earlier. Each is seen to drop about 10%, with little change during the second half.

The private sector of community planning/design also will be around 3% less than what would be constructed had not the fuel/materials shortages reached the present stage. Harder hit is urban design/redevelopment, with the loss there seen as about 10%.

The total loss in 1974 architecturally designed construction is estimated as 5.3% from original expectations. Our data show 94.3% of all construction in 1974 to be architecturally designed. As the trend is seen for the influencing factors in the general economy at this time, construction in 1975 may be expected to increase by about 3% with greatest increases in industrial and government building (excluding institutional types and housing) construction. While improvement should be experienced by the end of the third quarter of 1974, work in architectural offices must be expected to fall below earlier anticipations. Probable changes include:

Commercial low rise. From a 7.7% increase to a 2% increase over 1973.

Community planning/design. From an increase of 10.5% to about the same as 1973.

Residential. Private, single, is seen as falling yet lower than had been anticipated, to about 15% below the 1973 level. Low rise, rather than gaining a bit, probably will be somewhere between last year's level to 5% lower.

Other buildings. During 1974, an increase of around 5% rather than 14.7%.

In neither architectural work nor construction is the downward trend seen continuing into 1975. Losses in architectural work during the current year probably will be recovered in 1975 as economic stability is found in an accommodation with fuel and material supplies less plentiful than to which we've been accustomed. Particularly in building construction, it is likely that we will learn to be less wasteful. Architecturally designed construction in 1975 is believed to hold around $135 billion. Losses experienced in construction during 1974 may be expected to be made up in 1975 from implementation of architectural work done in 1973, but shelved during the current year. That is the way it appears from here at this time. [Walter L. Benz]

Walter L. Benz is the president of Benz National Surveys, who compiled the annual P/A business survey, (P/A, Dec. 1973, p. 25).

ALUMINIZED VS. GALVANIZED FENCING. THE DIFFERENCE SHOWED UP IN 192 HOURS.

We say *Page*® aluminized chain link fence fabric will last 3 to 5 times longer than the best of galvanized. Here's proof:

In an accelerated salt spray test conducted by the Pittsburgh Testing Laboratory, galvanized fabric began to rust in 192 hours. With *Page* aluminized fabric, initial rust set in after 816 hours.

Type of Fabric	Coating Wgt. oz. per sq. ft.	Hours to Initial Rust	Hours to 50% Rust
Galvanized after weaving	1.45	192	360
"	1.86	192	360
"	2.06	192	312
"	3.82	192	336
Acco Aluminized	0.48	1,920	7,032
"	0.48	1,152	5,736
"	0.52	1,968	10,488
"	0.52	816	10,986

But longer life is only one benefit of *Page* aluminized fabric. It's easier to erect. It requires virtually no maintenance. It has the strength of steel. And the aluminized coating actually "heals" itself when damaged.

FREE SPEC KIT. Send for it and save design time. Packed with data, drawings, the complete salt spray test report and work sheets. Write Page Fence Division of Acco, First and River Sts., Monessen, Pa. 15062.

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40DB.3.3

A 4-page guide to the conservation of natural resources. 1. ENERGY

Avco Financial Center, Newport Beach, California • Owner: Balboa Insurance Company • Architects: Welton Becket and Associates • Consulting Mechanical Engineers: James A. Knowles & Associates, Inc., Los Angeles • Glazing Contractor: Golden State Glass Company, Los Angeles

"WINNING THAT ENERGY CONSERVATION AWARD WAS A VERY SATISFYING SURPRISE."

Ray Boring said that.

He's the building manager of the Avco Financial Center, Newport Beach, California. This is the tower that won the 1972 Utilization of Energy Award in Southern California.

That, indeed, is a welcome tribute to sound design and materials selection. But that's only part of the profile.

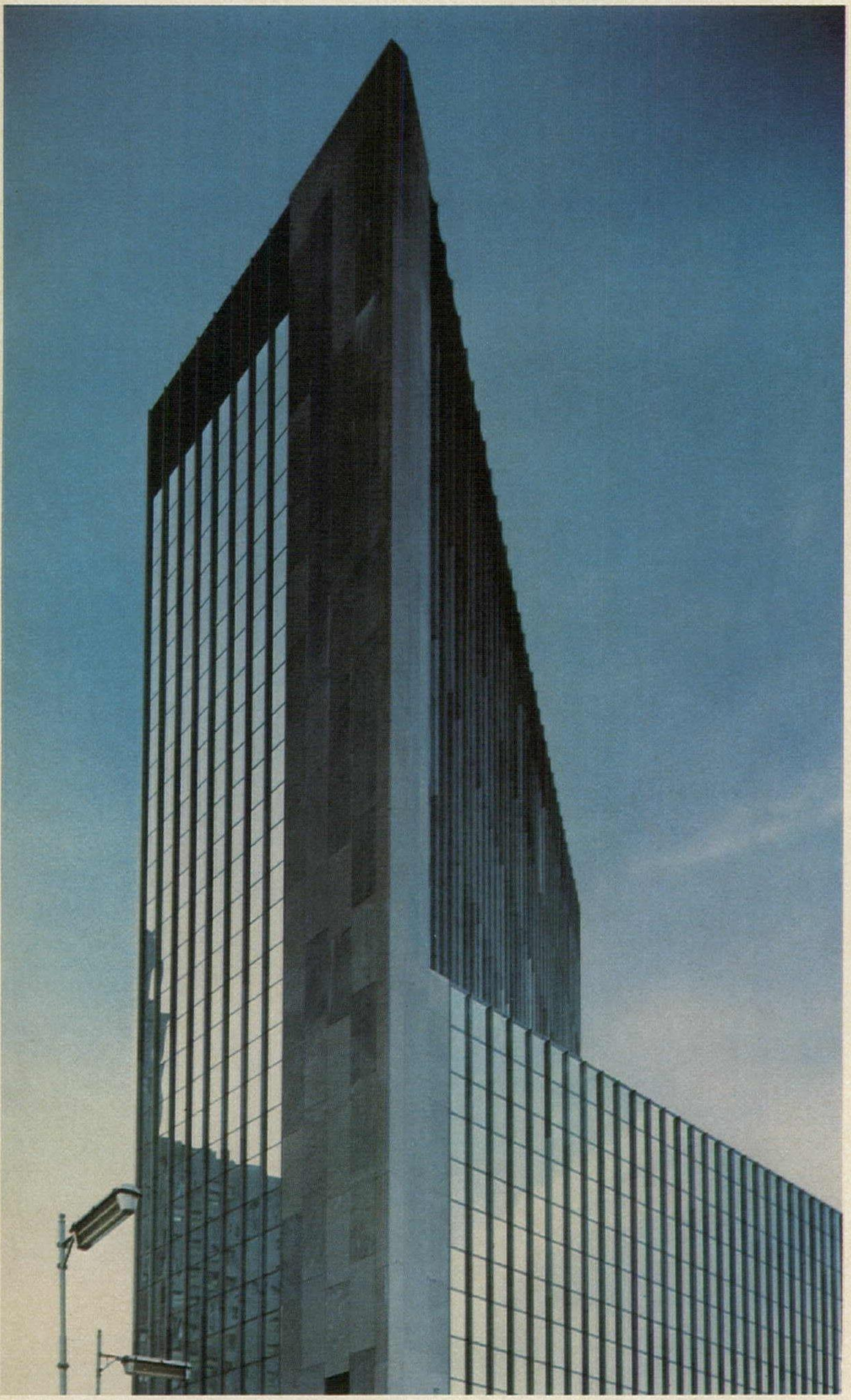
James A. Knowles of James A. Knowles & Associates, the engineering consultants, stated, "We knew we'd cut owning and operating costs with LOF glass." In fact the prediction is that the use of Thermopane® insulating units made with Vari-Tran® coated glass would save Avco almost $20,000 annually in owning and operating costs when compared to conventional bronze plate glass.

Further, with LOF reflective glass, the owner was able to install smaller fan-coil machinery on the upper 15 floors. This provided a gain of more than 6,000 square feet of rental area.

Ah yes, space, that's another whole story you'll find on the next page.

LOF

2. SPACE



Edison Plaza Building • Owners: Toledo Edison Company • Engineers, Architects, Planners: Samborn, Steketee, Otis and Evans, Toledo, Ohio

"THE KEY TO GOOD OPERATING EFFICIENCIES IS THE PROPER SELECTION OF AIR SYSTEMS, HEAT RECLAIMING DEVICES AND BUILDING GLASS, LIKE VARI-TRAN."

LOF glass, according to the designers, saved over $123,000 in initial construction costs by reducing the size of heating and cooling equipment needed for the ¼" clear glass.

The building of course is Edison Plaza Building, Toledo, Ohio. The statement quoted above was made by James R. Watt, P.E., Technical Services Manager, Toledo Edison Company.

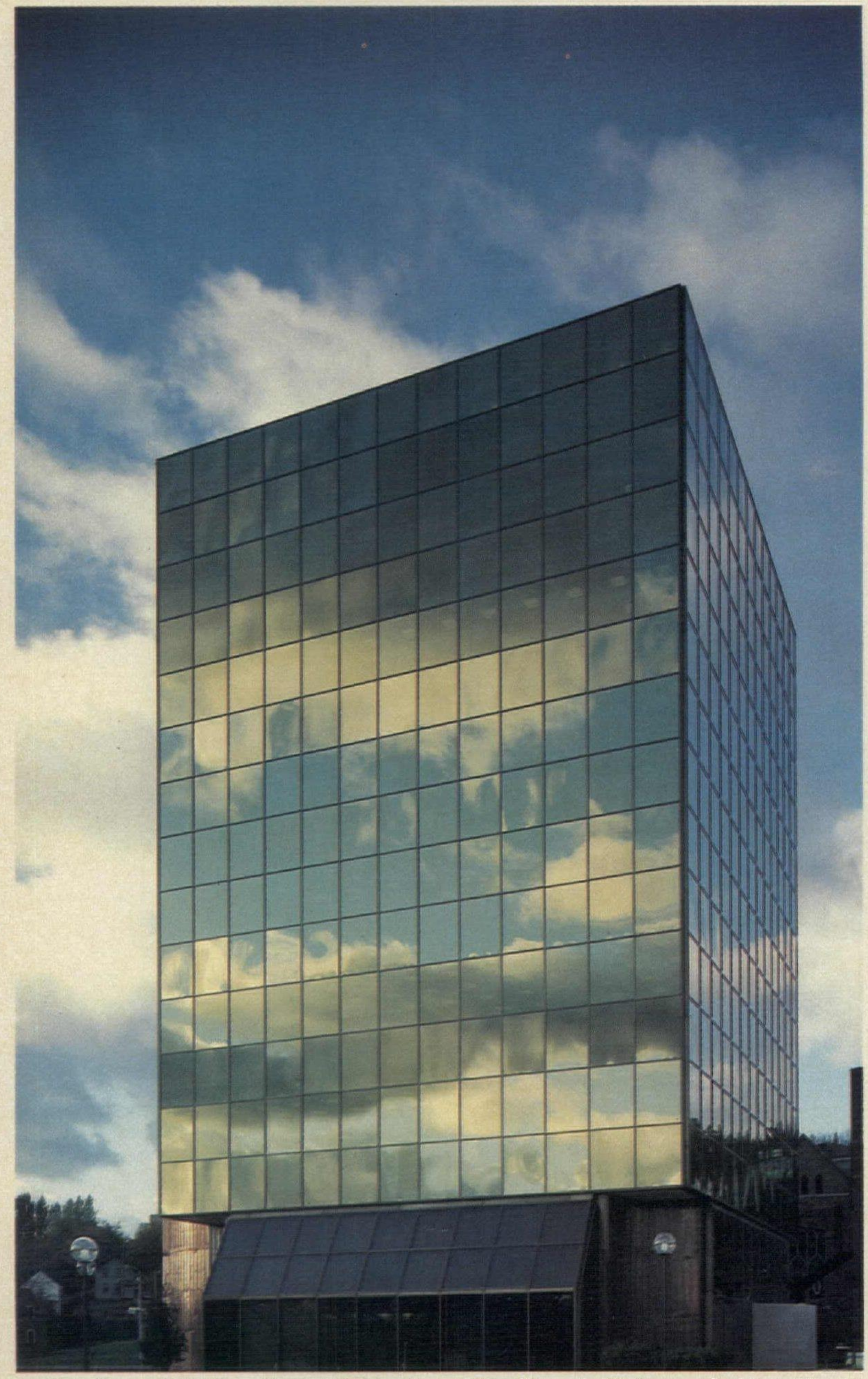
Mr. Watt went on to say, "To make a building less expensive to own and operate, you sometimes have to use more expensive materials."

Agreed: the 50,000 square feet of Thermopane insulating units made with Vari-Tran coating is not inexpensive glass. But with it the architects incorporated in the design a heat reclaiming variable air volume system that uses heat generated from the interior lighting to heat the structure.

At Edison Plaza, the 8000-plus light fixtures generate more than 5 million BTU per hour—enough to heat 75 average homes. It was found that with proper distribution of this energy, little, if any, auxiliary heat would be needed.

Vari-Tran conserves space.
Vari-Tran conserves energy.

3. AESTHETICS



Owners: Detroit & Northern Savings & Loan Association, Hancock, Michigan • Architect: Maurice B. Allen, Jr., A.I.A., Tarapata-MacMahon-Paulsen Corporation, Bloomfield Hills, Michigan • General Contractor: Herman Gundlach, Inc., Houghton, Michigan • Glazing Contractor: Cupples Products Div., H. H. Robertson Company, St. Louis, Mo.

"WE LIKE THE IDEA THAT A BUILDING DOESN'T HAVE TO SEPARATE PEOPLE FROM NATURE TO PROTECT THEM FROM IT."

The area around the Detroit & Northern Savings & Loan Building, Hancock, Michigan, is known as "Copper Country."

Detroit & Northern President, Kenneth Seaton, also stated that they wanted the building to reflect the company's long and close involvement with that area's people and industry. And, "The exterior of the building features copper tones, set off by reflective glass with a golden Vari-Tran coating."

Hancock weather delivers extreme temperatures ranging from 92° down to minus thirty. This demands something special in the way of insulation. And that something special is LOF Thermopane insulating units made with Vari-Tran coated glass.

For not only does this LOF glass insulate against the icy wind of Northern Michigan winters, but it also reduces air conditioning requirements during the summer by cutting down on solar heat gain.

Thermopane with Vari-Tran cuts building operating costs.

Naturally, beautifully.

LOF

4. VARI-TRAN®

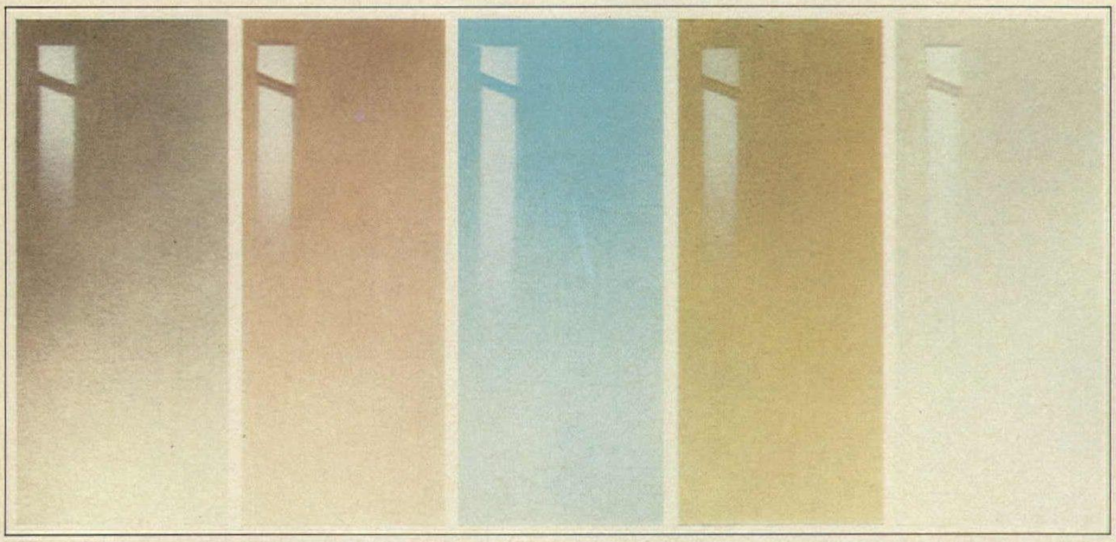
1" THERMOPANE INSULATING GLASS WITH VARI-TRAN

DESIGNATION		DAYLIGHT TRANSMITTANCE		DAYLIGHT REFLECTANCE		TOTAL SOLAR TRANS.	U VALUE	SHADING COEFFICIENTS					
									VENETIAN BLINDS		DRAPERIES (Semi-Open Weave)		
COLOR	GLASS	%	TOLERANCE	%	TOLERANCE	%	BTUH/ SQ FT/F	NO SHADING	LIGHT	MEDIUM	LIGHT	MEDIUM	DARK
SILVER	1-108	7	±1.5	44	±3.0	7	.50	.17	.16	.16	.15	.15	.15
SILVER	1-114	13	±2.0	33	±3.0	14	.50	.26	.23	.23	.22	.22	.23
SILVER	1-120	18	±2.5	27	±3.0	16	.50	.30	.26	.27	.26	.26	.27
GOLDEN	1-208	7	±1.5	28	±3.0	7	.50	.18	.17	.17	.16	.16	.16
GOLDEN	1-214	13	±2.0	26	±3.0	12	.50	.24	.21	.22	.21	.21	.22
GOLDEN	1-220	18	±2.5	24	±3.0	17	.50	.31	.27	.28	.27	.27	.28
BLUE	2-350	45	±5.0	20	±3.0	28	.55	.45	.38	.39	.36	.38	.41
BLUE*	2-350-2	38	±5.0	20	±3.0	20	.55	.44	.37	.38	.35	.37	.40
GREY**	3-108	7	±1.5	11	±2.0	9	.50	.23	.20	.21	.20	.20	.21
GREY**	3-114	13	±2.0	9	±2.0	14	.50	.29	.25	.26	.25	.25	.26
GREY**	3-120	18	±2.5	7	±2.0	20	.55	.34	.29	.30	.28	.29	.31
GREY	3-134	30	±4.0	7	±2.0	29	.55	.47	.39	.41	.38	.40	.43
BRONZE**	4-108	7	±1.5	14	±2.0	7	.50	.21	.19	.20	.18	.18	.19
BRONZE**	4-114	13	±2.0	11	±2.0	11	.50	.27	.24	.24	.23	.23	.24
BRONZE**	4-120	18	±2.5	9	±2.0	15	.55	.31	.27	.28	.27	.27	.28
BRONZE	4-134	30	±4.0	7	±2.0	25	.55	.43	.36	.37	.35	.37	.40

MAXIMUM DIMENSIONS: ANNEALED GLASS	DIMENSIONAL TOLERANCES to 48"	over 48"	MAXIMUM DIMENSIONS: TUF-FLEX® TEMPERED GLASS
AREA—7200 Sq. In. Long Dimension 138" (100" with Short Dimension under 16")	+⅛" —1/16"	+3/16" —1/16"	AREA—7200 Sq. In. Long Dimension 100" Short Dimension 72" Ratio—Long to Short 6:1

*Inboard light may require tempering.
**Outboard light must be tempered.

Additional thicknesses and combinations upon request.
Vari-Tran Coating on inside of outboard light.



LAMINATED GLASS AND SPANDRELS IN 6 STANDARD HUES

For doorways, low level windows or other access areas where safety or security is a major consideration, laminated safety glass is offered in 6 standard hues. (Others, on application.) Tempered spandrels are provided in 15 standard hues—to match the vision areas.

"FIFTY-TWO VARIETIES OF VARI-TRAN OPEN UP A WHOLE NEW SPECTRUM FOR THE ARCHITECT, THE OWNER AND THE BUILDER."

We said that.

We say it in a handy four-color brochure called "Reach for a Rainbow."

In it we include product data and specifications for the 52 varieties of Vari-Tran including the new monolithic and new types of Thermopane.

There's also a geographical guide that lists more than 70 buildings across the country where Vari-Tran is in use, with pictures of many of them.

We'd like you to have a copy of "Reach for a Rainbow." So simply write Libbey-Owens-Ford Company, Dept. P-274, Toledo, Ohio 43695.

Consider it your own guide to the conservation of natural resources.

LOF

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Rome could have been built in a day.

At least on paper.
If they had only had a Xerox duplicator.
Every time the Roman Senate decided on a new number of arches on the Colosseum they wouldn't have had to waste countless hours in tedious redrafting.
And they wouldn't have had to resort to complicated, time consuming, costly methods for creating new specifications every time an Emperor came up with a new project.
And with a Xerox duplicator they wouldn't have had to sit around, chewing on their styluses, waiting for outside scribe services to deliver copies of their specs.
The Romans had no other choice. But you do.
Contact a Xerox Architecture/Construction/Engineering specialist.
With his information and a Xerox duplicator, Rome might not only have been built faster, but it would have given Nero something else to fiddle with.

XEROX

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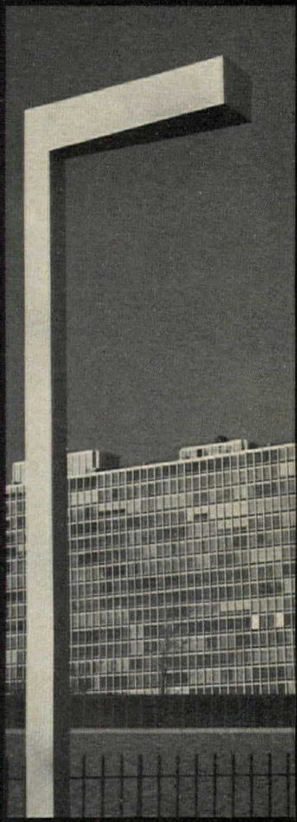
Some Hard Facts about outdoor lighting, visibility

Energy can be conserved without sacrificing aesthetic values and safety in our night time environment.

The first step is to understand that the purpose of outdoor lighting is to provide good visibility. The next step is to use luminaries which provide good visibility without wasting light (energy) in blinding glare and misdirected illumination. To reach the ultimate of effective visibility at minimum energy consumption we must examine some old myths regarding "lighting efficiencies."

Myth No.1 *"The more light you get out of the luminaire the better the lighting."*

Fact! The only light that does any good is that which is properly directed, towards the ground. Light directed into a viewer's eyes does more harm than good. This is glare, and nothing is more destructive to vision or more distracting to the observer. Since visibility is sharply reduced by glare, lighting levels must be increased to compensate for this loss of visibility. This means more units and more energy consumed.

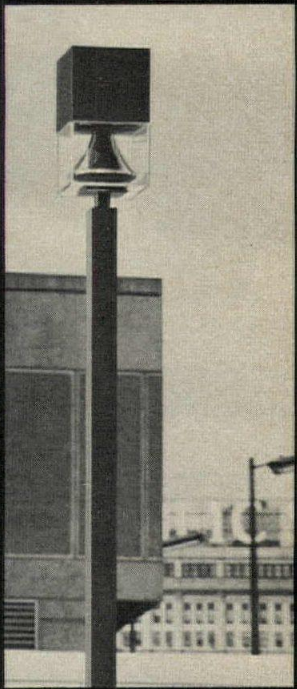


Myth No.2 *Lighting effectiveness can best be measured by the "average footcandles" in an area.*

Fact! This literally means a 10 sq. ft. hot spot of light directly below a luminaire reading 15 footcandles surrounded by 90 sq. ft. of darkness, results in an average of 1.5 footcandles for 100 sq. ft. This has to be a poor concept. The only proper way of measuring the effectiveness of illumination is by the lighting provided at the least illuminated point between poles and the uniformity of lighting throughout the area.

Myth No.3 *The architects and engineers have an "either or choice" between efficient lighting without good looks or aesthetic lighting without efficient performance.*

Fact! You can have both aesthetic values and good performance. Let's examine only two of the many handsome units in the Moldcast line that provide truly exceptional performance, the Sans-Serif and the Pericline Contemporary.



Although entirely different in appearance both do an excellent job of eliminating harmful glare and spread effective illumination over remarkably broad areas.

The San-Serif, with its highly sophisticated reflector system, allows pole spacing up to 5¾ times the mounting height with good uniformity of illumination. Yet it is completely free of glare from normal viewing angles. More than this, from most angles it virtually eliminates the appearance of all light at the top of the pole. The results of this unique capability is shown in the comparison photographs of the Sans-Serif on the left and a typical roadway luminaire on the right.

The visual confusion caused by the high glare of the typical unit is evident. Compare this with the complete focusing of light on the roadway produced by the Sans-Serif without any waste or harmful glare. The message, in terms of energy consumption, is clear. The excellent lighting qualities of the Sans-Serif allows the reduction of wattage (power consumption) without sacrificing good visibility.

The Pericline Contemporary is definitely a decorative unit and yet is also probably the most efficient area lighting luminaire ever designed. The 400 Watt High Pressure Sodium model provides an excellent .6 foot candles at the furthest point between units spaced 140′ x 130′.

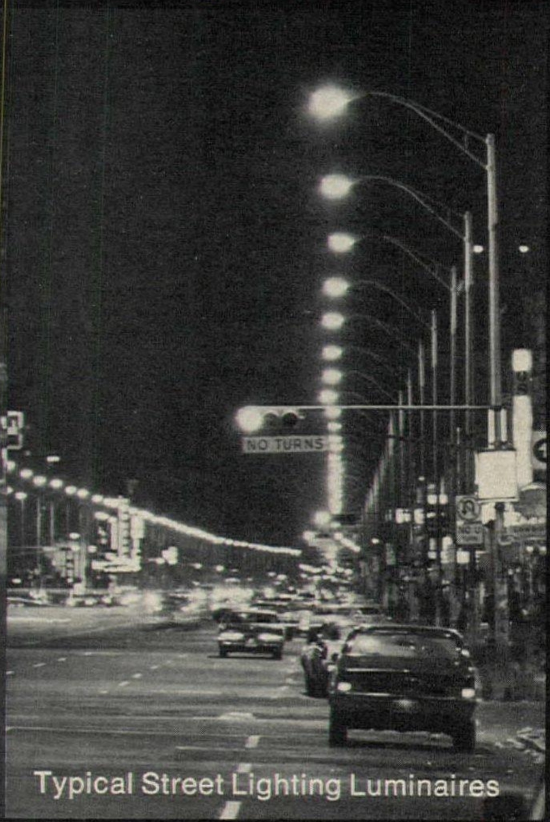
Fact: That's only one watt of energy for each 45 square feet of ground surface without a bit of glare. Only a soft luminosity appears within the luminaire defining its shape at night.

The photograph at the right shows two of the smaller Pericline Contemporaries creating a glare-free environment with uniform level of illumination spread across a broad area.

We hope we have increased your understanding of the relationship between outdoor lighting, visibility and energy consumption. You can still provide architecturally distinctive lighting fixtures without sacrificing perfect visibility or comfort and achieve at the same time an economical use of energy. Write us for more detailed information on the subject.

and energy consumption.

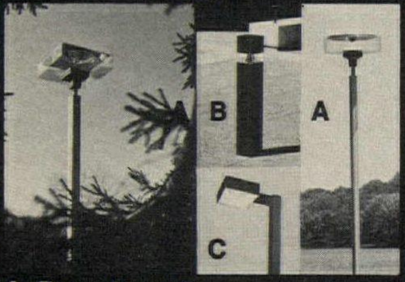
Sans Serif Lighting System – Birmingham, Alabama



Typical Street Lighting Luminaires

Pericline Contemporary Lighting System

Other high performance lighting products are also available for a wide variety of environments.



A. Round and Square Landscape Chandeliers
B. Bollard Pericline – 3½ feet tall
C. Site Modulex

The Night Time Environment People

MOLDCAST LIGHTING

Division of Weil-McLain Company, Inc.

164 Delancy Street, Newark, N. J. 07105

In Canada: Varco Industries Ltd., Montreal 379

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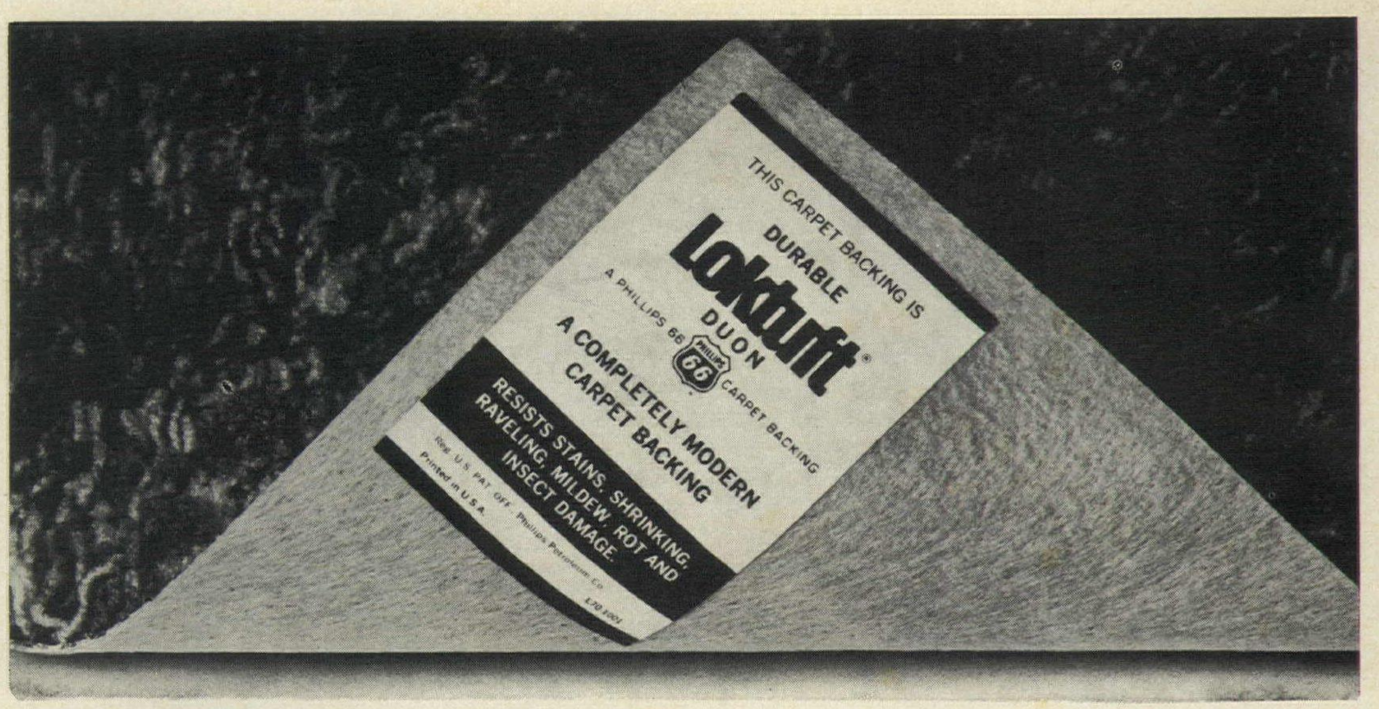


"Can I specify a carpet backing that resists shrinking, rotting and odors?"

Yes. Specify Loktuft® Duon. The totally synthetic secondary carpet backing—that performs far better than natural fiber backing.

"How does Loktuft do it?"

First, it's made with Marvess® olefin, a Phillips 66 fiber . So it resists moisture, rot, and mildew.

Second, the hydrophobic property of Marvess, plus the unique non-woven construction of Loktuft, give you a stable, shrink-resistant backing fabric.

"Is Loktuft the answer to my special problems, too?"

Certainly. Loktuft Duon is perfect for below grade installations. Or where you encounter excessive humidity. It even resists the dampness or moisture deposited during commercial cleanings.

"Where can I order it?"

Easy. Just ask your carpet resources or consultants about commercial grades made with Loktuft Duon.

They'll tell you how well this backing performs for both glue down and tackless over pad installations.

"Are the big carpet manufacturers using Loktuft?"

Yes! You'll find millions of yards backing some of America's finest names.

"Where can I get more information?"

Simple. Just write: Home Furnishings Marketing, Phillips Fibers Corporation, P.O. Box 66, Greenville, South Carolina 29602.

Loktuft®

A PHILLIPS 66 CARPET BACKING

PHILLIPS FIBERS CORPORATION GREENVILLE, SOUTH CAROLINA, A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY. MARKETING OFFICES: P.O. BOX 66, GREENVILLE, S.C. 29602, (803)242-6600, 1120 AVENUE OF THE AMERICAS, N.Y., N.Y., (212)697-5050,

* REG. U.S. PAT. OFF., PHILLIPS PETROLEUM COMPANY

Circle No. 355, on Reader Service Card

Circle No. 331, on Reader Service Card →

Contents

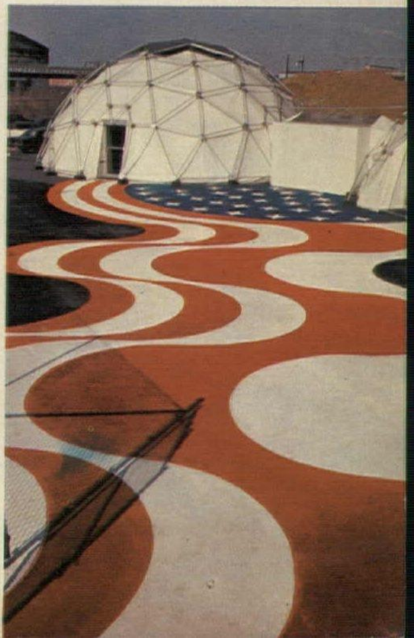
News Report

O, Say, Can You See?

Just north of New York's World Trade Center along the Hudson River, a supergraphic of the Stars and Stripes by Manhattan artist Robert Frenay unfurls to direct visitors to the rental offices of Independence Plaza North. This groundgraphic took crews of three to five people nearly a week to complete. First the parking lot surface was swept clean and oil spots were rubbed with thinner, they applied before white traffic zone primer. Then they swung arcs with a long line and chalking jib, starting at a point inside the doorway of the larger dome. A template cut from quarter-inch plywood established the stars; stripes in red and blue bulletin colors were roughed in with shaggy rollers on poles and trimmed by hand with brushes.

The result: patriotism for fun and purpose for the townhouses and three towers that house the 1400 units. Independence Plaza North is by architects Prugy-Bergren Associates, New York, for owner Duane St. Associates; sponsor, the United Paper Workers International Union; funding, New York City Housing Development Association; domes by Dome East Corp. of Hicksville, Long Island; photos, aerial, Joseph Dalsanto; others, Robert Frenay.

Flag supergraphic embellishes rental office



Robert Frank Hastings, past AIA president

Robert Frank Hastings, head of the Detroit A-E firm of Smith, Hinchman & Grylls Associates., died Dec. 21, 1973, the day following his 59th birthday.

Hastings was national president of the American Institute of Architects during 1970–71. A native of Kenosha, Wisc., he received his bachelor's degree in architectural engineering from the University of Illinois in 1937. The same year he joined SH&G, the firm he headed since 1960.

Among his principal works are the guided missile plant in Bristol, Tenn. (1954), and, in Korea, a management services building for ICA (1960) and the Yonsei University Medical School in Seoul (1963).

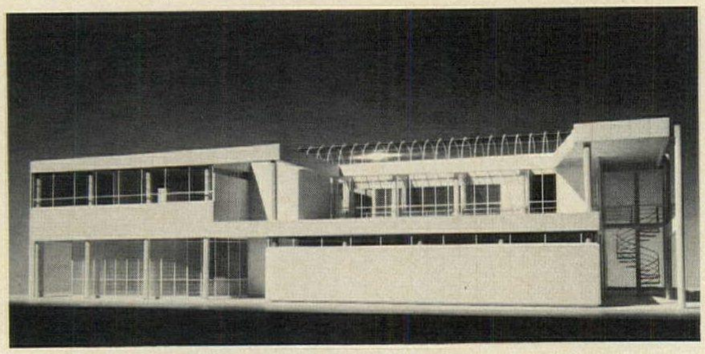
Hastings served in numerous professional capacities which included a trusteeship for the Producers' Council Educational Foundation and a position on the cooperating committee for the Syracuse University School of Architecture. He was a member of both the American Society of Civil Engineers and the National Society of Professional Engineers.

[news continued on page 26]

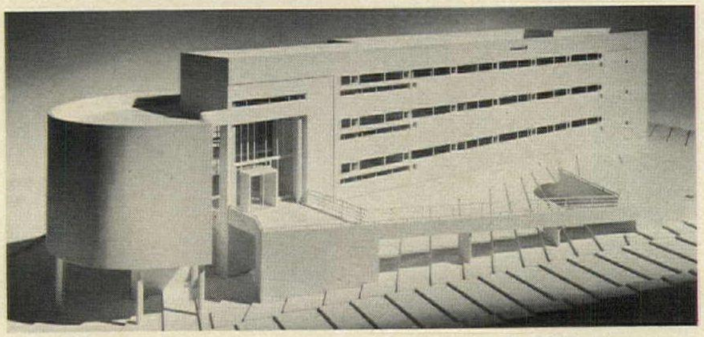
News report

Buildings on the way up

Trainee dormitory

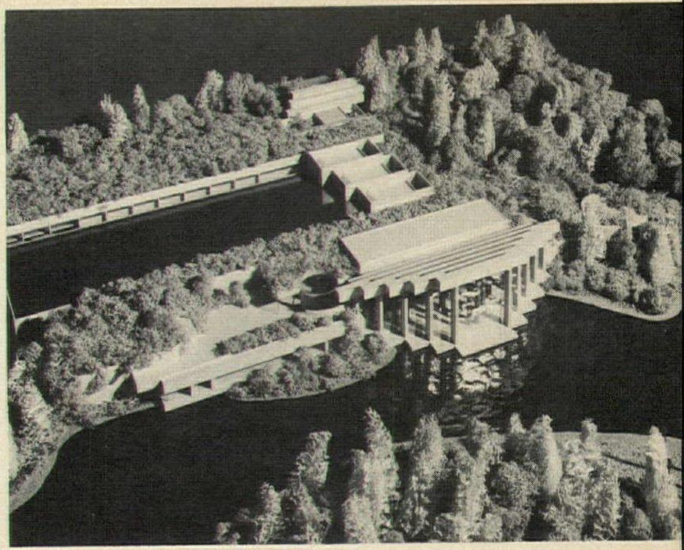


Prototype sales and service branch



Olivetti national center

1



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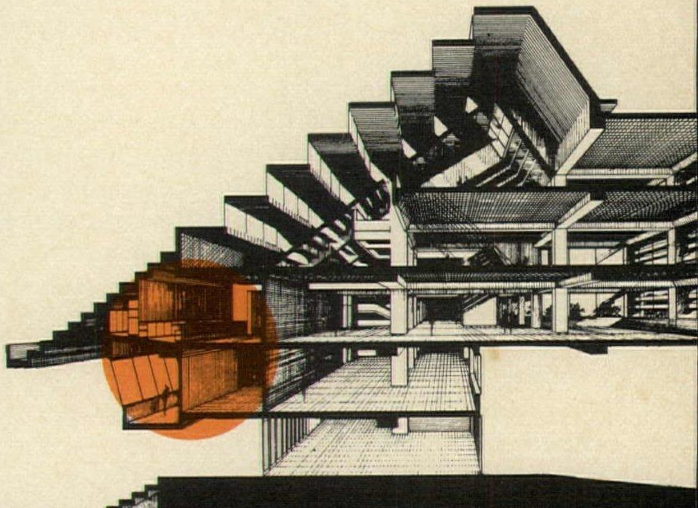


2

1 From the people who gave us typewriters as *objets d'art* come four elegant buildings by architects Richard Meier & Associates of New York City. Commissioned to house expanding U.S. operations of Italy's Olivetti Corp., Meier has designed a national sales and service center for Fairfax, Va. near Washington, D.C., a dormitory for 200 trainees adjacent to an existing training center in Tarrytown, N.Y., and two prototypical sales and service branch offices. The four wear the unmistakable shimmer, visual paradox, and refinement of early International Style idioms that mark Meier's single-family residences. Yet they are economical with construction and materials: exterior, glass and aluminum pre-fab panels on concrete structure; interior, factory staircases, partitions, and other fixtures.

The floor plans are simple. Double-load corridors bisect a rectangular grid into sales and service areas in the national center and prototypes; a single-load corridor feeds the dormitory bedrooms. The prototypes can expand along their corridors.

Although not a major architectural revelation, the portfolio has important site implications. Meier has sited the buildings with consummate taste, developing the voluminous national center and the serpentine dormitory into sensitive and commanding forms on their hillsides. The prototypes are sculpted in the round. More important is the message they convey for Olivetti. Olivetti has absorbed the teachings of the Bauhaus. The typewriters it markets are exemplars of the machine aesthetic, machine-made, essentially rootless objects, sufficient unto themselves. Meier's new buildings promote them perfectly.

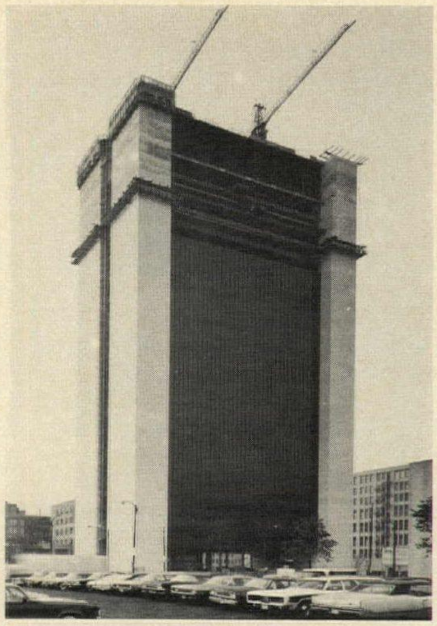
2 Architects Naramore Bain Brady & Johanson of Seattle, Wash. faced a client program of combining a stadium grandstand with academic quarters—the departments of architecture, landscape architecture, interior design, and, maybe, computer science. Their solution is a brick and concrete five-level building which faces the playing field while relating the classroom portion, by a 3½ degree shift, to nearby academic buildings. The long press box on nonevent days serves as seminar rooms. Louvered monitors above allow light to penetrate into lower floors, and minimal use of partitions permit visibility of the football field from the interior of the building. Phase one, the press gallery, of the Washington State University stadium, was finished last fall.

3 If everything happens as planned, the Museum of Anthropology at the University of British Columbia, Vancouver, will be spectacular, indeed. Built halfway into a gentle slope, the two-level structure designed by Arthur Erickson of Vancouver will drop toward a man-made pond beyond which lies the Strait of Georgia, part of the Pacific Ocean. A 40-foot-high glass-enclosed Great Hall will jetty into the pond at water level. In it will be a permanent display of totem poles placed to recapture their symbolic Indian setting. The arrangement also is intended to give visitors the illusion of a sea inlet. An Olympic-size reflecting pool, purely decorative, covers the roof of another section of the museum.

4 Minoru Yamasaki's design for the new corporate headquarters of Montgomery Ward in Chicago is a 26-story aluminum and glass medium-rise with end cores of travertine marble. The company chose to build in its present northside location close to the Chicago River rather than move into the Loop, Chicago's central business area. Ward's will be ready to move into its open-plan offices in the late spring. Eventually the company expects to add a riverfront plaza and a second building of about 30 floors.

5 Vertical rather than horizontal openness achieves the unity architects Arley Rinehart Associates of Denver sought for a community clubhouse to be ready this summer. The light frame construction with plywood sheathing is compatible with the moderate construction budget and the surrounding homes in the development. At present the Winchester Clubhouse will serve as sales headquarters for the development. As a silent selling feature, visitors move through the building in a manner which will expose them to the various attractions of the clubhouse: its pool, squash and tennis courts, lockers and community room.

6 Pending final approval by the Washington, D.C., City Council, the Dwight D. Eisenhower Memorial Bicentennial Civic Center will be constructed on a site six blocks from the White House. The convention center will contain a 300,000 sq. ft. exhibition hall—largest on a single level in the United States—and the building will be bounded by five streets and straddle a sixth.



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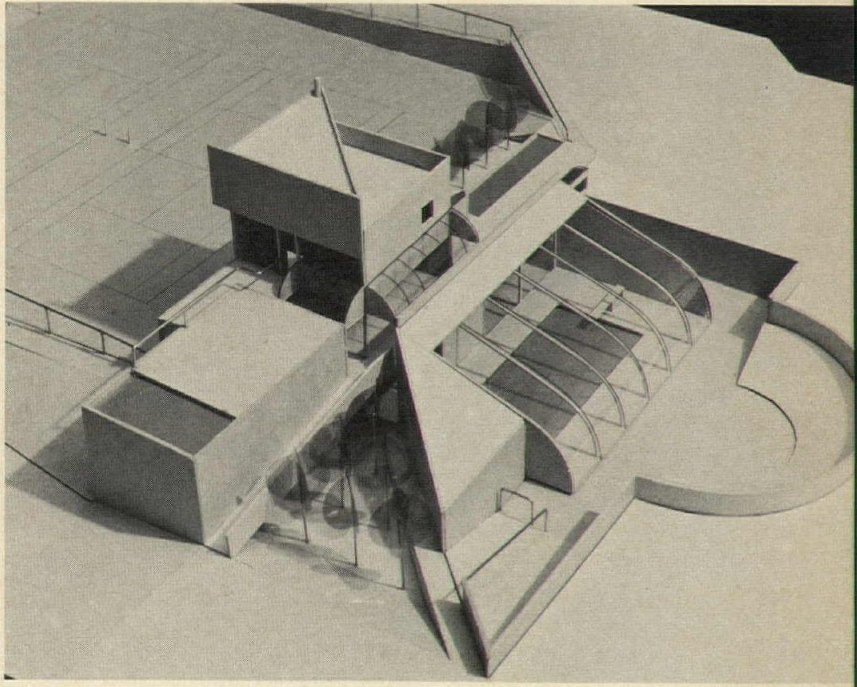

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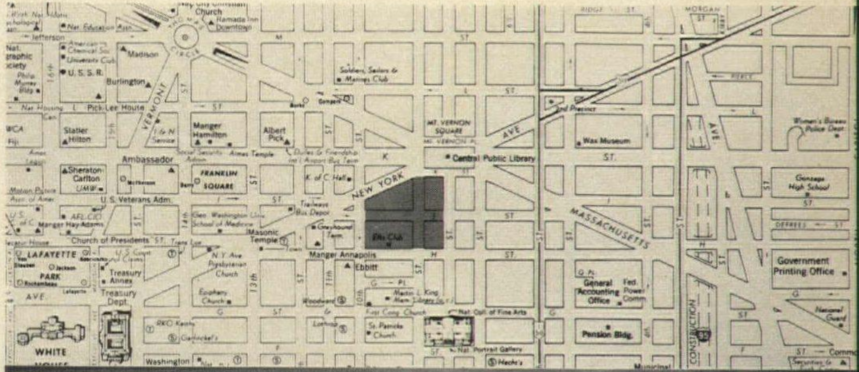
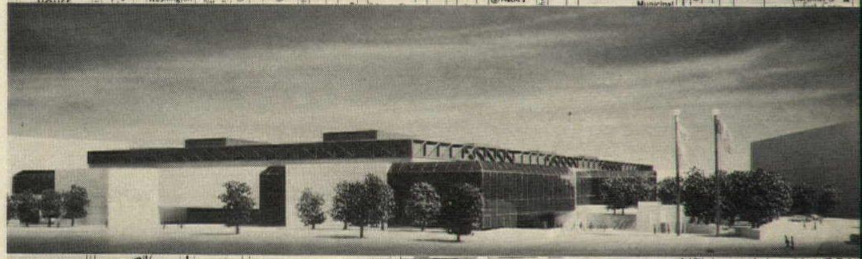
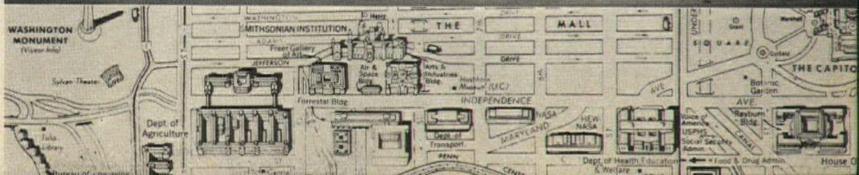






In Rehoboth Beach

LUXURY OCEAN-FRONT CONDOMINIUM AND RESORT HOTEL rapidly framed in structural steel

The rapid fabrication and erection of a structural steel framework during the winter permitted on-time occupancy of a new residential structure at Rehoboth Beach, Delaware. Henlopen Condominium provides spacious luxury for summer living or for permanent residence.

Although many comparative framing systems were examined, the advantages of steel-framed construction pointed the way to the most practical design for the condominium hotel.

In addition to architectural design requirements, economics and erection speed directed the designers to a framework of structural steel. Primary considerations included:

• restrictions placed on construction during the summer tourist season limiting the use of heavy construction equipment meant that fabrication and erection had to be carried out rapidly, during the winter months;

• the lack of a trained labor force in the beach community required bringing in skilled workmen; a desire to employ these workers for the shortest duration;

• the scheduled completion date.

Provides 248 housing units

The basement, first floor at ground level, and second floor of Henlopen Condominium are concrete slabs. Two towers—an L-shaped condominium apartment tower and a rectangular hotel tower—are framed with structural steel, rising from the second to the eighth floor.

The first floor level provides condominium and hotel lobbies, commercial space along the Rehoboth Beach boardwalk, hotel service areas and mechanical space, and parking areas which supplement basement parking facilities. Condominium and hotel units begin on the second floor. A promenade area connects the towers at this level. There are 146 housing units in the condominium section and 102 units in the hotel tower.

A restaurant and kitchen occupy the entire eighth floor of the hotel.

The condominium features a swimming pool on the roof.

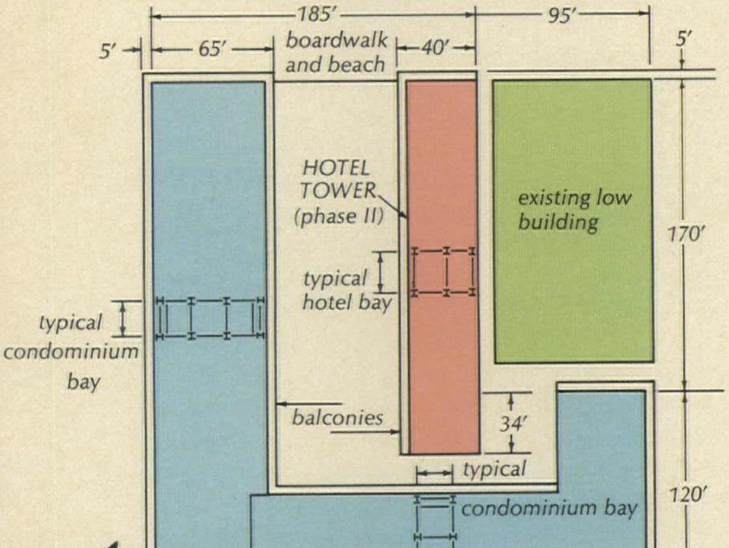
The total project incorporates almost half-a-million square feet with the dominant portion (434,700 sq ft) devoted to the condominium. Construction cost for the Henlopen project is approximately $10,000,000.

Two construction phases merged

The condominium/hotel structure was designed to be built in two phases; phase one included the basement, first and second floor, and the condominium tower. During construction, however, the developers opted to proceed with construction of the hotel.

Owner: Henlopen Developers, Inc.; architect/engineer: H. D. Nottingham & Associates; (phase one) fabricator: Adams Fabricated Steel Corporation; erector: George L. Elliott & Son, Inc.; (phase two) fabricator: Budd Metal Company, Inc.; erector: Max Ambach & Sons; general contractor: Max Ambach & Sons.

Bay size in the condominium is typically 20 by 20 ft. W12 members are used for girders and spandrels with 12J3 floor joists. In the hotel tower typical bay size is 20 by 24 ft framed with W12 and W16 sections.



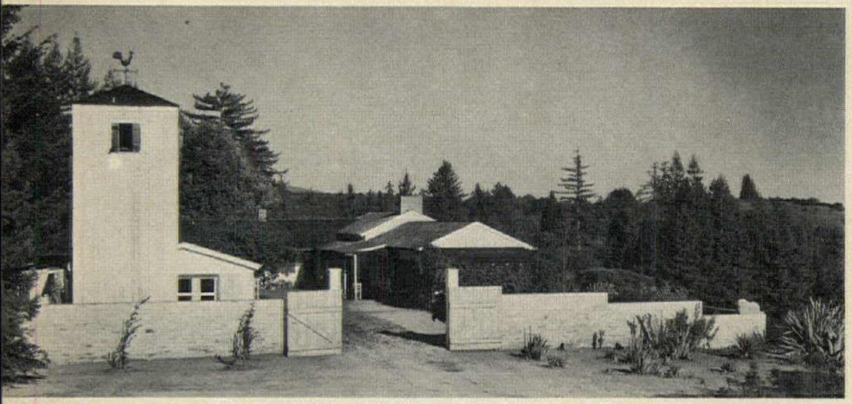
The condominium/hotel structure was designed to be built in two phases; phase one included the basement, first and second floor, and the condominium tower. During construction, however, the developers opted to proceed with construction of the hotel.

Fabrication of 950 tons of Bethlehem structural steel for phase one began in early November, 1972, and erection began two weeks later. In late January, 1973, fabrication of 320 tons of Bethlehem steel framing was started. Erection of the ASTM A36 structural steel framework was completed in mid-April.

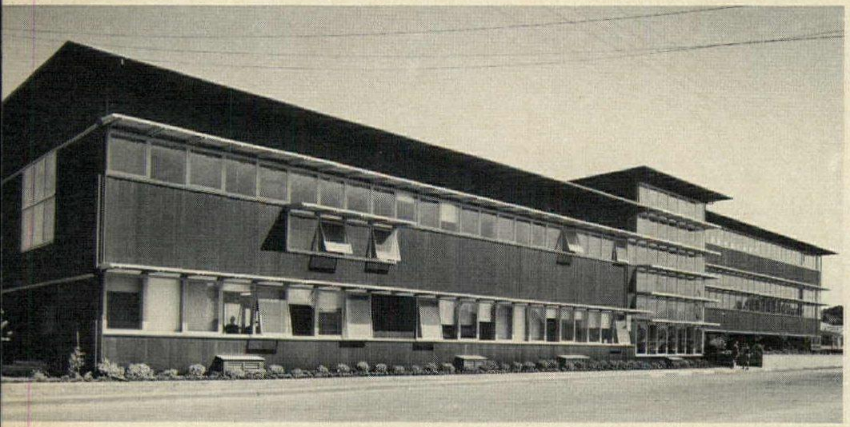
Whether you are planning a high-rise or low-rise structure, steel framing has advantages that can save owners dollars and time. Our district sales engineers are ready to show you how. Give them a call, or write: Bethlehem Steel Corporation, Bethlehem, PA 18016.

Bethlehem

News report continued from page 21



Gregory Farmhouse



Schuckl Canning Company

Center for Advanced Study in the Behavioral Sciences

William Wurster—environmentalist

William Wilson Wurster died this fall. True to his calling, Wurster left his own memorial in his buildings. He built hundreds of them over a 50-year career beginning in the 1920s. Of the many I have seen, three stand out and epitomize for me his life and work.

Wurster had just turned 30 when he set to work on the Gregory Farmhouse. Here he formulated themes that he would spend his life exploring: a nonmonumental directness about design, a concern with the ordinary settings that situate daily life, a nice wit and deceptive artlessness, and an involvement with nature that gives an ecological symbiosis between the landscape and his buildings. In that simple farmhouse he laid it all out, a set of ideas that would serve him a lifetime, that would draw others and, with them, coalesce a genuinely regional style. These ideas would lead to his most important contribution, the discovery of environmental design.

A dozen years later, at the height of his creative powers, William Wurster designed the Schuckl Canning Company office building. It received lots of attention at the time as evidence that the modern movement had become rooted in American soil. True, but in hindsights it had another, more important meaning. At Schuckl, Wurster demonstrated that his ranchhouse directness could serve popular causes as well as elite ones. Spectacular evidence of the popularity of his forms came from the California homebuilding industry. Then in the last decade, acceptance has broadened and produced the condominium vernacular of today.

The third of Wurster's buildings that I call pivotal is not strictly speaking his at all. Vernon DeMars, Joseph Esherick, and Donald Olsen, architects he had assembled to teach at Berkeley, actually designed Wurster Hall, home of the College of Environmental Design. The building, however, symbolizes Wurster's tremendous contribution as an educator.

As an architectural educator and dean of architecture, planning, and landscape architecture at two great schools, he left his major mark on our times: the rediscovery of environment and the reintegration of the fragmented design professions around a core concerned with environmental planning and design.

To see the enormous dimensions of this legacy, it helps to set his life and work beside that of another giant architect-educator, Walter Gropius. In their youth both built works of transcendent power, though the spirit each work embodied seems almost at opposite poles. Gropius' early work appears harsh, tough, machinelike, totally part of a man-made universe. Wurster's farmhouse on the other hand comes to us as soft, understated, at home with nature. In mid-life both men turned toward education. The Bauhaus of Gropius has become the proverbial symbol of the international modern movement. Wurster, again gentler in his influence, intimated at MIT, then realized at Berkeley, a new spirit in education, a new formulation of both goals and content. Now, with the current explosion of environmentalism, his ideas have begun to spread around the world. Late in life both Wurster and Gropius succumbed to success. Each helped found large, commercially successful firms whose work somehow diminished the luster of their earlier individual accomplishments.

What striking parallels and differences they showed. Gropius and Wurster each believed in making a seamless joint between practice and teaching. With Gropius it seemed to end there at learning-by-doing. Wurster's ideas were more complicated, even contradictory. Contradiction comes out in Wurster's appointment of a new breed in addition to the practitioner-teachers, people like Lynch and Rodwin at MIT, like Eckbo, Alexander, and Moore at Berkeley. In the cause of environmental design, Wurster formed a new academy based in part at least on a novel interaction between economics and design, between sociology and building programming, one that drew on mathematics, aesthetics, and ethics, that merged science and feeling in a concern for man-made and natural environment totally interdependent. "Knowing more now about the full dimensions of our world," declared MIT Dean Emeritus Lawrence Anderson at Wurster's retirement from Berkeley, "we can perhaps, in cooperation, give it a deeper meaning."

Wurster is dead. He leaves a world profoundly critical of architecture and architects. He leaves that world a possible hope. That's an awful lot these days. [Roger Montgomery]

P/A awards presentation

Progressive Architecture held its 21st annual design awards presentation with a luncheon Jan. 18 at New York's Four Seasons in the Seagram Building. Editor John Dixon welcomed the 143 guests and presented walnut plaques with the winners' names engraved in brass to the 11 award winners and certificates to the citation winners (863 entries had been submitted). Robert N. Sillars, Jr., publisher of P/A, introduced the recipients whose winning projects were slide projected onto a screen. Guests included clients of the winners, three of the eight jurors, and several past jurors. Among those at the head table were Charles P. Daly, president of Litton Publications, Philip H. Hubbard, Jr., president of Reinhold Publishing Company, and Jaquelin Robertson of Arlen Realty and Development Corporation, chairman of the awards jury.

"Building a Way out of the Energy Crisis" was the message guest speaker Louis H. Roddis, Jr. directed to those present. Roddis, vice chairman of the board of Consolidated Edison of New York, praised the jury for citing two projects for their energy-conserving efforts. He lamented the fact, however, that a juror criticized a building because its solar collector "made it look like 'a billboard blown over by a windstorm.' "

Roddis mentioned Con Ed's own headquarters where energy-conserving practices have been in effect for three years. Lighting fixtures were removed, windows caulked, thermostats reset. And in 1973 energy use was down 29 percent. Roddis concluded his remarks by reminding the architects of their influence "in how successful America will be in meeting what will be a very serious continuing energy crisis."

Correction: In the credits for the Georgetown Planning Group (P/A, Jan. 1974, p. 78), the firm of Wallace, McHarg, Roberts and Todd was omitted from the listing of project teams.

[news continued on page 28]

Susan Southworth,
Michael & Susan Southworth

George Bissell,
Bissell/August

Robert Peterson,
Phillips and Peterson

Richard Weinstein,
Lower Manhattan Dev.

Alexander Cooper,
Urban Design Council

John Kriken, SOM/
Marshall Kaplan; Gans and Kahn

Richard Smith,
DMJM

David Wallace,
Georgetown Planning Group

J. Vey,
City of Boston

Michael Brill,
BOSTI

Scene repeated 11 times as P/A Editor John Dixon congratulates winners who receive plaques. At left, Charleen Beltt, Barton-Aschman

News report continued from page 27

Aspen conference 1974

The 24th International Design Conference in Aspen, Colo. will be held June 16–21 exploring the theme: "Between Self and System." A committee from the Massachusetts Institute of Technology is planning the program. Julian Beinart, visiting professor of architecture at MIT is program chairman.

Issues will include "What is it that promotes and resists change?" and "Is creativity still a useful concept?" Two kinds of presentations will be held during the conference. One is theoretical analyses by social and natural scientists; the other, case studies by architects, designers, and people from the visual and performing arts, such as filmmakers from Latin America and a theater group from Africa. The People's Republic of China also has been invited to participate.

Serving on the MIT planning committee are Florian von Buttlar of Germany, and Roger Simmonds of Great Britain, graduate students, and Suzanne Weinberg, an architect.

Program chairman Beinart was dean of the faculty of fine arts and architecture at the University of Cape Town, South Africa, before joining MIT. He published and lectured in the field of African culture, its folk art, jazz, and architecture.

Further information is available by writing International Design Conference, P.O Box 664, Aspen, Colo. 81611. For camping facilities write the Forest Service, 315 N. 7 St., Aspen, Colo. 81611.

'Ignorance crisis'

Lack of energy—or at least the threat of it—has turned every designer, producer, client, and group to address the problem. Hardly a news story begins without reference to the shortage and its implications. Therefore, P/A's current News report reflects this national concern and treats it in three broad categories: the problem, solutions, and research.

The problem—Ignorance crisis is how Buckminster Fuller answered a question a year ago on the energy crisis. He said what is needed is not less technology but more—more know-how, more applied research. Similarly, the American Institute of Architects Research Corporation has issued a report, "R&D '74," publically available, suggesting that architectural study programs be directed towards energy issues.

Around Washington, D.C., slogans in a lighter vein for energy consciousness-raising abound. A sampling: "You Can't Fuel All of the People All of the Time." "Waste Watt, Want Watt."

Solutions—Emphasis is on task lighting rather than uniform lighting, energy-conserving buildings, and the use of construction materials that require less energy to produce.

Forecasting economic activity for 1974, the Prudential Insurance Co. sees a housing decline although business will continue to spend for new plant and equipment needs.

Standing to gain from the energy crisis is the forest industry. R. B. Pamplin, chairman and president of Georgia-Pacific Corp., estimates record-setting gains for the industry in 1974 when wood products will replace large volumes of plastics made from petrochemicals. Miami architect Alfred Browning Parker also advocates the use of wood, which requires less energy to convert from the raw to the finished state and may be recycled into the environment.

In what the Council of the Society of Plastics Engineers calls a historic action, it has appealed to its membership to write government officials protesting cutbacks of crude oil.

The National Electrical Manufacturers Association also predicts shortages in its field due to scarcity of production materials and urges such measures as the lifting of price controls and release of government copper and zinc stockpiles.

Ultimately government action will determine the course of the crisis. Legislation is expected that will force reduction of energy consumption by commercial buildings. A survey by the Producers' Council, Inc. of Washington, D.C. shows that half the experts queried believes that radical new designs for wall insulation and heating and air conditioning systems will emerge from the crisis.

One area which needs to update its procedures, according to Owens-Corning Fiberglas Corp., is that of mortgaging policy, which currently places low priority on energy saving systems. Although such systems often add to initial costs, they save in the long run.

Research—John P. Bologna, director of new products for PPG Industries, Inc., glass division, says that mass-produced solar heating is possible within five years with federal assistance. His company already is subcontractor for several prototype solar-powered buildings. A Philadelphia firm, Ballinger, along with the University of Pennsylvania, has been appointed solar energy consultant for General Electric Co.'s Space Division. Emphasis will be on commercial and industrial structures, long difficult to heat or cool through sun power due to their large spaces. Meanwhile, the Solar Center has been established in Washington, D.C., with a staff of specialists and consultants, by James P. Ince, president of a public affairs and communications firm.

Other forms of energy research include a program to convert city wastes into energy. C-E Power Services of Windsor, Conn., a unit of Combustion Engineering, Inc., is conducting this research for the Rochester (N.Y.) Gas & Electric Co. for application to four existing steam generators. The U.S. Army has hired Envirodyne Energy Services of Long Beach, Calif. to study total energy concepts. The results will be compiled into a design criteria manual for the Army.

Washington report

Energy crisis: A mixed blessing

Congress fumbled and bumbled its way to adjournment just before Christmas without reaching any firm conclusion as to what to do about the energy crisis. Leaving for a vacation that extended to nearly the last week in January, the lawmakers couldn't agree even on emergency powers to be given the Executive to cope with the situation.

So, as snow came to the Capital for the first time in two years, the executive branch was operating through devices like the economic stabilization act, trade powers act, and others, to spread out fuel supplies as best possible for the winter. The assumption being that even if Arab oil producers relent, the time lag in refilling pipelines would be great enough to cause trouble in the U.S. this winter, and already evident price rises would have a long-term effect.

There were strong indications, however, that both the administration and Congress were worrying heavily over the possibility of sharply increased unemployment rates as a re-

[continued on page 34]

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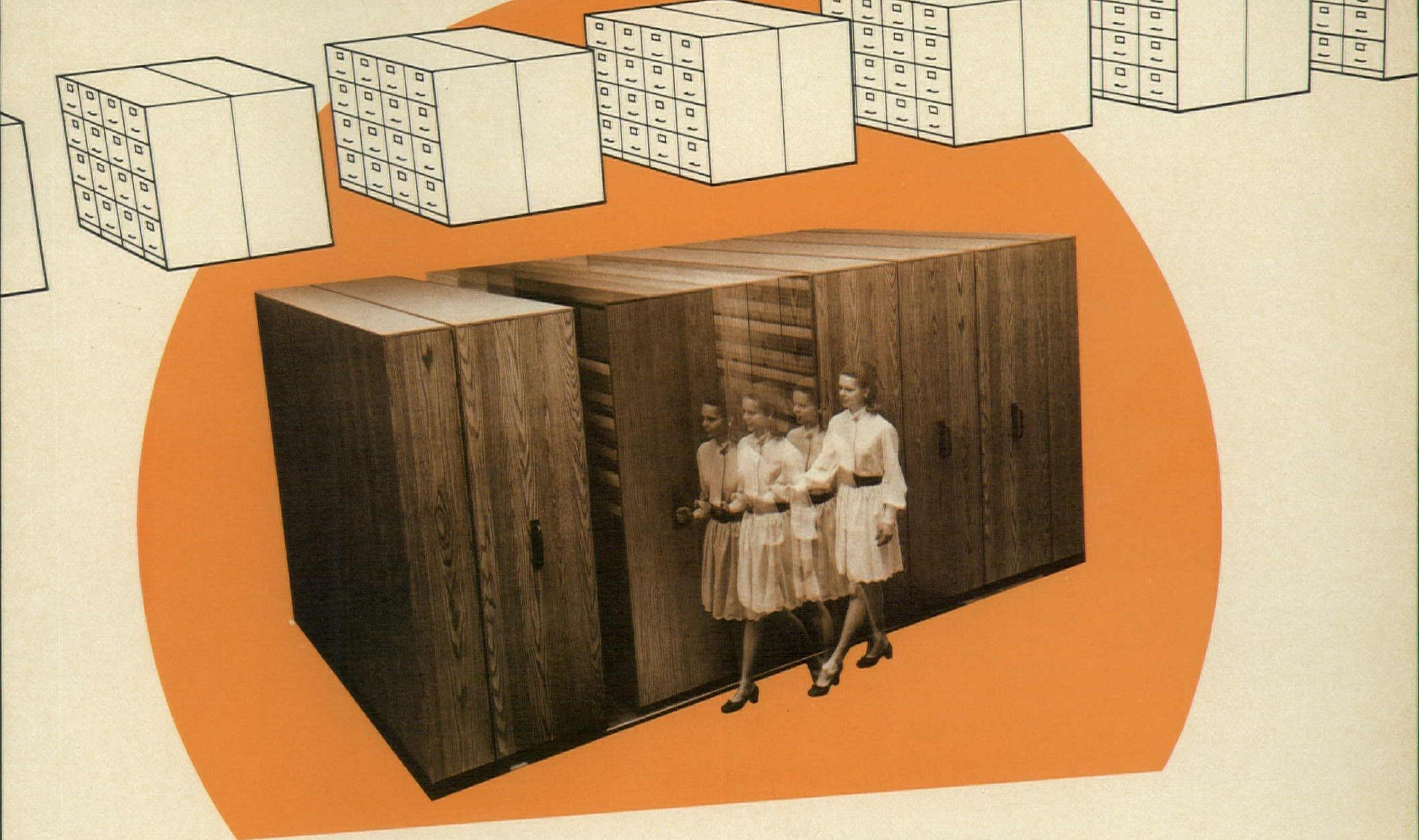

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News report continued from page 29

sult of energy shortages, and were trying to plan actions to take up the slack, if that became the case. Most obviously, there would be a turn to a massive injection of federally sponsored public works. That's the traditional political answer to unemployment problems, of course, and it has worked to some extent in previous times of trouble. This time, there's money available to fuel such a turn: the approximately $7.6 billion "impounded" by the Executive in budget-balancing efforts, most of it in funds for such things as highways, water-sewer construction grants, various housing programs, and the like. Indeed, the administration might well look at the energy crisis as a means of getting out of a nasty situation over "impoundment"—some 65 lawsuits already have been filed by state and local governments, even by some members of Congress, seeking to force disbursement of this money. (Just before Christmas, the White House did announce release of some $1 billion of the total—mostly for schools and medical facilities.)

Such a turn also could provide a welcome boost for the construction industry and its people: more highway work, more bridges, sewage-treatment plants, particularly more inner-city work, which could help the industry's somewhat gloomy outlook. The same situation, by the way, promises a real boom in a huge but often neglected segment of the industry's annual business: maintenance and repair, which ran last year at about $19 billion, according to Census Bureau.

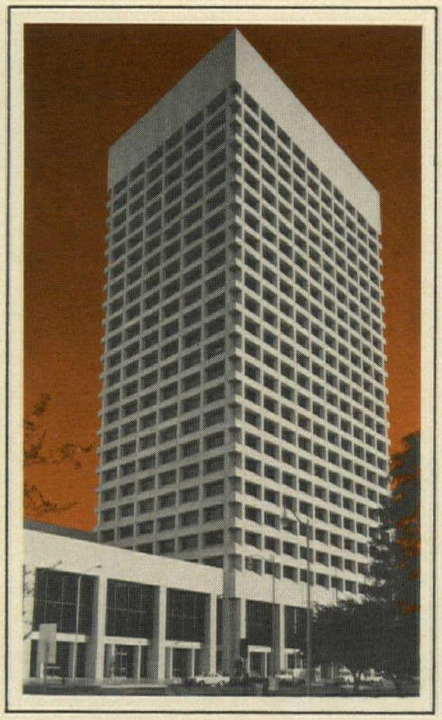
There is a good deal of sense behind the expectation of a maintenance-repair upsurge: as gasoline gets shorter, outlying suburbs without transportation services become less attractive; sewer "moratoriums" already have cut heavily into housing construction in suburban areas (total housing starts touched down to the 1.6 million mark at the end of October). Inner-city housing, however dilapitated, already has sewer and water services available, access to transportation, shopping and business areas, and now it may become profitable to rehabilitate housing and commercial space. Any upsurge in such work could be a welcome boost for the construction industry's economic health.

A switch to more government-sponsored construction would be a mixed blessing to professionals such as architects, however. Increasingly searching evaluation—not of professional qualifications but of political activity—is inevitable, despite the heavy rear-guard action being fought by the professional societies to avoid just such a result.

Portentous measures appeared in Maryland (where the current "kickback" scandal started) in a report to the governor by a blue-ribbon panel of architects, engineers, and attorneys. Suggested the panel: selection of consultants should be "open to the public"; successful firms should be required to make complete disclosure of any political contributions to state officials before being awarded contracts. There is more: Maryland's Department of Transportation—which handles the major share of consulting architectural and engineering contracts for the state—said it would start a "limited experiment" in bidding for A-E contracts this year. These developments, together with the swatch of bills now before Congress aimed at weakening provisions of last year's "Brooks Bill," aren't particularly omens for the professionals. They did win a minor

[continued on page 36]

"As concerned businessmen, we wanted to conserve energy and keep operating costs down.



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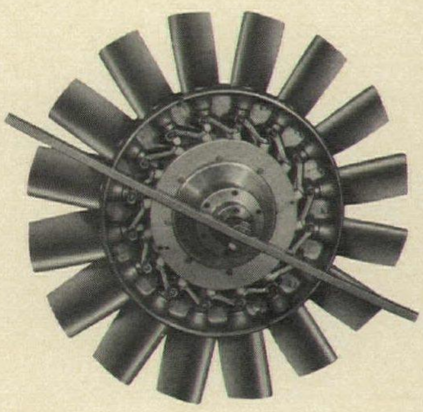

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News report continued from page 34

victory, however. In that $2.6 billion military construction bill approved by Congress before it went home, there are familiar words to the effect that "architect-engineer contracts under this bill will be awarded according to existing practice"; thus, by selection and negotiations, not bidding.

Meanwhile, amid energy-related problems and political jockeying in what will be a furiously political year, there were other matters to concern architects. One was the steadily dropping rate of lumber production (although the drop halted—at least temporarily—in October). The AIA, among other professional groups, appeared before congressional committees to support and urge expansion of bills (S. 2296 and others) which are aimed at better management of national forests. Architects argued that management should be extended to all federally owned forest lands, and also involve privately held forests as well.

The National Bureau of Standards, working steadily at its assignment to set up machinery to convert the U.S. to the metric system, said it soon would have available (for $500) a complete computer program to convert metric units into U.S. equivalents. That seems to be a reversal. But it is explained by the fact that the original system was developed by Caterpillar Tractor Co. (which turned it over, for free, to NBS) after "Cat" decided to produce its units entirely to metric specifications, then discovered it had to re-translate back to ordinary U.S. equivalents, in order to deal properly with subcontractors and suppliers. NBS has further refined the system, says it can be used without change, to instruct most computer equipment.

And General Services Administration, satisfied with earlier efforts, is now planning to finance 17 more projects this year through the use of "participation certificates." GSA took bids on some $101 million of such certificates in mid-January. [E. E. Halmos]

Calendar

Through Mar. 17. Moshe Safdie exhibit, "For Everyone a Garden," The Jewish Museum, New York City.
Through May. Architectural models, drawings and objects from the architecture and design collection of the Museum of Modern Art, New York City.
Mar. 3–6. Conference on the design engineer's role in energy conservation, Marriott Hotel, Atlanta, Ga.
Mar. 16–Apr. 7. The Design Necessity Exhibit, Ohio Arts Council, Columbus.
Mar. 18–19. Architects-Engineers Public Affairs Conference, Washington, D.C.
Mar. 23–24. Workshop for architects in Gestalt principles as applied to the design process, Gestalt Institute of Cleveland, Ohio.
Mar. 28–30. Spring convention and exhibit of the National Office Products Association, Los Angeles Convention Center.
Mar. 29–31. National symposium, "Women in Architecture," School of Architecture, Washington University, St. Louis, Mo.
Apr. 1. Deadline for entries to Hirons Prize competition for design of hypothetical Neighborhood Health Care Center. Program, sponsored by National Institute of Architectural Education and Hospitals and Health Committee of New York Chapter, AIA, is open to persons in architectural field under 35 years of age.

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Architecture west

There are two ways to know a city: fall in love with it in the first two weeks, or live in it for 10 years or more. For understanding it, one is as good as the other—which explains, at least in part, the reactions of 95 British architecture students on a visit to Los Angeles.

But to planners who consider the city past the point of no return, why the young Britishers chartered a plane and flew from London to study the City of the Angels remains as big a puzzle as ever. The tour, arranged jointly by England's Architectural Association and USC School of Architecture, studiously avoided contemporary buildings and monuments of the Early Modern and split for Watts, the Pico-Union Neighborhood, sanctuaries of affluence such as Rolling Hills, Westlake and Rossmoor Leisure World, Venice, the East L.A. barrios and San Fernando Valley.

"The new generation of English planners," said Michael Glickman, USC faculty member who helped set up the trip, "looks upon Los Angeles as a unique city. It removes the symbolic hot spots and provides only a network."

Now *Architectural Design* of London has just come out with an 80-page report of the trip, written mainly by the students; the rest by AA faculty or architects on the tour. Plus a piece by Reyner Banham who stayed home but left his heart in L.A.

Monica Pidgeon, AD editor who joined the tour, said, "The grand tour used to be Italy but for the last 10 years it has been L.A. It's a nursery, a study, a mecca for young English architects." The trip, her first to Los Angeles, was a cultural shock. "India, Russia, Japan were bangs on the head that stunned me but L.A. was an explosion inside me. The photos I had seen of freeway interchanges gave no suggestion of the size and scale. And the freeways were like spaghetti between life experiences. The spaghetti was built to connect them but the experiences are incidental to the spaghetti." She likes Peter Plagens' characterizing of the freeways as "the literary quarter of L.A."

Born and raised in Peru, she was astonished at the number of opportunities she had to speak Spanish in L.A.—in buses, at Grand Central Market. She knows the misery of barrios of South America and has often published in AD stories about the poorer quarters and squatters' camps of various countries, but in Los Angeles she was surprised to find in Watts "the low standard to be so high."

Next year, she says, she will join a student tour of the South—Texas to Florida—again avoiding architectural history. "America is big enough for NASA and everything else," she says. "Even ghost towns. In England a ghost town would have to be taken down and replaced immediately."

Culled from the report on Los Angeles in AD are the following quotes from students Lowe and Coates:

"The sensual immediacy of Los Angeles' environment is alien, exciting and potentially liberating to the mediocracy-bound European."

"The flashing neon 'information' environment is selling itself to you rather than giving instructions as to where to find the defined groups that might want to share what you're into."

"The myth of liberty is constantly reinforced . . . It's only a matter of choosing the style. It adds up to the incredible duality of anything possible but everything constrained to the immediate in its power of communication."

"Don't count in miles, only time."

"Hell is being trapped in the elevator of a Howard Johnson motor lodge with no way of disconnecting the Musak."

Brian J. Clare calls the Wednesday night Van Nuys Blvd. drag race "a youth-car-mobility event, half myth, half reality," which illustrates "the way L.A. provides a basic matrix of servicing . . . it can become as powerful an experience as any provided by a traditional European-style city."

Helen Petit on the simulated store shopping experience constructed at California Institute of Arts by Feminist Artists: "a series of booths and capsules which depicted in a multi-sensual way the complete hell of being submitted to the pressures of subliminal selling techniques," one a "surreal heaped-up bra and panty sale stall frozen in resin."

Of the Gay Community Services, two ramshackle houses on Wilshire offering lounges, free legal service and a small clinic staffed by volunteer medics, David Usborne comments: "Only in a place as vast and anonymous and as apparently incomprehensible would the need be so acute, and only in a city as open to experiment and as indifferent would the reality be possible."

What impressed Alastair Robertson, planner and lecturer in Management at AA, was the simplification of rules. They "speak clearly and with an authority that has long been lost on European roads: Don't Walk. Don't Enter. Wrong Way. Severe Tire Damage."

Pamela Parkinson, another student, "wanted to give it a fair trial." Then she rejected it as she would a banana split: "It's excessive, it's vulgar, it's unhealthy and most of it tastes horrible, but you gorge yourself on the cream." She traveled through the West. "The strange thing about the West is that it's so empty. Outside the great 6-million-strong megalopolis, which stretches with a few breaks from San Francisco to San Diego, there is wilderness." Her trip became an extended weekend in national parks—"a naturalist's paradise."

Barbara Sawden also ran for the edges and has these reactions. Sun City: ". . . the best embalming service in the state. . ." Taliesin West: "A monastic temple of learning for FLW prototypes." Arcosanti: "Progress is slow, as the size of the work force is governed by the size of the septic tank."

There are echoes here of Tom Wolfe and Reyner Banham, but most of all there is a freshness of uncut, unedited visions. [Esther McCoy]


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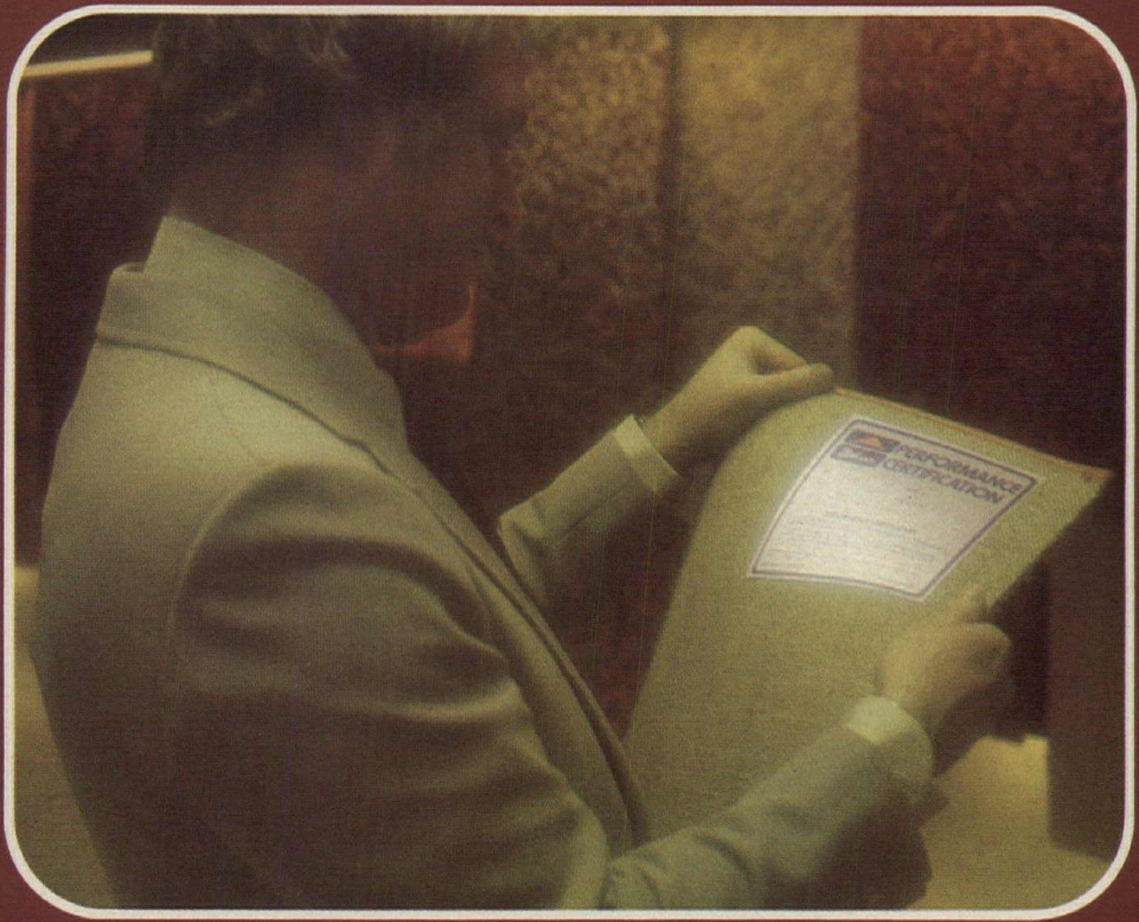
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Progressive Architecture: Editorial

Drafting energy plans

February 1974

The American people are conscious at last of energy. They know it is not inexhaustible because they have seen the "No Gas" signs at too many service stations. They know because the press has expended incalculable kilowatts and BTUs covering every aspect of the "energy crisis"; *The New York Times* has inserted "Energy" among the 16 headings on its daily table of contents; *Time* magazine—in a more ominous move—has quietly converted its "Environment" department to "Energy" (under the same editor).

What seemed at first a short-term "crisis," brought on by the Arab oil embargo, is coming to be recognized as a long-term shortage—a shortage made right here in the USA and in the other "industrialized" nations. The U.S. crisis is particularly ironic; it has taken us decades of rising demand—at a rate of 4 to 5 percent per year—to finally outstrip our own enormous energy resources. It took a good deal of American ingenuity. We had to develop 400 horsepower engines for two-passenger cars, and load them with air-conditioning and tape decks; we had to dream up electric toothbrushes; we had to engineer uniform ceiling lighting (with only one "off" switch per floor) and perfect (or *nearly* perfect) the all-glass curtain wall.

The typical American is now all too aware of these visible energy wasters. The automobile makers are already making a sharp U-turn toward compact, economy models; energy-saving office buildings will be slower to appear since there isn't much demand right now for any kind of office building.

But there is a whole other side to our energy gluttony that is getting far too little popular attention. That's the effect of our dispersed development pattern over the past 25 years, a pattern promoted by FHA, by local zoning laws, by road-building agencies, by income tax laws, by magazines and TV. It is made up of single-family houses separated from the next house by as many feet of wire and roadway as the owner can afford, a mile or two from the nearest shopping center, school, train, or bus; it is studded with industrial parks and executive parks, accessible only by car or truck.

This is the American Dream, as directed by the land speculator and produced by the spec builder, and it has survived earlier challenges by social activists (for reinforcing segregation) and by environmentalists (for squandering land, destroying natural systems, and aggravating pollution). The American Institute of Architects summarized these arguments concisely in its proposal for a National Growth Policy, first put forward in 1972. These development guidelines, amplified in a second report in 1973, would lead to well-defined compact "growth units" for development or redevelopment—with mixed uses and a capacity to support public transportation. Yet, surprisingly, there was no mention in these reports of energy conservation as an objective—even though P/A, for one, had already pointed out the gravity of the energy crisis.

"What happens when our sources of energy run out, as they are expected to do (at the present rate of expenditure) within the foreseeable future?" asked engineer Fred Dubin in his guest editorial for the Oct. 1971 "Life support systems" issue. We must not be panicked into a crash program of strip-mining and off-shore drilling, or generation of smog and nuclear wastes; in those calmer days, Dubin warned that "the shortage of energy is far less critical than the deterioration of the environment." Even the popular media, we can hope, have not abandoned "Environment" for good.

The AIA, at any rate, is still promoting a rational development pattern, and its National Policy Task Force has just published a very articulate updated report entitled "Structure for a National Growth Policy." It is no surprise, of course, that this third growth policy report highlights conservation of energy, in particular reduced dependency on the private car, as one of the critical objects of its concern. And this argument could turn out to be the clincher. A public that can't care quite enough about social equality or environmental conservation may be forced by sheer austerity into a more rational pattern of development. And architects may have a chance to prove that there is much more to energy conservation than just adding insulation.

John Morris Dixon

Students' Union Housing, University of Alberta

Student street

The world's longest skylighted galleria is Main Street for student residents at the University of Alberta, lifeline of a 950-ft-long complex of apartments and shops sponsored by student government and designed by architects Diamond & Myers to fit over an existing street

The 950-ft housing structure links other campus buildings.

In a bravura demonstration of their own long-range plan for the University of Alberta campus at Edmonton, Diamond & Myers have created a prototype cold-climate community. They have lined up shops and apartments along a climate-controlled galleria and placed them all above a sheltered service roadway. By means of a 950-ft-long skylight, they have made the most of the sub-Arctic sunlight, drawing it in to shimmer over glassy walls and bounce off bright shutters and posters in a visible expression of student vitality.

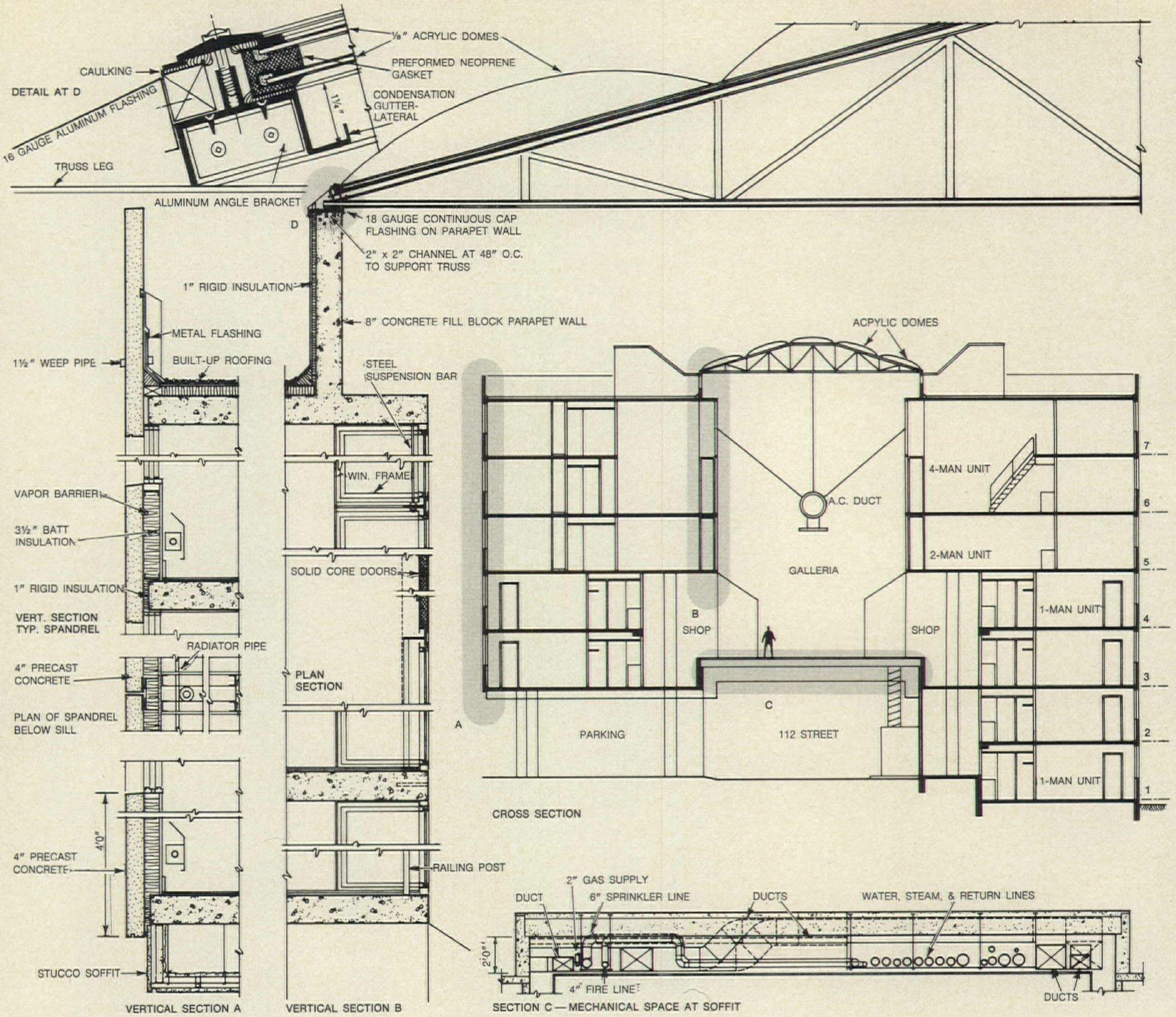
The Students' Union Housing is one of several structures planned for street rights-of-way in Diamond & Myers' infill development scheme for Alberta (P/A, Sept. 1972, p. 112). Linked to pedestrian concourses through other new construction, these structures will generate an all-indoor pedestrian network. Reclaiming of street space for buildings and replacement of parking lots with garages will allow a greater density of buildings with no net loss of open space; well-defined greens will provide alternate fair weather paths, which the architects consider no less vital than interior concourses.

The housing is exceptional not only for its precedent-shattering design, but for its sponsorship by the students themselves. Alberta's Students' Union is an organization of about 18,000 members, with an annual cash flow of over $500,000; before initiating the housing project in 1968, it had already completed the $6 million Students' Union Building. The housing effort was a response to the drift of students all over North America toward off-campus apartments, which erodes university cohesiveness and aggravates commuter traffic problems. A poll of students showed an overwhelming preference for apartments over any other kind of accommodations (a factor not previously recognized by the university). The Students' Union determined to offer them on-campus apartments, with common amenities they would not find off campus, at rentals competitive with Edmonton's active apartment market.

James Humphries, a Ph.D. candidate who gave most of his time for 3½ years to chairing the Students' Union housing committee, recalls that a secondary objective of the project from the beginning was "the attraction of making, in one large project, a solid contribution to the long-range campus plan and thus ensuring its principles would become visible." With this objective in the background, it is little wonder that the committee's search for architects zeroed in on the campus planners, Diamond & Myers.

The architects' first step, characteristically for them, was to work up an economic model, in close collaboration with quantity surveyor A.J. Vermeulen; starting with a projected number of residents (about 900) and a rental range ($45 per month in four-man units to $95 in singles) the balance sheet yielded a construction budget of about $6 million. Considering the amenities planned, this budget could work only if the housing was built by the simple, standardized methods of Edmonton's apartment builders—"like a speculative tower on its side," as architect Barton Myers puts it.

What resulted was actually two parallel structures, seven stories high, with conventional cast-in-place concrete slabs on conventional flattened concrete columns. After these structures were in place, the precast T-beams of the concourse floor and the steel trusses of the skylight were set between them (section above). In terms of closing out Edmonton's fierce winters—with temperatures sinking to —40F and remaining below zero for weeks—the concourse cost little. By



Student street

giving the apartments a second exposure on the galleria side (where walls do not have to be weatherproof) it allowed the area of exterior wall per apartment to be drastically reduced. Location of the concourse 1½ stories above ground allowed for seven levels of apartments without the expense of elevators, a saving that was more or less offset by the cost of extended horizontal utility runs in the mechanical "underbelly" of the structure. (This soffit cavity must be heated to survive the winter, but it in turn warms the concourse floor.)

The Students' Union commissioned the design with full confidence that the Ottawa government would provide financing for the building, but drastic cuts in federal programs just before construction was to begin ruled that out. Even with its proven record for building and management, the union could not then arrange acceptable mortgage financing in a tightening credit market. Various technicalities kept the university itself from financing the building, and it took about 1½ years to work out an arrangement whereby the university co-signed the mortgage. Escalation during this delay drove construction costs up more than $500,000. A number of modifications were made to cut costs (caulking for sound control within apartments was eliminated, for instance, and stair towers at the roof were replaced with mere hatches). The use of thorough elemental cost estimates—similar to those of the P/A Building Cost File (page 56)—made the effect of revisions and rebidding predictable. Minimum rents were raised to $55, but in the end the balance sheet could be reconciled only by increasing the commercial rental area, a feature that had required repeal of a long-standing university prohibition. The increase in retail space (all of it quickly spoken for) improves the project as a place to live.

As a residential prototype, the Students' Union Housing presents one major problem: the galleria is an all-too-efficient sound conduit. The design recognizes the problem by locat-

Awnings of fire-resistant canvas control sunlight.

Concourse floor has tiled strips between exposed tee beams.

Hinged wood panels, painted vivid colors inside, open onto galleria.

Seven carefully placed panel colors. . .

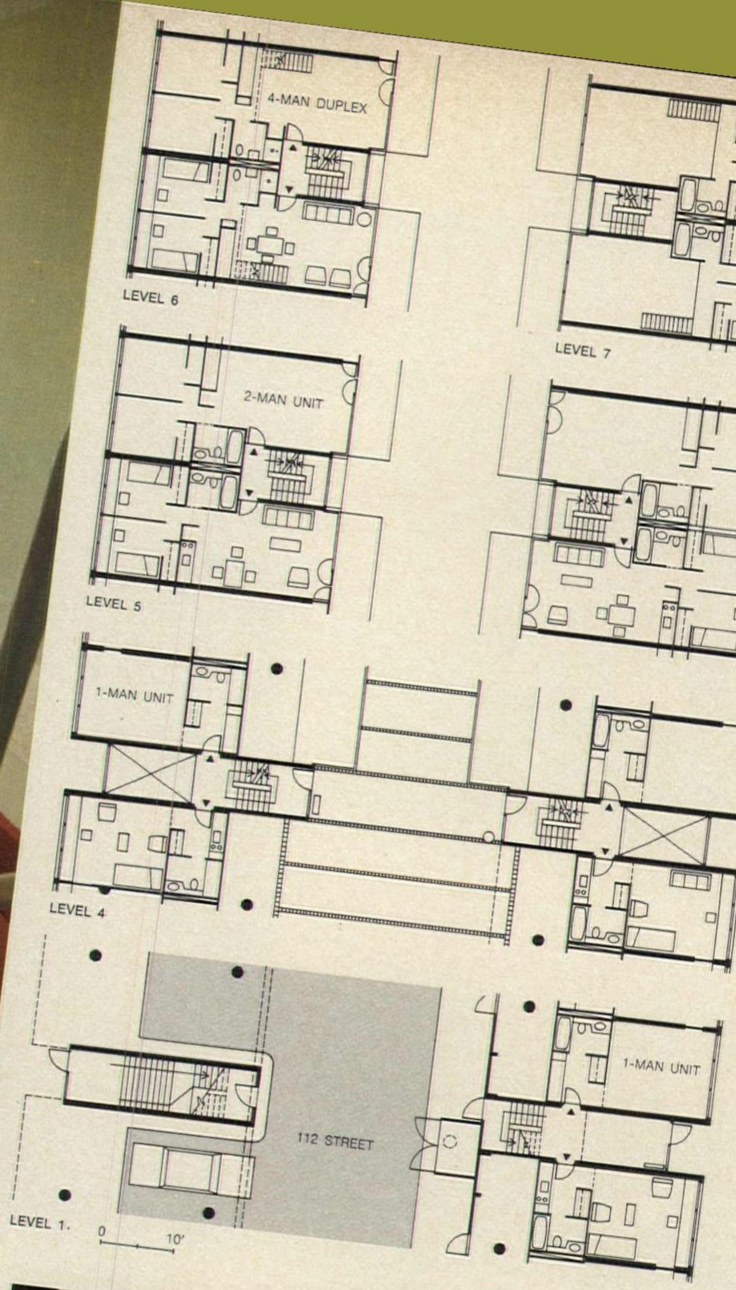
are complemented by student decor

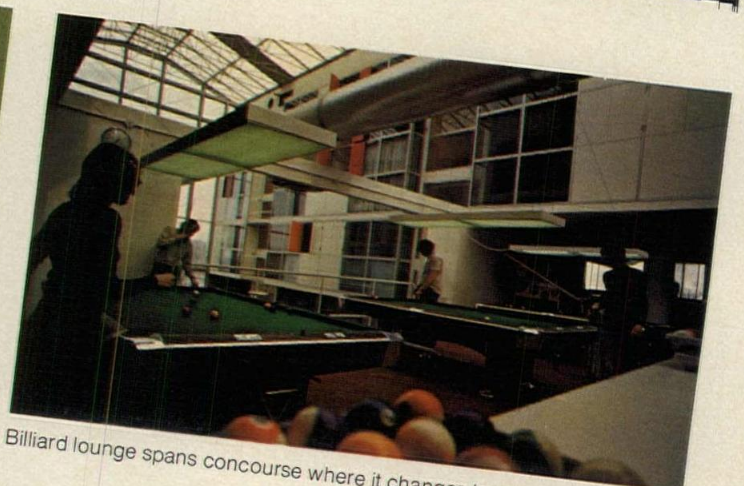
Yellow-walled stairwell rises above entrance with city street address.

ing all bedrooms on the outer flanks of the structure, with living rooms overlooking the galleria. Sound is dampened somewhat by carpeted floors and acoustic-sprayed ceilings in the apartments, but carpet for the galleria itself was ruled out. The presence of a few children in residence has aggravated noise problems a bit, and the tenants' association has had to establish rules of conduct.

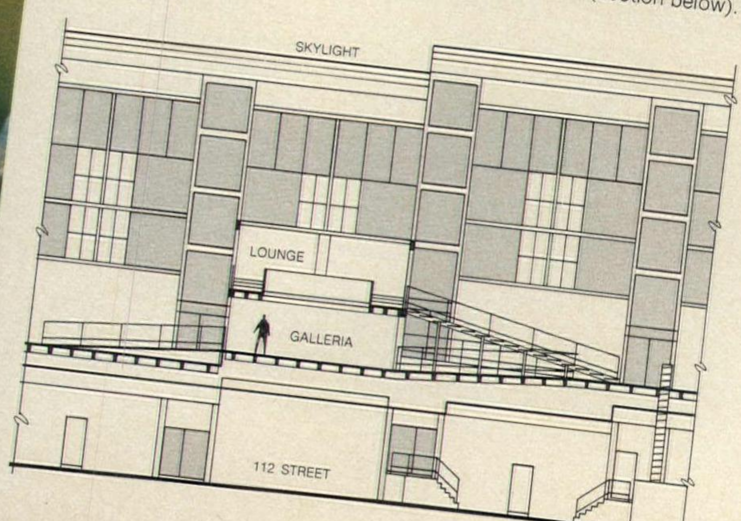
The visual quality of the galleria has been enhanced by the simplest treatment of surfaces and details. The sculptural elements are the heating (and cooling) ducts, the risers of which double as poster kiosks. The steel skylight trusses support hand-operated awnings. Walls are of ordinary shop-front construction. The floor is simply the top surface of the structural tees, textured by rollers once used to make non-skid sidewalks; gaps between the tees have been filled with bands of tile. The result is, in Barton Myers' words, "a space of colossal size and small scale." [John Morris Dixon]

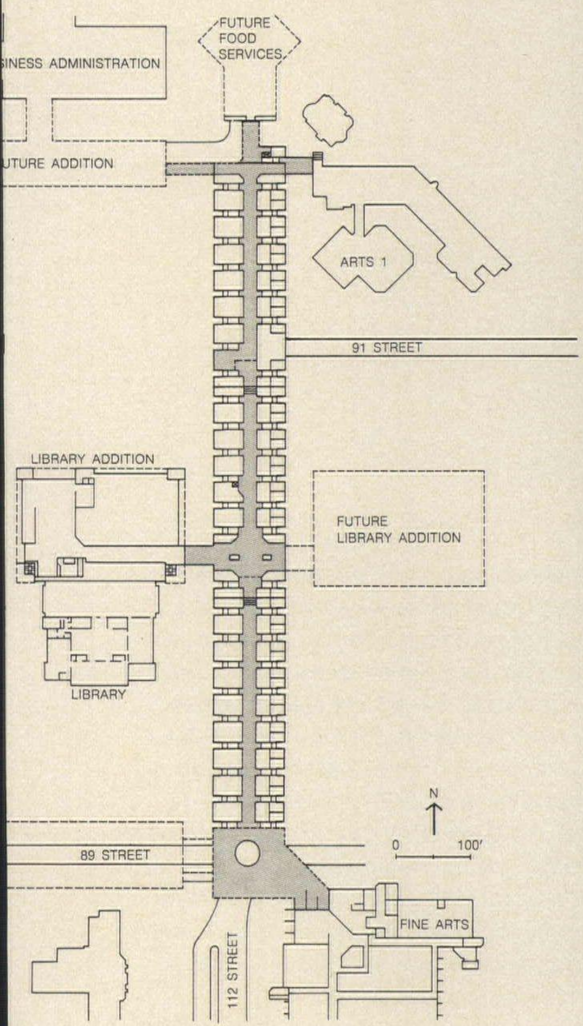
Living room of duplex, as furnished model and as lived in.

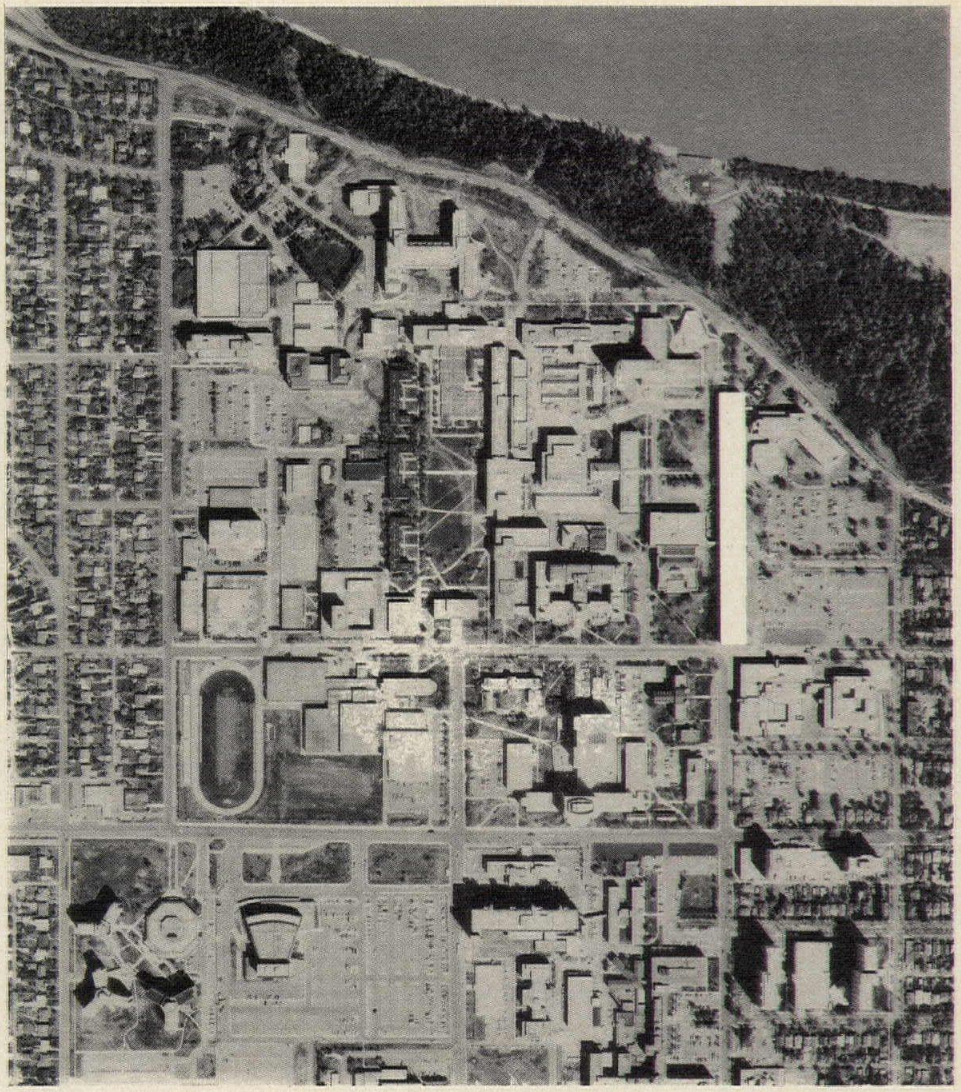




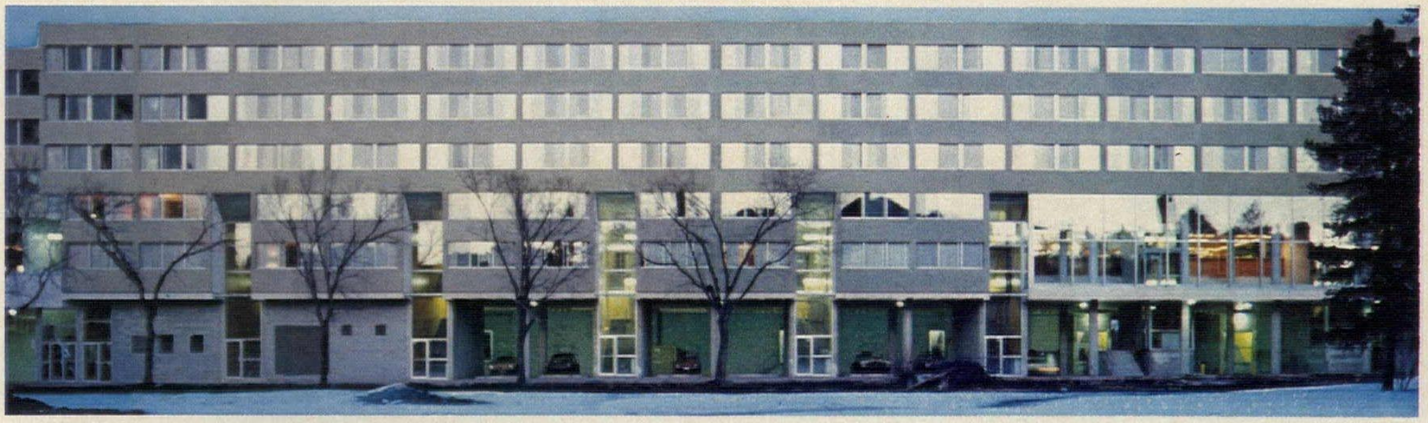
Billiard lounge spans concourse where it changes level (section below).







Aerial shows scale of housing structure (middle right) in context of campus.



Lighted stairwells punctuate long side walls under northern twilight conditions.

Data

Project: Students' Union Housing, University of Alberta, Edmonton, Alberta.
Architects: A.J. Diamond and Barton Myers, in association with R.L. Wilkin, Architect; Barton Myers, partner in charge.
Project team: (Offices of A.J. Diamond and Barton Myers and R.L. Wilkin, Architect): Douglas Bower, Kenneth M. Viljoen, Karl Sliva, Jay Bancroft, Anthony Marsh, Bruce Allen, Ronald Soskolne, Peter Turner.
Program: apartments for 964 students (116 4-man units, 104 2-man, 292 singles); 20,000 sq ft rentable commercial space.
Site: 950-ft strip of street and adjoining campus, offset to save row of trees.
Structural system: apartment structures, cast-in-place concrete, flat slabs and columns; galleria floor, precast T sections; acrylic skylight on steel trusses.
Major materials: exterior walls, precast concrete; galleria walls, glass and wood panels in "storefront" framing; apartment interiors, gypsum board walls, carpeted floors, acoustic-sprayed ceilings.
Mechanical system: fin-tube hot water at perimeter; warm air in galleria; air-conditioning, lower zone of galleria only, "spillover" in apartments; galleria under positive pressure to limit fire spread; steam and chilled water from university plant.
Consultants: Helyar, Vermeulen, Rae & Mauchan, quantity surveyors; Read, Jones, Christofferson, structural engineers; Reid, Crowther & Partners, mechanical and electrical; Hough Stanbury & Associates, landscape architects.
General contractor: Poole Construction, Ltd.
Client: Students' Union (James Humphries, Chairman, Students' Union Building Committee; D.H. Ness, Manager, Students' Union; Fulton Frederickson, Manager, Students' Union Housing). University of Alberta Board of Governors (Dr. Walter H. Worth, Vice President-Planning, design phase; Dr. Walter D. Neal, V.P.-Planning, construction phase; Walter A. Hiller, Director, Campus Development; A.T. Robertson, Hans Widner, Project Officers).
Costs: $5,600,000; $15.59 per sq ft.
Photography: Karl Sliva, except p. 46, p. 49 (top right, lower right, bottom), p. 50 (bottom left), Jim Dow, p. 47, John Fulker.

Graduate Chemistry Laboratory, Stony Brook

Just add water and stir

Using traditional building materials and a fast-track recipe, Smith, Hinchman & Grylls Associates has produced a complicated and demanding structure in very short order

There may have been an audible gasp when the State University Construction Fund, the construction arm of the State University of New York, learned it could take possession of the Graduate Chemistry Laboratory at Stony Brook two full years ahead of schedule. SUCF had declined an earlier proposal which grossly exceeded its budget. The time and money objectives which it read to Smith, Hinchman & Grylls Associates evoked a seemingly brash response: they would meet the budget and upstage the requested fall 1974 opening, promising completion by Sept. 1972. That SH&G missed by two months was largely due to a strike of insulation installers.

The building blazes no new aesthetic trails. As another tribute to Corbusier's compelling Unité at Marseilles, the GCL is a long, low slab raised on pilotis and flanked with four towers like campaniles, enclosing fire stairs. Although a panel system might have been more appropriate as a skin, it is faced with the ubiquitous brick standard of the campus. The architects readily acknowledge that the GCL was intended as a background building to blend with existing structures.

Nevertheless, the building's pedigree is in many ways unique. SH&G had already completed an 11-building classroom and laboratory complex for the campus within nine months of its commission by SUCF in July 1970. Placed in a wooded site, the earlier effort employed available building systems and components, producing a group of single-story structures with flexible interiors. The later project differed significantly. Set in a tight four-acre site between the Library and the Physics Building, the GCL was fast-tracked using traditional building materials and construction methods to create a seven-story building with a more exacting program and highly sophisticated requirements.

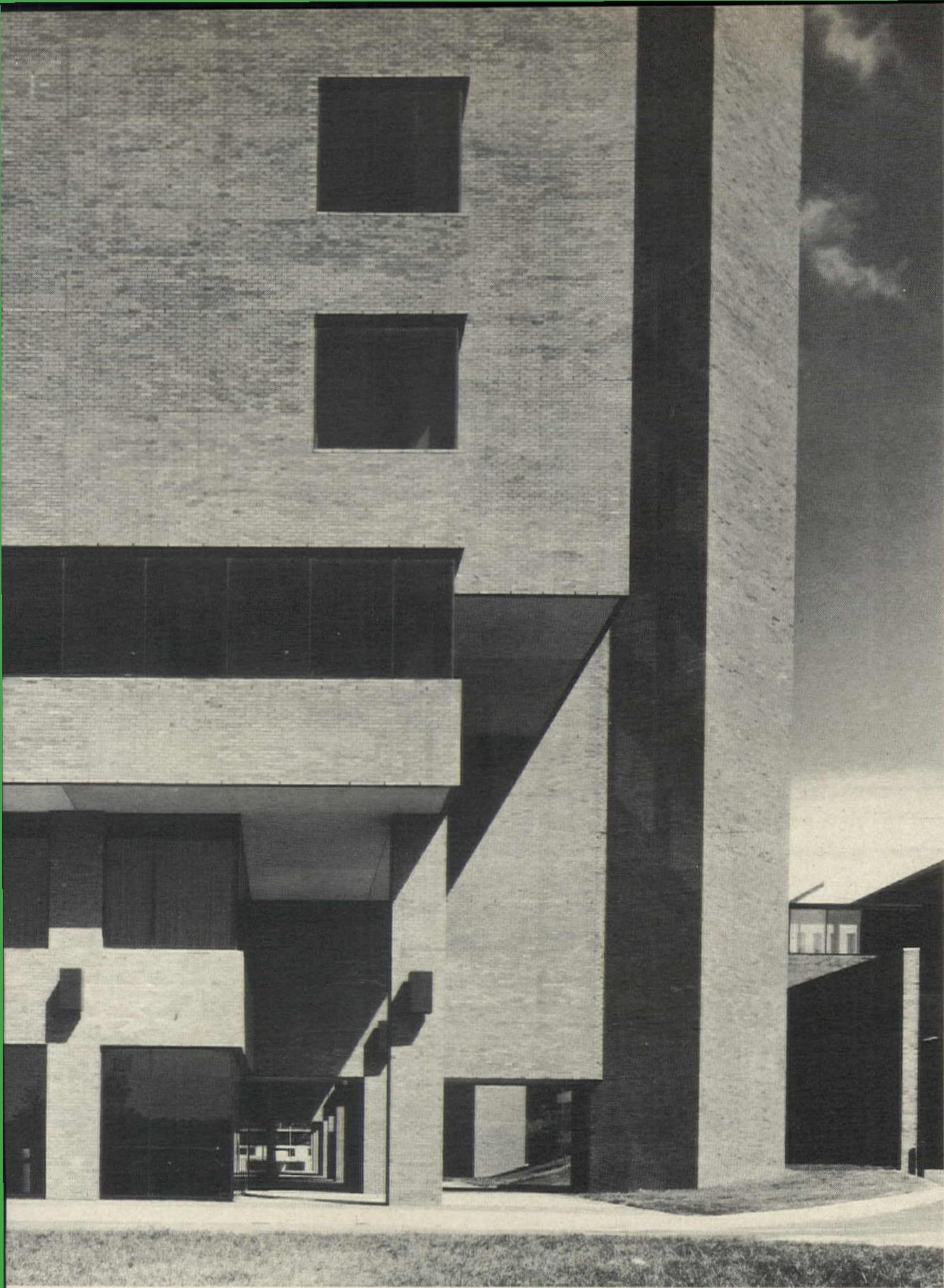
Timing was critical. SH&G, acting as construction manager for SUCF, broke the project into 16 bid packages, invited 131 bidders, and let all 52 construction contracts several weeks before an April 1971 deadline, whereupon the budgeted $21.1 million would be subject to recapture by the state. Bids totaled $19.3 million, including $1.2 million for anticipated change orders ($58.10/sq ft), bettering an original estimate of $19.5 million, and even more important, dropping $1 million from the client's original budget agreement of $20.3 million.

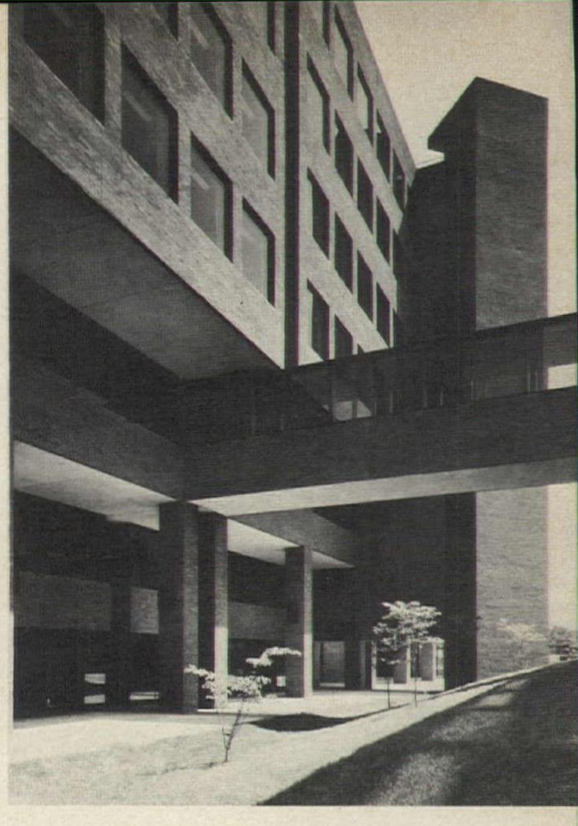
Considerable savings from prompt price commitments, as well as real benefits by virtue of earlier possession accrued to the university. For the architects, the accelerated schedule apparently did not displace design time. In fact, Dale R. Johnson, architect and design director for the Educational and Commerce Division of SH&G, says, "We had even more design hours than we had under the traditional process, but we had them at different stages of the project. But it required the closest cooperation of architect, client (SUCF), and ultimate user (the chemistry faculty). This design group was able and willing to solve large problems on schedule, leaving room to maneuver detail decisions into the design matrix."

Ways were found to economize without sacrificing quality or efficiency. The use of only two basic laboratory configurations was facilitated by the faculty's willingness to meet their special needs with custom casework. Notes Johnson, "It's a lot easier and cheaper to design casework than rooms."

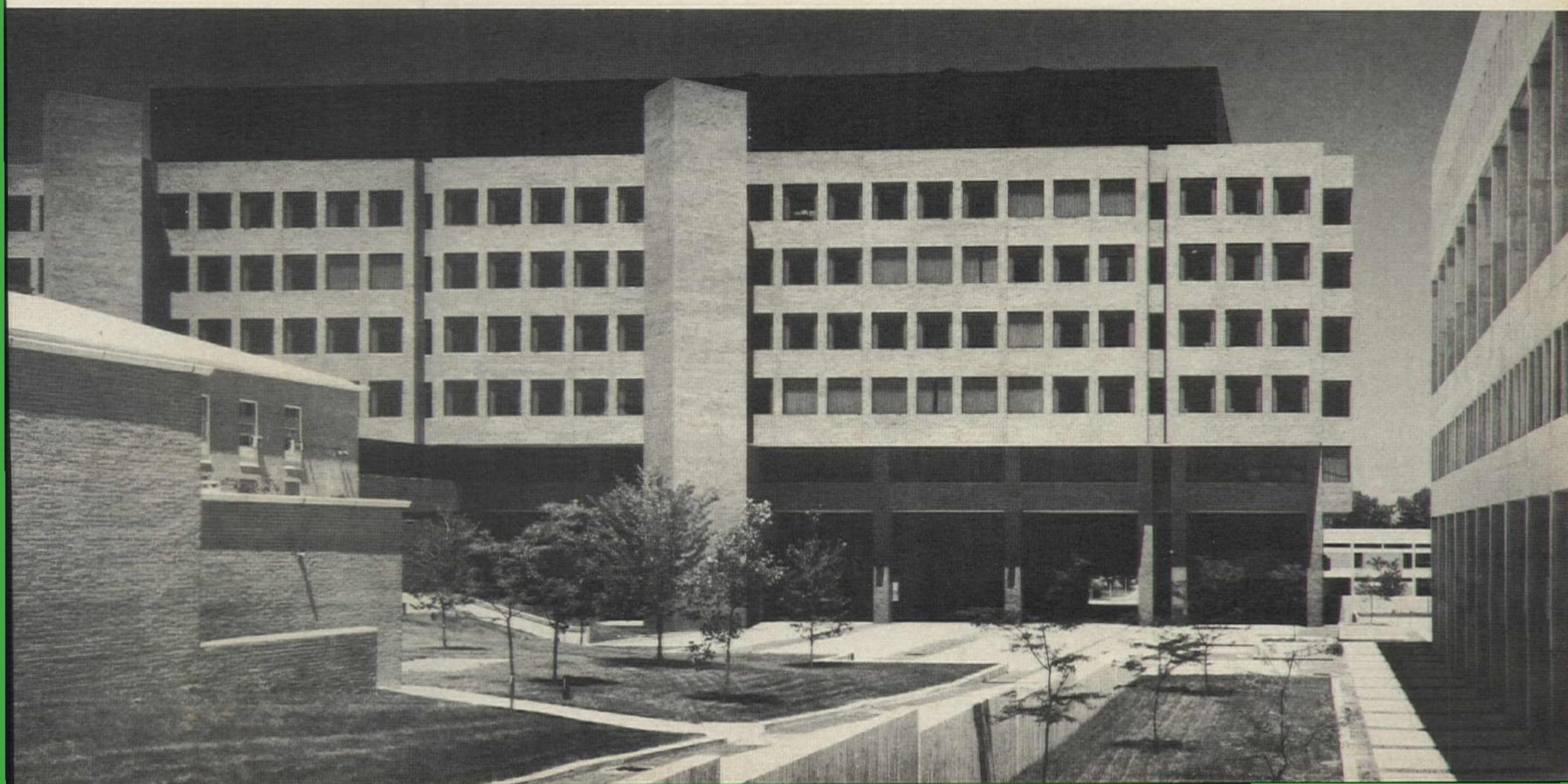
Ventilating hundreds of fume hoods was a basic mechanical problem. It is regularly assumed that a common stack would expose volatile chemicals to open flames in other hoods. Consequently, each hood is given its own vent stack. Tests performed by SH&G engineers with Wyle Laboratories, a West Coast testing firm, found that as many as six horizontal or vertical hoods could be linked on a single stack. High velocity air in the stack would not support flame or its movement from one hood to another. A 56 percent reduction in fans was effected, with 360 hoods sharing 160 fans. Wind tunnel tests also confirmed that the ventilation system of the GCL, which draws air from atop the 30-ft-high penthouse, forces it down through the building, and exhausts it just above the roof in a 4000 cfm horizontal discharge velocity stream, would disperse the chemical fumes completely, without harm to landscaping and people on the leeward side.

The GCL has taken pains to be a good neighbor. Its pivotal location between the student housing area and the Student Activity Center to the north and the main campus to the south has been formally stated in the two-story arcade at ground level. A landscaped court to its rear is intended to be a vestibule for the main campus. It includes a 10-ft ramp, one of the few north-south campus links that can be traversed by the handicapped.





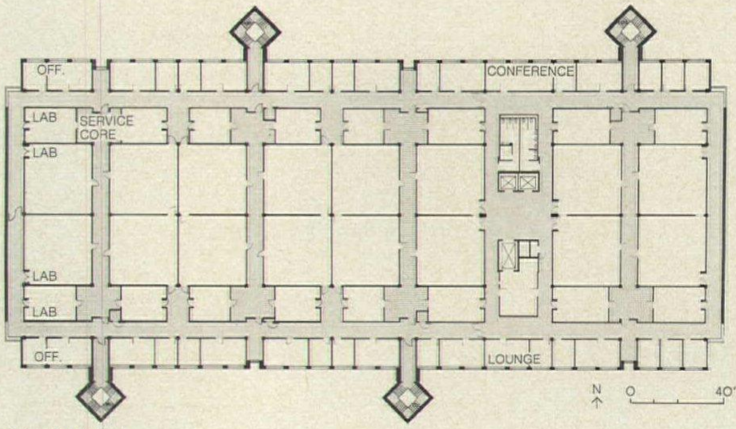
Laboratory as gateway: the GCL defines a major campus boundary between student living quarters and the main campus. Two arcades pierce the GCL and proceed into the courtyard and the main campus. Overhead, a bridge links the GCL to existing chemistry facilities.



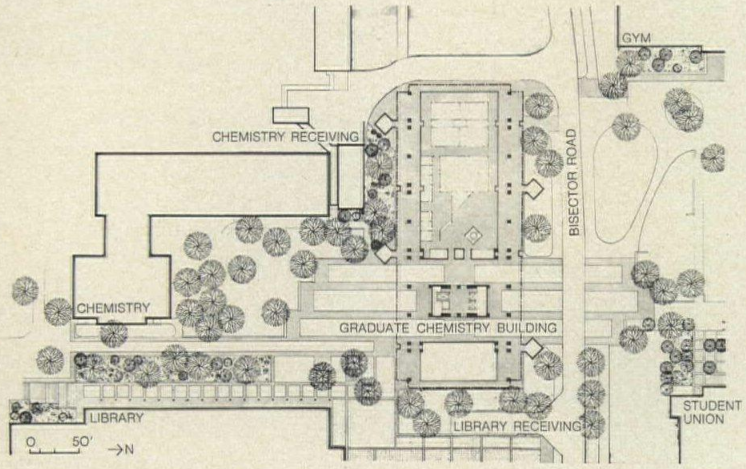
Just add water and stir

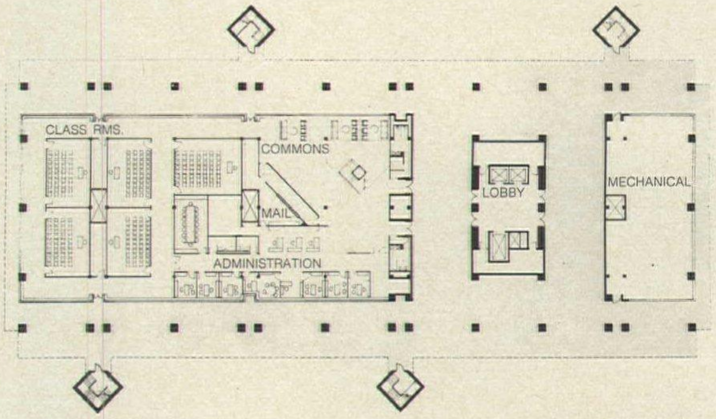
There are seven stories. The relatively low elevation reflects a preference for horizontal access to laboratory space, which yields a maximum amount of laboratory square footage per floor. The first floor includes classrooms and administration, the second contains the chemistry library, and the third houses a computer installation and laboratories. Floors 4–7 are devoted to laboratories. Total floor area is 312,000 sq ft.

The powerful forms of Corbusier's Unité have inspired a number of other academic buildings, of which Marcel Breuer's works for Yale and Amherst are typical examples. While the GCL does not further the aesthetic dialogue of its germinal source, it has palpably suggested a swift path to the achievement of form. [Roger Yee]

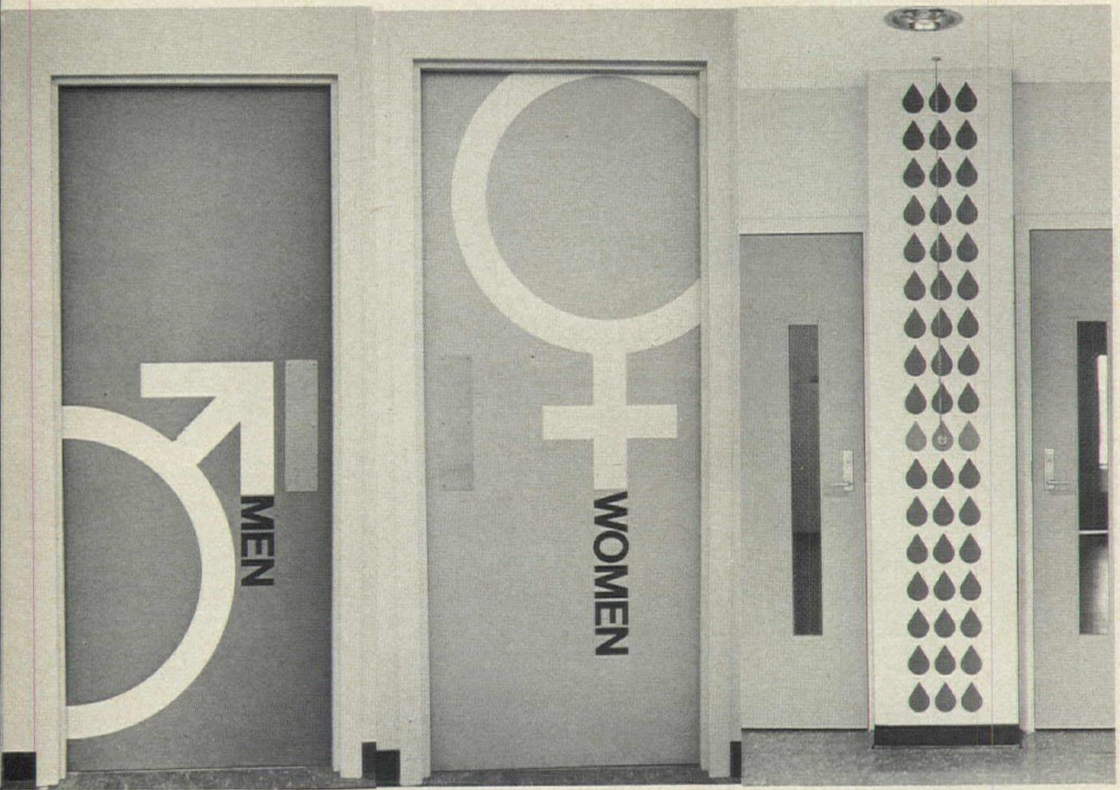


FLOORS 4 THRU 7





GROUND FLOOR



Data

Project: Graduate Chemistry Laboratory.
Architects and engineers: Smith, Hinchman & Grylls Associates, Inc. project designer, Dale R. Johnson; project manager, John R. Solo Rio.
Program: chemistry laboratory with classroom and library facilities.
Site: Stony Brook University, Stony Brook, N.Y.
Structural system: structural steel framing.
Mechanical system: steam and chilled water from campus central plant.
Major materials: exterior, brick, bronze glass, painted corrugated steel; interior, block walls, demountable gypsum partition system, suspended acoustical ceiling panels, vinyl asbestos tile floors, paving brick in lobby at ground floor.
Cost: see building cost file.
Consultants: landscape architects, Johnson, Johnson & Roy; mechanical consultant, Wyle Laboratories.
Photography: David Hirsch.

P/A building cost analysis

Building type: University Laboratory Building

Classification No. 721

Project: Graduate Chemistry Building

Location: Stony Brook, New York

Architect: Smith, Hinchman & Grylls Assoc., Inc.
Owner: State University of New York
General Contractor: 16 separate contract packages

Tender date/completion: Sept. 1970–Oct. 1972
Market conditions: Average 3 to 4 bids
Cost index: per package

Elemental category	Element cost		Element amount		Cost per sq ft		%
	Quantity	Unit Rate	Sub	Group	Sub	Group	
100 Foundations	**25,846 sq ft**	**26.12**		**675,054**		**2.20**	**3.62**
110 Normal foundations	25,846 sq ft	16.79	433,955		1.42		
120 Basement excavation	374,767 cu ft	0.08	30,000		0.09		
130 Special foundations	25,846 sq ft	8.16	211,099		0.69		
200 Building shell	**532,096 sq ft**	**8.52**	**—**	**4,535,370**		**14.79**	**24.31**
210 Structure	**322,771 sq ft**	**7.17**	**2,313,467**		**7.55**		
211 *Lowest floor construction*	26,294 sq ft	2.52	66,250		0.22		
212 *Upper floors construction*	280,263 sq ft	6.74	1,890,213		6.16		
213 *Roof construction*	42,508 sq ft	8.40	358,004		1.17		
220 Roof finishes	**42,508 sq ft**	**2.49**	**104,934**		**0.34**		
230 Exterior cladding	**173,031 sq ft**	**10.98**	**1,900,712**		**6.20**		
231 *Basement walls*	13,785 sq ft	9.29	128,135		0.42		
232 *Exterior walls above grade*	126,211 sq ft	12.39	1,563,697		5.10		
233 *Windows*	32,395 sq ft	5.77	186,920		0.61		
234 *Entrances & storefront*	640 sq ft	34.41	21,960		0.07		
240 Stairs	**470 lin ft**	**460.12**	**216,257**		**0.70**		
300 Interiors	**—**	**—**	**—**	**4,537,064**		**14.92**	**24.52**
310 Partitions and doors	**317,656 sq ft**	**4.39**	**1,395,891**		**4.55**		
320 Interior finishes	—	—	**1,305,018**		**4.27**		
321 *Floor finishes*	303,467 sq ft	0.49	149,040		0.49		
322 *Ceiling finishes*	306,557 sq ft	3.05	934,782		3.05		
323 *Wall finishes*	746,514 sq ft	0.30	221,196		0.73		
330 Specialties & Equipment	—	—	**1,872,155**		**6.10**		
331 *Specialties & fittings*	—	—	89,872		0.29		
332 *Equipment*	—	—	1,782,283		5.81		
400 Conveying systems	**—**	**—**	**—**	**352,800**		**1.15**	**1.89**
410 Elevators	25 stops	14,112.00	352,800				
420 Moving stairs and walks	—	—	—				
500 Mechanical & Electrical	**—**	**—**	**—**	**7,660,865**		**24.99**	**41.07**
510 Mechanical	—	—	**4,876,994**		**15.91**		
511 *Plumbing and drainage*	—	—	1,459,081		4.76		
512 *Fire protection*	—	—	97,800		0.32		
513 *HVAC*	4,753,436 cu ft	0.70	3,320,113		10.83		
520 Electrical	—	—	**2,783,871**		**9.08**		
521 *Distribution*	—	—	2,394,310		7.81		
522 *Lighting*	—	—	293,561		0.96		
523 *Special systems*	—	—	96,000		0.31		
600 General conditions & profit	—	—	—	—	—	—	—
Net building cost: $				**17,797,153**	**$**	**58.05**	
900 Site development	**80,456 sq ft**	**10.61**		**854,038**		**2.79**	**4.59**
Total cost: $				**18,651,191**	**$**	**60.84**	

Based on data supplied by Smith, Hinchman & Grylls Associates, Inc.
Cost and performance analysis prepared by HANSCOMB ROY Associates Inc.

Performance & Specification Data

Areas and volumes
Gross floor area (GFA): 306,557 sq ft
Net floor area: 151,884 sq ft
Volume: 4,753,436 cu ft
Exterior wall area: 173,031 sq ft
Roof area: 42,508 sq ft
No. of stories above grade: 8
No. of basement levels 1

Ratios
Net floor area/GFA — 0.50:1
Volume/GFA — 15.51:1
Exterior wall area/GFA — 0.56:1
Roof area/GFA — 0.14:1
Lin. ft. partitions/GFA — 0.08:1

Capacities
Percent exterior wall glazed: 19.1%
Soil characteristics: sandy
Density plumbing fixtures: 1/3035 sq ft
Heating capacity: 141/BTU/hr/sq ft
Cooling capacity: 110 sq ft/ton
Ventilation capacity: 1.34 DFM/sq ft
Lighting intensity: 70 ft candle general, 100 ft candle labs.

Outline specifications
Analysis based on final costs
110 3000 psi concrete in spread footings and column bases.
120 Excavated material off site.
130 Sheet steel piling.
211 4000 psi concrete in slab on grade.
212 Structural steel framing with metal deck and concrete infill suspended slabs.
213 Metal deck.
220 4 Ply built-up roofing with aggregate surface and rigid insulation.
232 4" brick veneer, 2" cavity and 4" block inner skin with parging.
233 Aluminum framed bronze tinted insulating glass.
234 Aluminum framed entrance with plate glass doors.
240 Metal pan stairs with concrete infill, cast abrasive stair nosing, pipe handrails and complete stair structure.
310 Mainly movable metal partitions with hollow metal and wood doors and frames, toilet and shower cubicles.
321 Resilient flooring with some brick paving.
322 Suspended acoustic tile and painted plaster on metal lathing.
323 Painted conc. (Bsmt.) gypsum board, lath plaster and ceramic tile.
331 Millwork, toilet accessories, lockers and mirrors.
332 Laboratory casework.
410 Two passenger elevators having gearless traction 3000 lb capacity, and 350 fpm speed. One passenger elevator having gearless traction, 6000 lb capacity and 5000 fpm speed. One dock elevator having geared traction, 9000 lb capacity and 50 fpm speed.
511 Building sanitary drainage, storm drainage, domestic hot and cold water, distilled water, natural gas, laboratory acid waste, plumbing fixtures and liquid soap dispensers.
512 Fire hose cabinets and risers.
513 Cold room refrigeration system, supply and return air, heating hot water steam, vibration elimination, chilled water, acoustical insulation, temperature controls, emergency gas generator mechanical sources and balancing.
521 Electrical services fed underground from main transformer.
522 Generally incandescent and high intensity mercury vapor.
523 Fire alarm.
600 Site overhead costs included in individual contract packages and distributed in foregoing elements. Construction management fee is excluded.
900 Grading site clearance, fencing, paving, landscaping, retaining walls and steps, lighting, loading dock, volatile storage and utility tunnel.

Cost per cu ft: $3.74 (Building only)

Analysis No. 3.

Cost planning system

Brian Bowen

The third in P/A's Building Cost File series, the author points out the necessity of providing a framework for overall cost control during design. The cost analysis on p. 55 illustrates how the use of construction elements or subsystems provide a suitable means

The P/A building cost file has outlined a format and system for the accumulation, storage, and retrieval of building cost information (July 1973 issue) and a method of using the data so collected for estimating during early project stages (October 1973 issue).

While individual and isolated cost estimates are important, particularly at the conceptual design stage, it is essential that the estimating process fall into a coherent framework for overall cost control during design. The objectives of a cost control system for the vast majority of construction projects will be: a) to maintain expenditures within the amounts allocated; b) to deliver good value for money; c) to achieve a balanced expenditure between all parts of the project. Such objectives could apply to virtually any undertaking and the principles by which they are achieved are universal whether an office building or a missile system is being designed.

In order to achieve these objectives: there must be a logical frame of reference within which the budgeting and cost control process may proceed; there must be a realistic first estimate or budget of the project; there must be a method of checking and feedback as the project proceeds; there must be procedures for taking corrective action based on the reports resulting from the cost checking process. Application of these universal principles to the design process for the average construction project could result in the form of cost control system described below.

Frame of reference

A fixed frame of reference is required to provide the thread which runs through the entire cost control process. Uniformity is important because we need to relate estimates and cost intelligence occurring at different times in a consistent manner (reconciliations with and against original budgets, previous estimates and forecasts are always required). Also, we need a framework within which we can assemble and develop cost data, in order to relate this to other projects and to retrieve information for estimating purposes.

Previous articles in this series have made the case for the use of construction elements or functional subsystems, as being most suitable for handling of costs during design stages. The P/A list of elements was described and explained in the July 1973 issue and is illustrated in the cost analysis appearing on page 55 of this issue. It is suggested therefore that this form provides a rational frame of reference for use in a project design cost control system.

Budgets

From my observations, more projects have come to grief from a cost point of view because of poor initial budgeting than any other reason. It is not always easy to ensure that realistic budgets are assigned to projects, since these often become a matter of political or corporate necessity rather than logical appraisal of program requirements and translation into reasonable cost limits. It is easy for us to lecture one another about the hazards of taking on projects with inadequate budgets, but it is often a condition of acceptance of a project to accept also the client's stated cost limits. At some time (and this must be at a very early stage), irrespective of conditions surrounding the acceptance of the commission, a realistic appraisal must be made of the probable estimated cost of the requirements set out in the program. Some of the estimating techniques described in the October 1973 issue may be of assistance at this time. It is almost pointless to set up a cost control system unless all parties are willing to accept a firm reasonable budget in which everyone has confidence.

Cost plan

The keystone of any cost control system is the cost plan based on the project budget. Within the context of the frame of reference, the cost plan sets out against each element the targets for each category, the sum of which must total the overall cost limit. Cost plans may be prepared in a variety of ways, according to circumstances and the experience of the

Author: Brian Bowen is vice president of Hanscomb Roy Associates, Inc., Chicago, and a partner of Hanscomb Roy Associates of Canada. He is an associate of the Royal Institution of Chartered Surveyors and a member of the American Association of Cost Engineers.

cost planner. In its most sophisticated form, cost planning begins parallel with the development of the client's brief and program. At this stage it is usually only possible to establish elemental cost targets based on an assignment of unit costs per gross or net sq ft of building floor area. The unit cost allocations must depend, needless to say, on suitable cost experience with other buildings, in order that the targets can bear some relationship to achievability and realism. They should also be tied to a form of performance and quality standards.

It is perhaps more customary to construct cost plans once the client's program has been completed, prior to the commencement of conceptual designs. Traditionally, programs contain either an absolute cost limit or a cost target based on an allocation per gross or net sq ft of floor area. In either case, the cost planner would study the client's requirements with care, analyze cost data obtained from his information files of completed projects, ascertain any special design characteristics and then prepare cost allocations to each element, forming a first draft plan. In preparing his analysis the cost planner would begin to get some feel for the overall characteristics of the budget limits; will they permit a reasonably free design interpretation of the client's requirements? Once essentials are budgeted for, is there anything left for improved quality of specifications or design? What height and shape limitations must be considered?

Set limits from the outset to avoid disappointments

The exercise can therefore set the tone for the ensuing conceptual design phase and, while it cannot and should not dictate the exact form of that design, the process can certainly assist in providing orders of magnitude and establishing overall design limitations from the outset. This helps prevent the "trial and error" approach to design.

If the expertise and skill in statistically evaluating budget limits is not present or has not been acquired, then it is common for cost plans to be drawn up following the development of conceptual designs. In fact, it is traditionally at this stage that client's cost limits are tested by preparing approximate cost estimates. Providing these estimates take into account design and specification characteristics at this time (and are not based merely on a sq ft cost estimate), there is probably nothing wrong in this. However, in my experience, by the time a concept has been born, so much of the designer has been put into it that a serious case of vested interest is established. This immediately jeopardizes any necessary cost reduction efforts and often results in unsatisfactory compromises. Therefore, I find that the establishment of draft cost plans before concepts begin helps to set boundaries from the outset and avoids later disappointments and misunderstandings.

In certain situations there may be merit in considering reversing the traditional process so that designs are prepared to meet predetermined cost limits. As cost is a two-dimensional concept of quantity times unit price, then cost targets would imply both quantity limits and unit rate limits, the latter dictating or reflecting quality and performance standards. As an example, in a project budgeted at $30 per sq ft of gross floor area, the cost planner may decide to tentatively allocate $4 per sq ft (of gross floor area) of this budget for the exterior cladding above grade. By itself this figure provides little guidance to the conceptual designer. Therefore the cost planner provides further data, drawn from his information file, which establishes a tentative exterior cladding area to gross floor area ratio of 0.40 : 1. This gives the designer a broad quantity limitation and would permit (if he can meet this limit) the selection of an exterior cladding wall system averaging $10 per sq ft of wall area overall (i.e. cost target of $4 per sq ft gross floor area for this element divided by 0.40). For those who missed the sleight of hand: a) Assume a building of 100,000 sq ft gross floor area; b) Total budget = 100,000 sq ft x $30 = $3,000,000; c) Allocated to exterior cladding 100,000 sq ft x $4 = $400,000; d) Exterior cladding/GFA ratio = 0.40:1; e) Area of exterior cladding = 0.40 x 100,000 = 40,000 sq ft; f) Permissible unit cost of cladding = $400,000 divided by 40,000 sq ft = $10 sq ft cladding area.

Cost checking

Having established a consistent framework of reference, a realistic budget limit and cost plan allocating cost targets to each element, coordinated to the conceptual designs and outline specifications, the temptation to file the whole bag of tricks until contracts are signed must be resisted. The cost plan has to be respected and monitored as the ensuing design develops. It is customary to set certain fixed check points at varying design completion percentages, at which time revised estimates are prepared and compared to cost plan targets. There is nothing wrong with such a systematic approach, but it has to be recognized that the phrase "30 percent design completion" does not mean that *all* elements are complete to the 30 percent level. Accepting this, there may be some merit in putting into effect an informal cost checking process which responds closely to design initiative at an elemental level. Ideally, as the design of each element is approached, careful analysis of the cost plan and outline specification limitations is made. It would be appropriate at this time to consider and price a number of alternative solutions. Those meeting the cost plan limits are carried forward and selections are then based on other design factors. Often it is not possible to consider elements or subsystems in isolation from others and thus it becomes necessary to consider groups of elements together.

The checking process should show any cost variations clearly as well as the reasons for them and should also open alternatives to return projects to cost target, where overruns are predicted. Such recommendations may include alternative design solutions for the element under consideration, proposed savings in other elements to be used to underwrite the overrun, or withdrawals from contingency.

Cost control decisions

The preparation of cost checks becomes largely an academic exercise unless somebody is empowered to take action on their findings. Simple though this sounds, it is not always easy to achieve in practice, but it is vital if any cost control system has any chance of succeeding—in reality this is the whole point of the exercise. Of course there is no guarantee that the establishment of a design cost control system such as described will automatically produce projects within budget. Certainly a systematic approach is going to help, but successful cost control will still be dependent on reliable sources of cost intelligence and the creative application of estimating skills. □

The best of intentions

By developing a nonjudgmental method of structuring information, architects Perry, Dean & Stewart can generate several different solutions, then select the one that accommodates best all of the complex requirements

The Massachusetts General Hospital/Surgical and Special Services (MGH/SSS) study was given a citation by this year's awards jury, not because it was a unique conceptual approach toward programming, but more for the way it took traditional, complex data and structured it to allow the designers to see relationships and alternatives clearly.

Design for Design, the process developed by Perry, Dean & Stewart (PDS) of Boston, has been used on many projects over the last year and a half, its latest application being the MGH/SSS project. Although there have been numerous methodologies developed over the last 10 years, Clifford Stewart, a partner in the firm, feels that none adequately covers the entire scope of problem solving. In developing *Design for Design,* PDS has tried to synthesize the best aspects of existing methodologies into a framework called Field Analysis.

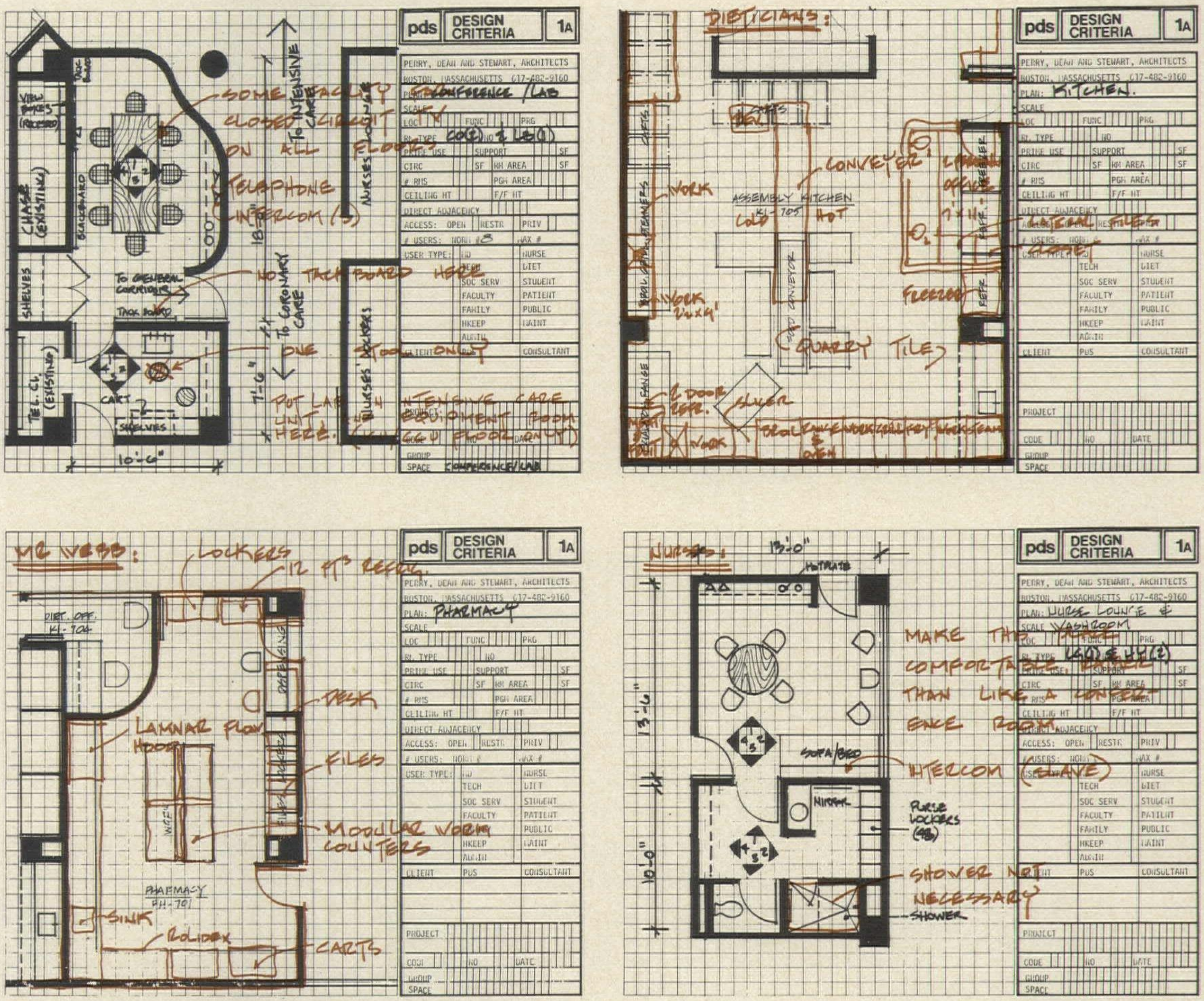
The first premise of the process is to break the information problem into small-scale elements which can be easily analyzed, then reassembled. Four main categories of information were established: Components (programmatic grouping of related activities or functions), patterns (inherent in the architectural problem or activity relationships and movement), services (support systems), and shell, (a physical definition). Each of these issues is then broken into more specific pieces defining the many small-scale interrelated subproblems. After verbally articulating each of these sub-problems in terms of inventory, goals, needs, and parameters, the team moves to the next step, called generators, and begins the translation of this verbal information into diagrammatic form.

This is a process through which relational thoughts are sketched, and it becomes, in the most important sense, a beginning link between the verbal and visual aspects of design. These diagrams for each subproblem are then translated into a series of patterns, the subproblem of the degree of centralization, three options are drawn which encompass known alternatives: centralized, subcenters, dispersed. The verbal aspect of the methodology is described as the problem field; the options constitute the solution field. Once the options for each of the subproblems have been established, "linkages" or sets of compatible options are formed. The number of combinations possible, given four or more options for each of six or seven subproblems in each of the four issues, may become overwhelming. Through a scoring method—a matrix where team members rate the basic compatibility between options from one to six—the data can be collected and fed into a computer which will combine and search for the 3, 8, or 10 highest scoring linkages. These linkages cover the total scope of the problem, and schematic design can follow quickly from the overlay of dimensional and geometric information. For the MGH/SSS project, five team members needed only a few weeks to develop the eight highest scoring linkages into eight different solutions.

After these schematic solutions are completed, it is possible to view them in a general way to see how they meet the basic goals, objectives, and needs of the owner, staff, public, community, and patient. The rating of these solutions, however, is a more complex problem, encompassing the needs of a diverse set of users. Goal categories are broken into three groups: direct or personal, indirect or practical, intangible or metamorphic, and for each group there are three points of view; individual, social (community), and societal. In the matrix, three goal categories, each with 4–6 subcategories against three points of view yields a field of 36–54 intersections, each of which contains basic criteria against which alternative solutions can be weighed by each of the user groups. A rating of 1–5 and some simple addition provides a general view of how well a solution meets stated goals.

Throughout this process, all information has been equally weighed. At this point in the process, however, priorities become the final determinant as to the appropriateness of any one solution. Various points of view can be emphasized, certain goals weighted more, and one solution usually emerges which meets the greatest number of priorities. There are several unique aspects to this particular way of structuring information. First, the client is seen as a group with diverse, possibly conflicting, interests that must be resolved through design.

As a means of collecting data, a booklet with drawings of various components—patient room, nurse station, etc.—was given to staff members for review, correction, and comment. Second, the involvement of the various interest groups in rat-



The drawings above are pages from a notebook used as a data gathering technique by PDS. The drawings, each with a tracing paper overlay, were given to staff members for their corrections and suggestions.

ing the final alternative solutions ensures the selection of a solution that accommodates as many inputs as possible. What is important, however, is the nonjudgmental attitude toward information and, consequently, the development of a set of alternative solutions. This method transforms the usual implicit and intuitive process of selection into an explicit process that allows for a clear ordering of information.

Methodologies seem to have been developed to objectify a decision-making process to impart a clarity, rationale, and structure, and to remove whatever subjective response might be inherent in human nature (which historically has always been present in the design of buildings). Unlike many methodologies that quantify information and evaluate in terms of function, there is a dimension to this process which includes the psychological nature of space, territoriality, response to texture and form, orientation to sunlight and view—all of which relate directly to one's experience of a place.

Yet in view of its sophistication, it may be difficult to understand why the process yields a solution not strikingly different from one generated by a more classical or formal process of design. One apparent reason is that the approach begins by dealing with existing data. It does not begin by questioning some of the basic premises of health care; it does not seek to make changes in the nature of the established institution. According to John Eberhard, one of this year's research jurors, another reason is that there is not enough understanding of the relationships between objectives and criteria which exist in verbal form and the physical forms (visual) of the built world. This process of translation has only begun, and until we better understand the correspondence between intentions and realizations, our solutions may very well remain ordinary. [Sharon Lee Ryder]

Credits

Project team: Clifford D. Stewart, partner; Charles F. Rogers II, partner; Elizabeth S. Ericson, associate; H. Ueli Marbach, Frank D. McGuire, Albert Harkness, John Lehigh, designers. Consultants: Simpson, Gumpertz and Heger, structural; Hankins and Anderson, mechanical; Carleton N. Goff, resident architect, Massachusetts General Hospital.

ISSUES

COMPONENTS

INVENTORY

ACTIVITY: PATIENT CARE

90% OF INTENSIVE CARE PATIENTS ARE ADMITTED FROM THE EMERGENCY WARD, FOR A TYPICAL 3-8 DAY STAY.

INTERMEDIATE CARE PATIENTS ARE ADMITTED BY REFERRAL, EMERGENCY WARD, OTHER AREAS OF MGH FOR A TYPICAL STAY OF 14 DAYS.

SCHEDULED ACTIVITY:
DISCHARGES 11:00 A.M.
ADMISSIONS 1:00 - 3:00 P.M.

UNSCHEDULED ACTIVITY:
EMERGENCY PROCEDURES.

ACTIVITY: NURSING SERVICE

5-6 NURSE AND 5-8 STUDENT PERSONNEL ATTEND 15 INTERMEDIATE CARE OF 8 INTENSIVE CARE BEDS

SCHEDULED ACTIVITIES:
FOOD PREP/DELIVERY: 7:30-8:30; 11:30-1:00; 4:30-5:00
PATIENT PREP/PROCEDURES: 8:30-10:00
CONF. W/DOCTORS: 11:00-11:30
NEW PATIENT ADMISSIONS: 1:00-2:00
TREATMENT PROCEDURES: 2:00-3:00

UNSCHEDULED ACTIVITIES:
CONFERENCES, CONSULTATIONS, EMERGENCY PROCEDURES

ACTIVITY: MEDICAL SERVICE

A TEAM OF SENIOR PHYSICIANS, 2-3 HOUSE OFFICERS AND 2-3 MEDICAL STUDENT ADMINISTER TO EACH PATIENT AT BEDSIDE OR IN A TREATMENT ROOM, THROUGHOUT A PATIENT'S STAY AT THE HOSPITAL.

SCHEDULED ACTIVITY:
CONF/NURSES 7:30-8:30; 11:00-11:30
PREP ROUNDS 8:30-11:00
CONF/CONSULTANTS 1:00-2:00
TREATMENT 2:00-

UNSCHEDULED ACTIVITY:
EMERGENCY PROCEDURES

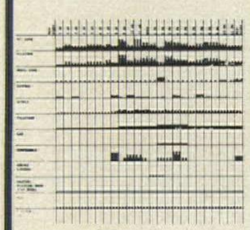
ACTIVITY: DIAGNOSTIC & TREATMENT

TEAMS OR INDIVIDUALS PROVIDE TREATMENT AT BEDSIDE OR IN DIAGNOSTIC AND TREATMENT FACILITY.

ACTIVITY: TEACHING/RESEARCH

UNIT TEACHERS ARE RESPONSIBLE FOR THE TEACHING OF NURSING STAFF AND STUDENTS, AT BEDSIDE OR IN ANY OF THE DIAGNOSTIC AND TREATMENT FACILITIES. TEACHING OF PATIENTS CAN ALSO TAKE PLACE IN ABOVE MENTIONED AREAS. RESEARCH ACTIVITY IS CONFINED TO LABORATORIES ON EACH FLOOR.

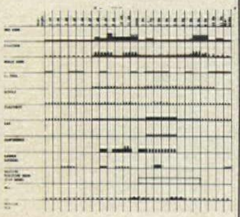
ACTIVITY LOG / INTENSIVE CARE



ACTIVITY: VISITORS

VISITORS ATTEND PATIENT ON AN INFORMAL BASIS, USUALLY UNDER CONTROL OF NURSING STAFF. VISITORS IN ICU ARE LIMITED TO 5 MIN. PATIENT VISITS, EACH HOUR, ON A 24 HOUR BASIS.

ACTIVITY LOG / INTERMEDIATE CARE



ACTIVITY: ADMINISTRATIVE SERVICE

A UNIT COORDINATOR AND A WARD SECRETARY COORDINATE AND CONTROL THE NON-NURSING ACTIVITIES ON A PARTICULAR FLOOR.

ACTIVITY: INFORMATION & COMMUNICATION

INFORMATION AND COMMUNICATION EXIST ON MANY LEVELS VIA VERBAL, WRITTEN AND ELECTRONIC MEDIA.

SCHEDULED ACTIVITY:
CONFERENCES, ROUNDS, MEDICAL RECORDS, LAB TEST REPORTS, MONITOR READOUTS, ETC.

UNSCHEDULED ACTIVITY:
CONVERSATION, MEMOS, NURSE CALL, DOCTORS PAGE, ETC.

ACTIVITY: AMBULATORY CARE

EXAMINATION, TREATMENT, CONSULTATION, SPECIMEN COLLECTION AND LABORATORY PROCEDURES REQUIRED FOR CARE OF THE AMBULATORY PATIENT.

ACTIVITY: SOCIAL SERVICE

ONE SUPERVISOR, THREE SOCIAL WORKERS, TWO STUDENTS AND ONE SECRETARY ADMINISTRATE 125 PATIENTS.

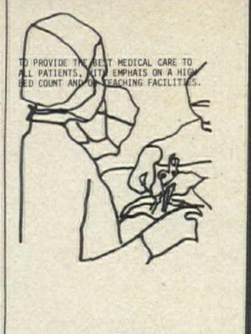
SCHEDULED ACTIVITIES:
INTERVIEWS W/PATIENTS AT BEDSIDE OR IN SOCIAL SERVICE OFFICE. DAILY ROUNDS WITH MEDICAL AND NURSING SERVICE PERSONNEL. ONE CONFERENCE PER WEEK WITH EACH MEDICAL SERVICE TEAM.

ACTIVITY: HOSPITAL ADMINISTRATION

NURSING ADMINISTRATION CENTER IS RESPONSIBLE FOR NURSING INPATIENT CARE SERVICES FOUND IN SSS.

MEDICAL ADMINISTRATION CENTER IS RESPONSIBLE FOR MEDICAL INPATIENT CARE SERVICES FOUND IN SSS.

GOALS



TO PROVIDE THE BEST MEDICAL CARE TO ALL PATIENTS, WITH EMPHAIS ON A HIGH BED COUNT AND ON TEACHING FACILITIES.

ENCOURAGE AMBULATION AND PERSONAL CONTACT BETWEEN PATIENTS.

CONTINUOUS COMPREHENSIVE CARE OF PATIENT.

ATMOSPHERE OF ORDER/CONTROL.

MINIMIZE PATIENT MOVEMENT IN ICU BECAUSE OF NEED FOR LIFE SUPPORT EQUIPMENT, CONTINUOUS MONITORING.

REDUCTION OF ENVIRONMENTAL STRESS ASSOCIATED WITH ICU.

IMMEDIATE RESPONSE TO PERSONAL AND MEDICAL NEEDS.

MAINTAIN HIGH CENSUS RATES AND FLUCTUATING PATIENT LOAD.

ALLOW FOR DIFFERENT ROUND PATTERNS; ALLOW FOR DIFFERENT STAFFING PATTERNS.

PROVISIONS FOR VISITORS.

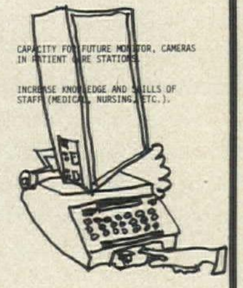
REPEATED QUESTIONING OF CONVENTIONAL WISDOM. TESTING GROUND FOR NEW TECHNIQUES.

TO PROVIDE A CENTER FOR RESOLVING COMMUNITY HEALTH PROBLEMS.

AVAILABILITY OF INFORMATION FOR RESEARCH, PROGRAMMING, DIAGNOSIS, TEACHING, ETC.

PROVIDE FLEXIBILITY OF COMPONENTS TO ACCOMMODATE ROUTINE AND EMERGENCY CARE.

TO PROVIDE THE BEST MEDICAL CARE TO ALL PATIENTS, WITH EMPHASIS ON A HIGH BED COUNT AND ON TEACHING FACILITIES.



CAPACITY FOR FUTURE MONITOR, CAMERAS IN PATIENT CARE STATIONS.

INCREASE KNOWLEDGE AND SKILLS OF STAFF (MEDICAL, NURSING, ETC.).

PRINCIPLE OF INDEPENDENCE AND INTIATIVE: PARTICULAR SOLUTIONS TO VARIED CONDITIONS.

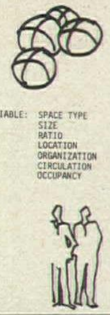
MINIMAL CONDITIONS FOR THE FUTURE: MINIMAL STRUCTURE.

OPTIMUM UTILIZATION (VISUAL, PHYSICAL AND FUNCTIONAL) OF BUILT ENVIRONMENT: ECONOMY OF MEANS.

TO PROVIDE A CENTER FOR RESOLVING COMMUNITY HEALTH PROBLEMS.

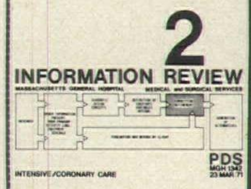
PARAMETER / NEEDS

INTENSIVE BED STATION

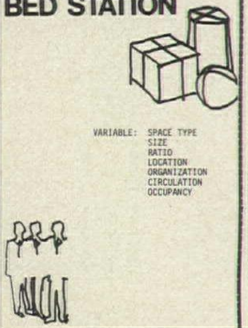


VARIABLE: SPACE TYPE
SIZE
RATIO
LOCATION
ORGANIZATION
CIRCULATION
OCCUPANCY

REFER TO INFORMATION REVIEW BOOK, ACTIVITY LOGS, MATRICES, BUBBLE DIAGRAMS FOR NEEDS OF INTENSIVE BED STATION.



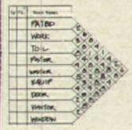
INTERMEDIATE BED STATION



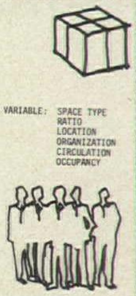
VARIABLE: SPACE TYPE
SIZE
RATIO
LOCATION
ORGANIZATION
CIRCULATION
OCCUPANCY

REFER TO INFORMATION REVIEW BOOK, ACTIVITY LOGS, MATRICES, BUBBLE DIAGRAMS FOR NEEDS OF INTERMEDIATE BED STATION.

MATRIX SHOWING OPTIMUM USE ACCORDING TO MEDICAL, NURSING, AND PATIENT RELATIONSHIPS.

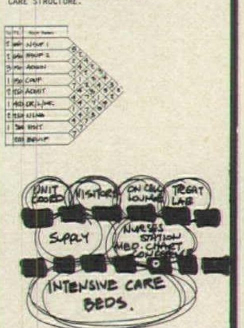


INTENSIVE CARE STRUCTURE

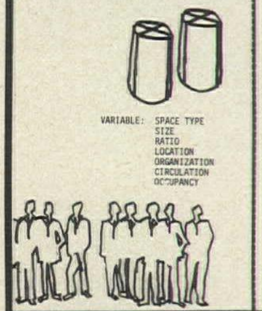


VARIABLE: SPACE TYPE
RATIO
LOCATION
ORGANIZATION
CIRCULATION
OCCUPANCY

REFER TO INFORMATION REVIEW BOOK, ACTIVITY LOGS, MATRICES, BUBBLE DIAGRAMS FOR NEEDS OF INTENSIVE CARE STRUCTURE.

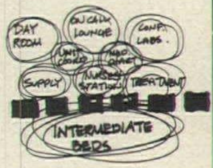


INTERMEDIATE CARE STRUCTURE

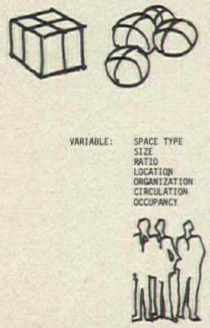


VARIABLE: SPACE TYPE
SIZE
RATIO
LOCATION
ORGANIZATION
CIRCULATION
OCCUPANCY

REFER TO INFORMATION REVIEW BOOK, ACTIVITY LOGS, MATRICES, BUBBLE DIAGRAMS FOR INTERMEDIATE CARE STRUCTURE.

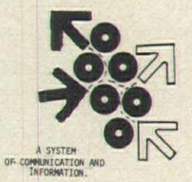


INFORMATION



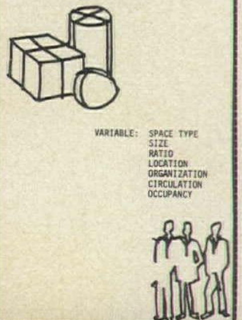
VARIABLE: SPACE TYPE
SIZE
RATIO
LOCATION
ORGANIZATION
CIRCULATION
OCCUPANCY

REFER TO INFORMATION REVIEW BOOK, ACTIVITY LOGS, MATRICES, BUBBLE DIAGRAMS FOR NEEDS OF INFORMATION.

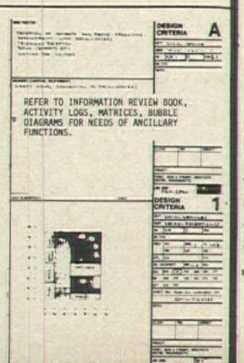


A SYSTEM OF COMMUNICATION AND INFORMATION.

ANCILLARY

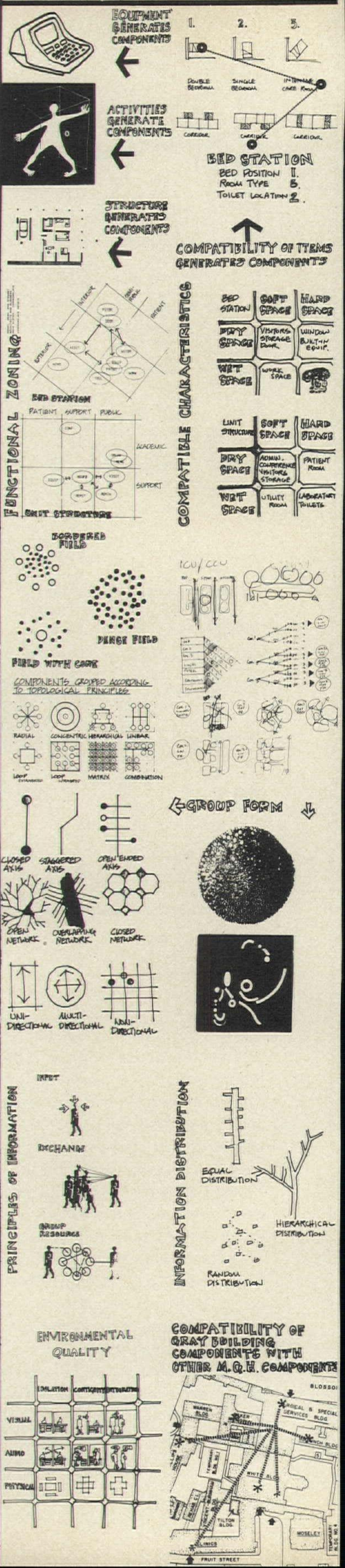


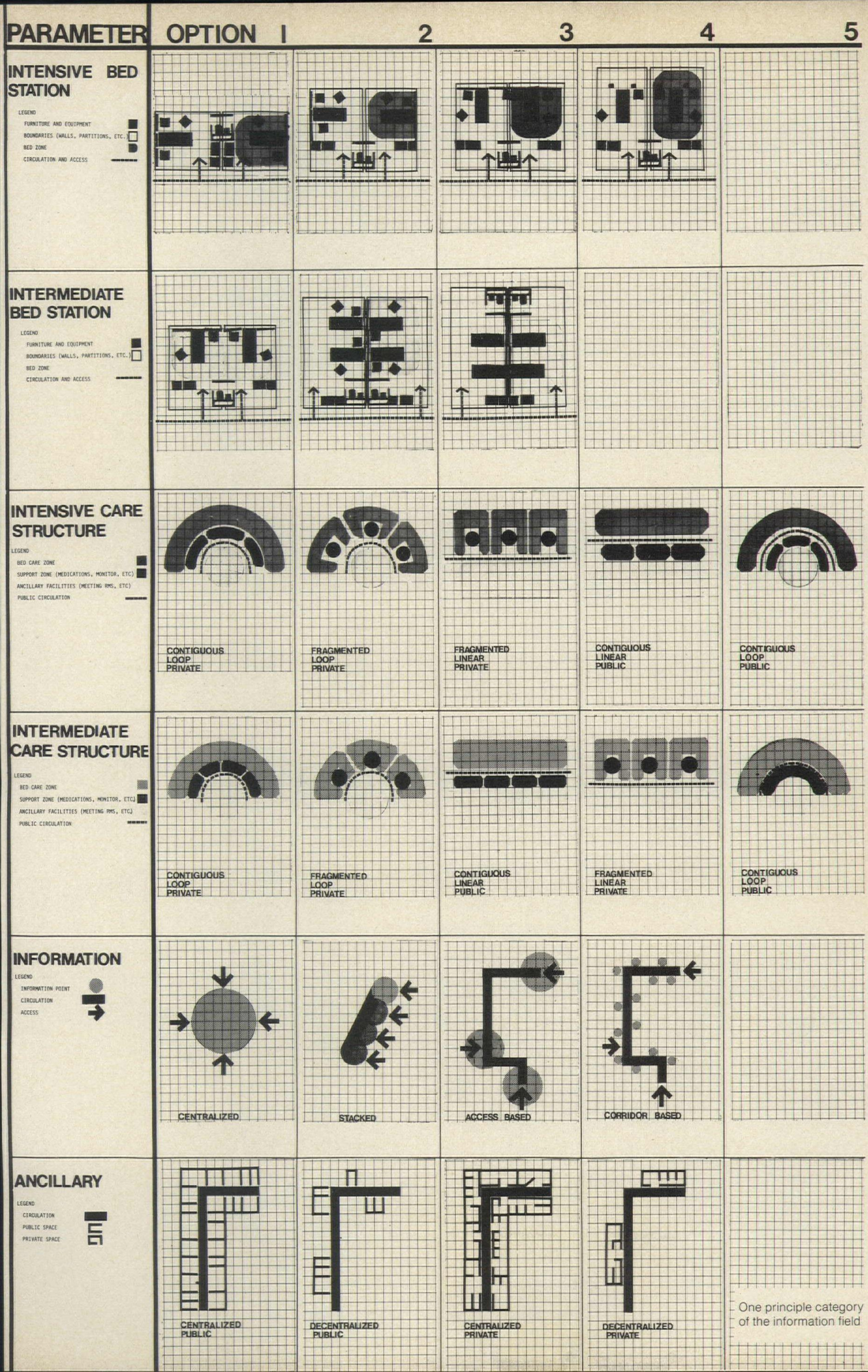
VARIABLE: SPACE TYPE
SIZE
RATIO
LOCATION
ORGANIZATION
CIRCULATION
OCCUPANCY



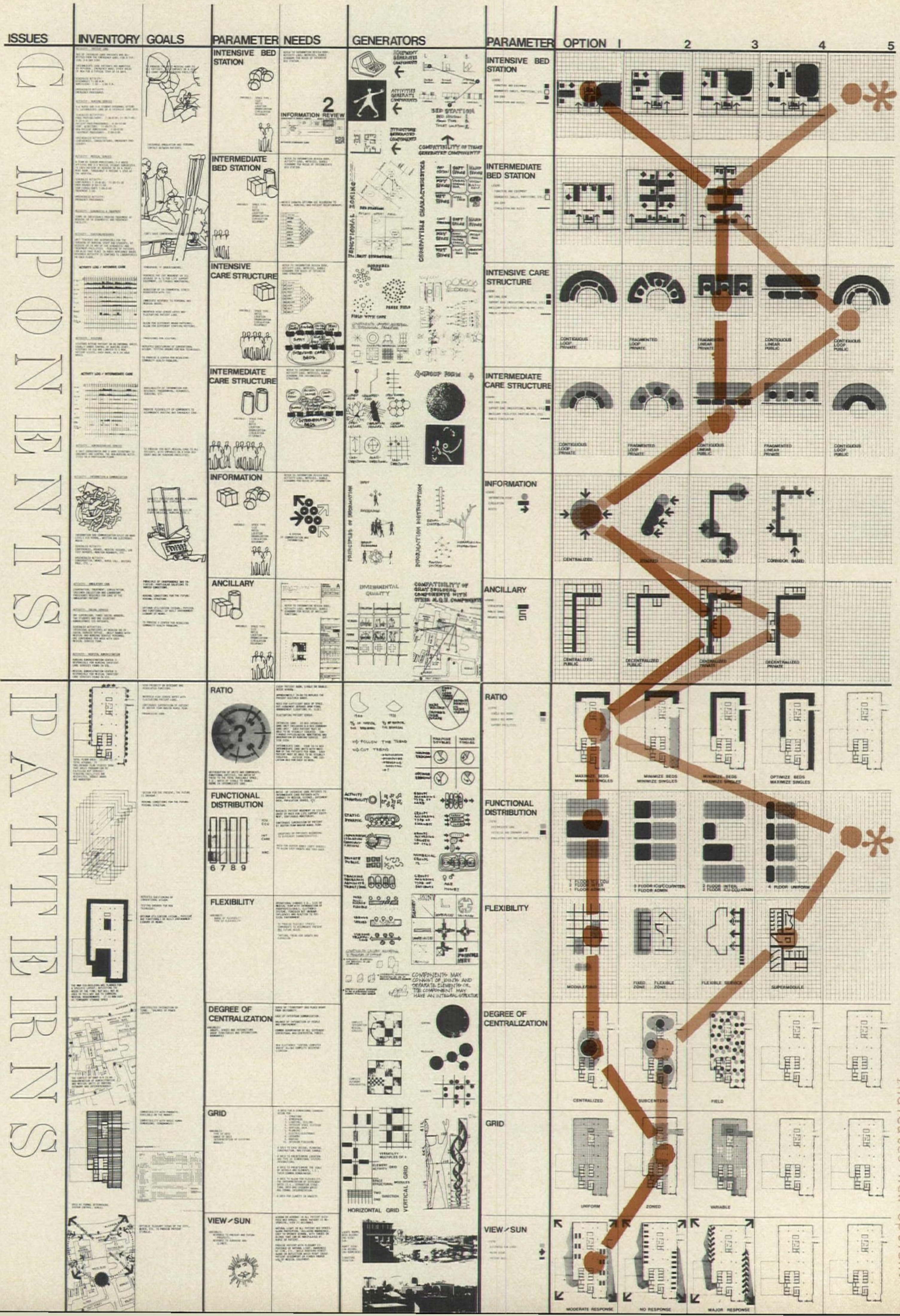
REFER TO INFORMATION REVIEW BOOK, ACTIVITY LOGS, MATRICES, BUBBLE DIAGRAMS FOR NEEDS OF ANCILLARY FUNCTIONS.

GENERATORS

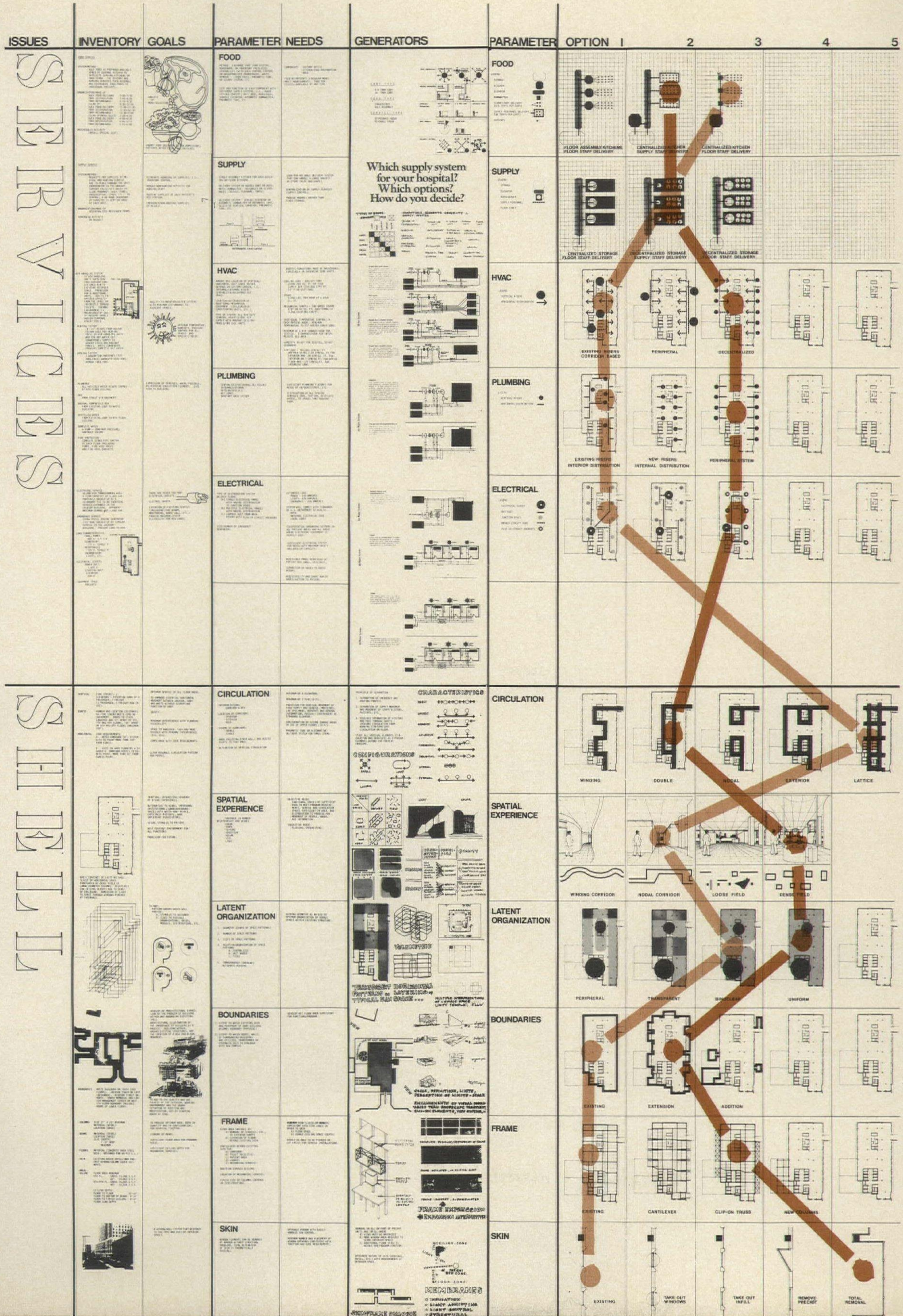




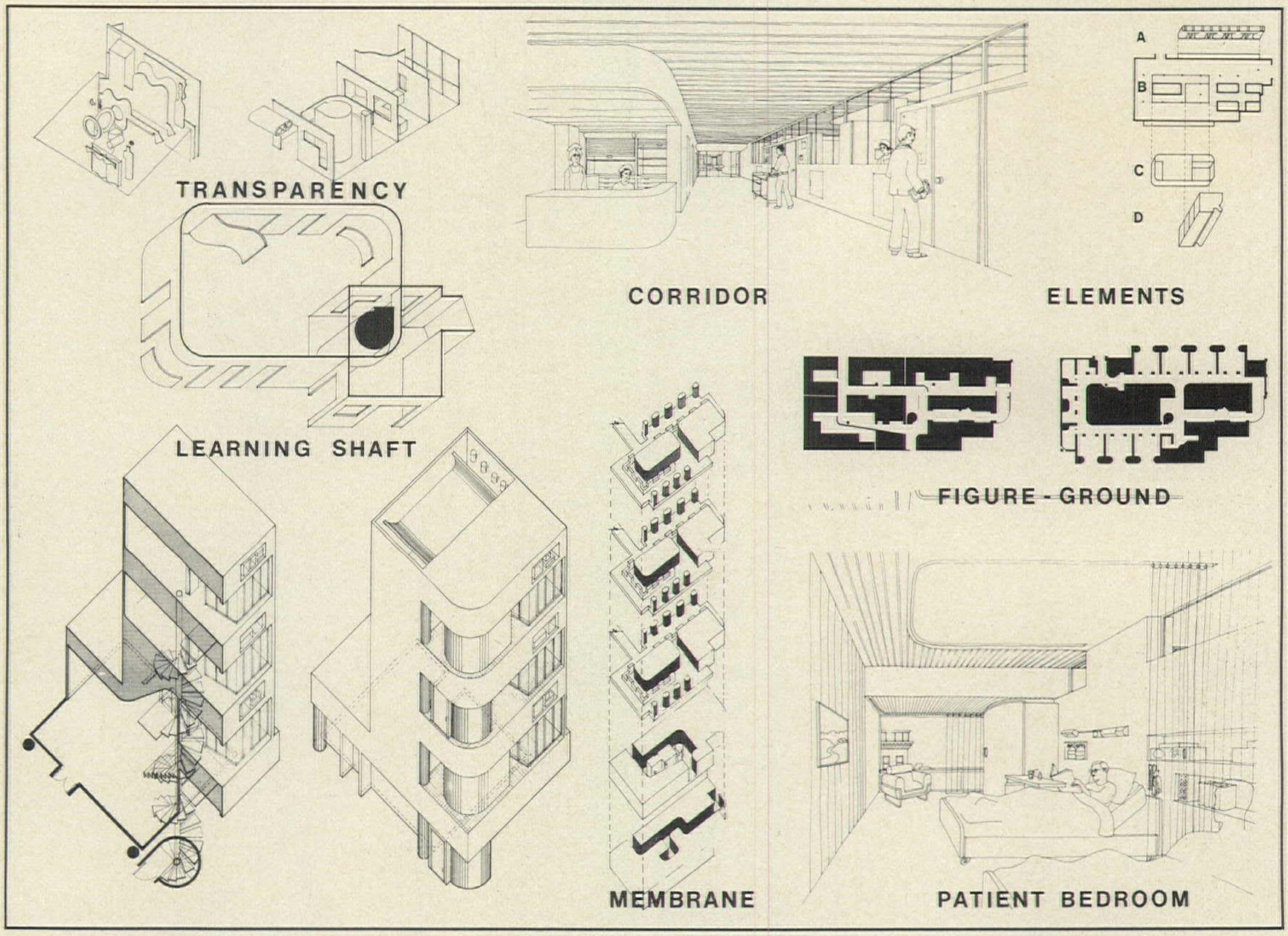
One principle category of the information field

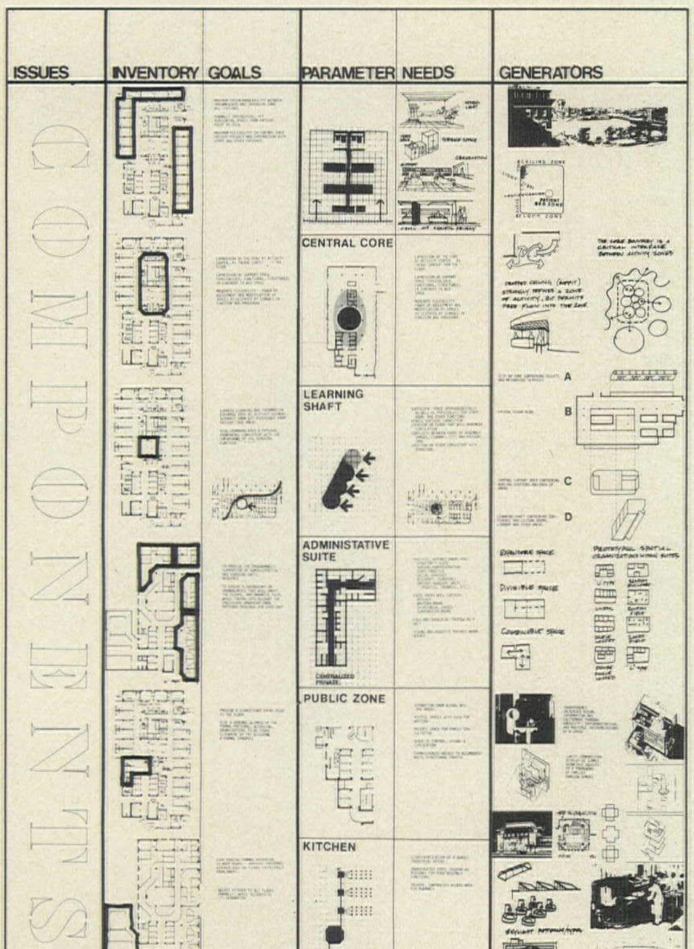


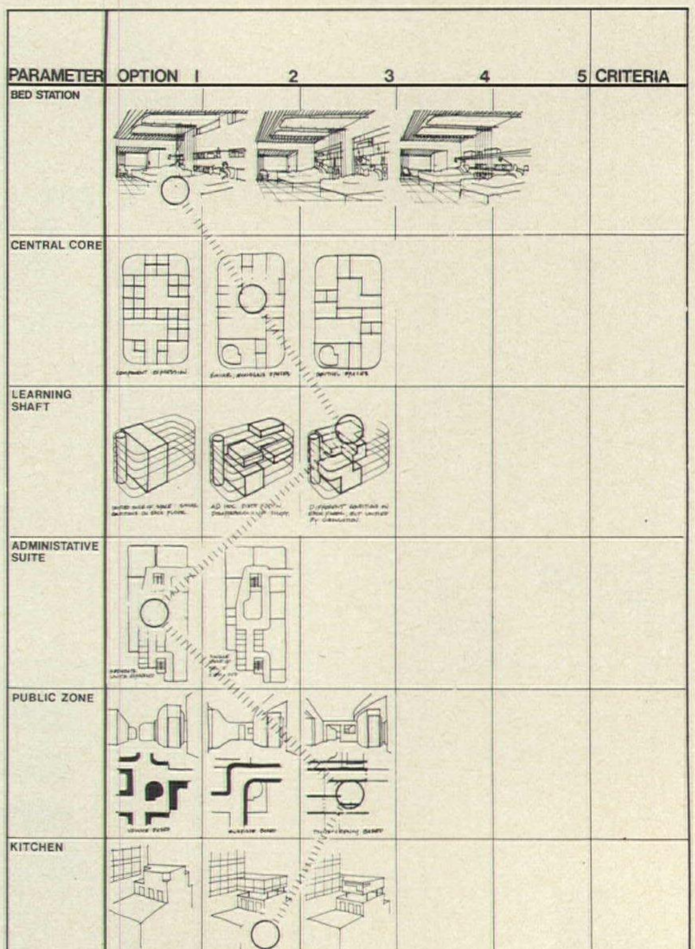
*indicates new option.


ISSUES
INVENTORY
GOALS
PARAMETER
NEEDS
GENERATORS
PARAMETER
OPTION 1
2
3
4
5
SERVICES
SHELL
FOOD
SUPPLY
HVAC
PLUMBING
ELECTRICAL
CIRCULATION
SPATIAL EXPERIENCE
LATENT ORGANIZATION
BOUNDARIES
FRAME
SKIN
Which supply system for your hospital? Which options? How do you decide?
CHARACTERISTICS
CONFIGURATIONS
MEMBRANES
FLOOR ASSEMBLY KITCHEN FLOOR STAFF DELIVERY
CENTRALIZED KITCHEN SUPPLY STAFF DELIVERY
CENTRALIZED KITCHEN FLOOR STAFF DELIVERY
CENTRALIZED STORAGE FLOOR STAFF DELIVERY
DECENTRALIZED STORAGE SUPPLY STAFF DELIVERY
DECENTRALIZED STORAGE FLOOR STAFF DELIVERY
EXISTING RISERS CORRIDOR BASED
PERIPHERAL
DECENTRALIZED
EXISTING RISERS INTERIOR DISTRIBUTION
NEW RISERS INTERNAL DISTRIBUTION
PERIPHERAL SYSTEM
WINDING
DOUBLE
NODAL
EXTERIOR
LATTICE
WINDING CORRIDOR
NODAL CORRIDOR
LOOSE FIELD
DENSE FIELD
PERIPHERAL
TRANSPARENT
SINGLE
UNIFORM
EXISTING
EXTENSION
ADDITION
EXISTING
CANTILEVER
CLIP-ON TRUSS
NEW COLUMNS
EXISTING
TAKE OUT WINDOWS
TAKE OUT INFILL
REMOVE PRECAST
TOTAL REMOVAL

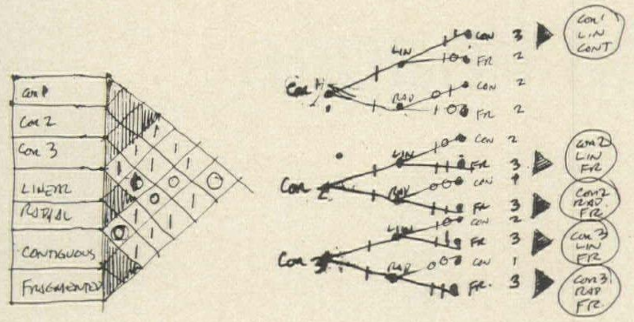
The best of intentions

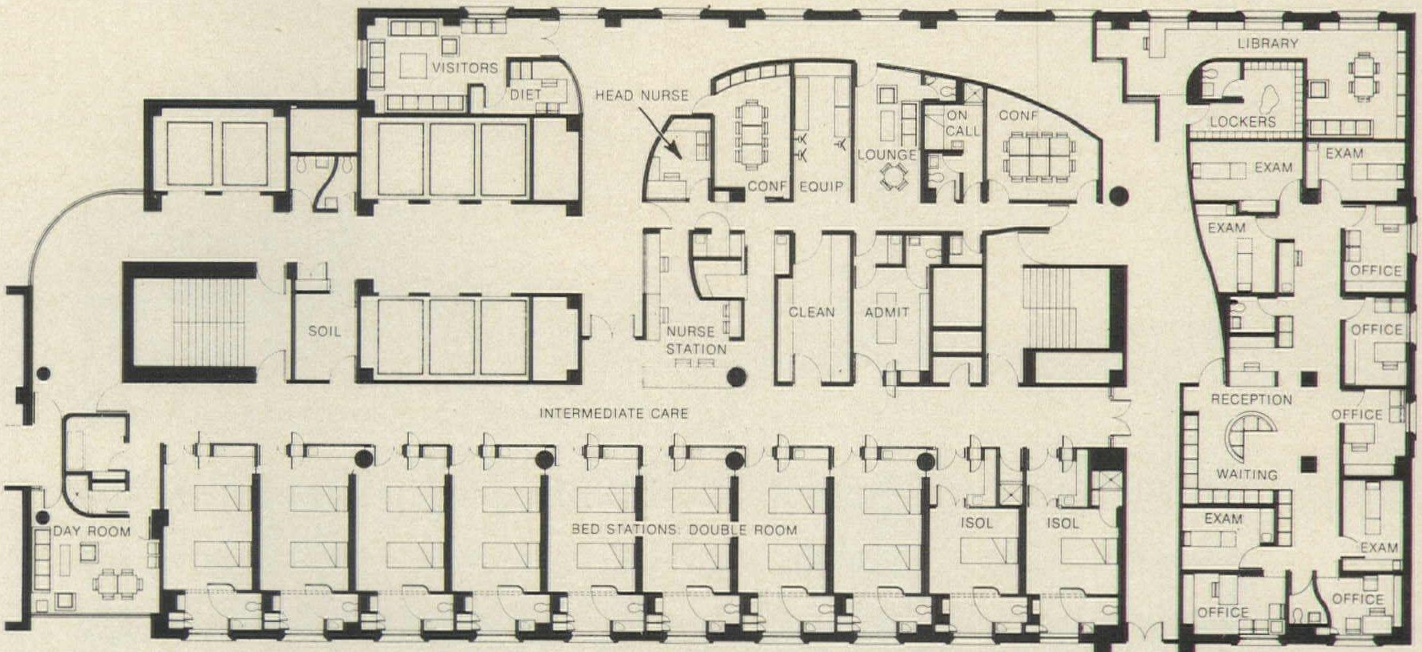






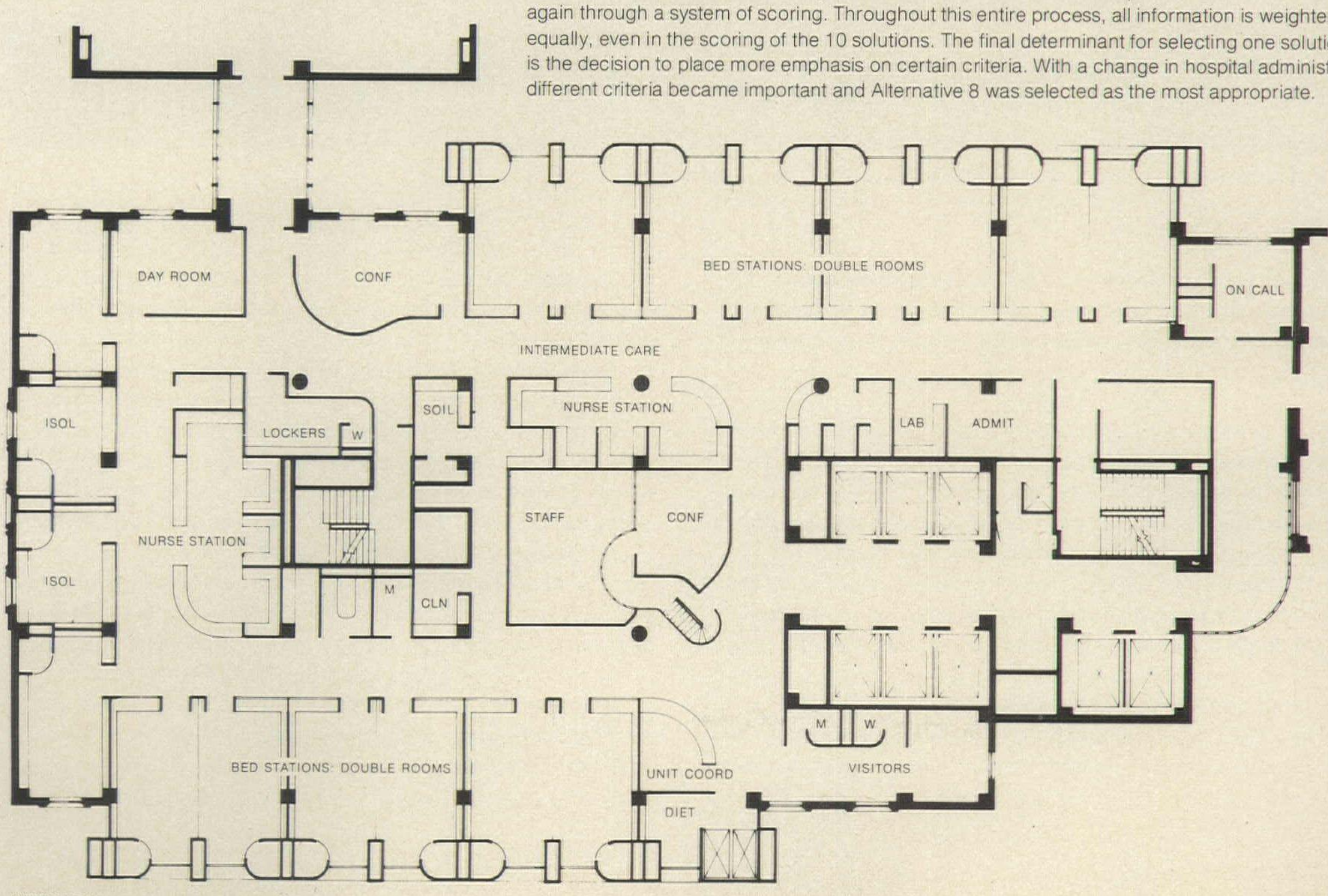
The diagrams to the right represent the matrices by which various options are rated against each other for compatibility. The method of scoring, from 1 to 6, is done by team members, and the information is fed into the computer which prints out the highest scoring sets of linked options. The options, which exist as schematic or diagrammatic solutions, are then translated into formalized visual solutions (left) in the process of developing the various sets of linkages in specific architectural form.





ALTERNATIVE 8

Of the 10 highest scoring sets of linkages developed for the MGH/SSS project, alternative 2 was selected as the most feasible. Only after the 10 solutions were developed was a selection made, again through a system of scoring. Throughout this entire process, all information is weighted equally, even in the scoring of the 10 solutions. The final determinant for selecting one solution is the decision to place more emphasis on certain criteria. With a change in hospital administration, different criteria became important and Alternative 8 was selected as the most appropriate.



ALTERNATIVE 2

San Bernardino City Hall

High tech images

At glancing angles (opposite page), the skin of the City Hall covers all surfaces in a seemingly uniform sheen. At night (above), the ratio of view glass to the spandrel glazing become obvious.

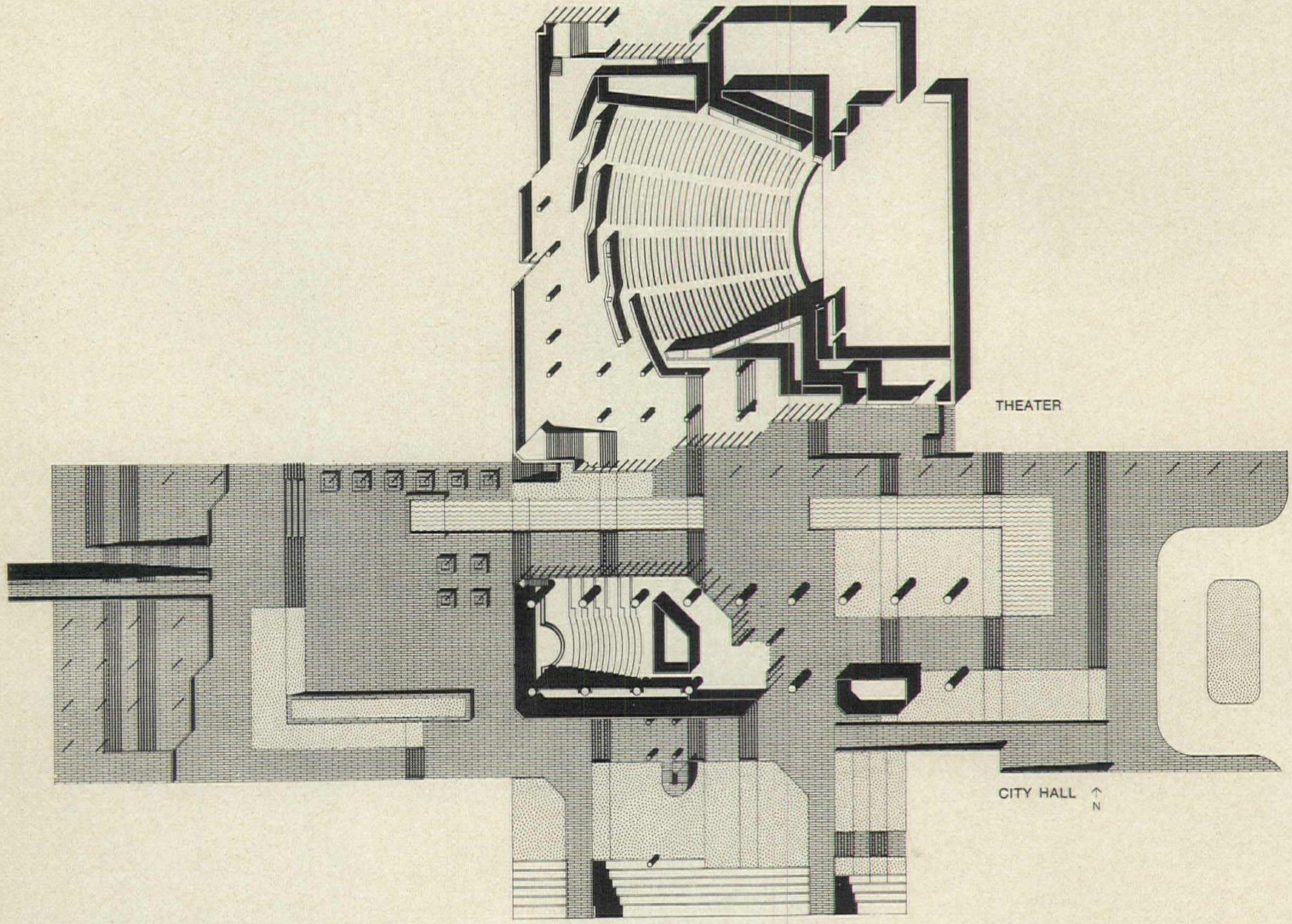
Part of San Bernardino's larger redevelopment plan, the new City Hall is at once a reflective yet an absorptive influence on the city, expressed in Los Angeles' terms

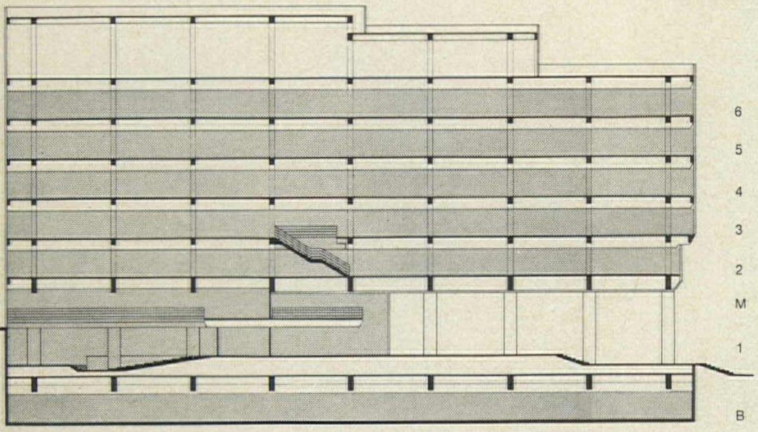
Joan Didion in *Slouching Towards Bethlehem* describes San Bernardino as "haunted by the Mojave just beyond the mountains, devastated by the hot dry Santa Ana wind that comes down the passes at 100 miles an hour and whines through the eucalyptus windbreaks and works on the nerves."

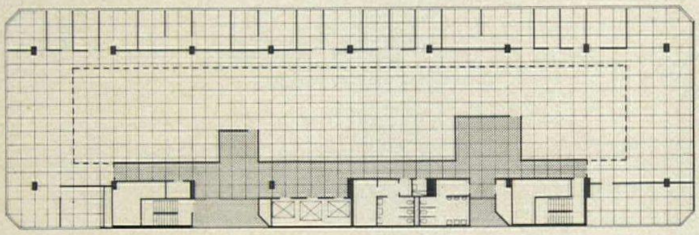
It is here in the old downtown center of the city of 100,000 that one of the best city halls in California has risen. The building is the shape of the street which was closed to form the site, and it recalls something Ignazio Gardella said—he wanted his buildings to remember what was there before them. The City Hall is by way of being a six-story street. Something else was remembered, unintentionally. When the solar bronze glass-surfaced structure was dedicated last year, a speaker said that the line of light standards with red globes called to mind that in pioneer days a row of red lights in about the same position lit small business ventures. (Laughter.)

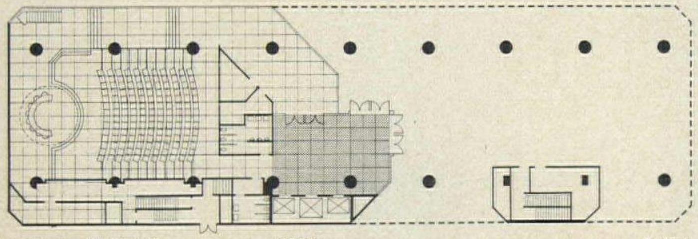
They can afford to laugh in San Bernardino because they have successfully carried through a $100 million redevelopment project for which 93 acres were cleared. Beside the City Hall it includes an exhibit hall/convention center under the raised plaza, an 1100-car parking structure and a 350,000-sq-ft enclosed civic mall across the street to the west. To come are a hotel which will be tied to the convention center at basement level and a civic theater to the north of City Hall. Three department stores and 70 shops will eventually face the mall.

The revitalization of the downtown core has reversed the dwindling retail sales; it has also created a new financial center. Five banks at the fringe include the new Security-Pacific by Gruen Associates (Diana and Cesar Pelli). The Gruen of-









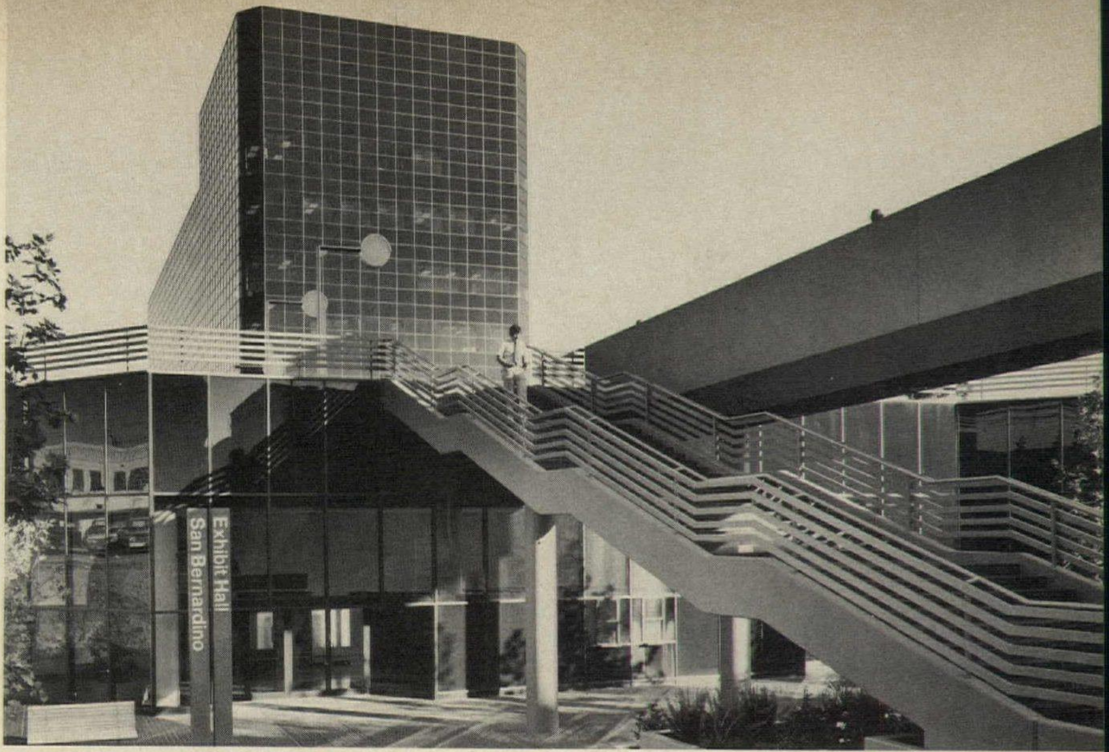
fice has been in on the project since the earliest studies in 1963, with Daniel Branigan in charge of planning.

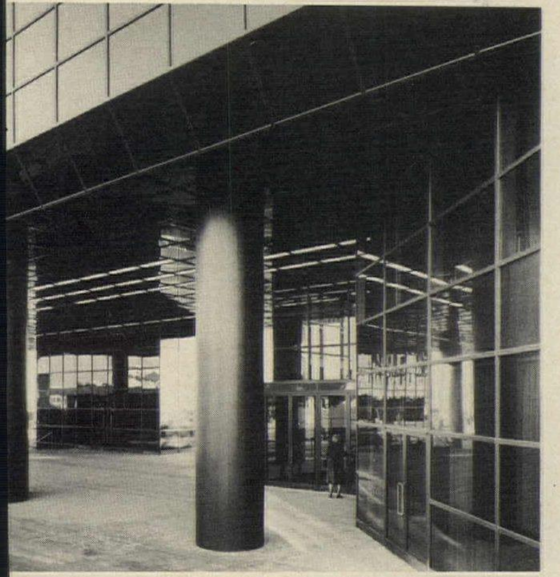
The 600′ x 600′ blocks and 80-ft-wide streets, laid out by the Mormons in 1851, invited a monumental building with a grand approach. But Cesar Pelli turned the short side of the building toward the street, pressed the parking structure against it and planned the civic theater to push in close. He wanted the City Hall tight in its site.

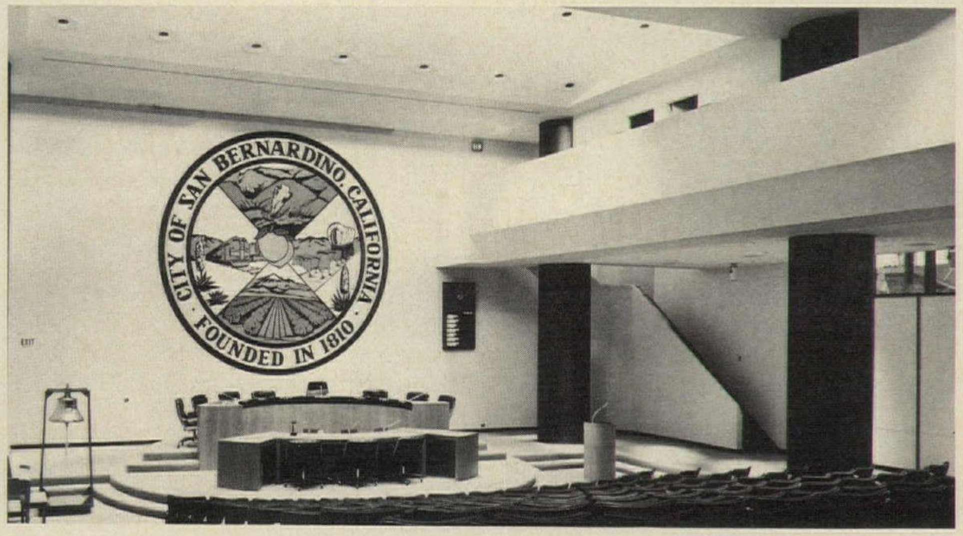
A man-made rise of 18 ft from street to street does allow a modest solemnity to the leisurely approach. In a city as flat as a tortilla, the suggestion of hill won unexpected approval even though it was the result of ceiling-height considerations in the convention center below the plaza. Another reason for the change of grade was to lift the second story of City Hall to the top level of the mall in order to connect the two by a bridge. A jolly neighborly thing to do, and rare indeed for a city hall, a retail development and a parking structure to be interconnected. More cars will be brought in when the four corners of the civic center, which have been opened to private developers, are filled in.

The parking structure is the only element in the tight planning of civic center to indicate that land was plentiful. Its presence is like a low-growing native, its runners the bridge and circular stair; from these springs a dark exotic, the City Hall.

Sculptural stair and heavy bridge to a retail center mall (right) seem to invade the building by contrast to the smooth skin and its uniform module. Entrance to civic offices (below) is framed by concrete columns clad in anodized aluminum. City council chamber (below, right) allows for an overflow audience in the balcony, and proceedings can be watched from outside through a band of glass. Plan (opposite page) indicates the location of the theater part of the complex, for which land has been cleared.







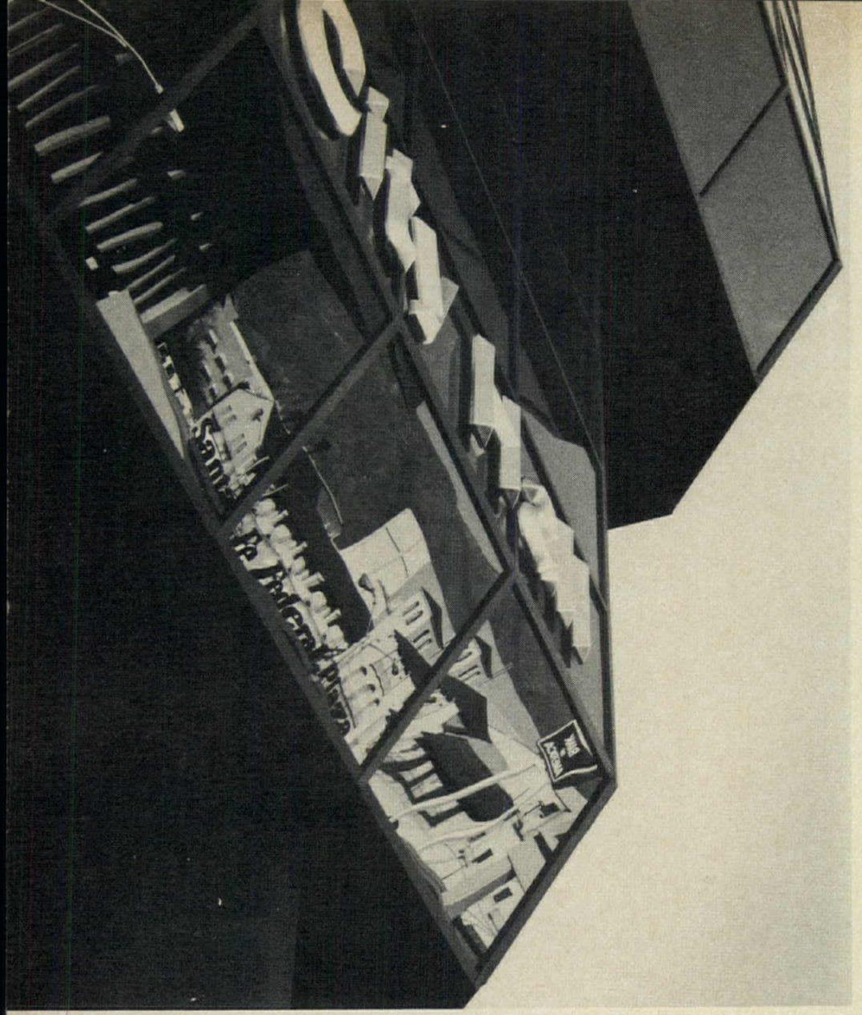
What is native in this two- to three-story city are light-colored nonreflective surfaces, walls sparingly pierced to admit light while avoiding the rays of the summer sun, and a style predominantly Spanish Colonial. In the detail on the front façade (top photo, p. 70), the diagonal plane of glass acts as a screen on which are reflected typical downtown buildings. But the growing ambition of small western cities to be urban has turned their attention toward the cities, and one of their models is the downtown Los Angeles financial center with its twin dark-glass Arco towers. The City Hall is a cross fertilization of L.A. high tech.

Pelli has become known for his elegant handling of high tech in such buildings as Teledyne and Comsat, the Vienna Competition project and the American Embassy in Tokyo, now ready to start. Visual reminiscences run from NASA to Greyhound to factories in the field to Mies; materials are invariably out of the catalog; plans develop out of a promenade which is for social encounter as well as horizontal and vertical circulation. Whether offices or work spaces are planned as fingers off the promenade as in the Teledyne and Comsat plan (expandable by adding new fingers) or the building is closed as with City Hall, all have more to do with movement than destination.

The City Hall, far from being a static glass box isolated on the landscape, becomes sculptural in form through the tensions set up inside and outside—tensions growing out of function. Lifted above the ground (one-third of the ground level is open), roof stepped, corners chamfered, angle of transition between wall planes, the south wall broken by recessed balconies, the cube is under constant attack. The parking lot invades the building at the second level, and on the west an entrance court to the convention center is flanked by broad stairs with bright stripes of blue rails. The circulation on three sides batters the building like a forced entry, and it comes out closer to the Urbino dormitories than the Seagram tower.

On the north side the walk hugs so close to the building that you can smile at your reflection in the glass. Or you can look down through the glass upon a meeting of the city council. The reflections and transparencies work together to make the building ephemeral and delicate, but as you move along beside it you feel an imposing presence. The glass extends unequivocably to the ground, without masonry base, half of the total area is view glass and the rest reflective spandrel glass; but the life the glass has of its own is equivocal.

Pelli's attitude toward glass has been influenced more by the Los Angeles artist Larry Bell than actual buildings, he says. Details always interest him if they have bearing on his search to make the skin of a building flow, which is to say, re-



ducing the size and projection of the mullions. Bells' glass sculpture, however, set Pelli to weighing the emotional responses to reflective surfaces.

"When you start dealing with reflections you destroy clarity," he says. "At the same instant there is a multiplicity of images superimposed, but the viewer expects clarity and deciphers the messages. Not true of mirror glass because of the lack of communication between inside and outside. I am more interested in the quality of interplay. The strongest reflections are the glancing views. The faceting of images, which occurs when the structural expression interrupts the forms, establishes immediate contact with the viewer. This is why I pushed people against the building."

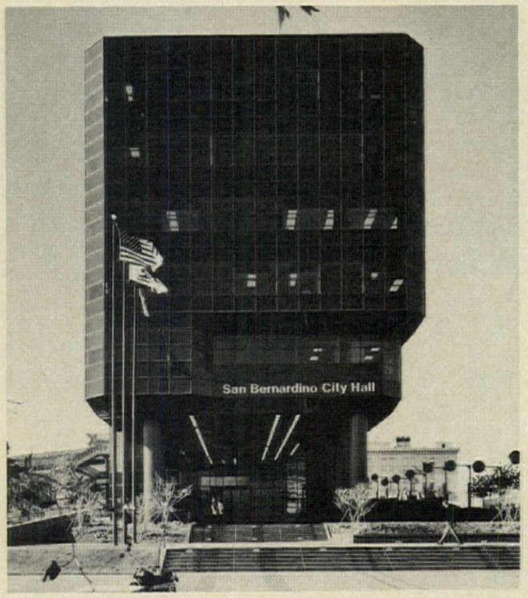
The belief has come down to us from the Renaissance, he says, that a building is a completely understandable object and that we must understand it before feeling it. "I want to deal with emotion. I want to put the viewer in the position of feeling before understanding."

Pelli takes a step forward in the use of glass in the Civic Room of the Commons at Columbus, Ind. Glass curves, space flows; glass is sculptured like a soap bubble. He begins to deal with light and shadow. The Columbus building also comes out of L.A. high tech. "L.A. understands the beauty of high tech. L.A. frees you. You can think in terms of technical images," he says.

There is a point in common between Pelli and an early high tech man—Paul Sheerbart, the Bohemian writer whose *Glasarchitektur* was published in 1914, a year before his death. Sheerbart foresaw floating glass architecture on rivers, lakes and seas, glass leviathans in the air, glass express trains, the mountains above Lake Lugano illuminated at night from inns with glass walls. "A paradise on earth," he wrote, leading inevitably to "a composed and settled nation." (The shot so close in time that was to start WW I could not have flashed on Sheerbart's crystal ball.)

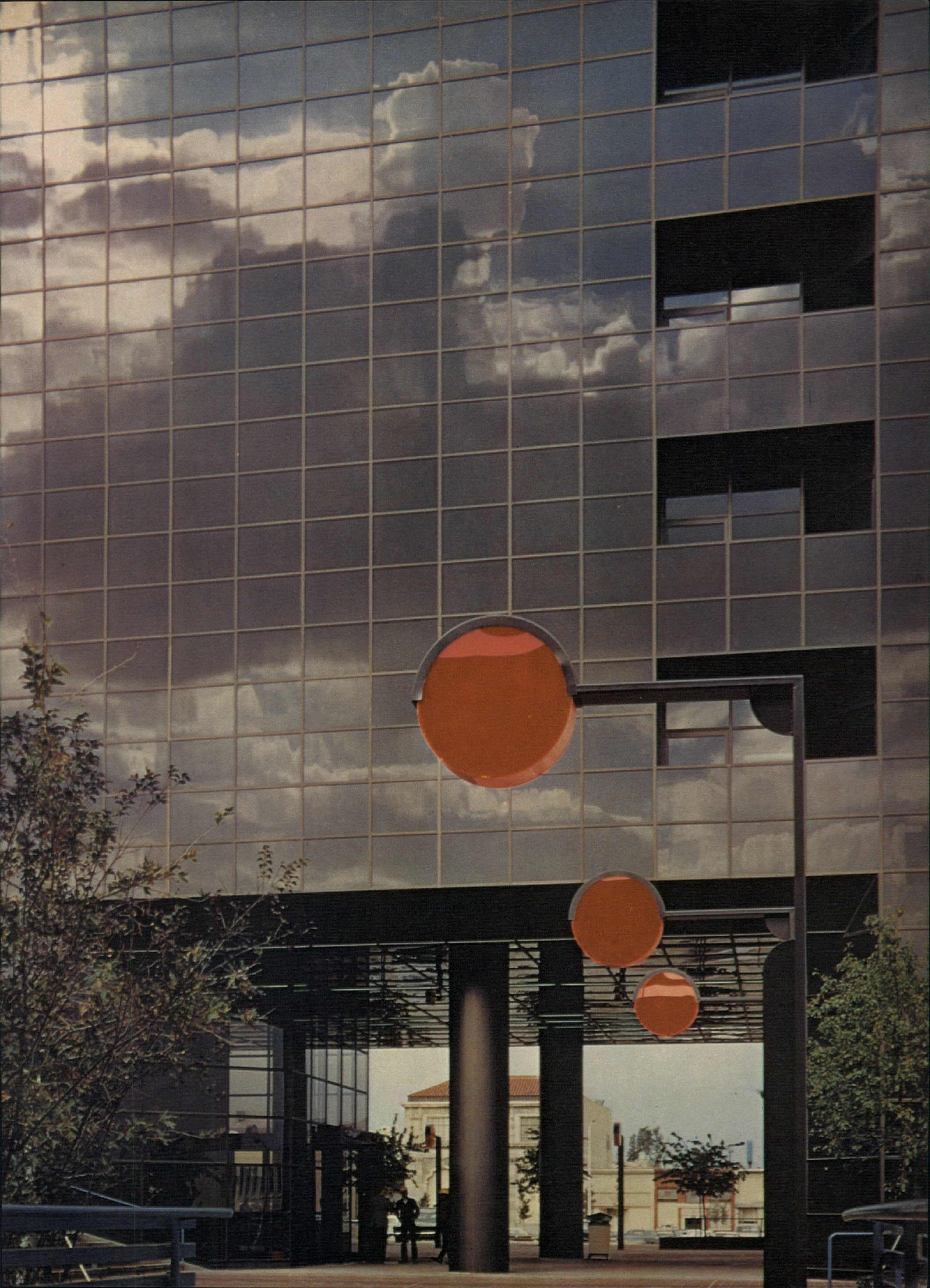
The point in common (if there can be a point between a literary constructor of fantasies and an architect who starts off with a soil engineer's report) is the union of movement and transparency. Sheerbart's love was glass in color, Pelli's the oblique, intensified image; Sheerbart liked what glass gave off, Pelli likes what it takes in. [Esther McCoy]

Colliding views of old buildings opposite City Hall (above) are always present on the diagonal screen, but not for long. The spirit of renewal will remove most of the core's older buildings. The carved bronze cube (right) appears to ride above a three-lane highway. Circulation was carefully mapped out to provide options, and is expressed clearly (below).



Data

Project: San Bernardino City Hall and Exhibit Hall/Convention Center.
Architects: Gruen Associates; partner in charge of design, Cesar Pelli; partner in charge of project, Dan Branigan; project designer, Lance Bird; project coordinator, James Lim; project engineer, Victor Preston.
Associated architects: Armstrong-Ulmer.
Program: include all departments for city administration, including council chamber. Part of an urban complex including exhibit hall, urban park, theater, shopping center, and parking garage.
Site: downtown San Bernardino, Calif. within an urban renewal area.
Structural system: concrete columns, beams, shear walls, and slabs.
Mechanical system: medium pressure constant volume double-duct central air-handling systems, centrifugal water chillers and hot water boilers.
Major materials: exterior, bronze-tinted glass windows and dark bronze structural glass spandrels, bronze aluminum column covers; interior, acoustic tile ceilings, aluminum panel and gypsum board walls, brick pavers, and vinyl asbestos tile floors.
Costs: $4,950,500 ($34.49/sq ft).
Photography: Balthazar Korab, except p. 70, top, Fred Clarke.



An interior's interior

In the John F. Kennedy Center for the Performing Arts in Washington, D. C., architects Hardy Holzman Pfeiffer have exposed some old conventions and rules in designing new quarters for the American Film Institute.

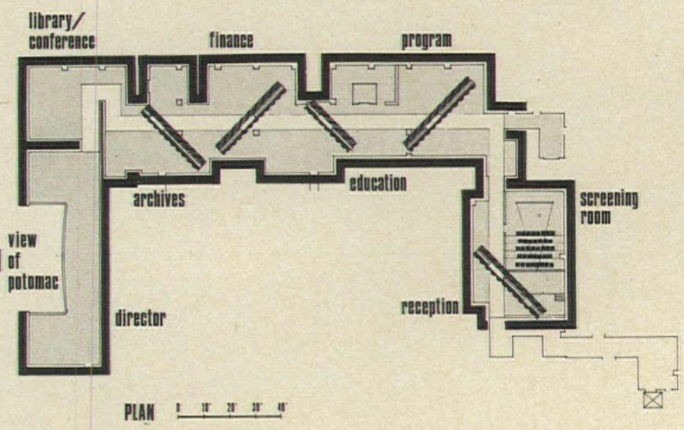
"Follow the flowered carpet to the Marx Brothers mural, turn left and stay on the flowers until you get to the mirror, then go around the mirror and keep left until you come out onto a balcony." Marx Brothers? Flowered carpet? Mirror? That doesn't sound like the John F. Kennedy Center, but those directions, which lead to the director's office of the American Film Institute, clearly express the difference between the Center and AFI's new offices and new 224-seat theater.

Stylistically, the AFI does not belong in the Center. It represents just about everything the Center is not. The AFI spaces, unlike the Center, were obviously designed with a very low budget. And while no attempt has been made to conceal this fact, a great economy of means has resulted in spaces that are, unlike the Center's, fresh and simple (but by no means simplistic), and disarming in their complete lack of pretention. But, like the rest of the Center, the AFI spaces could also be interpreted as being somewhat "tacky." They are, however, tacky in the best sense of the word (and it does have a good sense these days), referring to a situation where the "rules of good taste" are knowingly broken to expose those inhibiting rules for what they are. But you might ask why anyone would want to break the rules in Kennedy Center, where most of them are already broken? We can only assume, although the architects in no way have intimated that it was their intent, that they meant to establish a contrast between how the rules can and cannot be broken. This could be an important lesson in a place like Kennedy Center where a costly, pretentious, and depressing motel-architecture style epitomizes what many people consider good architecture to be.

The AFI has had no permanent home in Washington since moving there in 1970. They still do not have a permanent home—their spaces in the Center are considered temporary—but at least they are now permanently inside one building.

When AFI came to the Center they were offered space for offices in an unused service corridor on an upper floor, which they took. But this is not as bad as it sounds, since office space is very scarce at the Center and, fortunately, the service corridors are quite wide. In turning the ill-proportioned, windowless corridor into habitable offices, project architect Paul Buck explains "we had to do something drastic, something in counterpoint to the existing space, because it was totally disorienting. We had to make clear how circulation would occur, and we thought the best thing to do would be to put in things that would direct movement in disregard of the existing space, which couldn't be divided because of the lack of windows." He adds, finally, "the AFI had no budget for furniture and were bringing their old stuff with them, so the space had to be strong to compensate for the lack of beautiful furnishings."

Unlike the rest of AFI's new office space in Kennedy Center (facing page), the director's office (above) was finished before they moved in. The once nonfunctioning balcony was built to appear as an upper-level foyer.



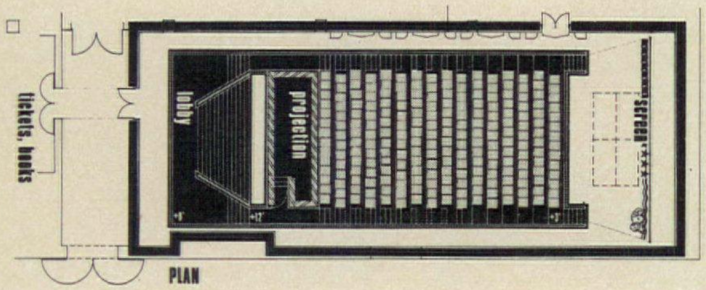

An interior's interior

After the service runs were brought in, and left exposed, the ceilings and bare concrete block walls were painted intense yellow to give the dark space a sense of light and airiness. The diagonal partitions, in contrast, are painted blue and equipped with incandescent lights on one side while on the other side they are painted green and are equipped with flourescent lights. They are carefully designed to direct movement and to give a sense of orientation to the long corridor. The effect of this is somewhat surprising, because even with the flowered runner that also acts as a strong linear device, the architects have successfully managed to dissolve the linearity of the corridor through the imposition of the stronger diagonal pattern.

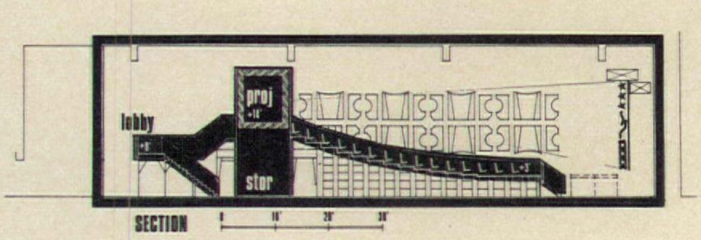
The AFI was offered three different spaces for their film theater—including the large, roughed-out Studio Theater on an upper floor, which they still hope to occupy some day when greater funds are available to finish it. They finally settled on some unused space, originally designated as an orientation center, behind the Eisenhower Theater directly off the Hall of States foyer. A serious disadvantage of this space, however, is that it is separated from the foyer by a loading dock passageway, so screenings must be scheduled around the Eisenhower Theater's activities.

Most of the AFI's construction funds—which came from a grant from film producer Jack L. Warner—have gone into the film theater. The money did not, however, go into prettying up the space, but into creating a place where films could be seen in the most superior visual, optical, and acoustical conditions. The theater, which is conceived as a vessel floating within a void, consists of a raked, steel-frame structure with metal decking that "suspends" viewers in the larger space. Behind the last row of seats on the same structure, the projection booth separates the viewing audience from the theater's lobby, which is within the same shell.

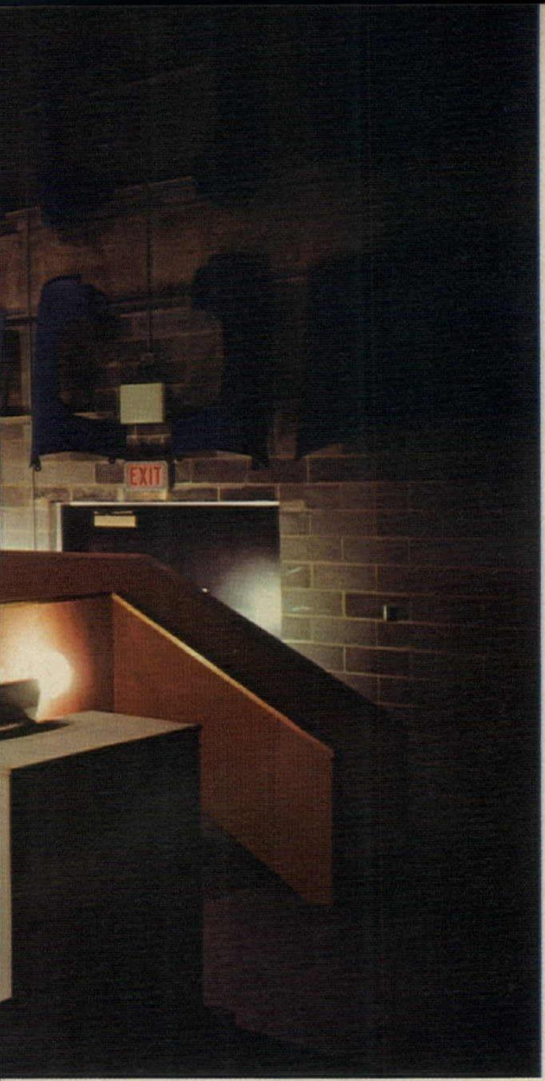
The purpose of the vessel is to detach the viewer as much as possible from such things as floors and walls (even the



PLAN



SECTION



AFI's acoustically superb theater holds projection booth, lobby, and 224 viewers on a metal "vessel" within the bare concrete block room where automobile hoods and fenders act as effective baffling material.

screen floats, suspended, from the wall) so attention can be concentrated solely on the film. The only sound-absorbing elements are those that people come in contact with, such as carpeted floors, railings, and upholstered chairs; otherwise the space is clean and "hard." There are no curtains, suspended ceilings, or coverings on the bare concrete block walls and this, along with superior audio equipment, helps to create a sound that is extraordinarily alive, even for the oldest films. The severe acoustical problems—especially the standing waves between the two parallel walls—that these hard surfaces could have caused have been countered in a quite unexpected manner. Suspecting that automobile hoods and fenders could be used as baffles on the wall, the architects contacted General Motors, who obligingly sent detailed drawings of those parts of the 1973 Chevrolet Impala. Once the drawings established that the car parts would work, GM donated all that would be needed. While these are admittedly not a usual baffling material, neither, however, is this a usual film theater.

In both the theater and offices, Hardy Holzman Pfeiffer have shown that many of the rules we normally accept can be quite easily broken, if they are broken with wit and intelligence. The tacky flowered carpeting, the almost garish colors in the offices, the automobile hoods and fenders could all be seen as gaucheries. But in the sure hands of architects Hardy Holzman Pfeiffer, who have shown unusual sensitivity for fracturing the old rules in order to establish new ones, these elements represent only part of a constellation of ideas about design. When brought together as in the American Film Institute, these ideas result in an interior architecture of unusual richness, economy, and diversity that broadens our vision of what architectural design is. [David Morton]

Data

Project: American Film Institute Temporary Theater and Offices.
Location: in the John F. Kennedy Center for the Performing Arts, Washington, D.C.
Architects: Hardy Holzman Pfeiffer Associates; Paul Buck, project architect.
Program: both the temporary film theater and offices for the American Film Institute are in previously unused and unfinished spaces in the John F. Kennedy Center for the Performing Arts. The program for the theater was to transform space originally planned as an orientation room for the Center into a film theater where both contemporary and historical films can be shown in superior optical, visual, and sound conditions. For the offices, the program called for creating staff offices, a library/conference room, and a screening room out of a windowless, ill-porportioned service corridor.
Major materials: theater: existing concrete block walls unpainted, steel platform with steel decking, partitions of gypsum board carpeted, carpeted floor, ceiling unpainted with exposed mechanical elements, automobile hoods and fenders for acoustical baffling, industrial reflector lights on dimmer used for house lights, high quality theater seating. Offices: existing concrete block walls painted, partitions of gypsum board painted, carpeted floors, ceiling and exposed mechanical equipment painted, fluorescent and incandescent lighting. Old furniture was moved from previous quarters.
Client: American Film Institute.
Costs: theater: $180,000; $30 sq ft. Offices: $46,000; $5.75/sq ft.
Consultants: Syska & Hennessy, mechanical; Robert A. Hansen Associates, acoustical; Boyce Nemec, technical.
Photography: Norman Mc Grath.

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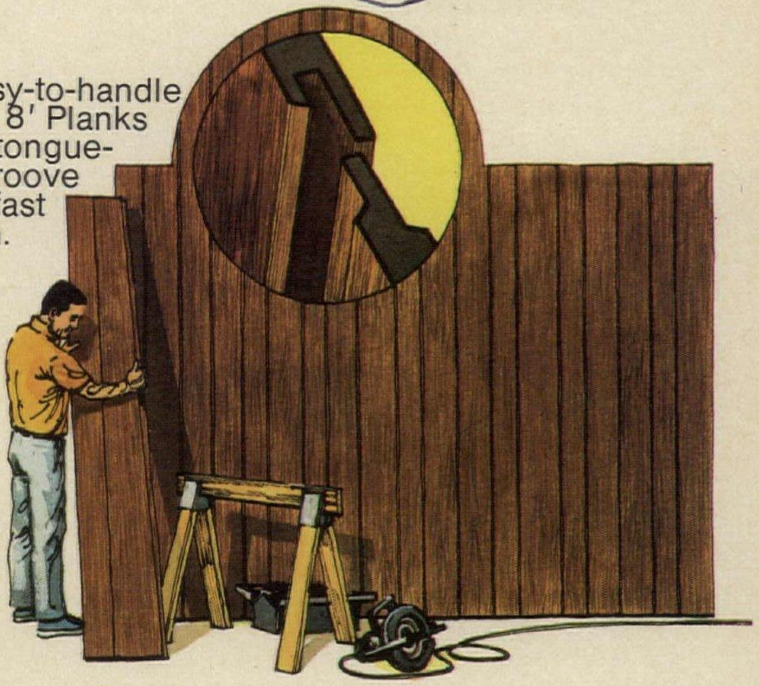

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Libraries and data banks

Harold J. Rosen, PE, FSCI

With the mass of information inundating the architectural and engineering professions, what steps are being taken to classify and retrieve it in a readily useful form?

There are four major sources that steadily add to the storehouse of information used by the professions: One is the area involving research and technical commentary on building science that is developed by symposia, seminars, workshops, and articles and papers published in the technical and professional journals. Another is product literature developed by building materials' manufacturers. The third source is standards, test methods, codes, and regulations produced by standards-making bodies such as ASTM, NFPA, UL, and building code officials. Finally, the fourth area is the information developed by the professionals in terms of drawings, details, office standards, and specifications.

Each of these contributing sources creates a voluminous amount of information that must be classified and indexed properly so that data can be retrieved with a minimum of effort. It has been estimated that professional and technical personnel spend about 20 percent of their working time simply searching for information. This unproductive time is a byproduct of the inadequate storage and retrieval systems used in most offices today.

Most filing or library systems used in architectural and engineering offices generally permit only subject or document retrieval. Most literature is classified and filed on a broad basis, i.e., wood doors, ceramic tile, etc. Such classifications are inadequate since they require the user to spend considerable time reviewing the several pieces of literature in each broad category to obtain specific information. For example, in the case of wood doors, one might be interested principally in fire rated doors, lead lined doors, acoustically rated doors, or other specific characteristics of wood doors such as core construction, cross banding, or veneering. For ceramic tile, one might have a specific interest in pavers, abrasive surfaced tile, frostproof tile, or other special characteristics of tile products. By indexing and filing on a broad basis, one can only search for and retrieve documents which must then be reviewed to obtain the specific information. By using a more detailed index, specific data as mentioned before for wood doors and ceramic tile can be retrieved.

Indices which give the user some idea of the contents of documents or literature are termed informative indices. This type of index is virtually nonexistent in the architectural profession. Actually before the advent of the computer and microfilming devices, the retrieval of data stored on the basis of informative indexing systems would have been difficult. These new devices permit classification by name, topic, object, or other descriptors. Until recently, the purpose of indexing was merely to indicate where information about a subject could be found. The index did not tell the searcher what the information actually contained. The use of the computer together with the microfilming techniques allows the use of an informative index which produces data retrieval rather than subject or document retrieval.

A number of libraries are available to architects and engineers, although a true data bank does not yet exist in the form previously outlined based on informative indexing. Not all of these libraries encompass all of the four sources of information noted earlier, nor can some of them be expanded to include them. The number of pages of product literature alone is probably in the realm of 500,000. If building science research, codes, standards, and regulations were included, the number of pages could readily be doubled. A hard copy library provides information on only one facet, manufacturers' product literature, and then only on a small percentage of the actual total number of pages and producers. Even if one wished to augment this file by assembling all the hard copy extant, the shelf space required to store the material would be considerable, and this does not take into account the literature on building science, standards, and codes which is not included.

There are, in addition, three microfilm libraries: IDAC (Instant Data Access Control); IHS (Information Handling Systems); and Showcase. Each of these systems has an expanded product literature file in addition to standards, codes, and building science literature.

Showcase is primarily a microfilm library that allows only document retrieval. One must peruse a complete document to find particulars and specifics on a subject. IHS, in addition to its expanded library, has a special feature entitled Product Selector which attempts to establish side-by-side comparison of products. This feature is optional and rather expensive. IDAC is based on a modified informative index which permits more precise data retrieval rather than document retrieval. This aspect has the virtue of reducing the time required to assess information since the literature has been indexed prior to filing on this basis. This last system is the closest approach to a data bank rather than a document storage library.

Author: Harold J. Rosen is an independent construction specifications consultant in Merrick, New York.

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Another bright idea from Bradley

Restricting competitive bids

Bernard Tomson and Norman Coplan

Specifications which result in a limitation of bidders must be necessary to the interests of the project and not fundamentally directed to restrict competition

Statutes which regulate the awarding of public contracts generally call for competitive bidding. The primary objective of this procedure is, of course, to protect the taxpayer. On occasion, however, competitive bidding requirements, in respect to construction contracts, conflict with the design goals of the architect or engineer. For example, if an architect wishes to specify a patented article, it has been contended that such specification would be illegal in that it restricts free competition in the award of a public contract. In response to this argument, the Supreme Court of Iowa has held that the requirements of competitive bidding means that "there must be competition where competition is possible." The weight of authority is in agreement with the Iowa Court that patented materials may be specified without violating the law of competitive bidding if the purpose is not to restrict competition.

There is little question that the manner in which specifications are formulated for construction contracts can influence the freedom of competitive bidding and restrict the number of qualified bidders. It is not always clear, however, whether a specification, which results in a limitation of bidders, is necessary in the interests of the project or is fundamentally directed to restrict competition. This is illustrated by a recent decision in New York (*McArdle* v. *City of Mt. Vernon*, 347 N.Y.S. 349).

This case involved the validity of a public contract for the computerization of the administrative departments of the city of Mt. Vernon. Prior to entering into a contract, that city had employed a consultant knowledgeable in the computer field to review the workings of the various departments of the city in order to recommend an appropriate system, equipment, material, and personnel training program for the purpose of computerization. After a four-month's study, the consultant's recommendations for the program were prepared, which included extensive specifications for subsequent contracts to be let to implement the system recommended.

The elaborate program prepared by the consultant, and which involved the use of various types of computer equipment tailored by the consultant for the work at hand, was submitted to public bidders for study. This program included the performance of systems analyses, programming and documentation methods of conversion from mechanical to computer operation, necessary personnel training, recommended equipment and its capacity to do the job, and overall responsibility for the city's computer system for a period of two years. The bidders were given only 10 days to study this material before submitting bids and were not furnished with the feasibility studies prepared by the consultant.

Prior to the bidding period, the consultant had organized a company for the purpose of submitting a bid and securing the contract, and this company, of course, was privy to the feasibility studies prepared by the consultant. Consequently the sole bid was made by and awarded to this company.

The legality of the contract so awarded was challenged in a taxpayer's action. In defense of this action, the city contended that the contract could have been awarded without competitive bidding because of the special nature of the services to be rendered and further argued that, in any event, there was no illegality in connection with the bidding. In response to the city's contention that competition was not required by the statute, the Court said:

"In view of the authorities . . . it cannot be said as a general proposition that a contract such as the one with which we are dealing is of such nature that it is either clearly exempt from or clearly subject to the requirements of competitive bidding . . . In this particular case, where the specifications for the contract were drawn by one of the bidders, where they are tailor made for a particular purpose by one of the bidders, and where all of the detailed information available to one of the bidders is not made available to other bidders, it would seem clear that the only means of protecting the public interest and the fairness of the contract would be the adoption of the procedures (competitive bidding) established by Section 103 of the General Municipal Law."

In response to the city's contention that there was no illegality involved with the bidding, the Court conceded that it "would be very difficult to ascertain whether the specifications were unduly restrictive, so as to unnecessarily narrow the field of prospective bidders." However, the Court concluded that the contract violated public policy, stating:

"It is in the best interest of the city of Mt. Vernon that any specifications drawn by a consultant hired for that purpose be broad enough, if possible, so that several bidders may have an opportunity to bid thereon, in the interest of procuring the service at the lowest cost to the city. A minimum requirement in the public interest should be that the detailed specification thus drawn and the background factual material necessary to make an intelligent bid, should be placed in the hands of all bidders, and not just one, and that adequate time be allowed for the formulation of the bids."

Despite its ruling that the contract was invalid and that there must be a re-advertisement for bids (subject to the feasibility study being made available to all potential bidders and that a reasonable time be allowed for the submission of bids) the Court held that it would not be improper for the consultant's company to participate in the rebidding and to accept the contract, if awarded.

Authors: Bernard Tomson is a County Court Judge, Nassau County, N.Y. Hon. AIA. Norman Coplan, Attorney, is Counsel to the New York State Association of Architects, Inc. AIA.

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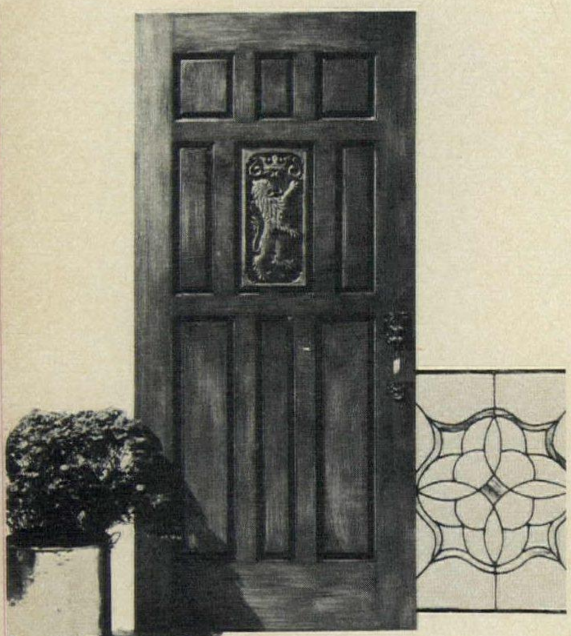
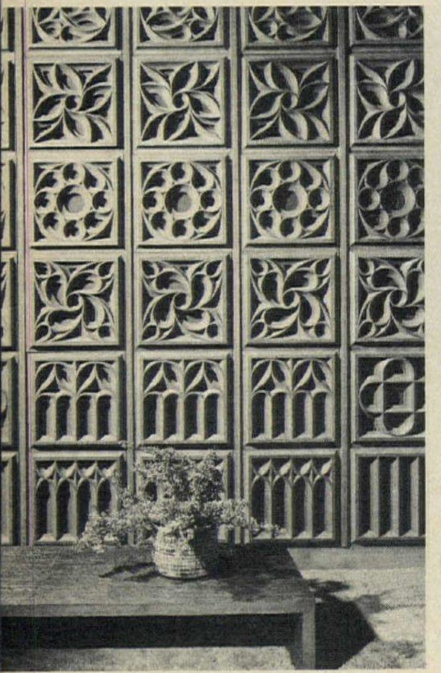
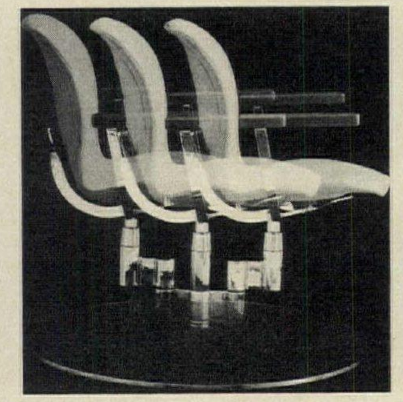


entry door



Carved wood panels



Articulated chair

Digitizing system

Shell chair

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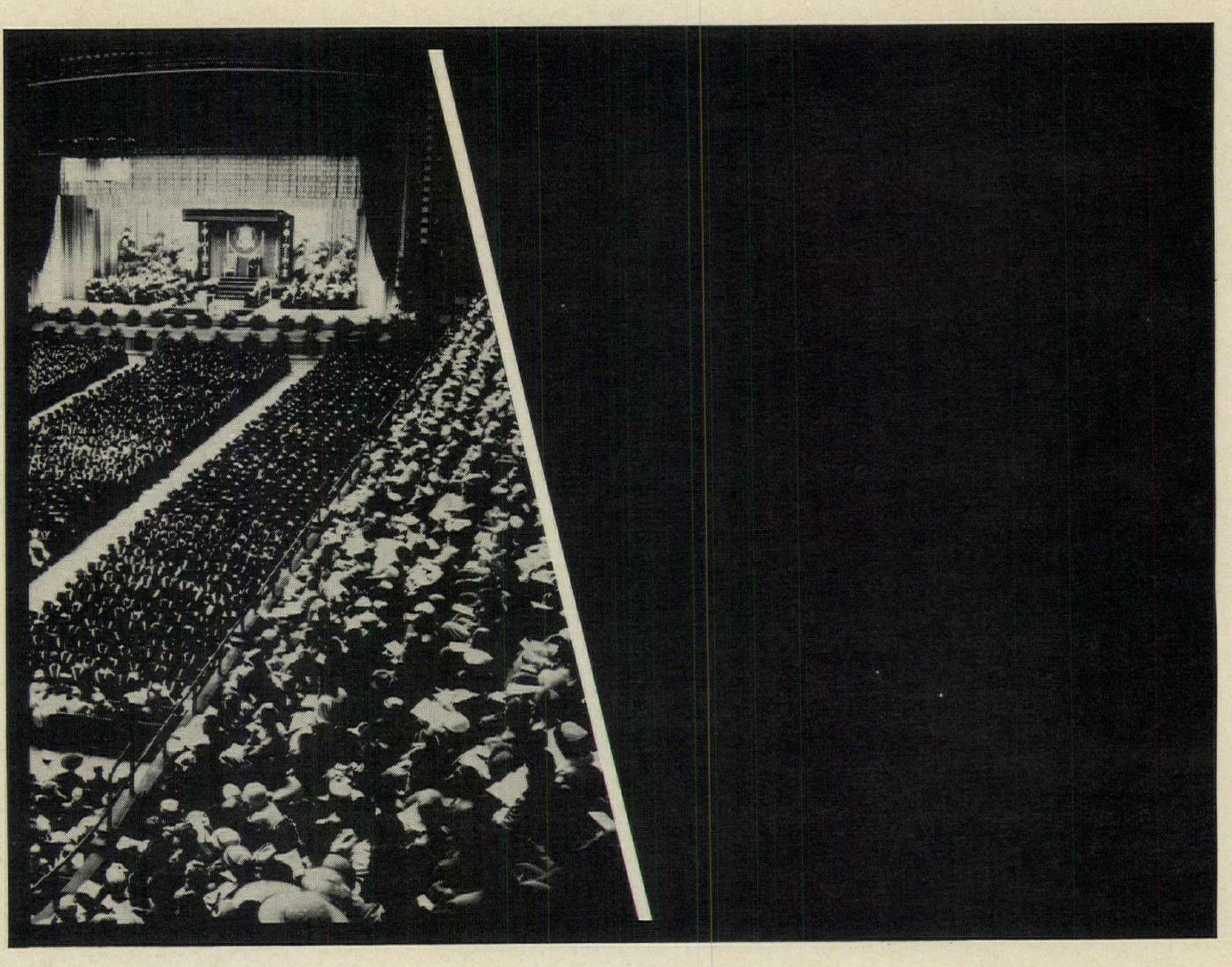
[continued on page 86]



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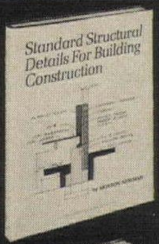

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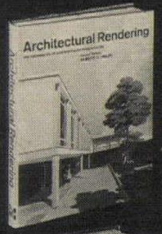

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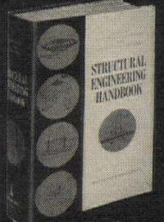

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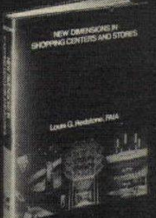

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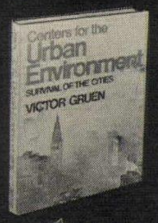

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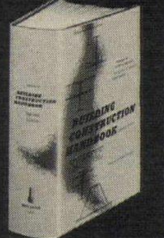

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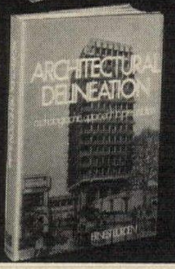

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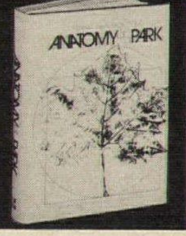

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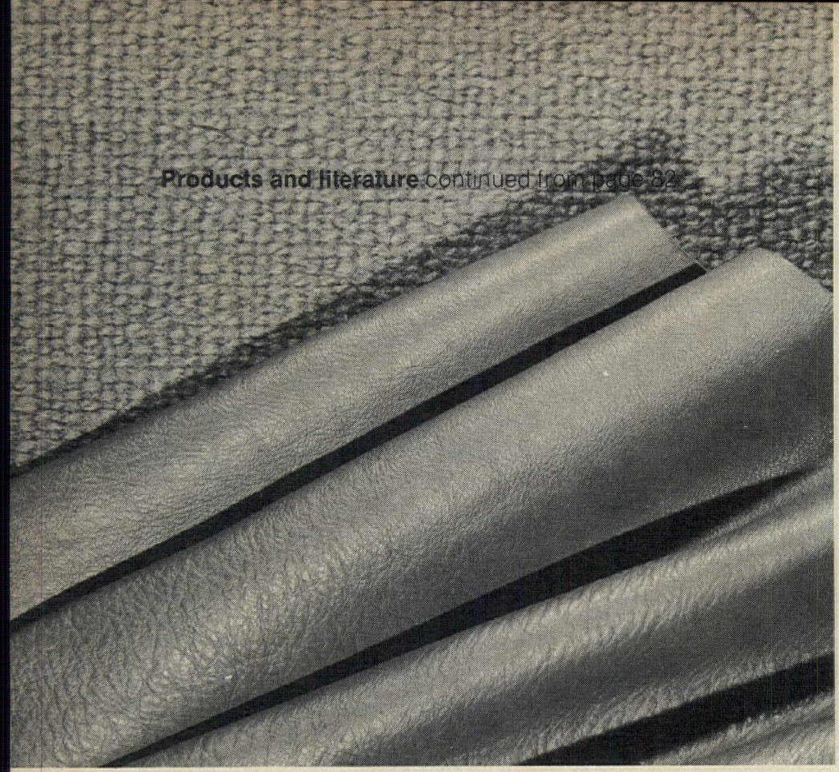
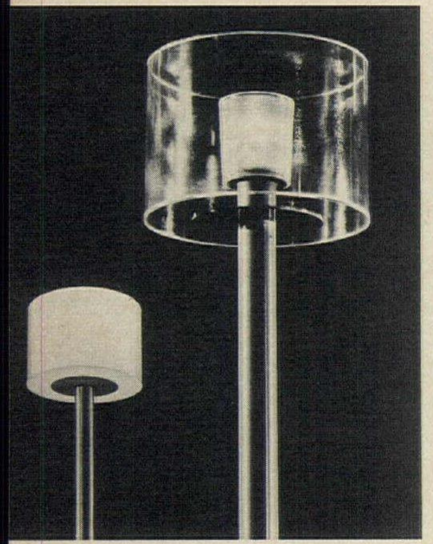
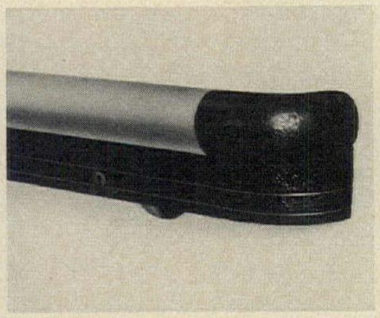
Products and literature continued from page 32



Upholstery fabric





Handrail

Outdoor luminaires

Upholstery fabric group includes a collection of deep textured woolens, grained leathers, and suedes, and is suitable for contemporary or traditionally designed business and residential environments. Five woolens in 50–52 in. widths correlate with leather and suedes. Size of the hides is 45–50 sq ft. Jens Risom Textiles.
Circle 106 on reader service card

Outdoor luminaires. Seamless, cast in one piece, ultraviolet-stabilized, vandal-proof plastic forms come in translucent white, transparent clear, bronze, or gray colors. Drums accommodate incandescent or mercury lamp sources, are available for wall, surface, pendant, and post top mounting, and are removable for maintenance without the use of tools. Habitat Incorporated.
Circle 107 on reader service card

Handrails with acrylic/vinyl covering over a duranodic bronze aluminum retainer eliminate the coldness of metal as well as the danger of splintered wood. Won't chip, peel or dent, never need painting, and are available in seven colors along with either wood grain or matte black end caps and accessories. Construction Specialties, Inc.
Circle 108 on reader service card

Literature

Mechanical dock levelers. 24-page brochure describes complete line of levelers as well as safety stop systems, positive hydraulic lip extension system, burglar-proof lip keepers. Gives complete dock design recommendations, specifications, and pit details. Rite-Hite Corporation.
Circle 200 on reader service card

Wall insulation. Color catalog illustrates standard and special applications, components, installation techniques, testing results, building code approvals and includes numerous photos of recent installations. Consists of expanded polystyrene panels covered by fiberglass fabric embedded in a special coating and finished with a synthetic plaster material. It is said to be crack resistant, have insulating values and provide a jointless, weatherproof and color permanent finish. May be applied to any type of substrate, old or new. Dryvit System, Inc.
Circle 201 on reader service card

Penthouse systems. An alternative to field built-up central station and penthouse systems, it consists of factory assembled modules, trucked to the job-site. Field labor is said to be reduced to installation and hook-up. 36-page manual describes design options. Aeronca, Inc.
Circle 202 on reader service card

Roof deck. Catalog contains technical data, specifications and systems drawings covering use of insulating concrete in structural concrete, formboard and metal centering systems. W. R. Grace & Co.
Circle 203 on reader service card

Computer graphics. Booklet explains power and versatility and introduces reader to many different kinds of engineering drawings that can be produced by a digital computer from a common set of numerical data. Examples include standard orthogonal views to any scale with or without dimensions, isometric or trimetric views, from any angle, flow diagrams. GraphAmeric Systems Corporation.
Circle 204 on reader service card

Cantilevered chair. A continuous cantilevered frame of chrome tubular steel supports a sculptured wood shell made in two molded sections. It is overlayed with a double density of contoured foam and upholstered in a wide range of coverings. Shown in color brochure. American Seating Co.
Circle 205 on reader service card

Foamed-in-place insulation. Used for thermal and acoustic insulation, for application in floors, walls, partitions, pipe chases and other building cavities. For use in houses, apartments, office buildings, manufacturing and commercial facilities, laboratories, sound studios, ships and other construction. A modified ureaformaldehyde resin, it is cold-setting and forms a low-density noncombustible resilient foam, has the abilities to flow into odd-shaped spaces, around wires, piping. Setting takes place 10–60 sec after it leaves the gun. Material can be trowelled before setting. Brochure. Rapperswill Corp.
Circle 206 on reader service card
[continued on page 88]

Bally Walk-Ins belong where special food fare means better health care for young and old

Bally Walk-In Coolers and Freezers belong everywhere mass feeding takes place. They can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of foamed-in-place urethane, UL 25 low flame spread rated and Factory Mutual research approved. Choice of stainless steel, aluminum or galvanized. Easy to enlarge . . . easy to relocate. Refrigeration systems from 35°F. cooling to minus 40°F. freezing. Subject to fast depreciation and investment tax credit. (Ask your accountant.) Write for 28-page book and urethane wall sample.

Bally Case & Cooler, Inc., Bally, Pennsylvania 19503.

Address all correspondence to Dept. PA-2.

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Bally

Products and literature continued from page 86

Organizing, managing and controlling hospitals' logistic processes is subject of 51-page book. How a system of containers, frames, carts and rails cooperates with the multitude of hospital service products such as central service, pharmacy, medical instrumentation, housekeeping and food service items that need to be packaged, dispensed and controlled. Collects and transports all soiled linen and waste in closed containers; later can be sanitized, replaced. Herman Miller Health Care Group.
Circle 207 on reader service card

Sound measurement equipment. eight-page color brochure illustrates sound level meters, dosimeter, integrator, calibrators and accessories, provides physical and electronic specifications and tables showing typical sound pressure levels. Triplett Corporation.
Circle 208 on reader service card

Outdoor lighting. Series consists of nine wood-clad poles, a variety of luminaires and six bollard style fixtures. Redwood is laminated to aluminum poles. Smooth or rough-sawn wood can be used with any of five anodic hard-coat finishes: clear, light amber, light bronze, dark bronze and coffee black. Heights up to 20 ft are available in some cross sections. Bollards are free-standing or wall-mounted. Brochure. Sterner Lighting Systems Inc.
Circle 209 on reader service card

Cylindrical locksets. Four-color brochure features entire line of heavy-duty units, is designed to serve as product information and reference source. Index lists catalog sections and product parts for quick reference. Each section has product description, illustrations, and cutaway and dimension drawings. Eaton Corporation.
Circle 210 on reader service card

Insulating products. 12-page brochure contains technical data, specifications, and general description on styrene foam masonry fill insulation for concrete block and brick cavity walls. W.R. Grace & Co.
Circle 211 on reader service card

Tilt-up construction. Major phases or steps in tilt-up construction are discussed sequentially in nontechnical language; products used in each phase are grouped within that section to illustrate and describe job use; key engineering data are included. Useful to architects, building officials, contractors. Burke Concrete Accessories, Inc.
Circle 212 on reader service card

Ceramic tile. Revised 1974 handbook features an expanded text, new details, and instructions to assist architects and specifiers on the proper use of the handbook. It also contains new guides to help select best ceramic tile installation method for walls and the right grouts for both walls and floor as well as revised installation performance-level tables for floors. Tile Council of America.
Circle 213 on reader service card

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Federal Housing Subsidies

Federal Housing Subsidies: How Are They Working? *by Anthony Downs. Lexington, Mass., Lexington Books, 1973, 136 pp., $9.50.*
Cities Destroyed for Cash *by Brian Boyer. Chicago, Follett & Co., 1973, 256 pp., $7.95.*

Reviewed by J. S. Fuerst, assistant director of the Graduate Program in Urban Studies, Loyola University of Chicago.

Can two authors who write about federal housing subsidies take not dissimilar positions, and yet produce completely different books? The answer is yes.

Anthony Downs's *Federal Housing Subsidies: How Are They Working?* details in meticulous fashion what he sees as wrong with the program of federal subsidies to private housing operators; it also indicates the administrative mistakes that took place as well as some of the basic deficiencies in the programs.

Downs points up the infelicitous attitude of FHA employees of "Let the Buyer Beware" in administering a subsidized housing program for the poor and near poor in the inner city. He indicates the inadequate certification procedures, as well as the FHA's poor appraisals, their failure to check the need for major repairs, and to check on the adequacy of the buyers.

In his discussion of the 236 program he the rental subsidy housing program, he suggests that FHA has not figured operating costs realistically enough, that projects have not been placed in the right areas, and that not enough emphasis has been placed on the past "track record" of sponsors in determining who will receive allocations. He suggests also that income limits of this subsidy program should be tied to general income structure, such as 80 percent of the median income.

Altogether, he makes many detailed criticisms and indicates as well the strengths in the programs. The book, however, smacks of the scholar rather than the activist, unless it is recognized that Downs is, in his capacity of adviser to the real estate industry and the government, more than a little of an activist.

In the light of the past attitudes of the real estate industry, his discussion of public housing is particularly good, coming as it does from an eminent private real estate consultant. He recognizes that public housing has been set the Augean task of cleaning out the pockets of the poor, and he does not, as do so many, lay all the blame on the public housing administrators or on the basic "wrongness" of government housing. Nevertheless, he does not see what to this reviewer seems to be the major problem, namely, the segregation of the poor, and he, in fact, specifically suggests that the role of public housing is to serve families with incomes of less than $4000 per year.

Downs does not recognize, for example, that if public housing is to succeed, it *cannot* be for the poor alone. It must also be for the low-moderate income group, a market which he reserves for public subsidies to private operators.

An interesting counterpart to Downs's book is Brian Boyer's *Cities Destroyed for Cash*—a hard-hitting, well-written and interesting exposé of the FHA programs in Philadelphia, Detroit, Los Angeles, and the U.S. generally. This book is fascinating because Boyer writes as a man who cares, a man who is out to change things he sees as wrong. Downs, on the other hand, writes as an economic analyst, a man who strives above all to preserve the detached attitude, always giving the devil considerably more than his due.

The difficulty with Downs's stance, in contradistinction to Boyer's, is that he has a tendency to lose sight of the culprits in the whole mess. One is left with the feeling that Downs knows most of the answers, even when he finds it discreet not to say so. The fact is that from 1968 on, FHA, according to Boyer, was manned by people who either didn't know or didn't care about the housing programs. But even though some new 235 and 236 housing was built (and some good housing, too, because it was remunerative tax-wise to do so), on the whole the programs left an enormous amount to be desired.

Boyer illustrates the FHA story in subsidy housing with graphic illustrations of what happened to the flesh and blood people who lived under it, including those who ran it at the lower levels and the top-level administration in Washington, D.C. Through detailed reports of taped interviews, he gives them all a chance to explain their faults, illustrating that the problems are at least as much illuminated by their own defenses as by Boyer's attacks.

Boyer also presents his own strong point of view, which posits that the FHA was an inept group of administrators who ruined the cities by the discriminatory "businesslike" practices of 1940–60, in which it redlined neighborhoods in line with the current real estate practices, and predetermined the course of our cities and suburbs. In the 1960s and beyond, although the game was changed and FHA became an agency for "social change a la Nixon," the FHA personnel remained the same and they used their limited knowledge and basically unchanged preconceptions to turn the program into one that subsidized the real estate industry and mortgage banking, and was basically a deleterious program benefiting neither the government, the cities, nor the victims.

A careful reading of Downs indicates that many new 235s and 236s were built that are good additions to the housing supply (this is correlated by an intensive study of 236s in Chicago that we have just conducted). Nevertheless, the Boyer book makes the basic point that the pursuit of the almighty dollar, together with the loosening of the moral imperatives, has so infiltrated the American scheme of things that no program that allows the possibility of graft and corruption (and which one does not?) can apparently escape them. Further, as Boyer says, "Most people have no idea of what the causes of the problem are and are willing to attribute it to someone else. An official of the Ford Foundation says problems are caused by ignorant buyers. Universities say blight comes from factors no one understands. Mortgage bankers blame FHA. FHA blames Congress for inadequate appropriations and a poorly thought-through program. Liberals blame conservatives and conservatives blame liberals." Boyer says, with some overstatement, that it was a "deliberate program of urban ruin for profit under the cover of government housing for low- and moderate-income families with an endless flow of money."

For those who want the whole picture, I can strongly recommend both books as a kind of contrapuntal treatment, with Boyer providing a human side of the picture that is somewhat selective but not overly subjective, and Downs providing an economic and administrative analysis that makes the criticisms apparent but not highlighted. □

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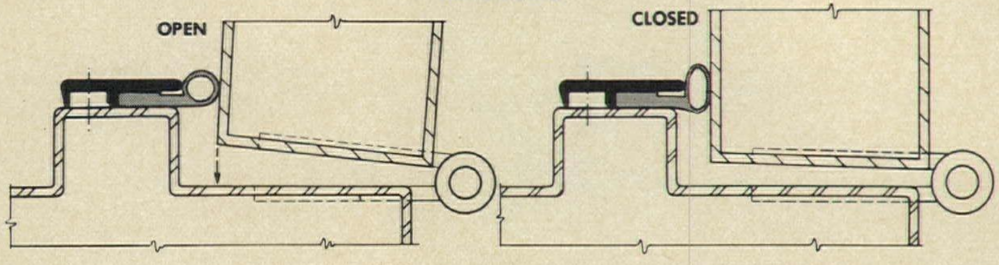
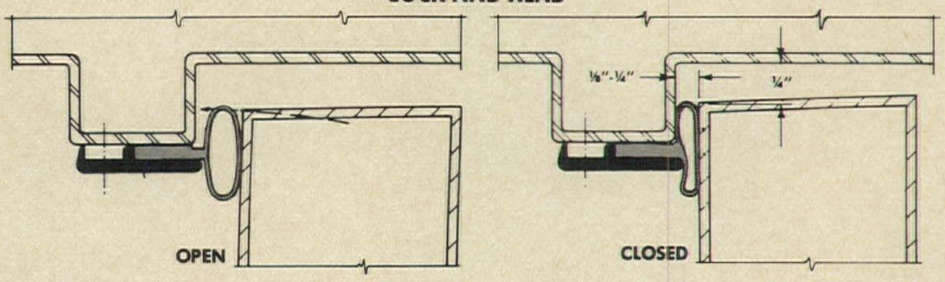


LOCK AND HEAD



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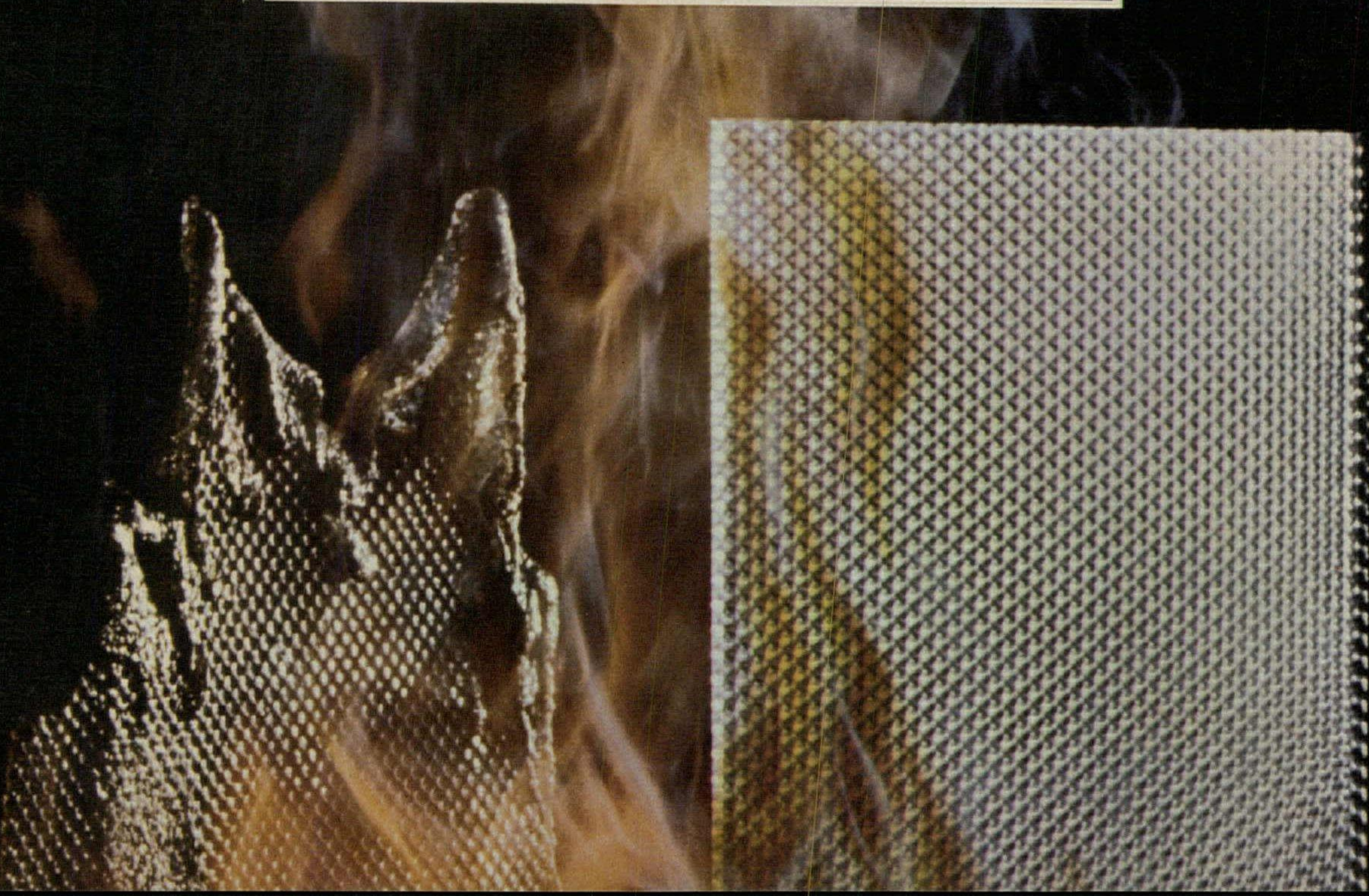


Notices

Appointments

John Robert Gamble has been named an associate partner of Bellante, Clauss, Miller & Nolan, Inc., Scranton, Pa.

Gordon E. Ling has been appointed manager of production for both the Newport Beach and Los Angeles offices of Robert M. Thomas, AIA & Associates.

Albert P. Martin, AIA has been named vice president, corporate development of Adrian Wilson Associates, Los Angeles.

Harold R. Varner, AIA has joined Howard Sims & Associates, Detroit, as an associate partner.

Jay Pettitt, AIA has been appointed assistant director of architecture of Albert Kahn Associates, Inc., Detroit.

Michael Osowski has been named job captain for the Fort Lauderdale office of Perkins & Will Architects Inc.

Thomas W. Hainze, AIA has joined RYA/Architects, Dallas, Tex. as project architect.

Charles A. Barresi, AIA has been named associate of Hamby, Kennerly, Slomanson & Smith, New York City.

Carlos J. Alvare' and **George P. Willman** have been named associates of Day & Zimmermann Associates, Philadelphia.

Ali M. Rahimtulla has been appointed associate with The Smith, Korach, Hayet, Haynie Partnership, Miami.

Louis G. Martsolf, AIA has joined The Garnel Associates, Johnstown, Pa. as chief architect. Jack Koch is now an associate architect with the firm.

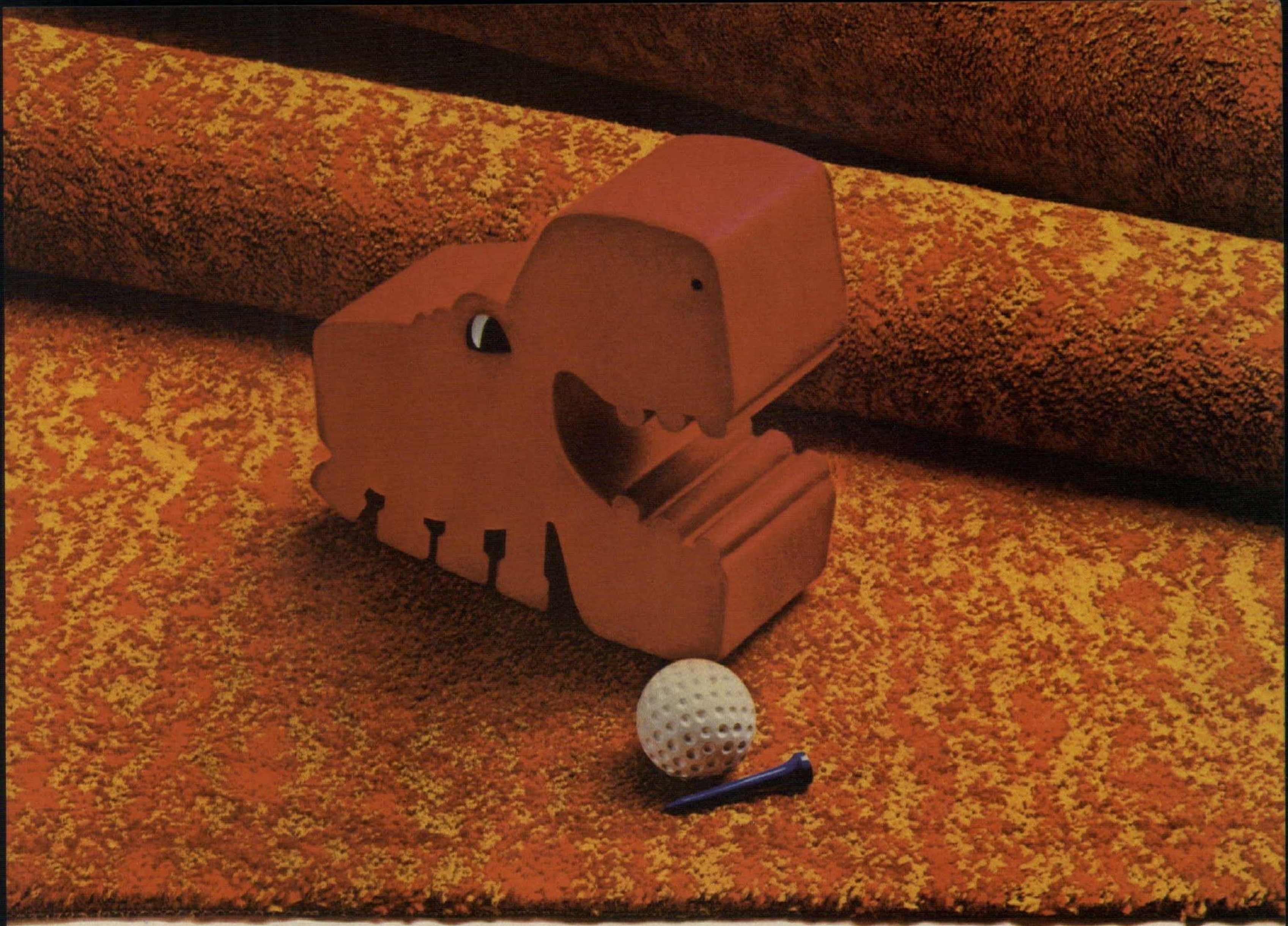
The following have been named vice presidents/executive architects at Frank L. Hope & Associates, San Diego: **Arlon L. Van Orden, AIA; Clifford W. Stokes; James L. Alcorn, AIA; Fred R. Livingstone, AIA. Edward A. Sobolewski** has been appointed vice president/executive engineer.

Janis E. Ong, AIA and **Hon Ming Ng, AIA** are new associates of Marquis & Stoller, San Francisco.

William A. Plyer, AIA and **Donald E. Grossmann, AIA** have been named vice presidents of Shreve Lamb & Harmon Associates, PC, New York City.

Allen F. Rosenberg, AIA has been named vice president of Don Wudtke & Associates, San Francisco.

[continued on page 101]



This carpet lived up to it at the PGA National Golf Club and is still going strong. Anso® nylon's five year guarantee.

This carpet is used throughout the public areas and locker rooms of the PGA National Golf Club in Palm Beach Gardens, Florida. And after five years of continuous wear, the carpet still looks great. A performance record characteristic of Anso nylon and backed up by Guaranteeth—the guarantee with teeth. That's Allied Chemical's assurance that the carpet will not wear more than 10% in five years, or we'll replace it, installation included.

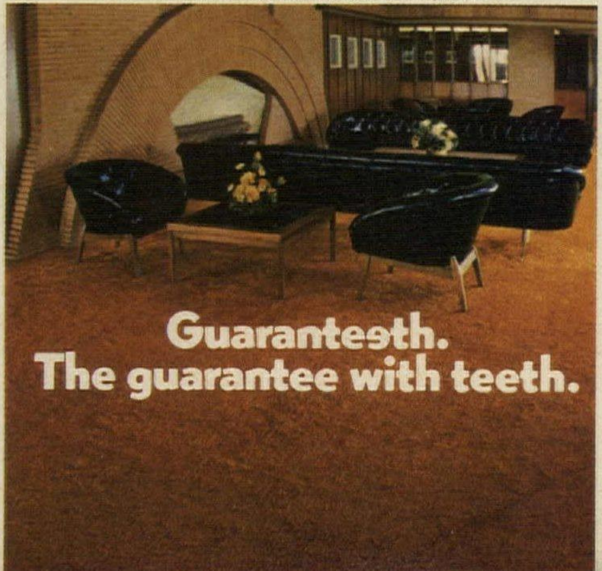
Anso nylon is the second-generation, soil-hiding nylon. This carpet's success story has led to sequels. In the five years since installation, it's been specified in hundreds of other PGA clubs throughout the country.

So look for the label with the fierce little animal who symbolizes our Guaranteeth. And get the carpet with the five year wear guarantee.

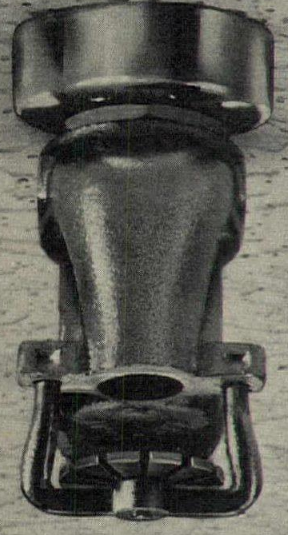
For your free copy of our Contract Carpet Manual write to: Allied Chemical Corporation, Home Furnishings Fibers, Contact Dept. PA, One Times Square, New York, New York 10036. Telephone: (212) 736-7000.

® ANSO Nylon Allied Chemical

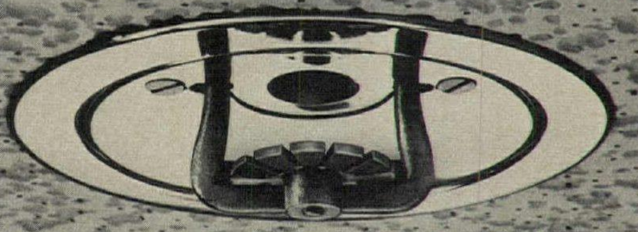
PGA National Golf Club, Palm Beach Gardens, Florida.



In January, 1973, Grinnell announced the revolutionary Aquamatic sprinkler that automatically shuts itself off after a fire is out.



Now Grinnell introduces the <u>new</u> recessed Aquamatic sprinkler for your most beautiful buildings.



Our new recessed Aquamatic sprinkler complements the beauty of your design while still giving the best fire protection.

It has a unique on-off feature so it shuts off automatically after a fire is out. Water damage to decor and room contents is kept to a minimum.

Aquamatic also resets itself automatically after a fire so a building is never without protection. It's the only sprinkler that does. And Aquamatic doesn't have to be adjusted after a fire. Or replaced manually as do all other sprinklers.

The recessed Aquamatic is ideal in areas with high-value inventories, record storage or delicate equipment. And in stores, offices, restaurants, sales showrooms, lobbies and reception areas, or wherever appearance is important.

You can incorporate both pendent and recessed Aquamatics in your design, using pendent sprinklers in low traffic areas and recessed Aquamatics where looks count.

Your Grinnell representative can demonstrate how Aquamatic will help keep your beautiful buildings beautiful, as well as eliminate the threat of excess water damage. Call him. Or write for an illustrated brochure.

GRINNELL

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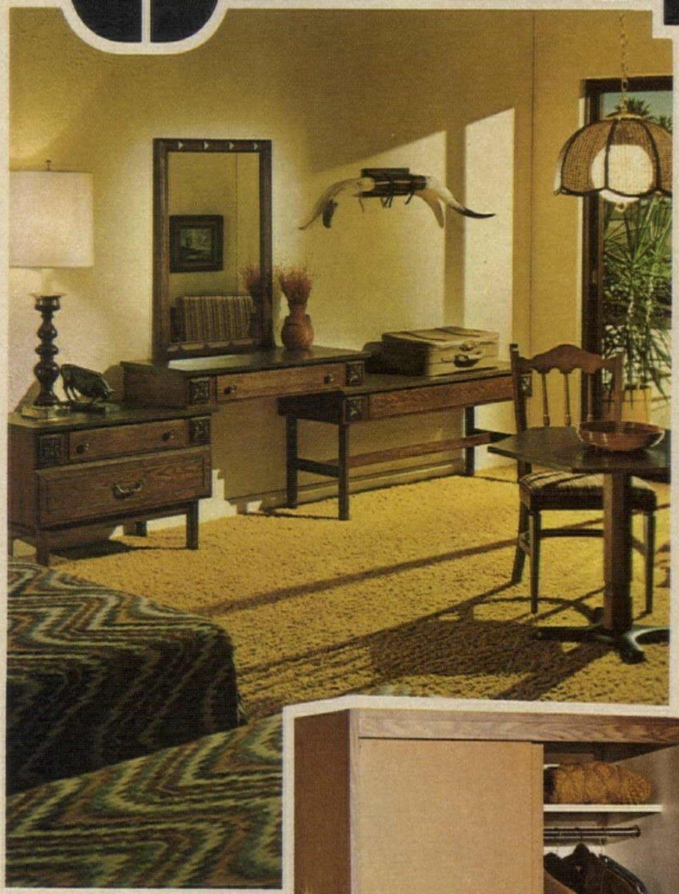

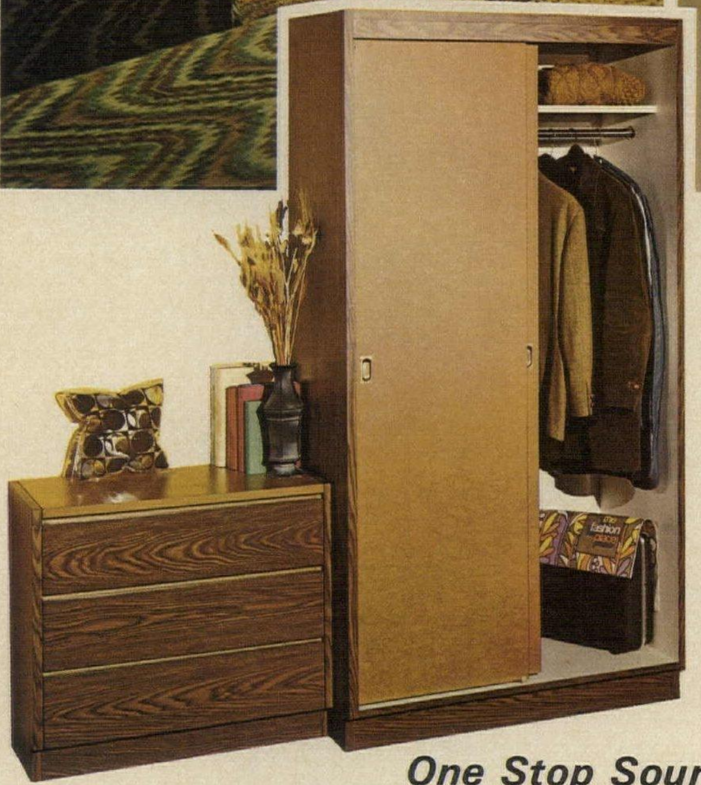

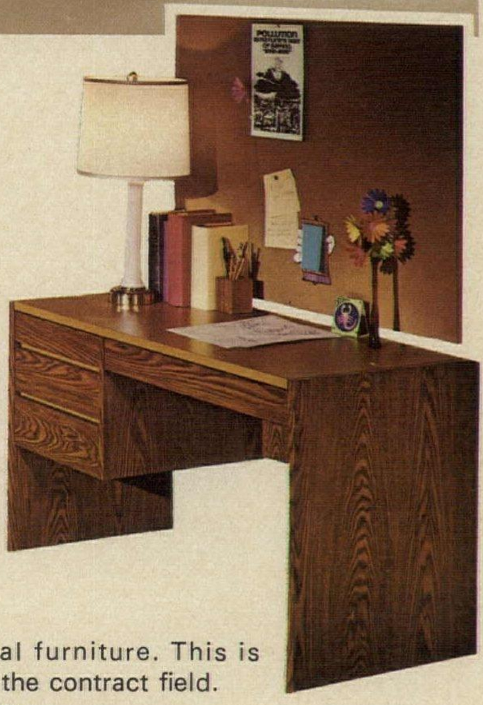

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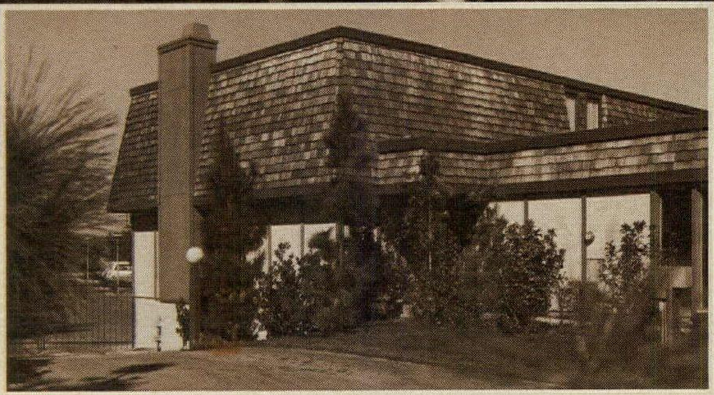
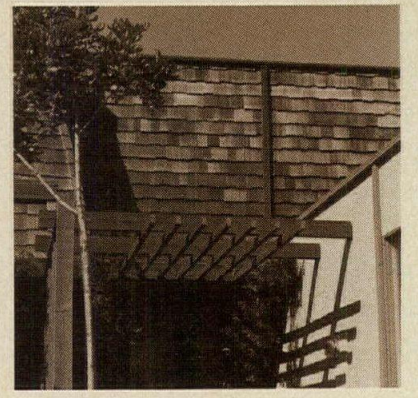
Easy on the eyes

The rustic texture and bold horizontal butt lines of Shakertown Shakes in 8′ panels enhance the mansard design and emphasize the quality appearance of this project. Hand-split Western Red Cedar Shakes in panels contrast beautifully with other materials and blend with the surroundings. They help insulate, weather handsomely without maintenance, and add the look of quality that appeals to value-conscious buyers and renters.

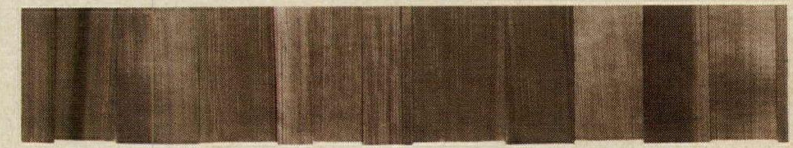


Golfview Estates, San Diego, Calif. Designer: Marvin E. Parker, A.I.B.D. Shakertown Colonial Barn Shake Panels carry out low-profile design of project.



Rough textured Shakertown Shake Panels harmonize beautifully with stucco walls.

Shakertown Shakes and Shingles in 8-foot panels



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Shakes or shingles bonded into 8′ self-aligning Shakertown Panels require no experience to apply. The convenient panels eliminate handling and nailing of individual pieces and save installation time and costs. Panels with Barn Shake, Rough Sawn and Shingle textures are available in 7″ or 14″ weather exposures to meet your design requirements.

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Notices continued from page 96

Expansions, mergers and reorganizations

Kenneth Balk & Associates, Inc., St. Louis, has formed a separate architectural division.

Ellerbe Architects/Engineers/Planners, St. Paul, Minn., has formed a transportation division headed by Mark E. Lauderbaugh.

Carl G. Baker/Architects has opened a Florida office at 1112 E. Kennedy Blvd., Tampa with Tommy L. Cox as director.

Sanford Hirshen & Partners, Architects, AIA, Berkeley, Calif., is now **Hirshen, Gammill, Trumbo & Cook, Architects, AIA.**

Peckham-Guyton Architects has a new office at 6800 34 St. South, St. Petersburg, Fla. 33733.

Edmunds & Hyde, Inc., Baltimore, has been incorporated from the former firm of The Office of James R. Edmunds, Jr.

Evan McCorkle & Associates, Virginia Beach, Va., has merged with **Mayne, Oseroff, Van Besien, Inc.**, Arlington, Va.

Burke Kober Nicolais Archuleta, Los Angeles, is now **Charles Kober Associates.**

New addresses

Herbert Cuevas, AIA Architect, 480 N. First St., San Jose, Calif. 95112.

Ballinger, 841 Chestnut St., Philadelphia, Pa. 19107.

J.E. Sirrine Company, Consulting Engineers, 1900 Yorktown St., Houston, Tex. 77027.

Caudill Rowlett Scott, 299 Park Ave., New York City 10017.

Glaser Associates-Architects has opened a new office at 136 S. Lincoln Ave., Loveland, Colo. 80537.

Raider-Strachocki-Towbin, 18340 Ventura Blvd., Tarzana, Calif 21356.

The Hall & Goodhue Community Design Group, formerly Hall & Goodhue, has relocated its Monterey, Calif. office to 550 Hartnell St.

Babbin & Associates, Inc., Creekside Technical Center, 5050 Newport Dr., Rolling Meadows, Ill. 60008.

Bottelli Associates, Architects/Planners, 26 Columbia Turnpike, Florham Park, N.J.

New Firms

Placemakers Inc., 14 Arrow St., Cambridge, Mass. 02138 has been formed with principals Maynard Hale Lyndon, Donlyn Lyndon, AIA, Alice Lyndon and James A. Champy.

Dominic I.K. Kim Architect & Associates, 701 Market St., Parkersburg, W. Va. 26101.

Robert John O'Brien and David H. Taube have formed **O'Brien & Taube, Architects**, The Savings Bank Bldg., Ithaca, N.Y. 14850.

Job mart

Situations open

Architect: Architect/Planner or Landscape Architect interested in managing large scale projects. Must have 10 years of experience and registration. Graduate degree preferred. Contact: Mark Viets, Peckman-Guyton, Incorporated, 4745 Wyandotte, Kansas City, Missouri 64112 (816 756-0944).

Architect: Established midwest firm has permanent position for top flight project architect. General practice includes large scale institutional, educational, research and industrial facilities. Please submit confidential resume of qualifications, experience and salary requirements. Reply to Box #1361-635, *Progressive Architecture.*

Architect: Position available with A/E firm in Black Hills area of western South Dakota. B.A. architecture, at least one year's experience in an architect's office or similar summer employment. Salary commensurate with ability and experience. Equal opportunity employer. Send experience record and salary requirements. Reply to Box #1361-636, *Progressive Architecture.*

Architect: To direct the activities related to the Division of Design and Construction with responsibility for workshops, institutes, liaison with numerous organizations, and assisting the Bureau of Conventions and Meetings in planning exhibits. Applicants must be licensed architects with some hospital construction experience. Please send resume, indicating salary requirements to: Personnel Director, American Hospital Association, 840 North Lake Shore Drive, Chicago, Illinois 60611, an equal opportunity employer.

Architect: Young university graduate with design and sketching ability for expanding firm in Florida. Please enclose freehand sketches of past work with application. Excellent potential for future associateship for the right person. Reply to Box #1361-637, *Progressive Architecture.*

Architects: Designer—key man. Extensive client contact. Total design responsibility. Architectural degree. Min. 3 yrs. professional experience. $14-18,000/year to start. Project architect—strong technical knowhow. Ability to lead staff & engineering consultants. Registered architect. $16-20,000/year to start. Publicly owned, Milwaukee-based professional firm urgently needs top talent for expanding practice. Send resume in strict confidence for immediate interview. Reply to Box #1361-638, *Progressive Architecture.*

Architects for Peace Corps/Vista-Action: Volunteer overseas and U. S. Low income housing projects, design of schools, hospitals, community centers, etc. Most openings —singles; some couples. Information: Bruce Mazzie, Action, OCP Box A-2, Washington, D.C. 20525.

Architectural Designer: Midwest firm with national projects has position for creative designer with experience in site planning, building design, and client presentations. Outstanding opportunity for accomplishment of significant buildings and advancement as key member of interdisciplinary design team for major educational, institutional, and industrial projects. Send confidential resume of qualifications and experience. Reply to Box #1361-639, *Progressive Architecture.*

Architectural Designer and Delineator: For progressive office in Montreal with international business. Excellent possibility for advancement with young design oriented firm. Relocation expenses paid. Please include samples of work with application. Reply to Box #1361-640, *Progressive Architecture.*

Assistant Architect: An excellent position with a major midwestern railroad for an architectural engineer or an architect with structural experience. Background in railroad architecture desirable. Equivalent industrial experience will be considered. The individual we are seeking also must be strong in management and administrative abilities. Varied responsibilities include building design, planning, estimating, bidding procedures and management of an architectural office. Degree required. Registration desirable. Excellent benefits, pension plan. Good personal growth potential. An equal opportunity employer. Forward complete resume. Reply to Box #1361-641, *Progressive Architecture.*

Cornell University: Department of Architecture seeks for Fall 1974 a visiting and/or full-time architectural design critic. We will also accept applications in architectural technology, structures and landscape design. Teaching experience desirable but not required. Applications from women encouraged. For further details write: Appointments Committee, 143 East Sibley Hall, Cornell University, Ithaca, N. Y. 14850.

Designer: Continued growth into a nationwide practice of our Southwest based A & E firm has made it possible to offer experienced persons an outstanding compensation package while working on a variety of projects. Candidates will have three to five years in preparing working drawings, coordination and checking of all phases for a complete document package. Write today in complete confidence. An equal opportunity employer M/F. Reply to Box #1361-613, *Progressive Architecture.*

Director of Architecture Program: The School of Design at North Carolina State University, an equal opportunity employer, is seeking a new director for its Architectural Program. Responsibilities which begin after June 1974 will include administration of the architecture program and teaching. If interested please send resume to Roger H. Clark, Chairman, Search Committee, P. O. Box 5398, North Carolina State University, Raleigh, North Carolina 27607.

Faculty Openings: Applied management, applied economics, building sciences, philosophy of science and technology, cultural anthropology, building systems and manufacturing processes, urban design, regional planning, policy planning, intervention theory and practice. Positions require experience in applied research, teaching and management. Send resume to: School of Architecture and Environmental Design, State University of New York at Buffalo, 2917 Main Street, Buffalo, New York 14214, An affirmative action/equal opportunity employer.

Faculty Positions: The Department of Architecture, University of Texas at Arlington, Dallas/Fort Worth, seeks new faculty. Positions are open for experienced educators and professionals with expertise in the following areas: interior design, environmental controls, building technology, professional practice. Write to Harold Box, FAIA, Chairman, Department of Architecture, University of Texas at Arlington, Arlington, Texas 76019.

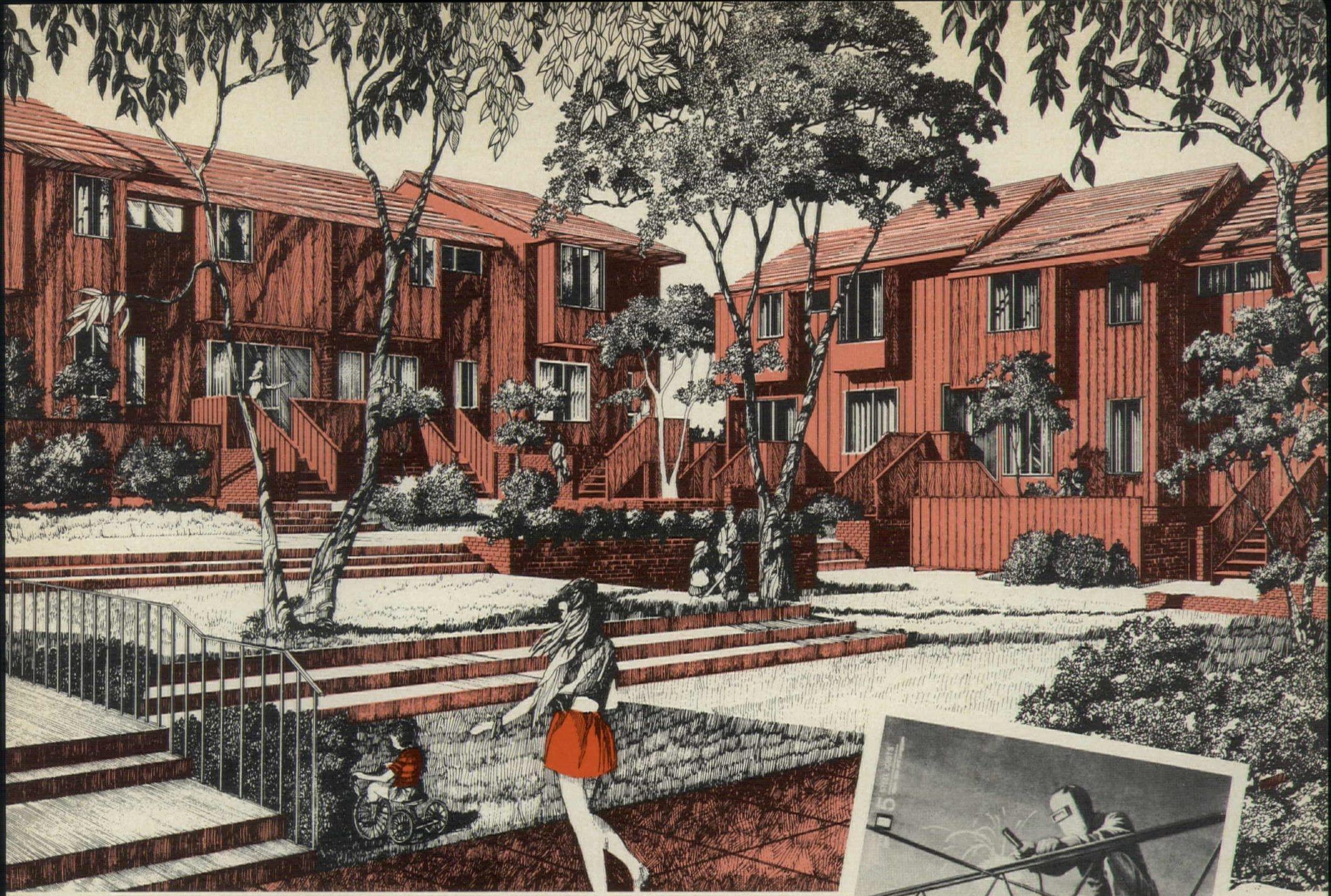
Glazing Expert: Major glass producer seeking person to manage and evaluate the installation of its glass in large buildings. Experience with glazing contractor or building consulting firm required. Technical training including degree in science or engineering desirable. Position involves travel and on-site evaluation but no direct supervision of glazing. Reply in confidence. An equal opportunity employer. Reply to Box #1361-642, *Progressive Architecture.*

Partner for a new firm wanted: We are a newly formed A-E consulting/contracting firm in N.W. Penna., and we are seeking an architect for a working partnership position. Our firm goal is to be a total design and construction firm with our own full multidisciplinary team. We also seek to be No. 1. If you are willing to cut off the limb behind you and risk all, then join us in reaching our goals. Interested individuals must possess an intense desire to succeed, be aggressive, hardworking, progressive, dynamic and team workers. You must also possess a degree in your specialty, be registered or eligible for registration in Penna. and have 5-10 years experience. Compensation will be proportional to your contribution. Please forward your resume and reasons for interest. Reply to Box #1361-643, *Progressive Architecture.*

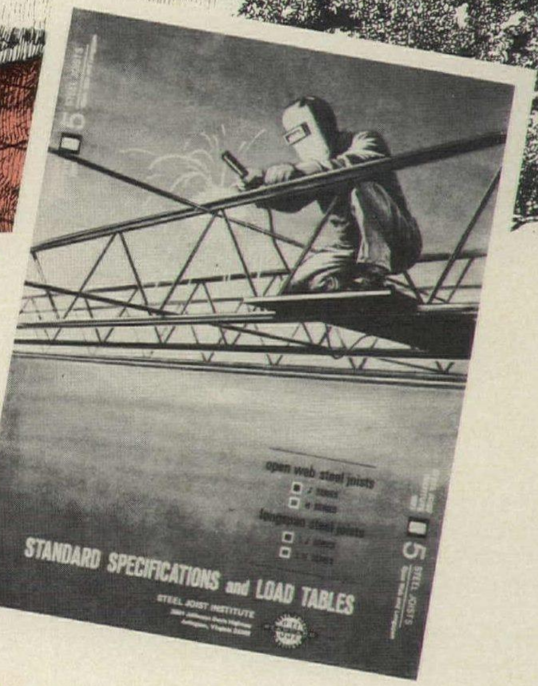
Project Architect: Design group of 40 man firm seeks member larger scale work in hospitals, shopping centers, corporate and university categories. Planning and interiors included. Registration, 4-5 years experience. Excellent benefits. Reply to: Bill Gustafson, Lorenz, Williams, Lively and Likens, 2600 Winters Bank Building, Dayton, Ohio 45402.

Project Architect: Design-oriented registered architect interested in team approach to systems oriented projects with a minimum

[continued on page 104]



Why steel joists were the right answer to this building need



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First floor construction includes open web steel joists, J-series, 12″ deep, space at 24″ centers with horizontal bridging. Drywall ceiling is attached to the bottom chords, and 3″ batts of fiber glass insulation are installed over the ceiling and between the joists.

"We chose this type of floor construction," stated Richard Collins of architects-engineers Collins and Kronstadt, "to provide 2-hour fire resistance rating and reduce sound transmission. We also used the open webs for easy passage and concealment of pipes, wiring, ducts and conduits within the floor depth, for installation economy."

Want to learn more about open web steel joists and their value to modern construction? Write for new edition of Specifications and Load Tables for Open Web Steel Joists and Longspan Steel Joists. Mail coupon for your free copy.

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Job mart continued from page 102

of four years' experience. Outstanding opportunity for advancement and growth as key leader of inter-disciplinary design team. Excellent compensation and benefit package. Reply to Box #1361-612, *Progressive Architecture.*

Project Architect for Medical Facilities: Growing firm, northwest location, with diversified practice, heavy in medical, needs licensed architect with minimum 8 years experience, 3 years in medical facilities. Desirable benefits and working conditions. 4 day work week. Send resume to: CTA Architects/Engineers/Planners, P. O. Box 1456, Billings, Montana 59103.

UCLA: An equal opportunity employer has part-time and full-time teaching positions available in architectural design, urban design, history, environmental controls, computer applications. Send resume to Professor William Mitchell, Program Head, UCLA School of Architecture and Urban Planning, 405 North Hilgard Avenue, Los Angeles, California 90024.

Situations wanted

Architect: AIA,CSI—sixteen years experience all phases of practice. NCARB—Michigan registration. Seek responsible management position with design oriented firm attempting to meet professional responsibilities of the seventies. Presently in production management, developing cost and specification systems with firm having ten million annual volume. Reply to Box #1361-644, *Progressive Architecture.*

Architect: 35, registered (N.Y.) N.C.A.R.B. Nine years diversified experience, last five at project architect level. Strongest experience and interest in housing and community facilities, but mainly seeking challenge and responsibility equal to my education and experience. Will consider Phoenix, Denver or San Francisco areas. Resume and brochure upon request. Reply to Box #1361-645, *Progressive Architecture.*

Architect: NCARB, 22 years private and corporate practice. Holder several patents building materials. Organizational abilities at management level, design/product research/land planning/interior design areas of interest and experience. Reply to Box #1361-646, *Progressive Architecture.*

Architect: NCARB, N.Y., N.J., Pa., Mich., Conn. 15 years own distinguished general practice including consulting for major engineering projects seeks to join team or developer with ideas and interesting varied work. Good all around design and technical know how and client handling. Can travel. Reply to Box #1361-647, *Progressive Architecture.*

Architect: Presently in successful private practice for over 10 years, N.C.A.R.B., registered, seeks association or partnership with east or west coast Florida firm. Existing firm will remain active with partner in charge. Willing to invest in or purchase existing practice. Proven track record of outstanding performance in selling architectural services. Unusual experience in residential, commercial and multi-family developments. Recipient of several design awards. Only principals need apply. Reply to Box #1361-648, *Progressive Architecture.*

Architect/planner: 35, family, masters degree urban design, NCARB, principal of firm, seeks equity position with dynamic architectural firm or management position with growth oriented development firm. Comprehensive experience in long range planning, health facilities, project financing. Will relocate. Reply to Box #1361-649, *Progressive Architecture.*

Architect/project coordinator: Skilled in systems and process applied to industry, health care and community. Accomplished in multiproject management, programming, sales and multi-discipline team coordination. Desires position as project architect for emerging problems in transportation, energy, health and shelter. AIA, NCARB, ORSA. Reply to Box #1361-650, *Progressive Architecture.*

Architectural Graduate: 30, married, family, B.A. Humanities, M. Arch.; three years experience in-house merchandising layout and store location research with major retailer, design experience with residential developer, design-drafting experience with medium-sized architectural firm; primary interest institutional and educational work; reply: Mr. Lynn Shoger, c/o 3294 South Newton, Denver, Colorado 80236.

Graduate Architect: 30, U.S. citizen, single, 4½ years practice (U.S. 1; German 3½). Deutsche sprachkentnisse some French. Detail work planning, design, presentation, rendering. Desire responsible growth position international or American firm. Resume-slides on request. Reply: James R. McCue, 69 Heidelberg, Bruckenkopfstrasse 25 (W. Germany).

International consultant architect-planner: Experience in 45 countries, most U.S. and international agencies. Assist you in problem identification from culture to currency, as coordinator of total project development. Will work in country, my office or yours. NCARB, Who's Who In America. Michael M. Kane AIA, 43B King St., Christiansted, St. Croix, U.S. Virgin Islands 00820, phone (809) 773-0371.

Licensed Architect: 12 years professional independent experience; 37; Israel; interested in independently creative project work. Project experience includes public housing, library, concert hall, rest housing, magistracy, interiors. Highly skilled in architectural graphique. Reply to Box #1361-651, *Progressive Architecture.*

Wanted: 3 others to form 4 man futurist architecture supergroup. Qualifications: degree from major university, 32, licensed, dedicated, far out, avant garde, brilliant designer, perseverance, confident, initiative. Object: practice in Los Angeles, start from nothing, not a paid position. Write for information: MATRIX, 3780 Wilshire Boulevard, Los Angeles, California 90010.

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Career Builders, Inc., Agency: Ruth Hirsch has specialized in Architectural placement for fifteen years, serving architects, corporations, planners, developers and interior firms. She reviews portfolios, professionally interviews designers, project architects, managers and juniors for available openings. Executive searches and personnel consultations are available to employers. Career Builders, Inc. (Agency), 501 Madison Ave., N.Y., N.Y. 10022 (212) 752-7640.

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Edwards & Shepard Agency: We are a design and architectural placement service uniquely equipped to locate and appraise the qualifications, experience and effectiveness of architectural and interior designers, urban planners, systems and space planners, construction specialists, exhibit, lighting and environmental designers. We know (1) what positions are available (2) who the best prospects are (3) the right approach (4) how to break negotiating gaps (5) how to save money, time and effort (6) how to simplify procedures and appointments (7) the day to day state of the market. Contact Bill Shepard at (212) 725-1280. Interviews by appointment in our "dome on the roof" at 1170 Broadway, N. Y. C., N. Y. 10001.

For Sale: Original rare two (2) volume 1910 folio (one of few saved from fire) GEDRUCKT UND VERLEGT VON/ERNST WASMUTH, A.G. BERLIN "AUSGEFUHRTE BAUTEN UND ENTWURFE VON FRANK LLOYD WRIGHT". Owner may accept or reject any or all bids submitted. Reply to Box #1361-652, *Progressive Architecture.*

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RitaSue Siegel Agency: Ms. Woody Gibson introduces people with superior skills in architecture, interior, landscape, urban design, planning, programming and management to our consultant and corporate clients seeking genuine problem solvers throughout the U. S. A. RitaSue Siegel identifies and evaluates industrial and graphic designers. You are invited to submit resumes in confidence. Our clients pay all fees. 60 W 55th St., N. Y. C. 10019, (212) 586-4750.

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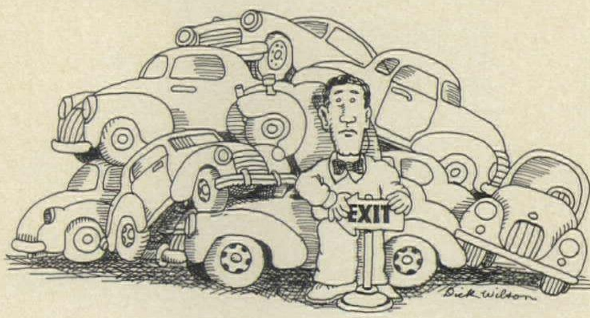

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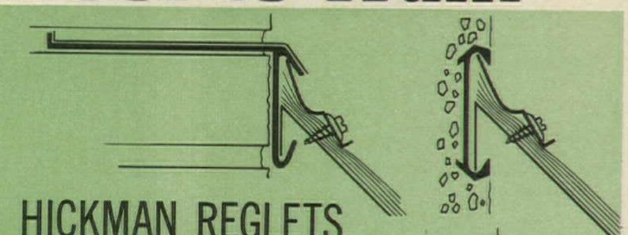
How to flash roof to wall:



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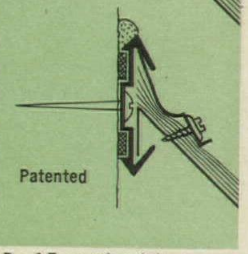

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Coming in the April P/A a special issue on Life Safety

The ultimate basis for licensing of architects is Life Safety, their obligation to society under law. Recent fatal fires in "fireproof" high-rises, new concern with personal safety in housing developments, revised codes and Federal occupational and health standards have all become critical concerns for the architect. At least one major firm has established the post of Safety Planning Director. This issue will clarify safety considerations from several standpoints and show their impact on planning and construction.

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