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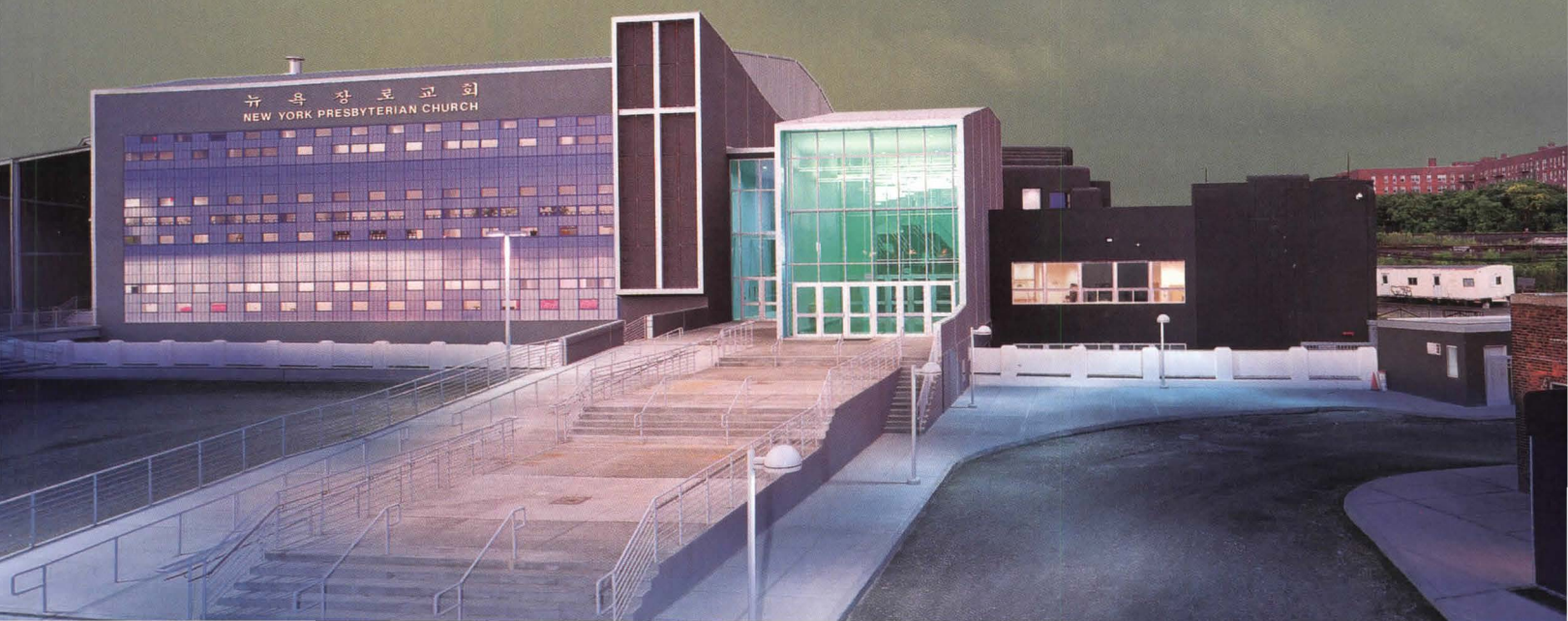
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DIGITAL CONVERSION

LONG HAILED AS A COMPUTER
VISION, THE NEW YORK
PRESBYTERIAN CHURCH FINALLY
TAKES BUILT FORM.

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Last month, the traditionally conservative federal commissions that oversee the development of Washington, D.C.'s monument core proposed something truly radical, a scheme that would affect the image of the nation's capital forever. And not a moment too soon.

The National Capital Planning Commission (NCPCC), the National Capital Memorial Commission, and the Commission of Fine Arts called for a moratorium on new buildings and monuments on the Mall—the grand, grassy stretch of park connecting the U.S. Capitol to the Lincoln Memorial—as well

civil-rights activists—have petitioned for space. Some have already won a spot: The Vietnam Veterans Memorial is a dignified, profoundly moving place. The Korean War Memorial, on the other hand, is an awkward, trivializing contrivance.

The problem doesn't lie with any single project, however. The problem is that the Mall was designed to be the capital's green heart, not its wet hankie. With nearly 30 memorials in place, it already offers plenty of opportunities for reflective moments. If Congress actually approved all the current proposals (and

Help save the National Mall from becoming a crying game.

By Reed Kroloff

as the cross-axis linking the Jefferson Memorial to the White House. Together, the two are known as the "Reserve."

This verdant ceremonial space, which first appeared in Pierre L'Enfant's 1791 plan for Washington, is the nation's front yard, at once formal and informal, ambitious and practical (and one nice way to drain a swamp). Over time, it has also come to embody changing fashions in landscape design: Among other things, the Reserve is an endearingly ad hoc, quintessentially American mixture of French and English garden precedents.

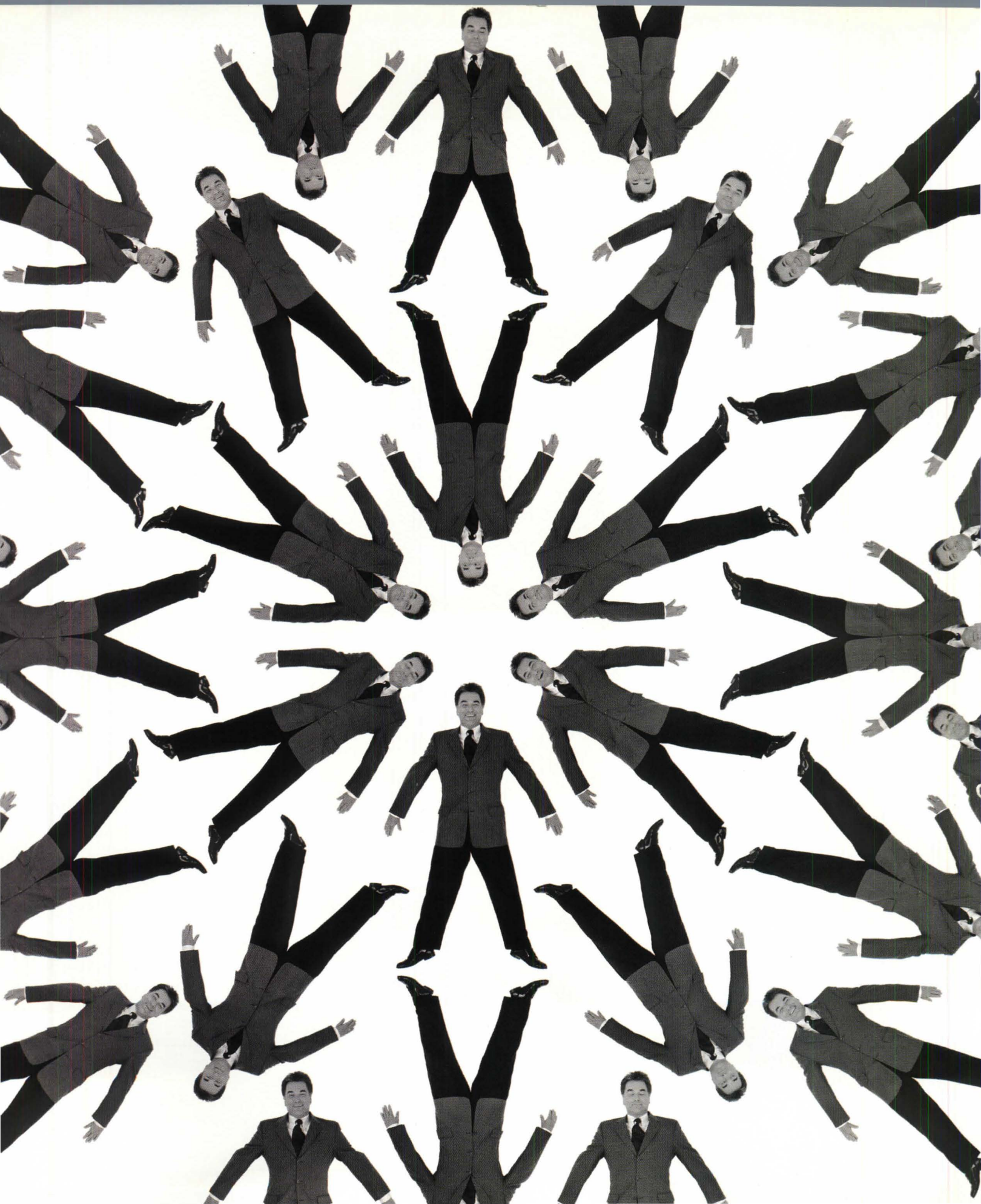
But in the past half century, the Mall's visual authority and symbolic function have been eroded by relentless nibbling at its leafy edges. Some of these incursions, like the Smithsonian Institution, make sense: The great national museum logically belongs in the great national park. Other additions help define the architectural character of the place: The Lincoln and Jefferson Memorials are fitting punctuation marks for what were once the open ends of the Reserve's cruciform plan.

Beyond these, however, the logic of additional monuments is dubious. How much of the Mall can be marbled over before the whole thing becomes a memorial theme park? Over the last few years, more than 60 organizations—ranging from veterans groups to

in our present culture of victimhood, God knows how many it might bless), the emotional power of any individual memorial would drown in the flood of contrition.

This dilution is exactly what the NCPCC and its collateral organizations want to avoid. The Mall must be protected. Further, there are many other locations in and around Washington where projects of remembrance could be better sited, both for their own effectiveness and for the benefit of the city. Memorials to the Navy and the nation's police have already created popular new city plazas. The NCPCC plan suggests new monuments and museums would stand along corridors radiating north, south, and east from the Capitol (the Mall lies to its west) to encourage development of Washington's less privileged areas. This is an extension of an earlier NCPCC report that called for distributing the capital's cultural resources beyond its monument core (*Architecture*, September 1997, page 9).

As custodians of the nation's built environment, architects need to make themselves heard on this issue. A two-month period of public comment on the proposal has now begun. Contact NCPCC (info@ncpc.org) by November 8 to register your support for the plan. It will preserve the Mall, protect L'Enfant's vision, and build a stronger, more beautiful Washington. What a capital idea. ■





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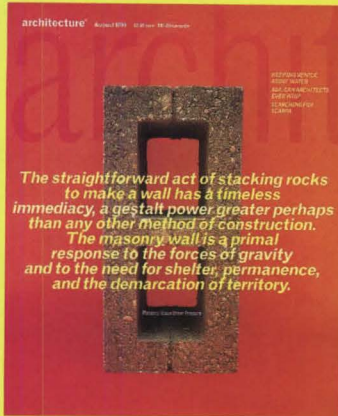
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Wake-up Call

After reading Reed Kroloff's July 1999 editorial (page 11), my initial thought was, "What else is new?" Graduating from a master's program as one of four or five African-Americans (and the only woman), I know too well our profession's stance on race and gender. The fact that fellow practitioners still have antiquated views about female architects or, for that matter, anyone outside European male descent, is in no way surprising.

Architecture has always been a reflection of the society in which it resides. I believe the comments received give a true indication of where this country currently exists regarding tolerance and difference. Perhaps seeing Julie Salles Schaffer (an architect, not a super-model) on the cover of *Architecture* should be viewed as a wake-up call: Through whose eyes do we actually see the world?

Kelly D. Powell
Detroit

I worked at Hayes Large Architects during the summer of 1980. At that time I was a student with no previous work experience. Hayes Large provided me a paying job and, after completing my degree, they contacted me several times with job offers. My experience there was not the series of "testosterone moments" that Kroloff implies in his editorial, but rather a positive and supportive one.

Diane Neff
Larchmont, New York

I entered the profession apprehensively since I observed the reality of the architecture world: Men stick

together. The less capable the architect, the more he will use his masculinity as if he were the member of some private club. No matter how hard I worked, I could never be in the club.

Beginning my master's program, I realized this remains the case because crotchety old professors are passing along the tradition. Male professors and students are buddies; women are treated differently. The male students' attitudes change to where they have no respect for their female classmates' work. Female students tend to be less aggressive (particularly with male professors and students damaging their self-esteem so severely), and I believe their education generally suffers because of this.

Name withheld by request

How many practicing women architects do you know who are mothers? Very few, I reckon. Women architects returning from maternity leave are statistically the first fired. As long as corporate architecture firms don't care about families, it isn't going to change.

Katherine Austin
Sebastopol, California

Capitol Defense

Within the stream of ideological bias that taints your pages, the editorial by Mr. Codrescu stands out for its extremism (July 1999, page 146). He presents the Louisiana state capitol exclusively as a manifestation of Huey Long's dictatorial aspirations and therefore a style to be reviled. This incriminating association is confirmed by an extended analogy between Long and Stalin. At no time does he mention the architectural quality of the building, as this would presumably mitigate the categorical condemnation of Depression-era classicism as the style of dictatorship.

The state capitol, the state university campus, and the magnificent parkways of Long's administration are a source of enduring pride to Louisianans of impeccable democratic credentials. Their capitol is considered to be in league with any other. Bertram Goodhue's Nebraska capitol is designed in the same style and is ornamented with the same kind of blood-and-earth carvings. How does Mr. Codrescu

explain such phenomena in the absence of a demagogic stimulant in Nebraska?

Andrés Duany
Miami

Car Park

While praising Zaha Hadid's garden pavilion for being integrated with the landscape, Joseph Giovannini leaves the definition of landscape wide open (July 1999, pages 70-77). The shapes of the building for the average city dweller probably recall, as much as anything else, the forms of highway system hierarchies, overhead off-ramps, and crossing bridges. The building reveals what is organic about the concrete jungle. Like beehives and birds' nests, the concrete accretions of our modes of transport are unavoidably part of nature, whether or not we think they mar the tree in which they hang.

Rudy Schwarz
St. Louis

Rent Control?

Exhibitors at this year's A/E/C Systems show fussed about sparse attendance and threatened that next year's might be the last (August 1999, pages 113-115). Some exhibitors blame A/E/C practitioners for an aversion to technology. Software and systems developers need to wake up and smell the coffee. Architects and engineers alike avoid these shows and the systems showcased because of the cost of implementing them. The prices for establishing Web-based collaborative services are exorbitant, and don't include the local hardware and software each office needs to provide to users. The rent per month per user on some of those systems equals the salary of a low-end employee!

Ebiwene O. Bozimo
Cleveland

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exhibitions

city	dates	exhibition	contact
Chicago	October 28– January 31, 2000	Wheel People at the Chicago Architecture Foundation	(312) 922-3432
		Chicago Architecture Foundation exhibit explores sociology of mobile home communities.	
Los Angeles	through January 9, 2000	Pompeii: Life in a Roman Town at the Los Angeles County Museum of Art	(323) 857-6000
Montreal	December 9– April 9, 2000	Triumphs of the Baroque: Architecture in Europe, 1600–1750 at the Montreal Museum of Fine Arts	(514) 285-1600
New York City	through December 5, 1999	Prague Architecture Through the Centuries at the National Academy of Design Museum and School of Fine Arts	(212) 369-4880
New York City	through August 31, 2000	Big Buildings at the Skyscraper Museum	(212) 968-1961



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conferences

city	dates	conference	contact
Cambridge, Massachusetts	November 5-6	 Modernism, Interdisciplinarity, and Landscape 1950-1970: The Sasaki Years at Harvard	(617) 496-8728
Charleston, South Carolina	February 13-17, 2000	26th International Making Cities Livable Conference call for papers and invitation to exhibit (deadline: October 15)	(831) 626-9080
Los Angeles	March 29-31, 2000	WestWeek 2000	(310) 360-6423
Miami	June 14-18, 2000	53rd Annual Meeting of the Society of Architectural Historians	www.sah.org
Scottsdale, Arizona	November 10-14	Frank Lloyd Wright Building Conservancy Annual Conference	(773) 784-7334
Washington, D. C.	October 19-24	National Trust for Historic Preservation 50th Anniversary Conference	www.nationaltrust.org

Harvard conference uses design for Constitution Plaza in Hartford, Connecticut, to discuss architect Hideo Sasaki's influence on university's teachings.

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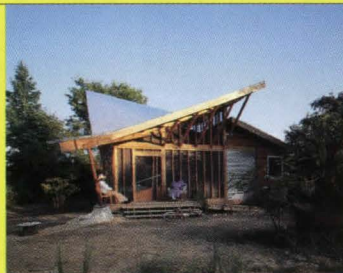
November 1

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Society of Architectural Historians 2000 Fellowships

November 15

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1999 Apgar Award for Excellence recognizes contributions to the observation, interpretation, and evaluation of America's built environment, sponsored by the National Building Museum



Sam Mockbee received 1998 Apgar Award for his design-build work for rural Alabama's poor, including Harris House, aka "The Butterfly."

November 16

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December 30

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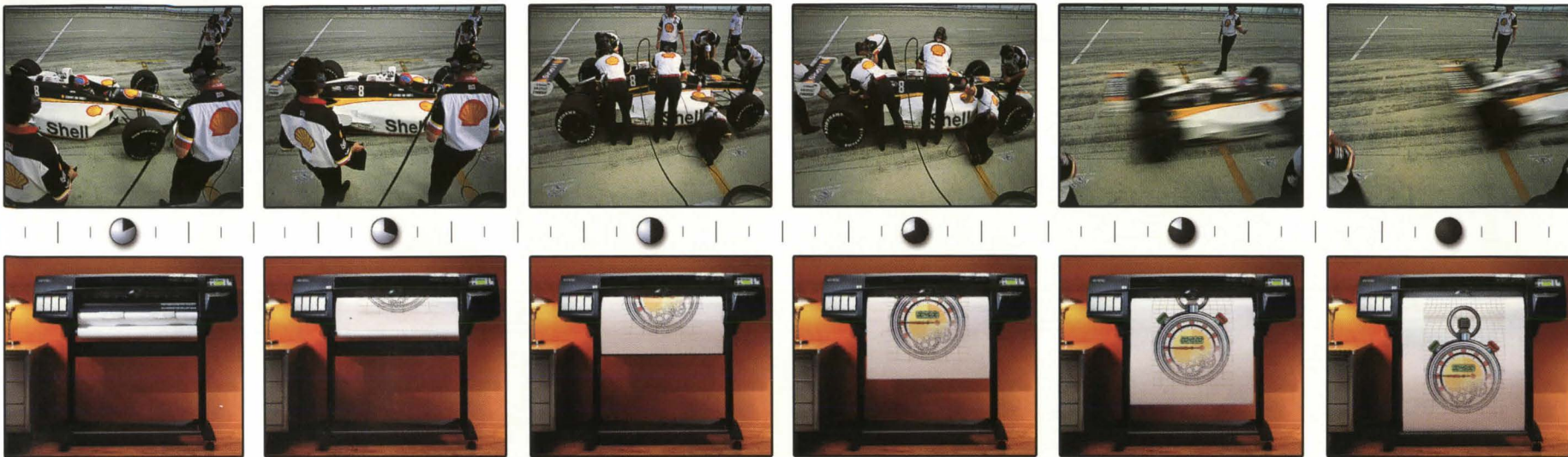
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The Ingredients of

PAINT

and Their Impact on Paint Properties

Different types and grades of paint provide different application and resistance properties, depending upon the kinds and levels of ingredients used to create the paint. In turn, the properties of a paint determine the general quality of the coating. Some of the many paint properties affected by the ingredients are highlighted below.

APPLICATION AND APPEARANCE PROPERTIES	INTERIOR PAINT PROPERTIES	EXTERIOR PAINT PROPERTIES
Color	Stain Resistance	Color Retention
Hiding	Scrub Resistance	Mildew Resistance
Flow and Leveling	Lack of Yellowing	Blister Resistance
Level of Sheen or Gloss	Resistance to Alkaline Cleaners	Dirt Resistance
Spattering Tendency	Burnish Resistance	Resistance to Peeling
Foaming Tendency	Block Resistance	Alkali Resistance



In general terms, all paints have four basic components that impact these properties. These components are:

PIGMENTS: provide color and hiding; some are used to impart bulk at relatively low cost
BINDER: “binds” the pigment together and provides film integrity and adhesion

LIQUID (or the “carrier”): provides desired consistency and makes it possible to apply the pigment and binder to the surface being painted

ADDITIVES: low-level ingredients that provide specific paint properties such as mildew resistance, defoaming and good flow and leveling

PIGMENTS

PROVIDE COLOR OR WHITENESS, HIDING AND BULK

Pigments are finely ground particles or powders that are dispersed in paints. Many of the same pigments are utilized in latex-based and oil-based paints.

There are two primary categories of pigments: prime and extenders.

PRIME PIGMENTS. These are the pigments

that provide whiteness and color. They are also the main source of hiding capability.

Titanium dioxide (TiO_2), is the predominant white pigment, which has these characteristics:

- provides exceptional whiteness by scattering light
- provides whiteness and hiding in flat or glossy paint, whether wet, dry or rewetted
- is relatively expensive
- use of appropriate extender (see section on next page) ensures proper spacing of TiO_2 particles to avoid crowding and loss of hiding, especially in flat and satin paints
- has more chalking tendency in exterior paints than most color and extender pigments

Color pigments provide color by selective absorption of light. There are two main types: organic and inorganic.

• **ORGANIC:** These include the brighter colors, some of which are not highly durable in exterior use. Examples of organic pigments are phthalocyanine blue and Hansa yellow.

• **INORGANIC:** Generally not as bright as organic colors (many are described as *earth colors*), these are the most durable exterior pigments. Examples of inorganic pigments are red iron oxide, brown oxide, ochers and umbers.

PAINT TRAINING COURSE LEARNING OBJECTIVES

At the end of this course, you will be able to:

- Understand the four basic components of paint and their impact on paint quality and performance.
- Understand the relationship between pigment and binder levels in paint.
- Understand the mechanisms of paint film formation.
- Appreciate the difference between oil-based and latex-based paints, and their related performance benefits in architectural projects.
- Understand the function of different additives used in the manufacture of paints.
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CONTINUING EDUCATION SUPPLEMENT

Color pigments are compounded into liquid dispersions called colorants, which are added at the point of sale to tint bases, and to white paints designed for tinting. In the factory, color pigments are used as dry powders and in liquid colorant form to make pre-packaged color paints.

EXTENDER PIGMENTS (or “extenders”) provide bulk at relatively low cost. They add much less hiding than TiO_2 and impact on many properties, including sheen, scrub resistance, exterior color retention, and others.

Some commonly used extenders are noted below.

- **CLAY:** Aluminum silicates (also called kaolin and china clay) are used mainly in interior paints, but also in some exterior paints. Calcined (heated to drive off water and create air-particle interfaces) clay provides more hiding than most extenders; delaminated clay enhances stain resistance.
- **SILICA AND SILICATES:** These provide scrub and abrasion resistance. Many of these exhibit excellent durability in exterior paints.
- **DIATOMACEOUS SILICA:** This is a form of hydrous silica consisting of ancient fossilized

single-cell organisms. It is used to limit sheen in paints and varnishes.

- **CALCIUM CARBONATE:** Also called chalk, this is a general purpose, low cost, low hiding pigment used in both interior and exterior paints.
- **TALC:** Magnesium silicate — a relatively soft general purpose extender used in interior and exterior paints.
- **ZINC OXIDE:** This is a reactive pigment helpful with mildew resistance, corrosion inhibition and stain blocking. It is used mainly in primers and in exterior paints.

BINDER

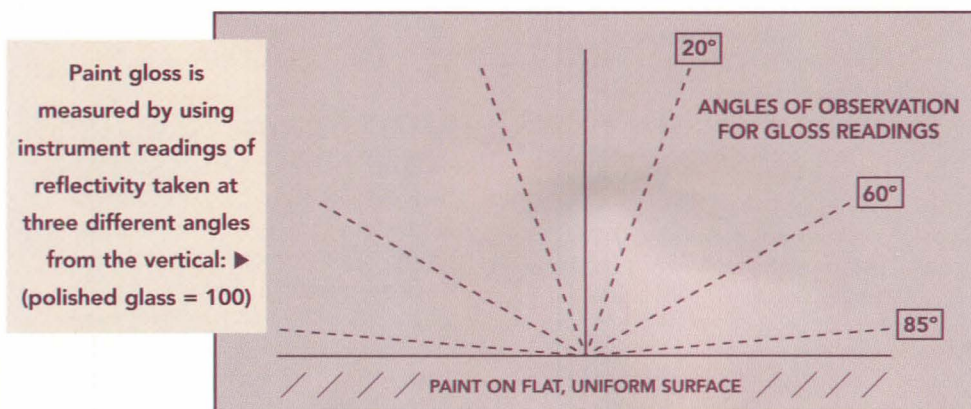
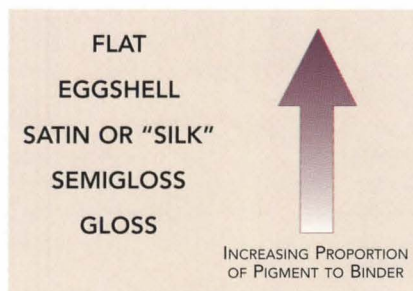
“BINDS” THE PIGMENT AND PROVIDES ADHESION, INTEGRITY AND TOUGHNESS TO THE DRY PAINT FILM

The binder is a very important ingredient that affects almost all properties of the coating, especially the following.

- adhesion and related properties like resistance to blistering, cracking and peeling
- other key resistance properties like resistance to scrubbing, chalking and fading
- application properties like flow, leveling and film build, and gloss development

With no pigment present, most binders would dry to form a clear, glossy film; some binders are used without pigments to make clear finishes and varnishes.

Pigment reduces the shininess, or gloss, of the binder. By incrementally increasing pigment levels, and by using larger particle pigments, the following gloss levels are achieved. ▶



The gloss reading at 20° serves to describe the “depth of gloss” of gloss and semigloss paints. The reading at 60° is the measurement of gloss referred to most often, and is used with all but dead-flat paints. The 85° reading describes the “sheen” of flat, eggshell and satin paints.

GLOSS RANGES

Paints described as flat, satin, semigloss and gloss will have sheen and gloss values falling into the ranges tabulated to the right. ▶

This is not to say that a given product will vary within the range; rather, each value for the product will be designed to be in the range described. For example, a particular semigloss paint might have a 20° gloss reading of 15, and a 60° gloss reading of 55.

TYPE OF PAINT	20° GLOSS	60° GLOSS	85° GLOSS (SHEEN)
Flat	—	0–10	0–15
Eggshell	—	2–15	5–25
Satin	—	5–25	10–40
Semigloss	5–45	25–75	—
Gloss	20–90	70–95+	—

The paint chemist uses a figure called the PVC (pigment volume concentration) to indicate the relative proportion of pigment to binder for the paint formulation. The PVC is a comparison of the relative volumes (not weights) of total pigment and binder, and is calculated as follows:

$$\text{PVC}\% = \frac{\text{Volume of Pigments}}{\text{Volume of Pigments} + \text{Volume of Binder}} \times 100$$

Typical PVC values associated with different levels of paint gloss are noted below. ▼

TYPE OF PAINT	TYPICAL PVC
Gloss	15%
Semigloss	25%
Satin	35%
Eggshell	35 – 45%
Flat	38 – 80%

Thus, a broad range of pigmentation levels is utilized in designing flat paint formulations. Higher quality flat paints, both interior and exterior, will generally have PVCs in the 38 to 50 percent range. Because these flat paints have more binder available per unit of pigment, they will have better durability than higher-PVC flats, all else being equal, as

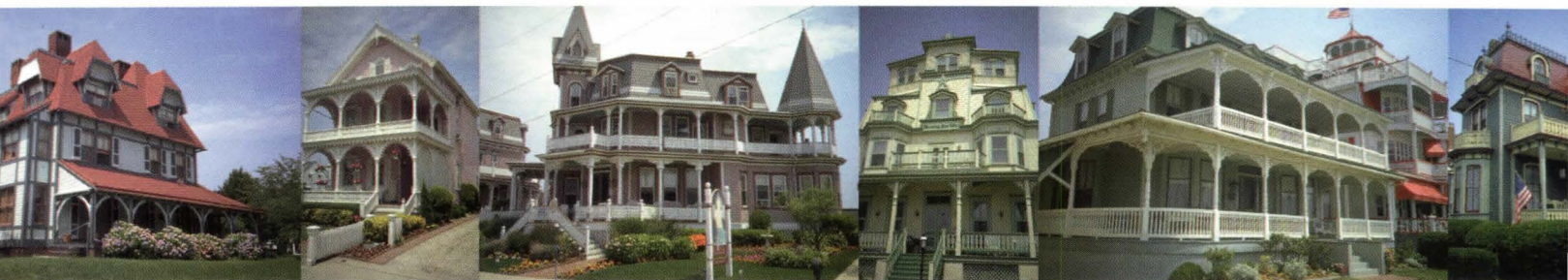
measured by properties such as scrub resistance and dirt resistance for interior use, and color retention, chalk resistance, mildew resistance and general durability for exterior applications.

Painting contractors often choose more highly pigmented dead-flat paints for new interior construction (particularly, taped wall joints) and for their uniformity of touch-up. In exterior use, high-PVC flats do not stand up as well as lower-PVC formulations, particularly in freezing climates or in use over wood.

The gloss requirement for paints shinier than flats restricts the range of PVC that can be utilized, compared to the range available with flat finishes. Some product specifica-



tions and/or MSDS will indicate the PVC of the product.



OIL-BASED BINDERS. The binder in an oil-based coating is made from a vegetable oil that “dries,” or oxidizes, and cross-links when it is exposed to the air, and thus develops the desired properties of the paint product. Drying oils traditionally used in paints and coatings include linseed oil (squeezed from flax seed and refined), tung oil (from the fruit of the chinawood tree) and soya oil (from soybeans). Today, few paints are made with oil alone; rather, they are based on modified oils called alkyds. Alkyds dry harder and faster than oils. Some coatings, particularly exterior primers, are made with combinations of oils and alkyds to achieve appropriate flexibility. The term “oil-based” is commonly used to refer to both oil and alkyd coatings.

FILM FORMATION of oil-based and alkyd-based paints is a two-step process. When the paint is applied to a surface:

1. the liquid evaporates and leaves the binder and pigment on the surface; and
2. the binder then “dries,” or oxidizes, as it reacts with the oxygen in the air.

It is this drying, or oxidation, that develops the hard, tough properties of the oil or alkyd paint. However, the oxidation process can ultimately cause this type of paint to harden to the point where it is vulnerable to cracking and chipping. The oxidation also causes yellowing, which typically is bleached out by sunlight, but may be quite noticeable in an area protected from sunlight, e.g., an inside room or closet, or a wall behind a picture frame.

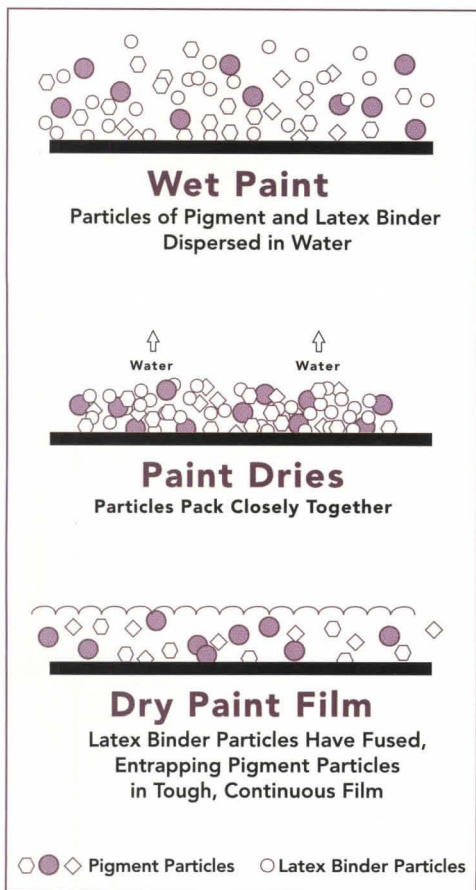
LATEX-BASED BINDERS. Most water-based paints are “latex” paints.* The binder in a latex paint is a solid, plastic-like material dispersed as microscopic particles in water. This dispersion is a milky-white liquid, which is called latex in the paint industry, in that it is reminiscent of natural latex from the rubber tree. Latex is also called emulsion, and in some countries, such as England, latex paints are referred to as emulsion paints.

NOTE: Except for appearance, the latex used in paint is in no way related to the natural latex used in some kinds of rubber gloves, which have reportedly caused allergic reactions in certain users of the gloves.

*Water-based paints that are not latex-based include watercolors, poster paints, tempera and most finger paints.

The paint manufacturer makes a dispersion of the pigments that will go into a batch of paint, and adds the latex binder. Thus, the paint consists of dispersed pigment and binder, along with some additives and liquid, mainly water (see sections below).

FILM FORMATION of latex paint occurs when the paint is applied and the water evaporates. During this process, the particles of pigment and binder come closer together. As the last vestiges of liquid evaporate, capillary action draws the binder particles together with great force, causing them to fuse and bind the pigment into a continuous film. This process, called coalescence, is depicted in the following graphic. ▼



This mechanism of film formation is what allows water-thinning and water cleanup with latex paints, while providing prompt development of a water- and weather-resistant film shortly after application. The latex paint film retains microscopic openings that allow it to “breathe”; that is, allow moisture vapor to pass through. The latex paint film is thus more tolerant of moisture coming from inside the building than oil or alkyd paints, which form a “tighter” film, and are prone to blister if moisture is behind the paint, e.g., if the oil or alkyd paint is applied over damp wood or stucco.

On the other hand, latex paints may blister from rain, dew or other sources of water on the outside of the coating, if the paint:

- has limited adhesion capability
- was applied over a chalky or otherwise unclean surface, such that the paint’s adhesion was compromised
- has not had enough time to dry thoroughly

Under any of these conditions, blistering tendency will be greater if the paint has high levels of tinting color.

The mechanism of latex paint film formation has some limitations. Because the binder particles are thermoplastic (tending to get softer at higher temperature and vice versa), they will get too hard to fuse into a continuous, durable film when applied at too low a temperature. This is the main reason paint manufacturers specify a minimum application temperature (typically, 50°F) for latex paint products. And if conditions are such that the paint dries very fast, film formation and durability can be compromised, since very quick drying can reduce mobility of the particles before the film is adequately formed. Conditions that can contribute to overly fast drying of exterior paint are very high temperature, wind, low humidity, painting in direct sunshine and painting over a very porous surface.

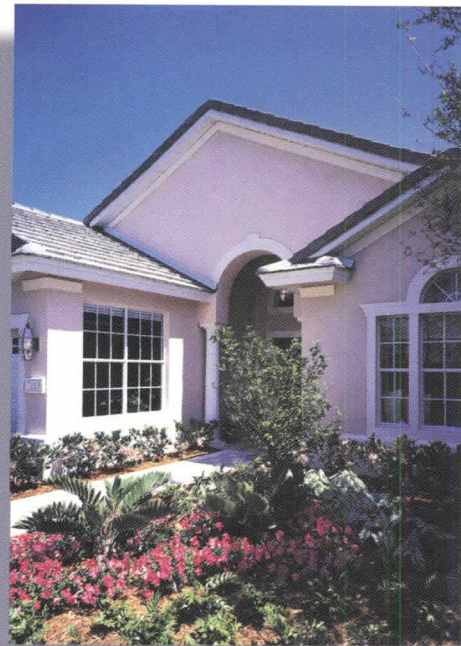
TYPES OF LATEX BINDER. There are different broad chemical types of polymer used as latex paint binders. The two types used most commonly in North America are:

100 percent acrylic
and
vinyl acrylic*

(*also called PVA, for polyvinyl acetate)

The formulator has many binders of each type from which to choose. These will vary in terms of adhesion, particle size, flow and leveling, hardness, solids content, price and other characteristics.

Assuming that an appropriate binder is used for the intended application, and that all else is equal, 100 percent acrylic binders generally excel in the following properties for exterior applications: ▼



As a result of these properties and benefits, 100 percent acrylic latex paint is often specified for use on exterior surfaces where top-quality performance is required. (Acrylic binders are more expensive than vinyl acrylics by roughly a factor of two.) For interior applications, acrylic binders afford benefits in terms of adhesion under wet conditions, resistance to waterborne stains (food stains like coffee, juice, wine, etc.), resistance to blocking (sticking) and resistance to alkaline cleaners, but the differences are not nearly as pronounced as with exterior applications. Properly formulated, vinyl acrylic latex binders perform very well, particularly in interior wall paints, drywall primers and in satin and semigloss paints.

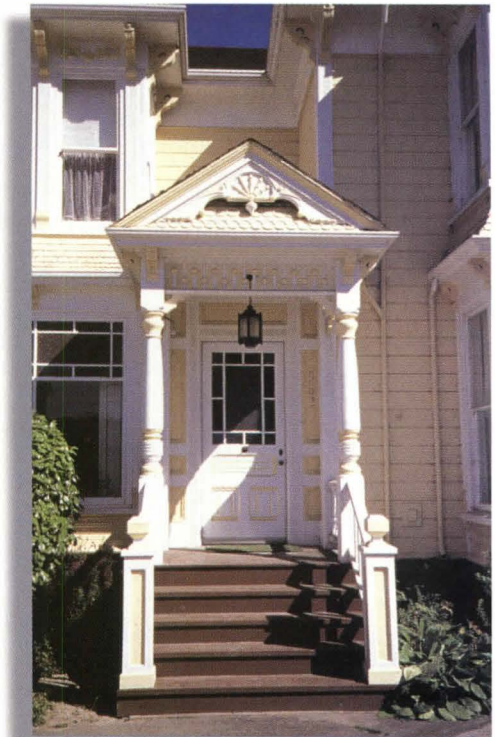
A third category of latex binder is styrenated acrylic. Styrene is included in the binder for enhanced water resistance, gloss development and cost reduction; however, the amount of styrene that can be used for exterior paints is limited, because too high a level can create a tendency to crack and chalk excessively, leading to fading. These binders are used in some masonry sealers, gloss paints and direct-to-metal coatings.

PROPERTY DIFFERENCE	RELATED PERFORMANCE BENEFIT
A. Adhesion Under Wet Conditions	A-1 Blister Resistance A-2 Resistance to Cracking, Peeling
B. Greater Water Resistance	B-1 Blister Resistance B-2 Resistance to Mildew B-3 Resistance to Dirt Collection
C. Alkali Resistance	C Less Likely to “Burn” Over Fresh or Moist Masonry

LIQUID

THE LIQUID PORTION OF THE PAINT (ALSO REFERRED TO AS THE "CARRIER") PROVIDES A WAY TO GET THE PIGMENT AND THE BINDER FROM THE CONTAINER ONTO THE SURFACE THAT IS TO BE PAINTED.

- For most oil-based and alkyd paints, the liquid component is paint thinner, which is a combustible solvent made primarily of mineral spirits, a petroleum distillate of aliphatic hydrocarbons.
- For shellac-based primers and varnishes, the liquid is denatured alcohol.
- For clear and pigmented lacquers, the liquid is usually lacquer thinner or another solvent that is "stronger" and more flammable than paint thinner.
- For latex paints, the liquid is primarily water (but see "Additives" section on next page).



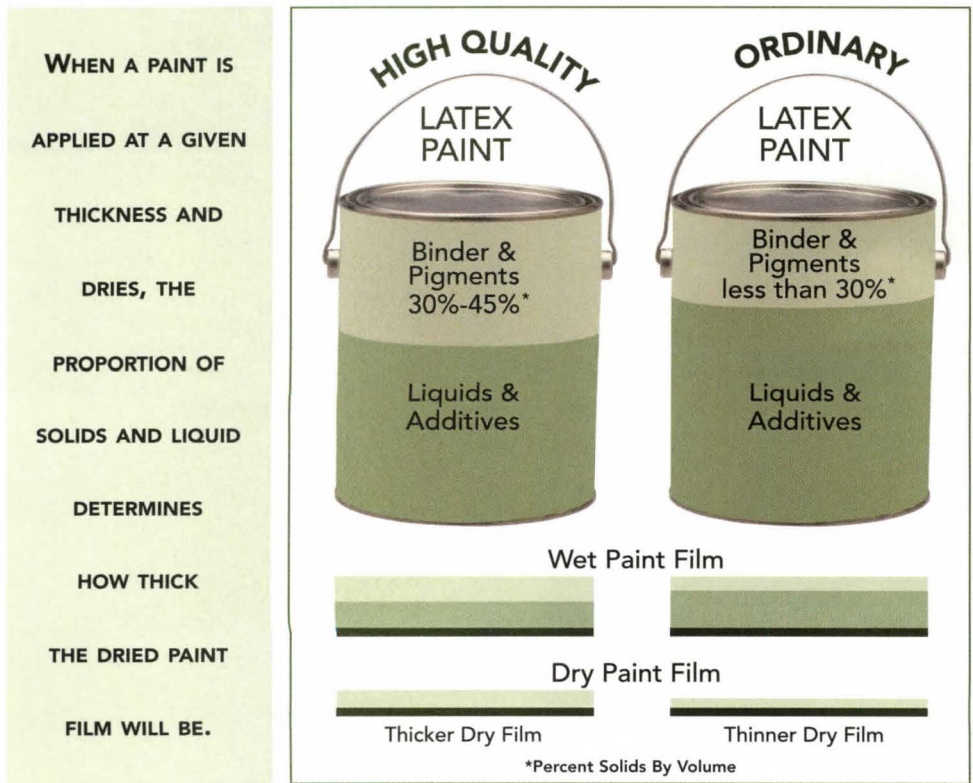
The pigments and the binder are what is left on the surface when the paint dries and the liquid portion evaporates. Together, they are called the solids portion of the paint:

$$\text{PIGMENTS} + \text{BINDER} = \text{SOLIDS}$$

The coating (e.g., paint, stain, primer) consists of the solids and the liquid:

$$\text{SOLIDS} + \text{LIQUID} = \text{COATING}$$

TYPICAL SOLIDS CONTENT



Thus, a higher solids content can provide a thicker dry paint film, which results in better hiding and durability. For this reason, it is recommended that paints not be thinned unless necessary (such as for application by spraying), since thinning reduces the solids content of the paint per unit of volume. The solids content of a paint may be in its spec sheet. This can be expressed by weight or volume. The weight solids of a paint are usually higher than its volume solids. Volume solids are the better indicator of performance. Latex paints generally range from 25 percent to about 40 percent volume solids, depending on type and quality. Alkyd and oil-based paints can exceed 50 percent volume solids.

ADDITIVES

ADDITIONAL INGREDIENTS THAT AFFECT AND ENHANCE MANY PAINT PROPERTIES

Below is a list of additives used in the manufacture of latex paints and a description of how they affect the properties of those paints.

THICKENERS AND RHEOLOGY MODIFIERS: (rheology is the science of how a liquid tends to flow)

- 1
- provide adequate viscosity (thickness), so the paint may be applied properly
 - impact how thick the paint goes on and how well it flows out when applied
 - modern rheology modifiers help latex paints to:
 - resist spattering when applied by roller
 - flow out smoothly
 - be less likely to spoil than those modified with older-generation thickeners (with spoilage, the paint may smell putrid and/or lose viscosity)

- 2
- SURFACTANTS:** (specialized soaps)
- stabilize the paint so that it will not separate or become too thick to use
 - keep pigments dispersed for maximum gloss and hiding
 - help “wet” the surface being painted, so the paint won’t “crawl” (move about) when it is applied
 - provide compatibility with tinting colorants so that the correct color will be obtained . . . and help ensure that it won’t change before the paint is used

- 3
- BIOCIDES:** two types are used in latex paints
- a preservative to keep bacteria from growing in the paint. (This is especially important for paint stored in containers that are repeatedly opened and closed, because contamination can occur.)
 - a mildewcide, to discourage mildew from growing on the surface of the paint after it has been applied. (This is used mainly in exterior products, although some interior paints, such as those formulated for use in damp areas, e.g., kitchens and baths, may also contain mildewcide.)

- 4
- DEFOAMERS:** break bubbles as they are formed in the paint when
- the paint is mixed in the factory
 - it is put on the shaker or stirred
 - it is applied to the surface (especially important when rolling the paint on)

- 5
- CO-SOLVENTS:** additional liquids, other than water, that
- aid the binder in forming a good film when applied down to the minimum recommended application temperature
 - help the liquid paint resist damage if frozen
 - enhance brushing properties, including flow and “open time” (the time during which the paint can be applied and worked, before it sets up)
- The co-solvents are generally volatile organic compounds (VOCs).



In conclusion, the properties of paint, and thus its overall quality, are determined by all four categories of ingredients:

PIGMENTS

Types and Levels Used

BINDER

Types and Ratio to Pigment Used

LIQUID

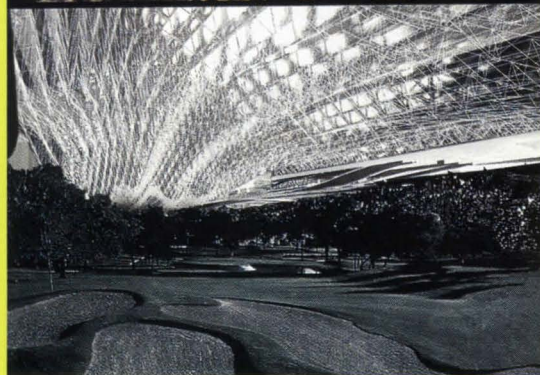
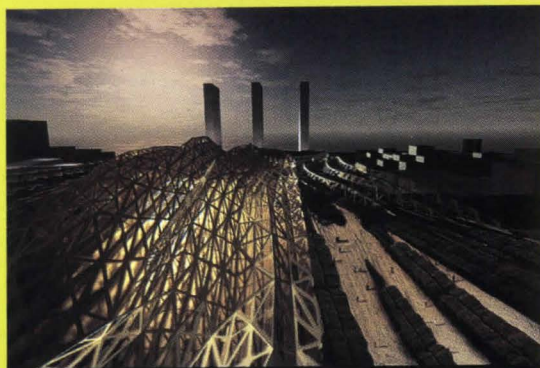
Solids Content

ADDITIVES

Types and Levels Used

Thus, no single dimension can assure top quality.

Information provided by The Paint Quality Institute
www.paintquality.com



AWARD

Reiser + Umemoto Win DaimlerChrysler Award

Reiser + Umemoto designed **habitable space frame** for CCA's West Side competition (above and below left); Van Alen Institute funded architects' butterfly-shaped design for public **recreational facility** on East River (above).

Architects Jesse Reiser and Nanako Umemoto are among the six winners of the 1999 DaimlerChrysler Design Awards. Past architect winners of the multidisciplinary competition include Frank Gehry, Steven Holl, and Tod Williams and Billie Tsien. Reiser and Umemoto's decade-old partnership approaches design with a landscape-oriented esthetic. The pair received a 1998 P/A Award (with Jeffrey Kipnis) for their design of a water garden at Kipnis' Ohio house (*Architecture*, April 1998, pages 78–81). With the financial backing of the first Van Alen Institute Fellowship in Public Architecture, the architects crafted a 12-mile linear park on New York City's East River that reinvents the blighted shoreline.

More recently, the firm was named as one of five finalists in the International Foundation of the Canadian Centre for Architecture's first CCA Prize for Architecture. Although Peter Eisenman's scheme prevailed (*Architecture*, August 1999, page 23), jurors praised Reiser and Umemoto's design for a habitable space frame containing three hotels and an enclosed public streetscape. Other DaimlerChrysler winners this year include industrial designer Karim Rashid; Gael Towey, creative and founding director of Martha Stewart Living Omnimedia; graphic designer John Maeda; digital artist Peter Girardi of Funny Garbage; and film-title designer Pablo Ferro. *Michael J. O'Connor*

Autodesk Retrenches

HUMAN RESOURCES

CAD software giant Autodesk announced in August that it had barely broken even in the quarter ending July 31 and would be laying off 10 percent of its workforce. The news came after the company reorganized and announced it would not exhibit at next year's annual A/E/C Systems show in Washington, D.C.

Chairman and CEO Carol Bartz blamed late product releases, but echoed industry analysts who criticized Autodesk's lack of Internet-based products. There are hints that such products will begin to appear in a few months, but not for architects specifically.

Autodesk's closest CAD competitor, Bentley Systems, has released several robust Internet-based products in the past few years—products Autodesk has been unable to match. But Autodesk has hardly been asleep. In March, the company purchased Discreet Logic, expanding its offerings in video and

photorealistic rendering. This year has seen new releases of AutoCAD, AutoCAD LT, Actrix Business (a diagramming tool like Visio), and Autodesk Inventor (an extraordinary advance in CAD for machine design).

The new products have had little positive impact on the bottom line, however. AutoCAD 2000, the flagship product, was released this spring, but sales have been slow. Autodesk's loyal customer base hated AutoCAD 14, and are now playing a wait-and-see game for add-on products that work specifically with AutoCAD 2000. Sales of AutoCAD accounted for 62 percent of Autodesk's revenues last year.

What's next? If revenues don't rebound this quarter, it may be fair to question Autodesk's ability to maintain its market dominance. *Steven S. Ross*

Steven S. Ross reviewed AutoCAD 2000 in Architecture's May 1999 issue.

Buzz

Hilton, we have a problem: **Hilton** is investigating building rooms-for-rent in space. They plan to assemble **NASA** officials this fall to discuss the possibility. "We're serious about this effort," says Hilton spokesperson **Jeanne Datz**. Roger, over...

Preservation meets conscience: In New Delhi, India, bungalows designed by **Edward Lutyens** in the 1930s are facing the wrecking ball, but for a different reason than you'd suspect. Government officials have singled out brick-and-concrete houses as obnoxious reminders of imperialism. Instead, they'd rather bulldoze the

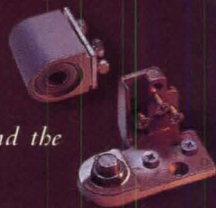
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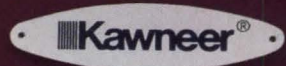
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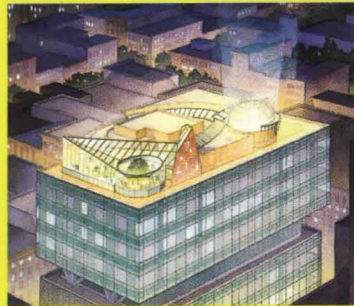
Rockwell's Bronx Children's Hospital Out of This World

It's a bird, it's a plane, it's...a planetarium. Perched atop the roof of the proposed Children's Hospital at Montefiore Hospital in the Bronx, New York, is indeed a planetarium, as well as an observatory, family center, and a rooftop garden. It's all part of an innovative discovery center named for the late astronomer Carl Sagan, one of the many groundbreaking features of the new \$120 million, 106-bed hospital.

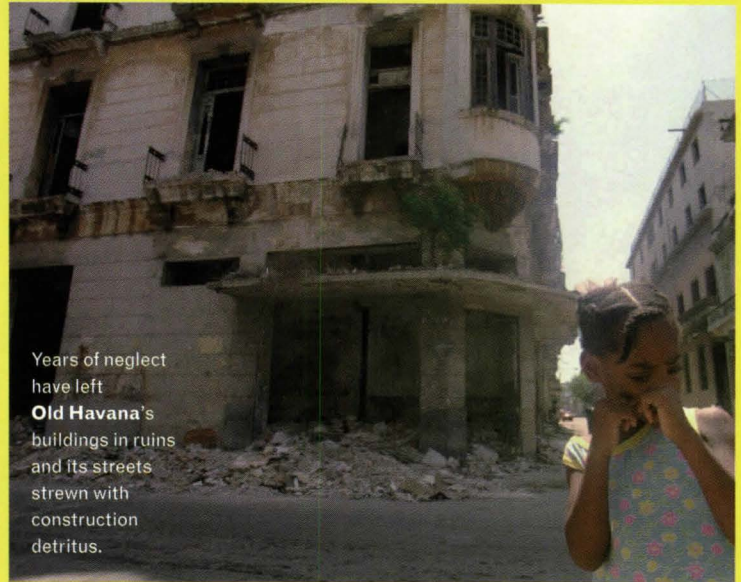
The hospital's design is a curious marriage of Sagan's philosophy of exploration as the key to knowledge and the more light-hearted esthetics of architect David Rockwell of Rockwellgroup. Rockwell has applied his expertise in creating engrossing, theatrical architectural experiences to recast the hospital as a type. Sick children here are "explorers embarking on a journey to healing." Interactive maps of the hospital, the neighborhood, the earth, and the Milky Way set the navigational tone in the lobby. On check-in,

kids receive "passports" and "explorer's kits" complete with compasses, kaleidoscopes, and periscopes. During their stay, patients can have dinner with their families in extra-large rooms or plug into bedside computers. Rockwell's radical rethinking of the children's hospital aims to make its young patients' healing

experience an educational one and add a spoonful of sugar to what can be an otherwise frightening experience. *Raul A. Barreneche*



PRESERVATION



Years of neglect have left Old Havana's buildings in ruins and its streets strewn with construction detritus.

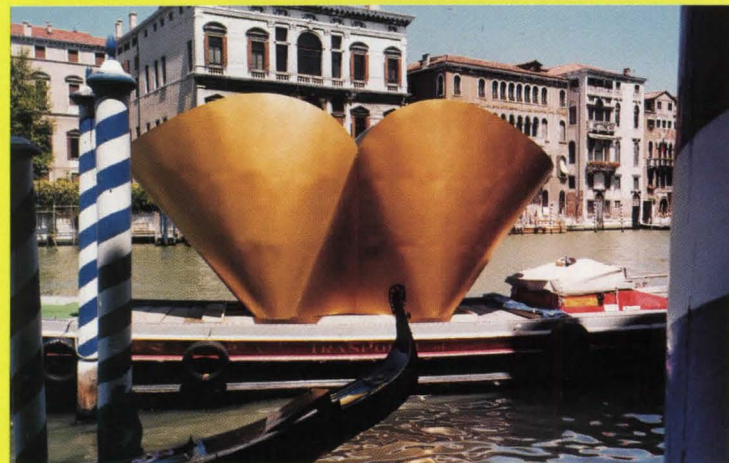
Italy Helps Cuba Preserve

The Italian government recently announced a \$600,000 contribution to help Cuba preserve its architectural patrimony. Italy joins Mexico and Spain in attempting to revive the colonial core of Old Havana, where 70,000 (mostly poor) people live. Nearly 4,000 buildings need reinforcement or renovation; 15 to 20 buildings collapse each year.

According to city historian Eusebio Leal, leader of Havana's ambitious preservation program—much of which is underwritten by the country's \$1.3 billion tourist trade—the renovation of significant historic buildings, which often means their conversion into hotels and restaurants, has generated revenues totaling \$70 million in the last five years. *Cathy Lang Ho*

THE BIG SCREEN

Are You Ready For Your Close-Up, Mr. Gehry?



The *Hollywood Reporter* recently reported that events at last month's 56th Annual Venice International Film Festival were uncharacteristically subdued. Maybe that's because architect Frank Gehry didn't show up for the premiere of *The Venice Project*, his new film costarring Dennis Hopper and Lauren Bacall. Well, it's not technically *his* new film. Gehry appeared as himself in a brief cameo in Austrian director Robert Dornhelm's tale of a family's struggle to save their ancestral Grand Canal palazzo that once belonged to a 17th-century count. Pending a distributor, the film will be in limited release early next year. *M.J.O.*

Dennis Hopper's photograph on set of *The Venice Project* shows Frank Gehry-designed "confessional" arriving at Venetian palazzo.

complex and replace it with modern apartment buildings. "The bungalows seem a luxury in a city with a dense population and people living in subhuman conditions," said **Ram Jethmalani**, the former minister of urban affairs. Preservationists, on the other hand, are protesting the potential loss of yet another public park. The national urban ministry will vote this month.

In its gradually unfolding plan for world domination, the **Guggenheim Museum** has announced its intention to open yet another branch (it would be their sixth) of the museum in Johannesburg, South Africa.

After being hidden behind scaffolding for more than a year, the renovated facade of **St. Peter's Basilica** is

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LIFE SAFETY

Turks Blame Architects and Contractors For Extensive Quake Damage

Shoddy Construction, Corrupt Building Officials; 18,000 Dead, 500,000 Homeless

Despite the widespread devastation of northwestern Turkey following a 7.8-magnitude earthquake on August 17, many of Istanbul's tourist destinations—the 6th-century Hagia Sophia, for example—reopened the next day with little or no damage. So what accounts for the 18,000 dead and a half million left homeless by this deadliest of quakes?

Professor Nezhdet Teymur, dean of the faculty of architecture and town planning at the Middle East Technical University in Ankara, told the BBC that it was in fact modern construction that failed in the quake, while older buildings (some several centuries old) fared better, owing to more solid craftsmanship and materials.

With the increasing industrialization of the Turkish economy over the past decade came a rapid migration of rural populations to the country's cities and suburbs. That influx created a tremendous housing crunch, which in turn led to the slapdash erection of countless modern high-rise apartment buildings. Such apartments became very popular with young Turks, who found them both sophisticated and affordable. Unfortunately, the urgency with which they were needed apparently superseded normal safety concerns: These structures make up most of the more than 21,000 buildings that collapsed in the quake.

Preliminary evaluations of the wreckage by volunteers from the building trades have discovered obvious infractions, including: "diluted" concrete mixtures (contractors allegedly used sea sand to save money; the resultant high salt content can corrode and weaken a structure); inadequate steel reinforcement; and illegal extra stories. Photographs of the aftermath tell a chilling tale of inadequate structural support: All that remains of many buildings are piles of floor slabs, slapped together like a stack of pancakes.



The earthquake has put in relief problems that are long-standing, widespread, and vague in Turkey. The Turkish Architects and Engineers Association estimates that more than half of the country's residential buildings do not comply with building codes, although 98 percent of Turkey's population lives on or near a seismic fault line. Many contractors have denied responsibility, claiming that the building industry is a scapegoat for the corrupt governmental building inspectors. Finger-pointing, however, seems irrelevant in the face of so many lost lives.

In the days following the quake, the *Los Angeles Times* and others reported that groups of victims, in their shock and grief, attacked homes known to belong to architects and contractors—many of whom fled the country. Many victims have banded together to file a civil suit, somewhat anomalous in Turkey against the designers and builders of their former homes. Before any formal inquiry into the quake's causes, *Hurriyet*, the country's most popular newspaper, ran the inflammatory headline "Murderers!" in reference to the building trade.

The rebuilding of northwestern Turkey will take years. As this story went to press, a second, smaller quake rumbled through the same area, toppling many buildings already weakened by August's temblor. Officials have already suggested relocating entire towns away from fault lines where the devastation was greatest. Proposals to raise taxes to pay for quake relief have sparked protests. (Estimates put the price tag at a staggering \$10 billion.) Yet back in Istanbul, where centuries-old mosques remain virtually unaffected by the quakes, the booming tourist trade continues to prosper. *M.J.O.*

visible again in preparation for the church's millennial jubilee.

In the wake of the bombings of two American embassies in Africa last August, a renewed interest in embassy security is butting heads with land squabbles in Berlin. With **Peter Eisenman's** Holocaust memorial somewhat resolved (cross your fingers), hold on for the next chapter.

A new controversy has arisen over revised land-use plans of the new **Moore Ruble Yudell**-designed U.S. Embassy. The U.S. Department of State has requested an expansion of its initial plan to accommodate a larger security buffer, thus cutting into the Tiergarten, the Parisier Platz, and land earmarked for the grounds of said Holocaust memorial. This variance would ruin the plaza's famed symmetry.

San Francisco's **Simon Martin-Vegue Winkelstein Moris** is renovating that city's historic Ferry Building into a retail and restaurant complex.

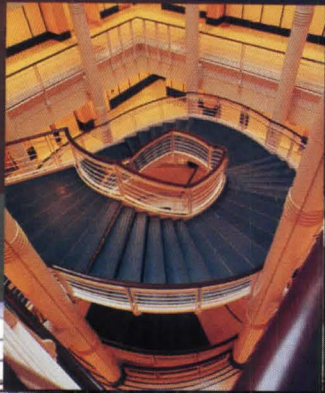
When St. Louis Cardinals slugger **Mark McGwire** hit his history-making 500th home run in August, St. Louis-based architect **Jim Shearer** was the lucky member of the crowd to catch the fly ball. Shearer says he will probably sell the souvenir.

The **U.S. Department of Education** reports another record-breaking enrollment year in America's schools. The count is up to 53.2 million, representing an increase of 447,000.

In August, **President Clinton** signed into law an \$8.4 billion military construction bill that will fund the building of troop and family housing, hospital and medical facilities, and environmental compliance programs.

OBITUARIES: San Francisco architect **Edward Charles Bassett**, whose buildings for Skidmore, Owings & Merrill include the Davies Symphony Hall and the Bank of America headquarters, 77; **Sir Hugh Casson**, architecture director of the Festival of Britain in 1951, 89.

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TO CODE

New York City Unveils New Building Codes

As with most things in New York City, public construction costs have traditionally tipped the scale. In response, the New York City Department of Design and Construction (DDC) recently published new energy-use regulations that they predict will lower a structure's operating costs by 20 to 40 percent over a building designed to New York State's energy code. Further, this savings can be achieved with an incremental up-front cost of only 0.75 percent of construction costs.

These aren't idle predictions. The DDC, which is currently overseeing 1,200 projects that represent \$3.2 billion in construction, has already applied these new guidelines to 10 capital projects, including libraries, day-care centers, a museum, and a zoo. They will monitor the projects to test their belief that long-term planning of a building's energy conservation performance will actually save money.

Although the DDC won't mandate compliance with these guidelines initially, by practicing what it preaches, they hope that other municipalities and the private sector will follow its lead. In fact, since their release, the office has been flooded with phone calls from other cities and countries—as far away as Japan—for copies of the guidelines.

Working with sustainable-design consultants INFORM, Steven Winter Associates, the Natural Resources Defense Council, and Markets for Recycled Products, the DDC has compiled 144 pages of comprehensive prescriptive measures. Beginning at a project's outset, the guidelines cover city approvals, site planning, energy use, interior environment, and design considerations. In the construction phase, the guidelines assist with materials selection, water and waste management, and even suggest ways to plan for a building's operation and maintenance. Call (212) 669-8247 for your copy of the DDC High Performance Building Guidelines. *M.J.O.*

WHAT IF?



City of Angels Spreads Its Wings

A proposed \$3.55 billion commercial development for downtown Los Angeles promises to change the skyline dramatically. The City of Angels Monument will be the centerpiece of an 85-acre complex between Third Street and Beverly Boulevard. For \$25, visitors could enter the 1,100-foot-tall structure (116 feet taller than the Eiffel Tower), which is planned to contain museums, galleries, cafés, and nightclubs.

The 750-foot-tall tower will be topped by a dramatic 350-foot-tall sculpture of a sword-carrying angel designed by L.A.-based artist Brett-Livingstone Stone. The sculpture will rotate every 36 hours and its face will be a composite of a dozen Los Angeles women of different ethnicities. Backers of the proposal envision a small complex of hotels, movie theaters, offices, and shops to surround the monument—most designed in a Gothic style by Gensler's Santa Monica office.

Bringing all the pieces together won't be easy. The City of Angels Monument Corporation still needs to purchase more than 220 individual parcels to ensure a contiguous footprint, including land that presently supports the Pacific Stock Exchange building and a storage yard owned by the city's department of water and power. But city officials seem heartened by the prospect of untold tourist dollars; even Mayor Richard Riordan has given his blessing. Construction is slated to begin next year with a planned 2005 opening. *M.J.O.*

THE LIST How much is America spending on museum construction?

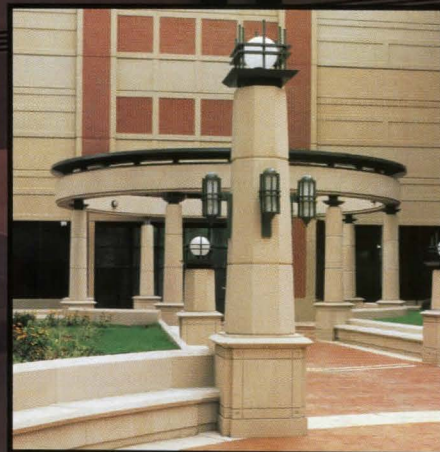
The *Los Angeles Times* has compiled the 10 largest projects currently under way, which together account for nearly \$1.5 billion.

- 1 Museum of Modern Art, New York City, Yoshio Taniguchi, \$650 million
- 2 Asian Art Museum, San Francisco, Gae Aulenti, \$160 million
- 3 J. Paul Getty Museum's Villa, Malibu, California, Machado and Silvetti Associates, \$150 million
- 4 M.H. de Young Memorial Museum, San Francisco, Herzog & de Meuron Architects, \$135 million
- 5 Museum of Fine Arts, Houston, Rafael Moneo, \$120 million
- 6 Nelson-Atkins Museum of Art, Kansas City, Missouri, Steven Holl Architects, \$80 million
- 7 Modern Art Museum of Fort Worth, Texas, Tadao Ando, \$70 million
- 8 Smithsonian Institution National Portrait Gallery and National Museum of American Art, Washington, D.C., Hartman-Cox Architects, \$60 million
- 9 Milwaukee Art Museum, Santiago Calatrava, \$50 million
- 10 Jack S. Blanton Museum of the University of Texas, Austin, Herzog & de Meuron Architects, \$42 million



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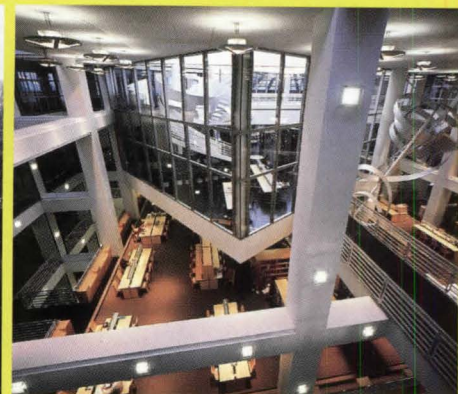
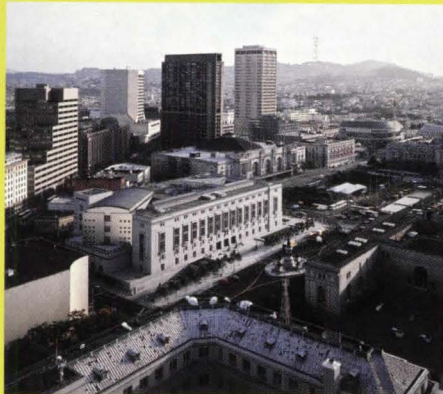
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POST-OCCUPANCY

City Report Throws Book at New Library

Three years after the opening of the San Francisco Main Public Library by James Ingo Freed of Pei Cobb Freed & Partners with Cathy Simon of Simon Martin-Vegue Winkelstein Moris, a city-commissioned study reports that the building suffers from inadequate shelf and storage space and confusing entrance circulation. "The library, while designed to be a grand public space, does not function as effectively as it should," states the still-unfinished \$240,000 post-occupancy evaluation.

Several factors have contributed to the building's problems: Because it is located in historic Civic Center, the library's lot coverage and height were fixed from the start. Early on, a \$15 million cut from the bond issue that funded the building translated into the loss of a second basement—roughly 65,000 square feet of which was to be book storage, which would have resolved many of the shortcomings listed in the report. Further, Proposition E, passed in 1994, quadrupled the library's book budget (and holdings) in a very short time; unfortunately, the building was programmed in 1989 and could not anticipate such drastic growth. Meanwhile, although the ADA and California



State Code (Title 24) recommend aisle widths to be a minimum of 36 inches; the local disabled-access coordinator pushed for an increase to 44 inches. The result is a building that feels spacious, but the lost shelf space is impossible to recover.

The confusing entrance is less easily dismissed. The library has three entrances, one for each principal facade. Security requirements, however, funnel all visitors through a single entry point, forcing them to descend one level in the atrium in order to access other floors.

Despite what the report perceives as shortcomings, the building is extremely popular: It attracts 5,700 visitors a day, double what the old main library did, leading the report's author to conclude: "The public loves the building because of its architecture." *C.L.H.*

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HOWARD UNIVERSITY School of Architecture and Design CHAIR, DEPARTMENT OF ARCHITECTURE

The School of Architecture and Design in the College of Engineering, Architecture & Computer Sciences at Howard University invites nominations and applications for the position of Chair of the Department of Architecture. The Department of Architecture offers an NAAB accredited five-year program leading to the Bachelor of Architecture degree. The masters degree programs are currently in the process of redevelopment. The Department consists of 20 full and part time faculty, and currently enrolls over 200 students and is expected to grow. The successful candidate must be highly motivated and is expected to take full advantage of the University's resources and foster collaboration with the departments of allied disciplines and research programs.

Howard University is a comprehensive, research oriented, historically black, private University with a truly global perspective. Fully accredited by the Middle States Association of Schools and Colleges, the University has a faculty of 1,200 and a student body of 11,000, and is one of only 88 universities nationally to be designated a Level One research university by the Carnegie Foundation for the Advancement of Teaching. The College of Engineering, Architecture and Computer Sciences, one of the 12 major academic units of the University, consists of two schools: the School of Engineering and Computer Science, and the School of Architecture and Design.

The Chair is expected to provide intellectual leadership to the department, promote the development of a shared vision of academic excellence, facilitate cross-disciplinary interactions with faculty in the other departments of the College, and represent the Department to the academic community at large. The Chair is also expected to provide leadership in the development of new programs and concentrations. Candidates should hold a professional degree in architecture and must have an established record of creative and professional works, noted achievements in research, teaching and mentoring in a culturally diverse environment, demonstrated interests in scholarly achievement in research and service, and effective management and interpersonal skills. Candidates must qualify for a tenured associate or full professorship in the Department of Architecture.

Candidates are asked to submit: a letter of interest, a curriculum vitae, examples of creative and scholarly works, and names, postal addresses, phone/Fax and e-mail addresses of at least three references no later than the extended deadline of November 30, 1999.

Questions regarding this position may be directed by e-mail to glakpe@cldc.howard.edu. Submit applications and nominations directly to: Professor Emmanuel Glakpe, Architecture Search Committee, College of Engineering, Architecture and Computer Sciences, Howard University, 2300 Sixth Street NW, Washington, DC 20059. Howard University is an affirmative action, equal opportunity employer.

POLITICS

Local Policymakers Focus on Livability

State and local policymakers rank traffic congestion, urban sprawl, the disappearance of open space, and other livability issues among the most pressing problems facing their communities, according to a survey released by the American Institute of Architects (AIA).

More than two-thirds of the survey's 350 respondents say they believe concern over "livable communities" is growing. Nearly two-thirds report that they are directly involved in initiatives to address the problem. The study is believed to be the first national survey to poll local leaders on such issues. Not surprisingly, the AIA used the report to promote the role of architects. Roughly 75 percent of those questioned said that architects should have a key voice in planning more livable communities, especially relating to housing, and commercial development.

The AIA briefed Vice President Al Gore and Republican presidential candidate Steve Forbes before the survey's August release and plans to meet with the other major candidates. But are sprawl and traffic really national issues? Nearly 40 percent of the state legislative officials surveyed said the federal government should not be involved at all. "This is an issue for local governments," says Jeff Fletcher, spokesman for the National League of Cities, a municipal lobby group. *Michael Cannell*

URBANISM

Columbus, Indiana, Among Country's Best "Micropolitan" Areas

Eero and Eliel Saarinen, I.M. Pei, Robert Venturi, and Richard Meier have all left their mark on Columbus, Indiana. As a result, the American Institute of Architects has identified it as one of the country's top cities for architectural tourism, along with Chicago, New York, San Francisco, and Boston. But do well-designed surroundings make for a nicer place to live? The authors of a new book about small-city living say yes.

The New Rating Guide to Life in America's Small Cities, by Kevin Heubusch and G. Scott Thomas, singles out Columbus as one of the country's best small cities, or "micropolitans." The book ranks cities of about 50,000 residents using such criteria as commute time and new home price. Columbus enjoys the benefits of small-town simplicity, while borrowing high-brow culture from nearby Chicago. U.S. Census Bureau geographer David Rain calls this relationship being in "the metropolitan orbit." Residents point to two new Japanese restaurants and its symphony as signs of the city's rising urbanity. Hold onto your hats, folks. Mayberry is becoming citified. *M.J.O.*

Best 'micropolitans'

- 1 Mount Vernon, Washington
- 2 Ames, Iowa
- 3 Morgantown, West Virginia
- 4 Ithaca, New York
- 5 Traverse City, Michigan
- 6 Port Angeles, Washington
- 7 Sandusky, Ohio
- 8 Columbus, Indiana
- 9 Concord, New Hampshire
- 10 Mason City, Iowa

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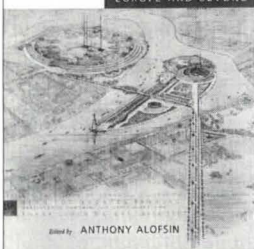
—Gwendolyn Wright, author of *Moralism and the Model Home*

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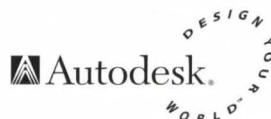
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What are you going to design next?



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ARCHITECTURE

ENERGY

1999 Design Awards

The Jury's Perspective. At the beginning of this century, Albert Einstein revolutionized our understanding of the universe. His theories of relativity and the equation – Energy equals Mass times a Constant (the speed of light squared) began a startling paradigm shift.

In one brilliant stroke, he did three things. First, he defined our universe in terms of only two variables, mass and energy. Second, his equation $E=mc^2$ joined together mass and energy in an inseparable dance, in which one could, and did, become the other. Third, he showed that our perceptions about the world are relative. Relationships hold the key to both objective and subjective perception.

"Architecture + Energy" (A+E), a program of AIA/Portland is the beginning of an equation. It is brilliant in its conception and no less ambitious than Albert's vision. A+E initiates a paradigm shift in how we perceive and conceive our built environment. In many ways, A+E parallels Einstein's premise of only two variables: architecture as mass, and energy. It also places them in a dance of relativity, deriving an equation for a sustainable world. Architecture and energy, become each other.

Is the window about light? Is the wall about heat? Is the building's form and orientation about its relationship to a changing field of electromagnetic radiation? Is the steel of the beams about the fossil fuel needed to create them?

Unlike any other education or recognition program we have seen, A+E has asked the designers, to describe how they related, arranged, and balanced the elements of mass and energy to create a sustainable place. This is no easy feat.

The jury panel was asked to examine the balance each team created between architecture and energy. How did the synergy between the two create sustainability? Our process has also been one of rigor and complexity. We represent a variety of disciplines, interests, and points of view. We wrestled with differences, questioned emphasis, and wondered how much could be achieved when all the factors of environment, program, technology, energy, materials, politics, and economics are balanced for mutual optimization.

Jurors

Peter L. Barna, PE, IES, ISDA

Richard "Rick" B. Casault, PE

Bruce T. Haglund

Gail A. Lindsey, AIA

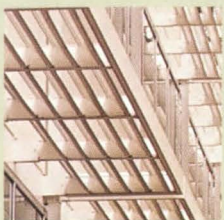
Eva Matsuzaki, FRAIC, Hon. FAIA

We are privileged to honor, more than what is traditionally thought of as "high architecture," or what is considered a crowning achievement in the reduction of energy consumption, or simply the effective use of "green" materials. We instead acknowledge those projects which are elegant solutions in their poise and balance. The collective vision of all of the submittals to the 1999 A+E program have allowed us to piece together what this balance means. Without this type of participation, definition of our future environment would be impossible. The jury thanks you sincerely and recognizes four projects. As a whole, they represent examples of this new paradigm: Architecture + Energy.

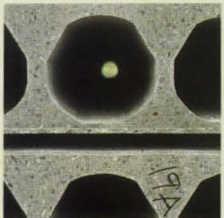
Peter L. Barna, PE, IES, ISDA



Passive Ventilation



Daylighting



Thermal Mass



Siting

Frye Art Museum
Seattle, Washington

Architect
Olson Sundberg Architects; Seattle, WA

General Contractor
Baugh Construction; Seattle, WA

Lighting & Energy Consultants
Millett & Loveland Partnership; Seattle, WA

Interior Designer
Olson Sundberg Architects; Seattle, WA

Landscape Consultant
Richard Haag; Seattle, WA

Structural Consultant
Monte Clark Engineering; Issaquah, WA

Mechanical Consultant
Affiliated Engineers, Inc.; Seattle, WA

Photographers
Eckert & Eckert, Paul Sundberg,
Michael Shopenn, Paul Warchol

This extensive renovation of a 1951 museum, designed by Paul Thiry, and the addition of a two story art education wing exemplify how integrated design strategies create a successful project – for the artwork, the visitors, the students, and the environment.

Frye Art Museum
Award of Honor

The jury commends this project for its elegant urban design. The original museum and the new wing subtly mesh and complement one another. The new wing incorporates the scale and materials of the 1951 building. The renovation of the original roof-top clerestory windows in the existing galleries adopts the vocabulary of the addition. The seams are invisible.



by adding weatherstripping at the doors connecting the two sections of the building, thereby separating the passive and the active mechanical systems.

In the spirit of less consumption, the art education wing shows a spare use of finish materials. Concrete floors, exposed steel structure, and unadorned drywall comprise the palette. With careful attention to detailing, the architects have created an elegant and spartan space.

The design team achieved a major transformation of the museum's gallery spaces by refitting the original clerestories. Tactics included: fritted glass, reduced glazing areas, the plane of the glass moved inward, double pane insulated glass replaced single pane glazing, and automatic roll-up shades installed to eliminate daylight when the museum is closed. The galleries' walls, painted a deep aubergine, darken the ambient illumination in the galleries. This lush coloration emphasizes the effect of daylighting the art work in the otherwise low illumination levels required for exhibition of archive painting and drawings.

The jury also applauds this project team for its use of physical models to study daylighting options, and its extensive testing of the building's systems to verify design decisions.

Eva Matsuzaki, FRAIC, Hon. FAIA

One of the most striking features of this project is the quality of light in the art education wing. The studios are filled with natural light from high clerestory windows. Overhangs, recesses, baffles or vertical fins shade the museum's windows and vertical skylights, which exclusively face north or south.

The simple act of making the windows of the education wing clerestory operable, provided the opportunity for a passive cooling system. Openings at key points between its two floors allow for air circulation. A fan system is provided as back-up for those days with no natural air movement. At the outset, there was difficulty in balancing the pressure between the two building components. The architect devised a low-tech solution



Built in 1987, the Emerald People's Utility District (EPUD) Headquarters shines by today's standards of environmentally responsible design. "They got it on this project!" The jury had found a classic example of integrated design.

This 24,000 square foot public-owned utility office building demonstrates the results of the team's commitment to the best practices of architecture and energy. The integrated effort produced an appealing, energy-efficient building, in which energy and environmental issues were paramount in all decisions about the building's systems. The result is more than just an application of a group of energy conservation measures. The building is a study in energy conservation. The building consumes less than half the energy of an ordinary building of the same size.

It is apparent that the owner set high expectations for the project's program: sensitivity to the rural site and surroundings, an awareness of exterior conditions from inside, an attractive space for customers and employees, improved relationship between blue-and white-collar staff, efficient use of energy and utilization of energy available on-site.

The placement of the building preserves a small creek and wetlands, and also optimizes solar exposure. The narrow building footprint allows for daylighting and passive solar heating. Most windows face north or south. Workspaces receive daylight from clerestories or by being located within a distance from the windows equal to 2.5 times the height of windows.

The concrete structure provides thermal mass without feeling massive. Exposed concrete beams run north-south to allow maximum penetration of daylight from high windows above the concrete lightshelves. The thermal mass of the exposed concrete bearing walls buffers the ambient space temperature.



The window configuration enhances daylighting. Full-width windows above the lightshelves help sunlight penetrate deep into workspaces. Narrower windows below the lightshelves provide outdoor views and daylight for perimeter work areas. Trellises with deciduous vines above south-facing windows control direct sunlight penetration. Maximum foliage in summer and fall limit solar gain. In winter and spring, the bare or sparsely foliated vines admit maximum daylight. Step dimming, less expensive than dimming ballasts in 1987, reduces indirect fluorescent lighting when sufficient daylight penetrates into the workspaces.

Richard "Rick" B. Casault, PE



EPUD Headquarters

Award of Honor

Integration of the structural and mechanical systems reduces both the heating and cooling loads. The hollow-core roof and floor slabs optimize the thermal mass effects. The slabs absorb summer heat during the day; then at night, the variable air volume system flushes the hollow cores to release the heat to the cooler night air. On hot afternoons, return air circulates through the still-cool hollow cores to reduce the mechanical cooling load. Air circulation through the hollow cores on winter mornings captures residual heat from the previous day to pre-warm ventilation air.



Emerald People's Utility District Headquarters

Eugene, Oregon

Architects

Equinox Design; Eugene, OR
WE Group PC; Eugene, OR

Contractor

Chambers Construction; Eugene, OR

Lighting & Energy Consultants

Daylighting:
Virginia Cartwright; Eugene, OR
Lighting:
Warner Engineering; Eugene, OR

Interior Designer

McCarter-Boczkaj; Portland, OR

Landscape Consultant

Lloyd Bond & Associates; Eugene, OR

Structural Consultant

John Herrick; Eugene, OR

Mechanical Consultant

Rogers Engineering; Eugene, OR

Photographers

Richard Cooke, John Reynolds

Commander Headquarters & Navy Band Facility

Award of Merit

"I couldn't imagine this project on any other site. It fits so well into its surroundings," and the other jurors instantly agreed. This new facility addresses integration of the built and natural environments in a simple yet elegant manner. Optimal building performance and optimal human productivity both rely on a deep understanding of the site and a strong connection to it; this project demonstrates both.

The Navy requested 23,000 square feet to house administrative offices and a band. A strong commitment made early in the design process to respond sensitively to the site led to careful study of the program, topography, solar orientation, and natural amenities. The design team separated the disparate functions into two structures. They appear to have been part of the site for years by following environmental principles. They retain existing trees and vegetation, use native species for all new plantings, leave trees and other vegetation close to the buildings, minimize cut and fill, and give careful consideration to water issues on site. It is also apparent that the design team truly understood the implications of north, south, east, and west.

The design team's understanding of orientation and natural features allowed the design team to maximize energy performance. In addition to properly used architectural elements, the surrounding trees provide shade resulting in buildings that outperform ASHRAE 90.1 standards. It is impressive that this performance did not sacrifice exceptional architectural design as seen in the careful and sophisticated exteriors.

Gail A. Lindsey, AIA



AIA / Portland

The Architecture + Energy Steering Committee and the AIA/Portland Chapter extend their appreciation to the Northwest Energy Efficiency Alliance for its support and partnership in this program.



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Commander Headquarters & Navy Band Facility

Bangor, Washington

Architect

LMN Architects; Seattle, WA

Contractor

The Vemo Company; Silverdale, WA

Owner

EFA NW, NAVFACENGCOM; Poulsbo, WA

Lighting & Energy Consultant

Bouillon, Inc.; Seattle, WA

Interior Designer

LMN Architects; Seattle, WA

Landscape Consultant

Atelier PS Landscape Architects; Seattle, WA

Structural Consultant

Anderson, Bjornstad, Kane & Jacobs, Inc.; Seattle, WA

Mechanical Consultant

Bouillon, Inc.; Seattle, WA



Multnomah County Library

Award of Merit

Recycling the historic 1913 library magnificently exceeded goals to make it meet new seismic standards and to function more efficiently in both energy use and program accommodation. A modest addition, nestled into the attic and roofscape, houses the library administration offices. The industrial-style penthouse is visible only from the upper floors of nearby buildings. This solution allowed the designers to rearrange the use of the building to take full advantage of high ceilings and tall windows to daylight public spaces. Mature street trees shade these perimeter spaces. All the elements of an energy-efficient daylighted building were pre-existing, the architects wisely took advantage of them.

The design team reinforced their conceptual acuity with sustainable design intelligence. Restoring the Central Library to its former glory makes cultural and environmental sense. Its downtown location supports the social and cultural heart of Portland, while allowing energy-conserving access by pedestrians and mass transit. The construction tasks included: upgrade of wall and roof insulation to exceed code requirements, removal of lead-based paint and asbestos-laden building materials, installation of furniture and carpets low in volatile organic compounds, upgrade of the mechanical systems, replacement of ineffective luminaires with energy-efficient lighting, and establishment of a new air-lock entry vestibule.

Bruce T. Haglund

Multnomah County Central Library Rehabilitation and Addition

Portland, Oregon

Architects

Fletcher Farr Ayotte, PC; Portland, OR
Hardy Holzman Pfeiffer;
New York, NY, and Los Angeles, CA

Contractor

Hoffman Construction Company;
Portland, OR

Owner

Multnomah County; Portland, OR

Lighting & Energy Consultant

PAE Consulting Engineers and Architectural
Lighting Design; Portland, OR

Interior Designer

Fletcher Farr Ayotte, PC; Portland, OR

Landscape Consultant

Robert Perron Collaborative; Portland, OR

Mechanical Consultant

PAE Consulting Engineers; Portland, OR

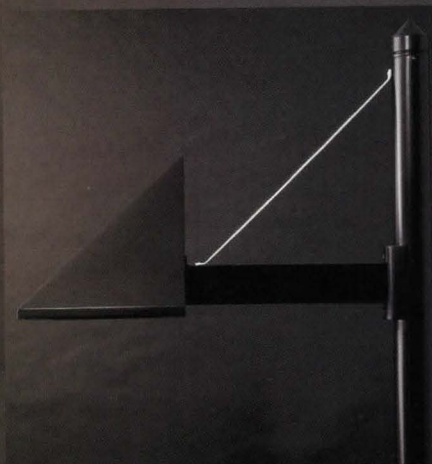
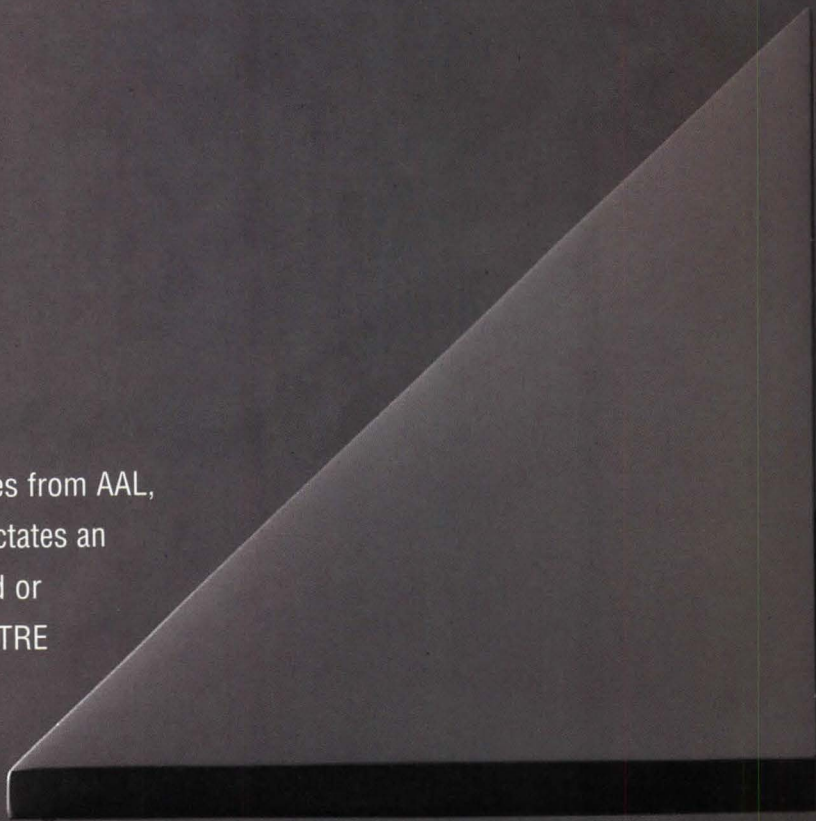
Photographers

Andre Bodo, Sally Painter, Foaad Farah,
Rick Keating

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Study

Sculpture Garden

Steven Holl arrays his addition to the Nelson-Atkins Museum in Kansas City, Missouri, like crystalline sculpture around the classical original.

Steven Holl Architects,
Nelson-Atkins Museum of Art,
Kansas City, Missouri

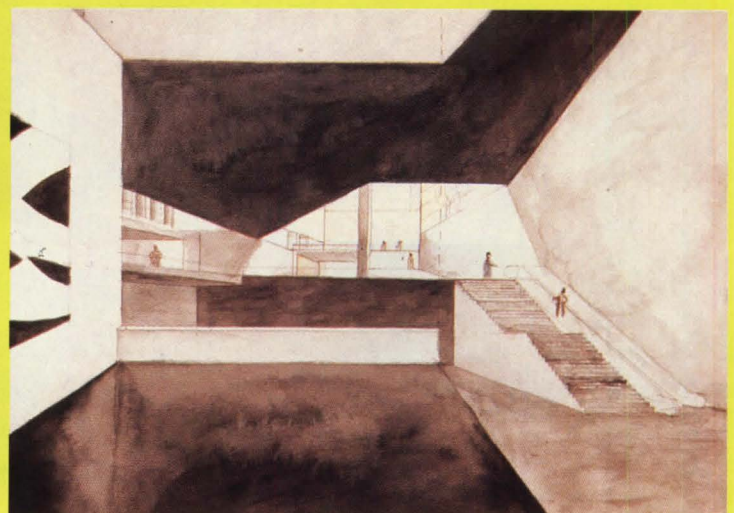
The sculpture garden at the Nelson-Atkins Museum in Kansas City, Missouri, is about to get a new artwork: seven canted glass boxes by New York City architect Steven Holl. These volumes, which the architect likens to optical lenses, will illuminate 140,000 square feet of new, mostly underground galleries and other facilities lining the eastern side of the museum's 17-acre downtown site. Holl intends the crystalline above-ground forms and meandering internal spaces to provide formal contrast with the original museum building, a classical stone pile built in the early 1930s.

At the center of each glass box, curved structural walls—which Holl calls “breathing Ts”—will reflect daylight into the galleries below. Air will circulate within the walls to a continuous service basement below, and plenums at the top of the glass boxes will be naturally ventilated. Double layers of glass with different degrees of transparency will affect the amount of daylight entering the galleries, and allow views of the city, museum, and sculpture garden. Electronic screens sandwiched between the glass planes will provide additional solar protection.

Holl's addition attaches underground to the east side of the original museum with a new lobby that extends above ground to the north. A parking lot sits beneath a shallow pool of water

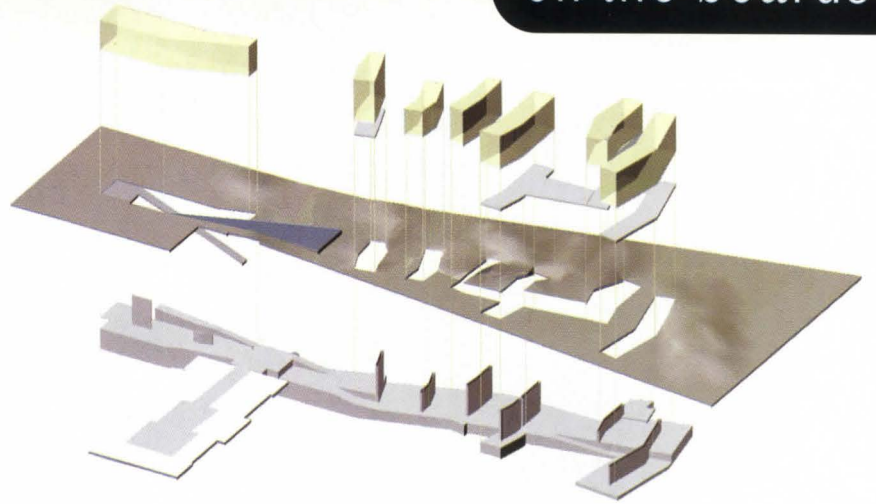


Gallery study

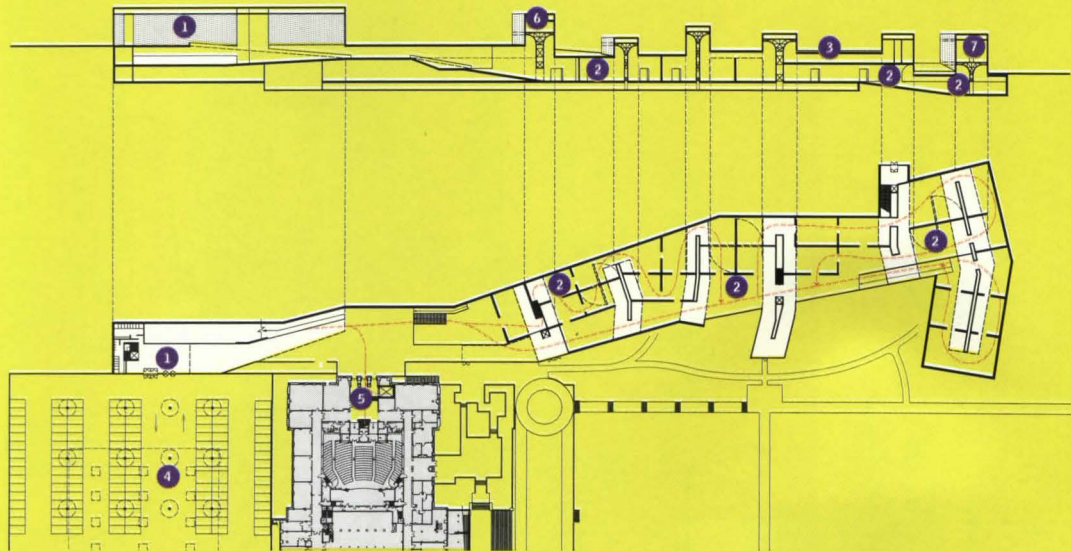


Lobby study

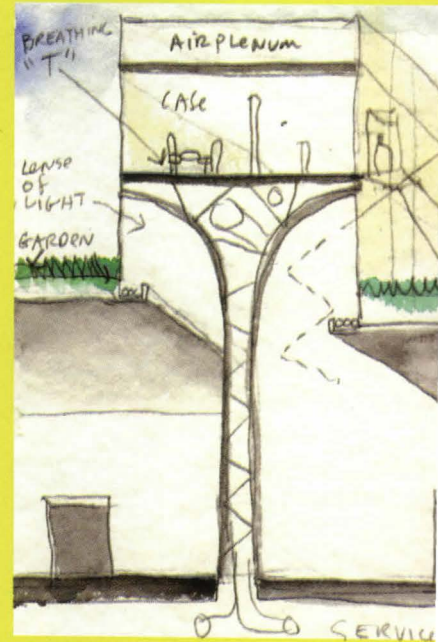
in the L created to the north by the old museum and the new addition. The galleries extend south, running alongside a terraced hill that slopes away from the museum. Much of the museum's large collection of Henry Moore bronzes will sit in the grassy open areas between Holl's glass boxes, within view of the original building. The juxtaposition should create an edgy ambiguity between foreground and background, architecture and sculpture, frame and framed. *Ned Cramer*



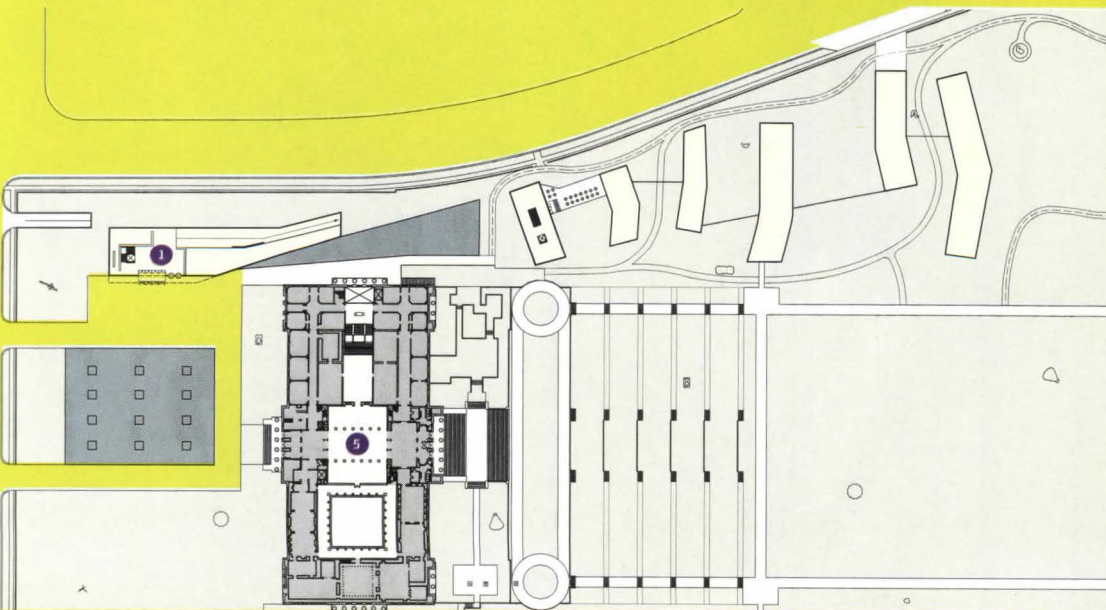
Program diagram



Basement plan and north-south section



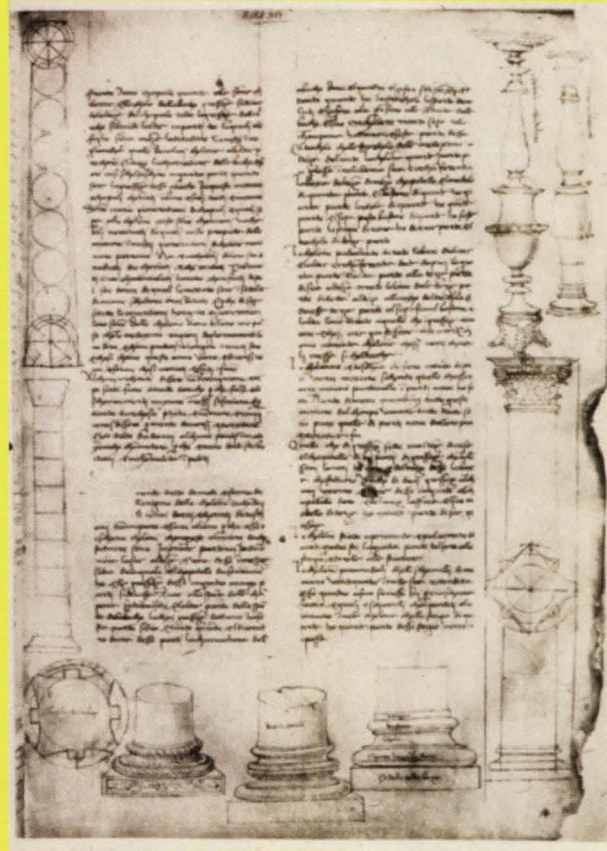
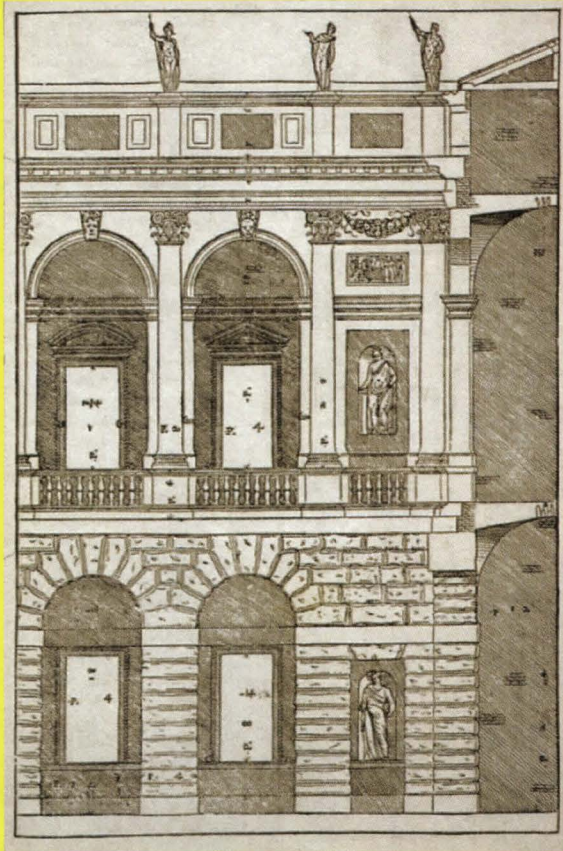
Sectional study



First-floor plan 73' / 22m

- 1 lobby
- 2 galleries
- 3 creative-arts center
- 4 parking garage
- 5 existing museum
- 6 café
- 7 library





Renaissance architectural theorists focused on ornament because disposition of columns, bases, entablatures, and decorative detail gave authority and meaning to classical architecture. Pages from **Andrea Palladio's** 1570 *Four Books* (left) and **Francesco di Giorgio Martini's** *Codice Ashburnham* (right).

Architectural Treatises

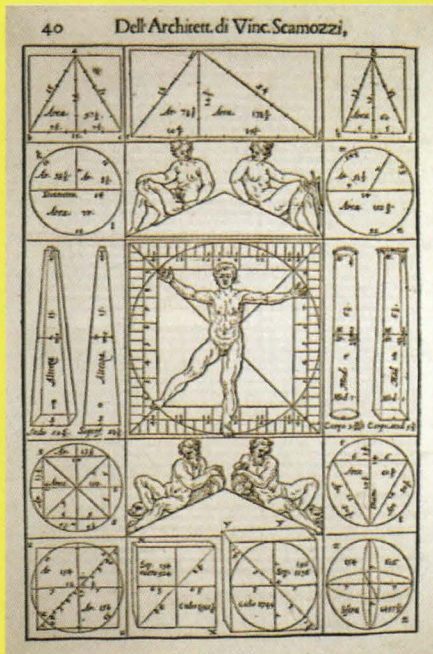
Renaissance architects put their practice into principals. By James S. Ackerman

The Architectural Treatise in the Italian Renaissance: Architectural Invention, Ornament, and Literary Culture, by Alina A. Payne, Cambridge University Press, 1999

Architectural theory came to life in the early Renaissance, inspired by first-century B.C.E. Roman writer Vitruvius' *De architectura libri decem* (commonly referred to as the *Ten Books on Architecture*)—the only architectural treatise to have survived from antiquity into modern times. The manuscripts were known in the Middle Ages, but gathered dust in libraries until the middle of the 15th century, when architects endeavored to bring about a rebirth of ancient architecture. Written mostly by architects, the Renaissance treatises codified—for the benefit of other architects, who used the treatises as practice manuals—ideal villas, temples, as well as cities, and were often illustrated by the authors' own projects. Even into the 20th century, the classical architectural tradition depended on defining a strict system of rules that would restrain architects from arbitrary individuality. In light of the disjunction between theory and practice in architecture today, it seems apt to revisit the moment when theoretical texts were regarded as bibles of the profession.

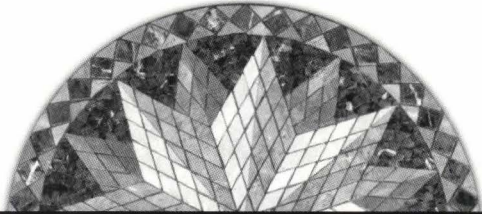
Many aspects of architectural treatises have been investigated by a number of scholars, beginning with Rudolf Wittkower's seminal

Architectural forms, from **Vincenzo Scamozzi's** 1615 treatise, *Idea dell'architettura universale*.



Architectural Principles in the Age of Humanism (Alec Tiranti, 1949). In recent years, new English translations of treatises by Leon Battista Alberti, Sebastiano Serlio, and Andrea Palladio have been published, as well as an anthology of essays by experts on the subject, *Paper Palaces: The Rise of the Renaissance Architectural Treatise*, edited by Vaughan Hart with Peter Hicks (Yale University Press, 1998). Add to the growing bibliography Alina Payne's *The Architectural Treatise in the Italian Renaissance: Architectural Invention, Ornament, and Literary Culture*. An associate professor of art history at the University of Toronto, Payne devoted years to closely reading both well-known and obscure treatises written from the 15th to the early 17th century, many of which are still unavailable in English. The distinct virtue of her contribution is her capacity to identify the subtle differences in attitude and emphasis among writers who seemed, in many previous analyses, to be saying pretty much the same thing.

Many of the treatises were considered similar to one another because they all seemed to emulate Vitruvius' *Ten Books*. Every subsequent writing on architecture—beginning with Alberti's *De re aedificatoria*, largely completed by 1450 (translated in 1988 by Joseph Rykwert, Neil Leach, and Robert Tavernor as *On the Art of Building in Ten Books*)—had to be a commentary on Vitruvius and an effort to cope



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Book VII of **Sebastiano Serlio's** extensive tracts (1570) is devoted to civil architecture.



with his often opaque language, as well as the disparity between what he described and what remained of Roman architecture (which was mostly post-Vitruvian). The absence of illustrations in Vitruvius' work (lost in the intervening centuries) made this reconciliation still harder.

Payne's task required extraordinary familiarity with difficult texts and the legacy of Greek and Roman writings on esthetics, poetics, and rhetoric. She realizes that the theoretical positions of the treatise writers were closely linked to those of writers on literature and the figural arts. Ancient texts on rhetoric and poetics provided a foundation for the value system of Renaissance commentators on all the arts. As in Vitruvius' work, the focus of Renaissance theory is ornament, because it is through ornament, its authors believed, that architecture achieves its meaning and value. This focus could have posed a difficulty for Payne, given that ornament is not in tune with 20th-century architectural interests, but she deftly leads us to an understanding of how fundamental it was for the formation of classical design throughout the centuries. *Decor*, a key term in Vitruvius, refers to propriety (preserved in our word "decorous"), directing the choice of the right order for buildings associated with male as opposed female deities, or according to the status and calling of clients. But *decor* is also the root of "decoration," and the early theorists did not insist on etymological distinction.

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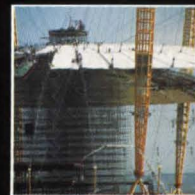


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The Renaissance theorists' primary concern was the polarity between imitation (of either nature or previous art) and invention. The term "imitation" gets in the way of our understanding of its meaning because today it has the negative implication of succumbing to tradition. In those times, however, imitation was the foundation of all inspiration, providing a model that set the limits on fantasy (the theorists called it "license"), but which the artist was obliged to expand with his own invention. But the expansion could easily spill over into "abuses," which involved ornament that obscured or affronted structural clarity (for example, broken pediments). The core of Palladio's theory appears in a chapter titled "On Abuses" in his 1570 *Four Books*. Palladio's position also sharpens our understanding of the relationship between the imitation of architectural convention and the imitation of nature. There is confusion in Vitruvius between the metaphor of the human body as a source of the column (foot-base; capital-head) and the symbolization of structure (Doric metopes as beam-ends, dentils as rafter-ends). Palladio disposes of the conflict by demanding that ornamental elements reflect the stresses in the building (e.g., base moldings expand outward in response to gravitational forces). Indeed, he emphasizes that buildings not only must be strong, but also must appear so. One of the delights of the book is the penetrating way

in which Payne applies Palladio's written principles to his practice, giving new insight into the interaction of light and line in his buildings.

Payne delivers a major addition to the corpus of Renaissance theory in a chapter on Gherardo Spini, a Florentine contemporary of Palladio, who also emphasized the expression of gravitational forces in design. Accordingly, proportions are gendered: The Doric column is male because it bears more weight. Payne's closing chapter, on the treatise of Vincenzo Scamozzi, is the most thoughtful of any treatment of this subject to date. She sees Scamozzi as putting architecture on a philosophical footing, reemphasizing the orders and shoring up the rhetorical tradition with the new science of the 16th century. Decor is expanded far beyond convention and imitation to fuse with the taxonomy of species; design becomes part of natural philosophy.

Payne's book offers important insight regarding how professionals thought about the principles of design during the two centuries associated with the efflorescence of modern architectural theory. Though addressed to scholars and students, Payne's book will richly reward anyone concerned with the goals of architecture today. ■

James S. Ackerman is the Porter Professor of Fine Arts Emeritus at Harvard University.



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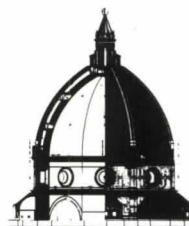
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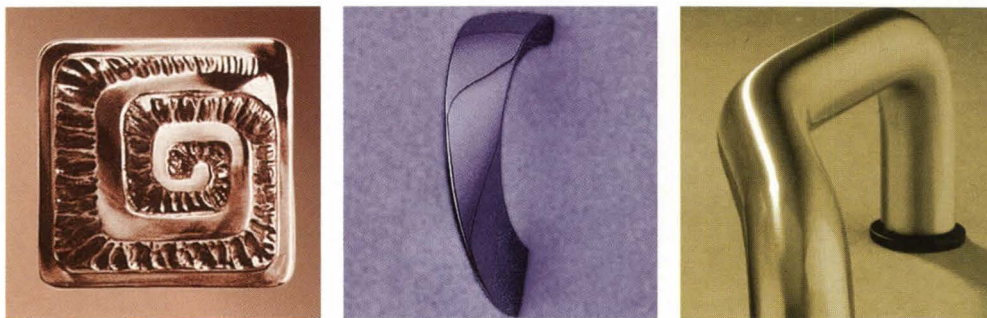
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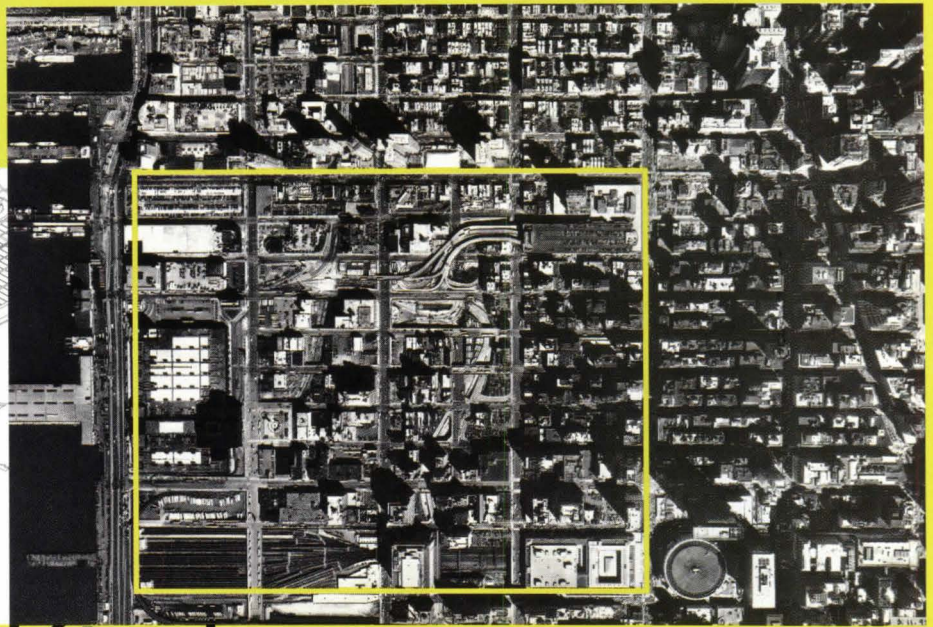
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Far west side of Manhattan, known as **Hell's Kitchen South**, is ripe with potential, as two recent urban-design exercises demonstrate.



To Hell's Kitchen and Back

Grassroots and glamorous visions of Manhattan's last frontier. By Karrie Jacobs

Late last year, Phyllis Lambert, the founding director of the Canadian Centre for Architecture (CCA), announced its "Competition for the Design of Cities," a high-profile activity of the CCA's heretofore obscure fundraising arm, the International Foundation for the Canadian Centre for Architecture (IFCCA). Intended to encourage bold new urban-planning ideas in cities around the world, the competition, in Lambert's words, strove "to imagine the city of the 21st century as a place that enriches and inspires the daily lives of all its citizens." Her first stop was New York, where an all-star cast of architects—Van Berkel & Bos of Amsterdam, *Morphosis of Santa Monica*, Cedric Price of London, Peter Eisenman, and Reiser + Umemoto, both of New York City—competed for a \$100,000 prize. The judges were an equally glittering array: Charles Gargano, Chairman of the Empire State Development Corporation (and landlord of much of the west side); Joseph B. Rose, head of New York City planning; Gary Hack, architecture dean at the University of Pennsylvania; and architects Frank Gehry, Arata Isozaki, Philip Johnson, Rafael Moneo, and Elizabeth Diller. The competition's list of corporate backers included developers such as The Durst Organization and Tishman Speyer Properties.

While no one made any noise about actually building the competition winner, Lambert, to her credit, assembled a powerful coalition behind the idea of urban planning. So it felt, for a moment, as if New

York were a city like Berlin or Rotterdam, where architects actually get to build their winning design, instead of a city where most new buildings appear to be drawn by real-estate developers. Lambert also chose the one site in Manhattan that is all potential.

Scarred by the giant cut that leads from the rail tunnel running under the Hudson River to Penn Station, and fragmented by the traffic-clogged maze of roads to and from the Lincoln Tunnel, the far west side of midtown Manhattan is the city's last frontier. It is lightly populated: The 1990 census shows that only 4,433 people live between Eighth and Twelfth Avenues, from 34th to 42nd Streets. It's filled with the kinds of facilities—taxi garages, truck depots, factories—that are being squeezed out of Manhattan as even the most marginal neighborhoods sprout chic restaurants and luxury housing.

Thus far, the area known as Hell's Kitchen South has been immune to fashion. It's dominated by unsightly buildings that are magnets for noise and traffic: the Port Authority Bus Terminal, Pennsylvania Station, Madison Square Garden, and the Jacob Javits Convention Center. Also, much of the land is taken up by rail yards. New York City's subway system extends only to Eighth Avenue, leaving the blocks to the west relatively inaccessible. So, even as a real-estate boom has brought condos, multiplexes, and chain stores to the most unlikely locations, the far west Thirties are still relatively underdeveloped.



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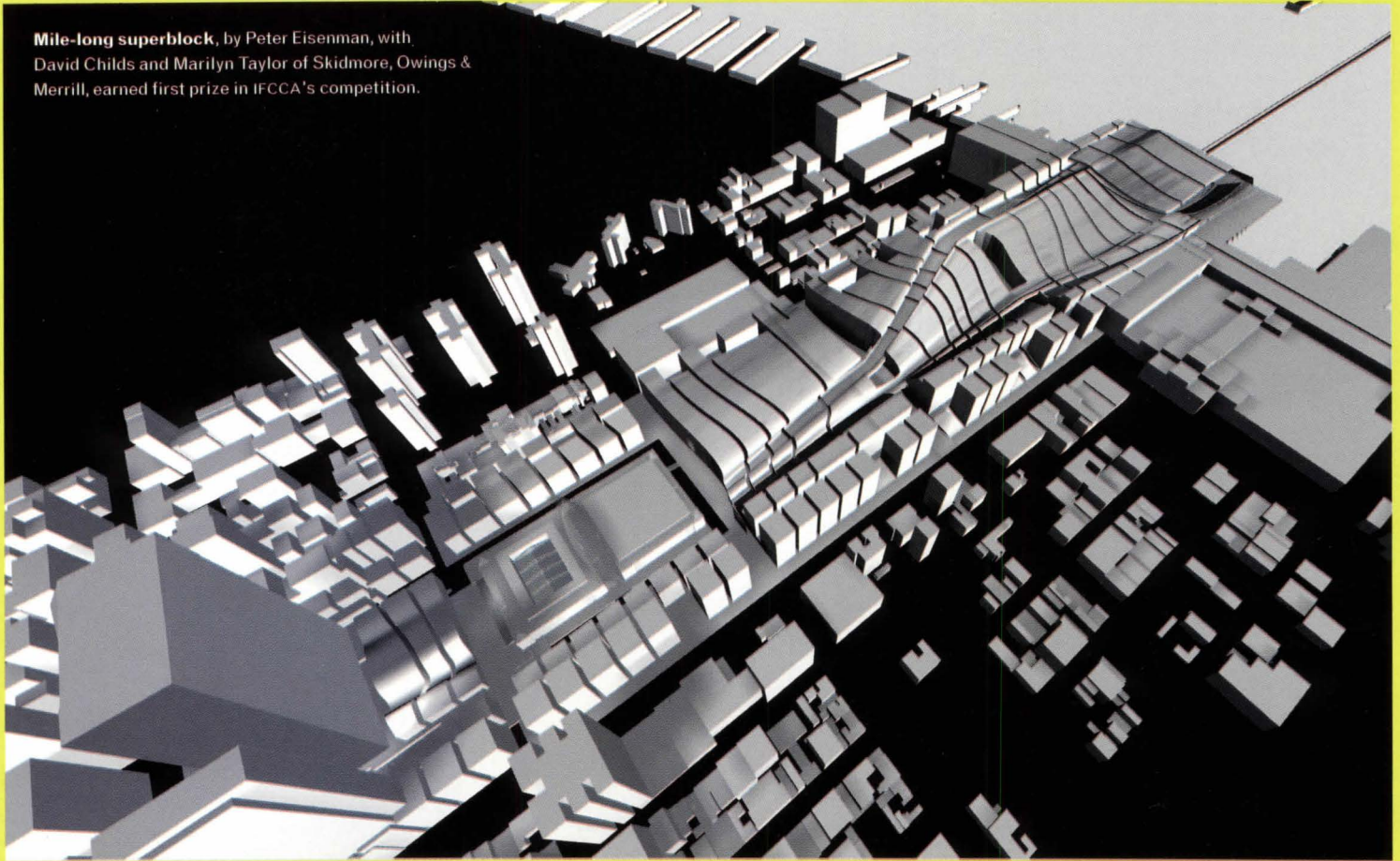
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A World of Possibilities

Mile-long superblock, by Peter Eisenman, with David Childs and Marilyn Taylor of Skidmore, Owings & Merrill, earned first prize in IFCCA's competition.



But change is coming. Under construction is the Hudson River Park, a five-mile sweep of waterfront esplanade and landscaped piers stretching from Chambers Street north to 59th Street, elevating the value of adjacent properties. A plan will soon be underway to move Pennsylvania Station out of the basement of Madison Square Garden and into the McKim, Mead and White–designed Farley Post Office across Eighth Avenue, using a forward-thinking renovation by Skidmore, Owings & Merrill. Mayor Rudolph Giuliani, meanwhile, has publicly advocated a dubious plan to build a riverfront stadium above the rail yards, a plan that would also involve moving Madison Square Garden farther west to create a new sports nexus. The Javits Center is planning an expansion to the south (if you ask the city), to the north (if you ask the state), and maybe to the east (if they wait too long and other options dry up). The Port Authority is selecting a private developer to build a tower atop its low-rise 42nd Street terminal. And the city is urging the state-run Metropolitan Transit Authority to extend the #7 subway line, which currently terminates at Times Square, to the south and the west. Needless to say, every major developer has his sights set on the *lebensraum* of the far west side. The question raised by the IFCCA competition, however, is whether architects are the ones best equipped to create urban design that “enriches and inspires.” When asked to devise a plan for a 3 million-square-foot

area, an architect, as the IFCCA entries demonstrate, is likely to design a building with a 3 million-square-foot floor plate. Real urban planning requires more subtlety.

Witness the approach taken by a local volunteer organization called the Hell’s Kitchen Neighborhood Association (HKNA), which has been working for five years on an ambitious, community-based plan to remake the same slice of Manhattan that the IFCCA set its sights on. HKNA issued a master plan in 1995 that advocated reclaiming disused sites as green space. It lists among its humble accomplishments transforming an underused bus parking lot into a dog run and convincing the Port Authority to use the bus ramps connecting the terminal to the Lincoln Tunnel as a venue for public art.

Association president Leni Schwendinger is a lighting designer who works out of a basement studio on West 35th Street, a gloomy block that has, as its sole amenity, easy access to the Lincoln Tunnel. In March, as the CCA entrants were beginning work on their designs, Schwendinger and codirector of HKNA’s urban-design project, architect Meta Brunzema, were preoccupied with photographing a model of a clear plastic, amoeba-shaped swimming pool and matching beach pavilion. Brunzema, who designed it, envisions the pool floating in the Hudson River off Pier 76 (June 1999, page 34), today the home of the pound to which illegally parked cars are towed. The pool is one small

part of a multifaceted plan that 18 interdisciplinary teams are devising for the neighborhood under the auspices of HKNA, the Design Trust for Public Space, and New York City–based architecture and urban planning firm Design + Urbanism.

The pool is an indication that Schwendinger and Brunzema are not typical New York community-development activists. Generally, local activists are like warriors, fiercely opposed to change, preaching a conservative esthetic that tends to drive out innovative architecture.

If a big-picture architect partnered with a forward-looking community group, a real plan might emerge, shaped by the understanding that New York City is a paradoxical place.

These two and their organization were looking for ways to bring in new architecture without destroying their neighborhood's industrial character. "We like that grittiness and we like that industrial nature," said Brunzema. "We don't want it prettified. We hate nostalgia. And we don't want chichi."

Although the transparent floating swimming pool seems exotic, it's downright pragmatic compared with the 80,000-seat, partially submerged sports stadium proposed for the same stretch of riverfront in architect Peter Eisenman's winning IFCCA entry. Eisenman's plan, crafted by a team that also included David Childs and Marilyn Taylor of Skidmore, Owings & Merrill, is remarkable for its sheer scale. It is essentially a unified structure that stretches nearly a mile, from Eighth Avenue to the Hudson River. The vast project begins with a high-rise office tower on Eighth Avenue, moves west with a narrow pedestrian conduit that skirts the new Penn Station, then swells into a low-rise building with a tectonically ruptured parkland on its roof. Imagine San Francisco's Yerba Buena Gardens (atop the Moscone Convention Center), then multiply by five, and you'll begin to get the picture. Then there's the mammoth stadium. In one, bold gesture, Eisenman has married a radical esthetic to the old-fashioned, boost-erish dreams of New York City's mayor. "Megalomaniacal," opined one disgruntled jury member. "Brutal," commented HKNA's Brunzema. "The Rockefeller Center of the early 21st century," suggested Lambert.

Actually, Eisenman's plan is equal parts thrilling and appalling. Because it is such a strong vision, the scheme is very seductive. On the other hand, it offers no hint of how the plan will play out at street level, which is a traditional failing of huge urban-renewal schemes. The IFCCA competitors could have benefited from an infusion of HKNA's affinity for pedestrian-scaled amenities. (Although Brunzema did speak briefly at one IFCCA orientation meeting, HKNA was not otherwise included in Lambert's proceedings.) By the same token, the HKNA activists could have profited from an Eisenman-style lesson in strategic thinking. In mid-June, HKNA held a two-day community workshop to engage local residents in planning their neighborhood's future. During the event, area residents—a surprising number of whom were design professionals—engaged in long discussions about what troubled them about the neighborhood, how they'd like to see it develop, and what they could squeeze out of the political process.

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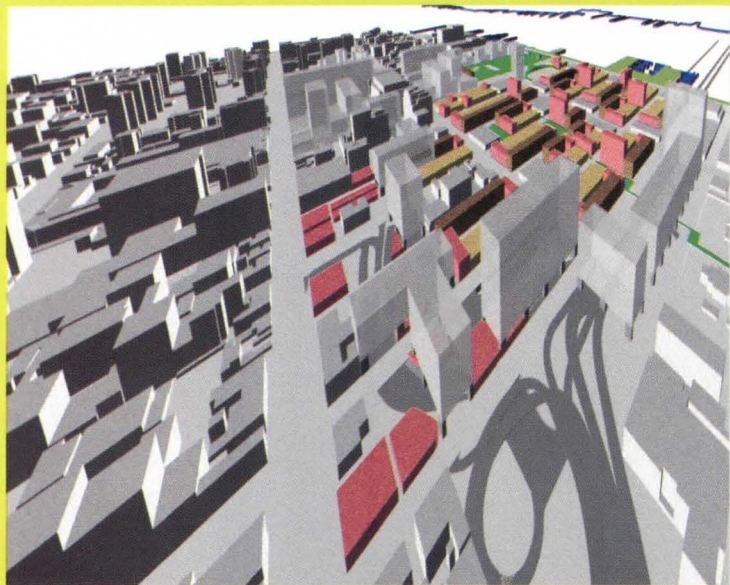
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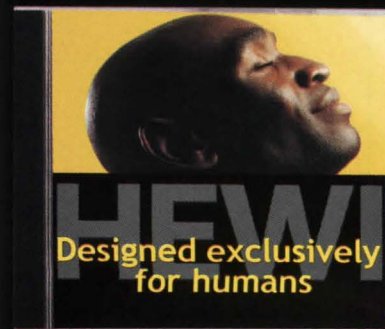
NeoPolitan plan, by Richard Sommer and Laura Miller, with Marshall Brown, proposes mix of industrial, residential, and recreational uses (different "flavors" correspond to different uses and scales).

A morning of discussion was followed by an afternoon session. Speakers included the CEO of the Javits Center, the owner of a local factory, and a housing activist; all gave the impression that this conference was a rare piece of neutral territory where all the neighborhood factions could join together and plot a future. Then someone pointed out that there was no one in a position of real power "at the table." There were no major developers and the only elected official present was area councilwoman Christine Quinn. She described a "kiss the ring" audience with Joe Rose, chairman of city planning, in which he explained the city's view of her district: "No one lives there and that's where we need to put the new central business district."

"Not only are they not at our table," Quinn observed. "They're at another table." That other table might have been at the IFCCA's gala awards dinner two weeks later, where Eisenman's victory was announced. Rose was in attendance, representing city government, although Gargano, representing the state, was not. (He didn't show up to jury the projects, either.) Thus far, most of the discussion about the IFCCA competition revolves around the rumor that Lambert staged the entire competition as a vehicle for Eisenman's greater glory, something she vociferously denies. The attention paid to Eisenman has obscured the fact that two of the other IFCCA competition entries represent urban planning approaches that are compatible with HKNA's goals: promoting a healthy mixture of businesses (including manufacturing), developing an economically diverse housing stock, introducing cultural institutions, and making the neighborhood a less dangerous place for pedestrians.

Morphosis proposed a "Newcity Park" running along the "true solar east-west axis," somewhat skewed from Manhattan's grid. This long park ends with a floating beach platform in the river. The idea is that the park would serve as a magnet for mixed urban development shaped by an inventive set of design guidelines and assigned new nomenclature. Van Berkel & Bos was the sole competitor to actually contact HKNA for help. The Dutch team's proposal is dominated not by a building, but by an analysis of New York's economy, history, and political decision-making processes. It recommends that the area be divided into "clusters." The "waterfront cluster" would allocate the most valu-

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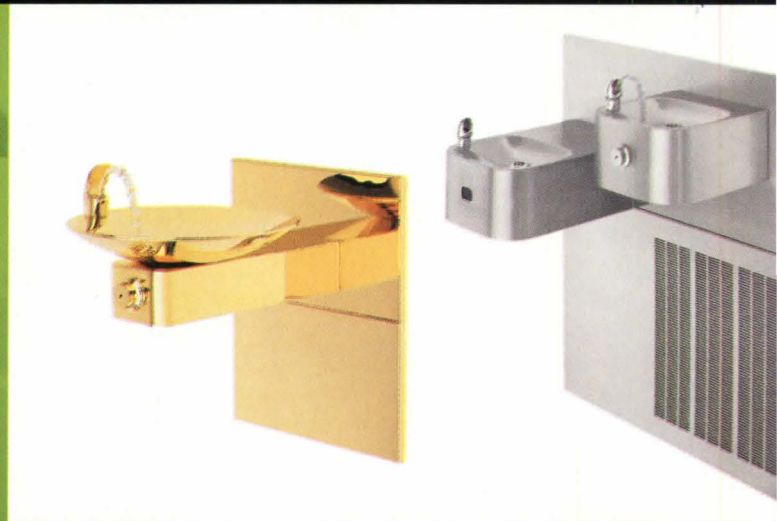
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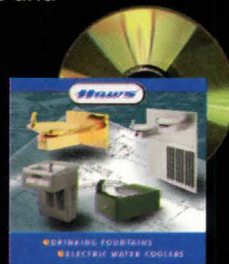
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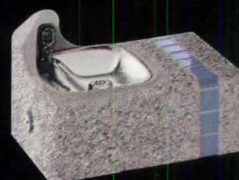
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able land, along the Hudson River, to residential development. The "world media cluster" would be a digital-age substitute for the Javits Center, which they suggested should not be expanded, but relocated to a non-waterfront site. The "Pennsylvania Station cluster" would include intensified development of office and hotel space.

While Eisenman insists that "we have a real scheme," it seems unlikely that his megacomplex will ever be built. It will, however, be endlessly debated. The IFCCA competition finalists' proposals will be on display at Grand Central Terminal's Vanderbilt Hall (October 5-20), and will be the subject of an all-day symposium on October 8. HKNA's proposals will be displayed at Storefront for Art and Architecture beginning November 16. Possibly the most interesting effect of the IFCCA competition is that it brought Van Berkel & Bos into HKNA's orbit. One of HKNA's 18 pro bono design teams drawing up plans for different pieces of the neighborhood—most of which include nondesigners, such as doctors and social workers—is from Van Berkel & Bos.

Indeed, the best thing that could come out of either the IFCCA competition or the HKNA planning effort is a marriage of the two. Huge plans like Eisenman's are the thrill rides of architecture. They get the adrenaline pumping, but are often not very practical. But if a big-picture architect partnered with a forward-looking community group like HKNA, a real plan might emerge, one shaped with the understanding that New York City is a paradoxical place, a city where monumental buildings are crammed into a terrain built to human scale. Such a match would surely give the young organizers of HKNA an edge—if they can find a place at the table where the power brokers sit. ■

Karrie Jacobs is a New York City-based architecture critic.



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Looking Forward



Pierre Koenig makes a case for modernism.
By Kevin Alter

If one image canonizes *Arts and Architecture* magazine's experimental Case Study program, it is Julius Shulman's gripping night view of Pierre Koenig's 1960 Case Study House #22: A simple L-shaped volume perched high in the Hollywood Hills, one glass-enclosed corner floats vertiginously over a glittering carpet of city lights below. Encapsulated in this magical image is the "good life" that, as editor John Entenza and the Case Study architects attempted to demonstrate, could be realized through architecture.

In the midst of the current revival of midcentury modern as a style, with period pieces now high-priced collectibles—ironic, given their makers' original intentions—it's important to remember that the work of Koenig and his contemporaries possessed not just esthetic prowess but social purpose. Their explorations of new materials, technologies, and forms were intimately tied to their desire "to bring the best to the most for the least," as another Case Study architect, Charles Eames, put it.

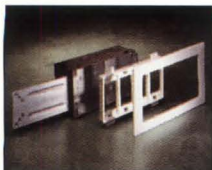
The Bailey House in Hollywood was Koenig's first **Case Study House**. The architect recently revisited the 1959 work, renovating it for current owner.

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Koenig's house in Brentwood, California built for \$65 per square foot in 1985, exemplifies principles he has been espousing since beginning his practice in 1952. Frames of all 47 houses Koenig has built have gone up in single day.

Most compelling about Case Study House #22 (otherwise known as the Stahl House) is its utter rationality and transparency, a result of Koenig's predilection for steel and glass. But this was not the first steel-and-glass house that California native Koenig (born in San Francisco in 1925) built; neither was Case Study House #21 (the Bailey House), built the year before. He built his first steel house when he was 25, while still a student at the University of Southern California (USC) School of Architecture. Recalls Koenig, "We learned how to do wooden post-and-beam construction, but it occurred to me that houses should be made of steel. I suggested it to my instructor and he said, 'No, steel is not a house material. It's cold, dirty, expensive, and the housewives wouldn't like it.' I didn't get it. I'd seen other steel buildings, I'd grown up around steel ships, and to me they were beautiful. I wondered how he knew the housewives wouldn't like what they'd never seen."

He built a steel house anyway. When bids initially came in at \$12,000—over his budget—he realized it was because he had designed the structure like a traditional wood-framed house. After consulting with a steel fabricator, he redesigned his house for steel dimensions, with increased spans, reduced footings, and sliding doors in typical steel increments. "When I put it all together everything fit like a glove," he boasts. Final price: \$5,000.

By the time the Case Study projects came along nine years later, he had perfected his system: Not only did everything fit together perfectly, but every element did double duty. "You can't change anything without the entire thing going out the window," clarifies Koenig. Recently, he was hired to restore Case Study House #21 to its original quiet elegance: The new owner of the modest 1,320-square-foot jewel, Warner Bros. producer Dan Cracchiolo, wanted to erase whatever adjustments had been made since 1960—most of them cosmetic, such as surfaces of counters and floors.

Like most of Koenig's houses, the beauty of Case Study House #21 lies precisely in its lack of flourishes. For example, the house is subtly attuned to the dynamics of its site, its surfaces a canvas for the play of light and shadows that change over the course of a day and the seasons. Notably, Cracchiolo has no art on the walls, unknowingly capitulating to Koenig's belief that good architecture doesn't need to be decorated in order to gain interest.

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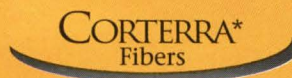
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Schwartz House
(Pacific Palisades,
1994–96) is shifted
cube-within-cube,
showing Koenig's
recent interest in
more expressive
forms.

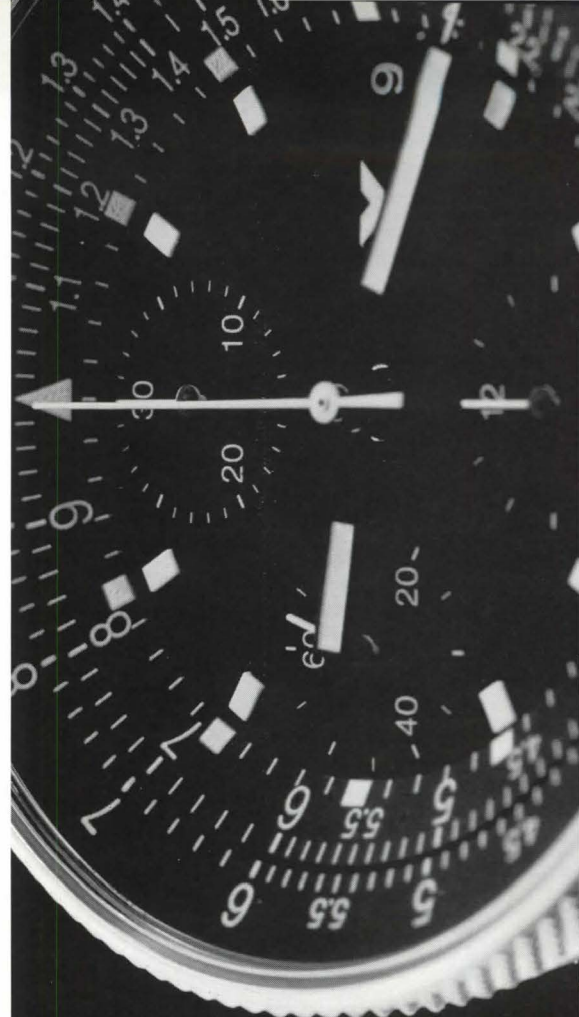
Koenig, the sole Case Study architect still in practice, is enjoying a resurgence of interest in his work. Earlier this year Form Zero Architectural Books in Los Angeles featured an exhibition of his drawings, which is also on view this month (October 11–29) at the University of Texas at Austin. And he is the subject of a 180-page monograph by James Steele and David Jenkins, published last year by Phaidon Books and already in its second printing. Serving since 1964 as the director of the Natural Forces Laboratory at USC, Koenig has been busy lately fielding requests for lectures, résumés from recent graduates, and new commissions. Currently, he is working on two houses in Southern California, allowing him to continue his pursuit of the steel-frame structure while exploring newer high-performance materials for membranes.

The drive through the Hollywood Hills to Koenig's two Case Study Houses is a tour through history. Originally developed by the Mutual Housing Association, this part of Los Angeles was a place where society remade itself along liberal lines: The neighborhood was an early force in desegregating home ownership in the United States. Today, these hills are home to more 20,000-square-foot starter mansions than houses of the minimally articulated sort that Koenig and his colleagues were so optimistically investigating. Although contemporary housing today owes much credit to the work of this period and to the Case Study advances in particular—such as the open plan, functionally nonspecific rooms, and indoor–outdoor spaces—few have continued to be as socially and economically free as they are spatially unfettered. One can only hope that the current enthusiasm for modernism will also rekindle an interest in the social principles that lie at its heart.

Kevin Alter conducted this interview with Pierre Koenig at Case Study House #21:

Kevin Alter: You conceive of your buildings in concert with their construction. Why approach building in this way?

Pierre Koenig: I start with the details, then I design the frame, and then I arrive at the finished product. If things don't work out, I go back and start over again. I have to go through this seemingly complicated process; when it all comes together, I know I am done. That's what



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you're looking at in this house [Case Study House #21]. All the aspects of the building are so integrated that you can't take one thing out without destroying the whole. That's what you're looking for.

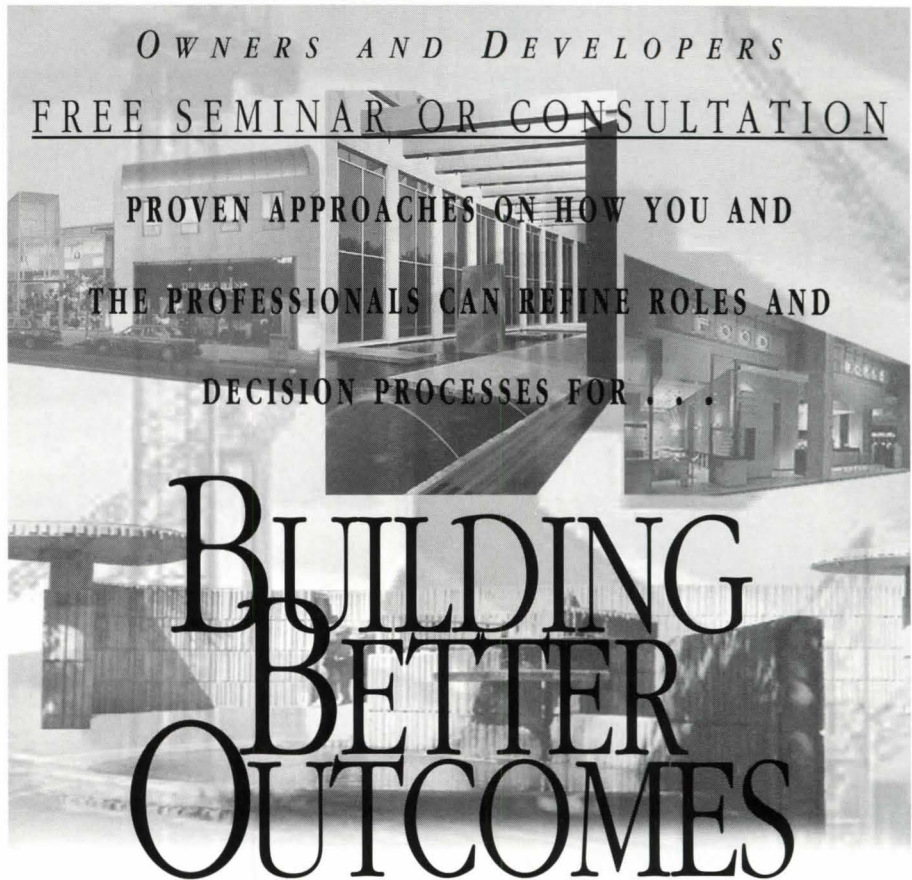
Why do you feel the impulse to expose so much of the structure?

It satisfies the human need to have decoration. Structure is decoration; it takes the place of the applied decoration that many of us are against. The exposed framework—especially in steel—gives you a rich dimension conventional buildings don't offer. I always wonder about people who live in conventional houses and criticize modern buildings for being too plain or uninteresting, when they have bits of applied ornamentation and things on the walls to liven up a house that doesn't have any intrinsic interest.

How do you deal with change and unpredictability?

When you design something, you are worried about the relationships you are creating. If all the relationships are right, they will produce positive effects. For example, for Case Study House #21, I didn't sit down and say "I'm going to put this white steel deck with water around it so I can get a wonderful glitter reflection off the ceiling." But with the relationship between the water, the planes, the whiteness, the deck—everything—this dappling light effect was produced. I created the conditions for it to occur. And that is the thrill: when you see something wonderful emerge that you really didn't design. The shadows are created in the house, too; I never once thought about the patterns it would make. Everybody says, "Those are wonderful shapes, those shadows—how did you do it?" But I can't answer this question. It is serendipity. ■

Kevin Alter is an assistant professor of architecture and the associate director of the Center for American Architecture and Design at the University of Texas at Austin.



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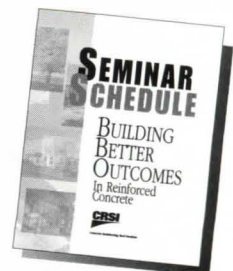
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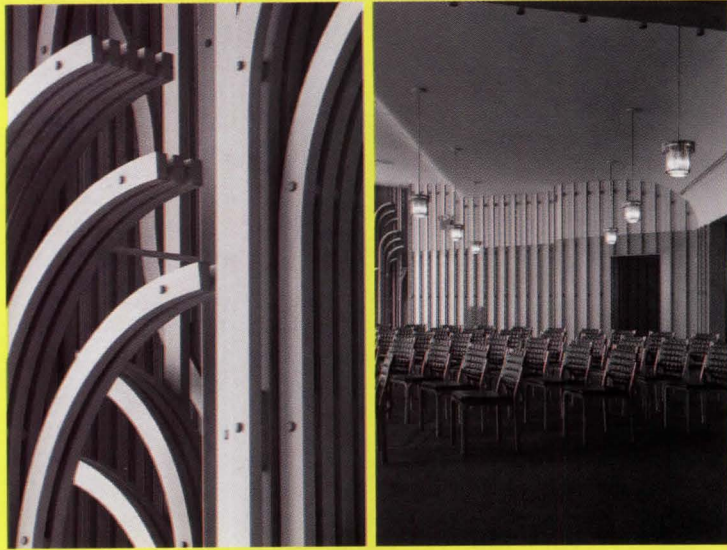
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The Kaufmann Conference Rooms, designed by Alvar and Elissa Aalto in 1964 for the Institute of International Education (IIE) in New York City, are facing an insensitive restoration by their new owners. A Japanese organization, The Foundation for the Support of the United Nations, recently bought the entire 12-story IIE headquarters (1963), designed by Harrison & Abramovitz & Harris, and took over the penthouse spaces designed by the Aaltos, threatening to irreversibly unravel an intact *gesamtkunstwerk*.

According to Caroline Rob Zaleski and Michael Owen Gotkin of New York's Municipal Art Society, the Foundation intends to "restore" the interiors. But the new owners seem to be unaware that they are sitting in what Zaleski calls "the most important modern interior in the country." The Foundation has not responded to good faith, pro bono pleas from the Society to assist in whatever modernization is necessary.

Lip Service

The new owners of a midtown Manhattan high-rise housing several Alvar and Elissa Aalto-designed interiors are politely ignoring renovation advice from New York City's preservation community. By Joseph Giovannini

The spirit behind the Aalto commission was Edgar J. Kaufmann, Jr., an art historian who advised his parents to hire Frank Lloyd Wright to design Fallingwater. A practiced patron, Kaufmann let Aalto be Aalto, and thus he created a miniature Finlandia Hall. The suite of conference rooms, with eased corners and a flowing plan, was an organic Scandinavian alternative to the machine-cut modernism exemplified by Mies van der Rohe's Seagram Building a few blocks away.

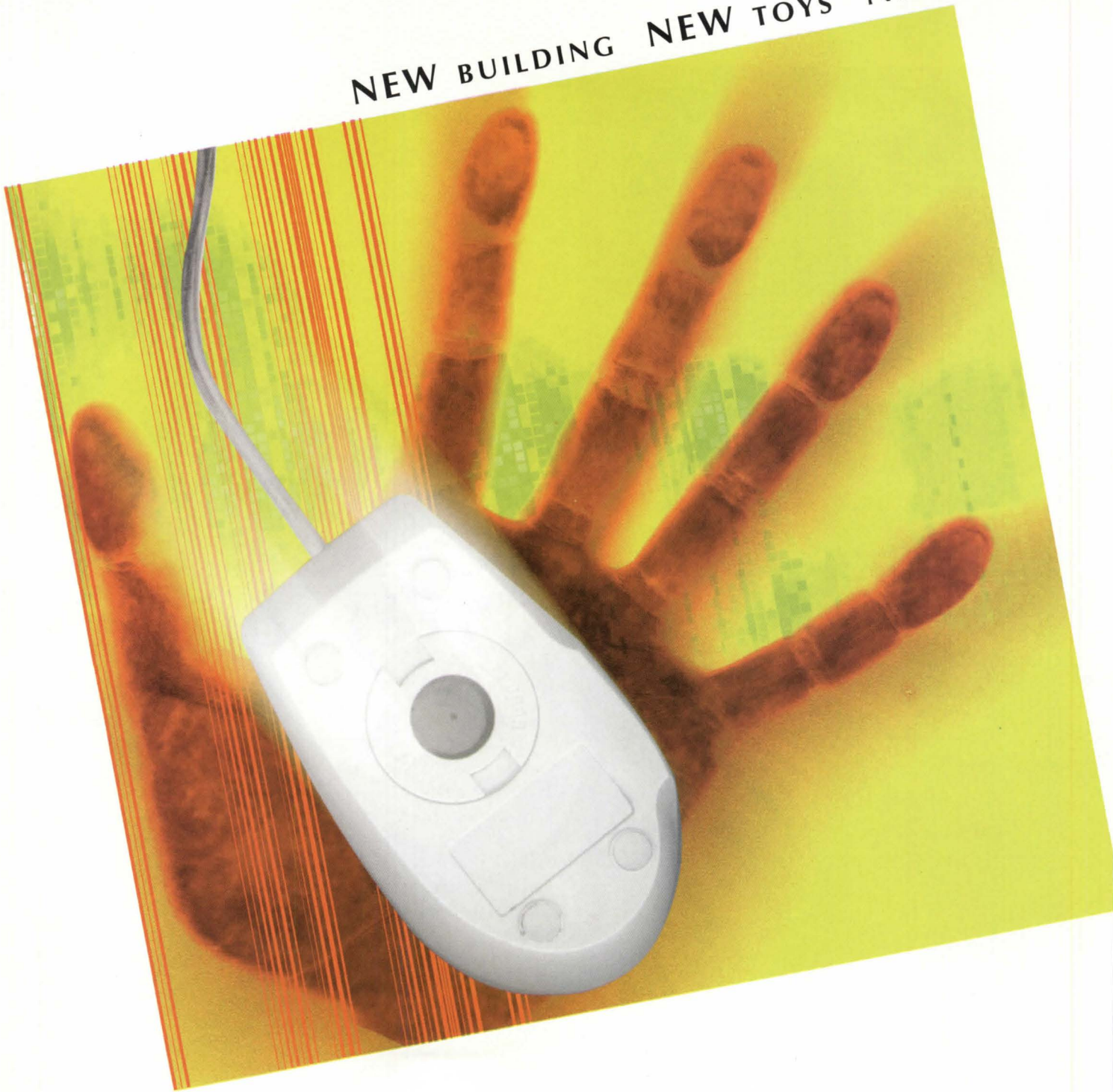
Visitors first face a wall of bent birch sticks, reminiscent of Aalto's chairs, arranged in the shape of a small abstract forest. Angular and curvilinear walls, paneled in American ash striated with battens, house the central reception hall. Floor-to-ceiling windows, louvered with wood slats, model light, as do stepped semicircular sconces and circular pendant fixtures. The suite represents a naturalized modernism that seems carved by the movement of the body through space.

There are already causes for concern, such as the plaid carpet sample proudly shown by an employee as a replacement for Mrs. Aalto's original woven rug, and casual remarks by Foundation personnel that they just don't like the lamps. The wrong carpet, a missed paint choice, or a couple of discordant pieces of furniture could add up to the unnecessary destruction of details that constitute the design's integrity.

The Kaufmann rooms are a small temple of Western culture, and anyone who has the privilege of occupying them should be their knowing and sensitive custodian. This is a no-brainer: The owners simply need to leave everything as it is, and modernize as necessary with sound professional advice. The cultural indifference and arrogance of U.S. citizens in Asia once earned them the epithet "ugly American." Americans no longer hold a monopoly on that designation. ■

Missing the forest for the trees: New owners of the Alvar and Elissa Aalto-designed conference rooms want to install plaid carpeting and replace light fixtures.

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Architects love to talk process: the creative process, the design process, the construction process. Every step along the way to creating a building is laced with a thousand challenges and a few good stories. But these tangled paths are only a means to an end—hopefully a good piece of architecture. When the designer isn't around to recount the anecdotes and explain the process behind a building's design, the architecture is left to speak for itself.

In this issue, we look in depth at a building that has been touted in certain circles for years (even though it opened just weeks ago) as a pioneer in the realm of digital design: a building designed from start to finish on the computer. The New York Presbyterian Church is not like Frank Gehry's Guggenheim Museum Bilbao, which was born of clay and paper and later refined through the computer, but a building conceived, fleshed out, detailed, and drawn entirely with a computer. Every move came from mathematical functions, not sketches or lumps of clay.

But now that the church is open and ready for inspection, it's time to talk product as well as process. Is the finished building as unconventional in its construction as its conception? Does it match the rigor and originality of its design process? Is that process apparent to those who worship there or whisk by twice a day aboard passing commuter trains? Much has already been said about the value of the tools that shaped this building; more debate will surely follow. Now we can talk about the fruits of this labor and discuss what happens when architecture moves from the realm of ideas into the real world.

The New York Presbyterian Church confronts its gritty industrial neighborhood in Queens, New York.

Sometimes the dancer can't be distinguished from the dance, and at the New York Presbyterian Church in Sunnyside, Queens, the design can hardly be separated from the design process. The building's undulated roofline, the segmented ceiling planes of its sanctuary, and its serpentine stairways grew in a design choreography intimately linked with the capacities of the computer.

Whether computers can—or will—think on their own remains an open question, and the corollary issue now pushing the envelope in architecture is how they are emerging as design collaborators. In a project conceived simultaneously on screens in three cities, Los Angeles architect Greg Lynn, Chicago-based Doug Garofalo, and Michael McInturf, who practices in Cincinnati, tested the question by using their linked computers from the project's inception through the development and construction document phases.

The commission did not start with a well-heeled patron looking

for a signature building. The church, with largely Korean immigrant and first-generation-American congregants, asked the architects to renovate an 88,000-square-foot former laundry factory on a tight budget. Previously housed in other recycled buildings, the congregation had no expectations of traditional church typologies. "The clients wanted the traits of a church, such as a focus on the altar, a central axis, and backlighting, but they didn't want a cathedral or cruciform plan," recalls Lynn.

Commuters on the Long Island Railroad have prime views of the new church. They now pass by a stock industrial building supporting atop its original roof an undulated Butler Building-type structure, which shelters a 2,500-seat sanctuary. The old Knickerbocker Laundry Factory, designed in the 1930s by Irving Fenichel with an oversized Streamline Moderne facade intended for audiences aboard the train, is intermingled with the new metal-clad shed that has

grown around it. Seen from the front, the composite form—combining the old and new, symmetrical and asymmetrical, monumental and tentative—creates a field of architectural uncertainty offering no single reading.

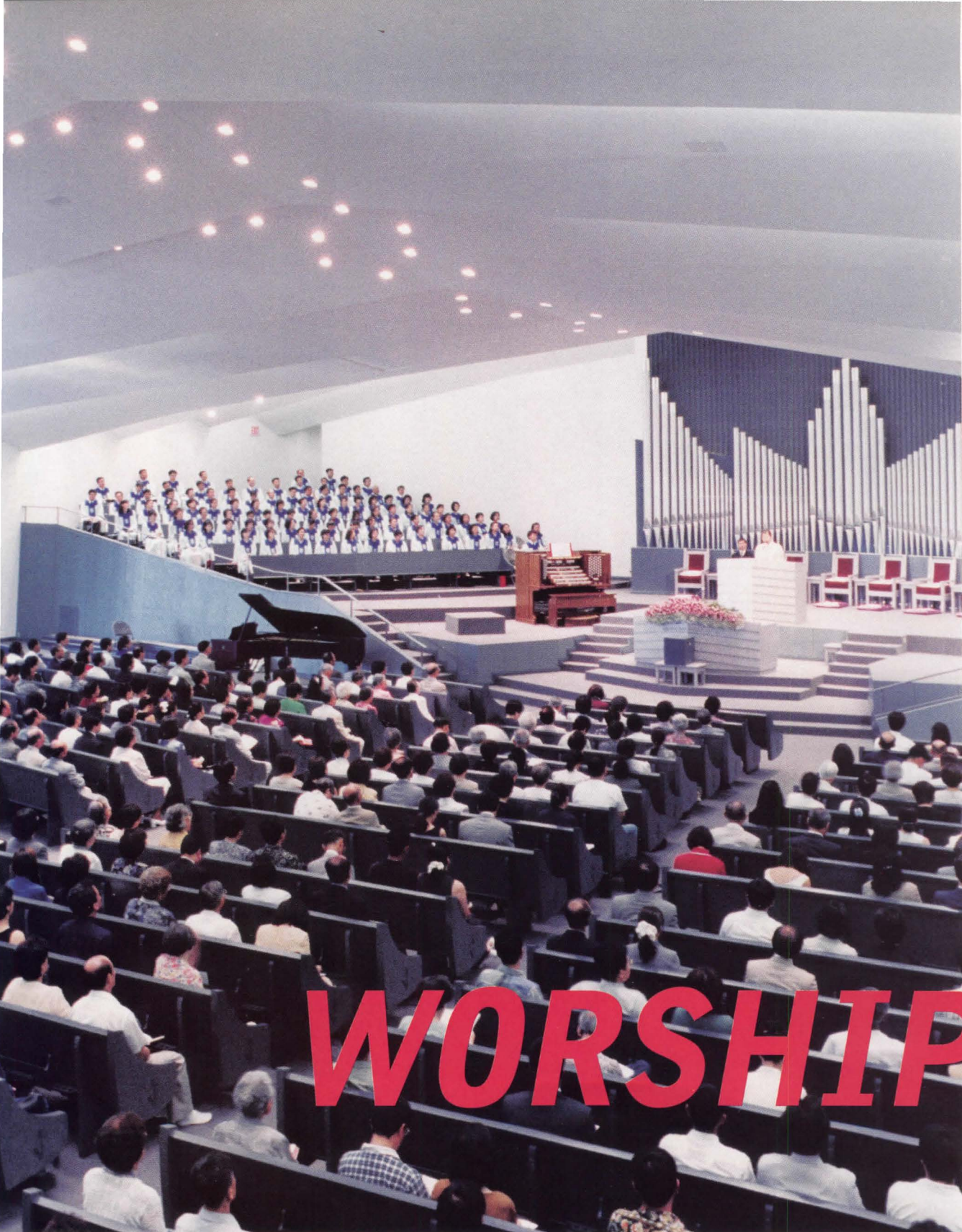
Considerable invention was required to transform the two-story factory into a place of worship for a largely automobile-based congregation. The architect's parti changed the direction of the building so it would front the parking and negotiate a one-and-a-half-story level change up to the sanctuary. Three bridges and wide flights of steps connect the parking lot to two glazed entrances next to a new three-story translucent fiberglass facade. Inside, wide sinuous stairways lead past a second-floor cafeteria and wedding chapel up to the sanctuary. The stairs end on a third-floor corridor, where the angular ribs of the sanctuary form a long wall configured like environmental origami, energizing the space and prefiguring the sanctuary itself.

COMPUTER

**IS THE NEW YORK PRESBYTERIAN
CHURCH A REVELATION
IN DIGITAL DESIGN?**

JOSEPH GIOVANNINI SAYS AMEN.





WORSHIP

Church congregation, composed largely of Korean immigrants, had little nostalgia for traditional Western religious architecture. Church sanctuary's ribbed form, reminiscent of Radio City Music Hall, is derived from abstract computer model. Architects Greg Lynn, Michael McInturf, and Douglas Garofalo built interior shell of sanctuary atop existing two-story factory, and as independent form within a new undulated metal shed. Glass doors (at left) lead to covered balcony and exterior staircase. Asymmetrical platforms at east end of sanctuary (at right) elevate minister, choir, and organist.



The subtly contoured sanctuary, made of stepped rings of the creased ribs, gently leads the eye to the front, where the altar, choir, and pulpit occupy asymmetrical terraces. The stepped shapes of the ceiling then extend beyond the far, glazed side of the sanctuary and metamorphose into armadillo-like, metal-covered fins

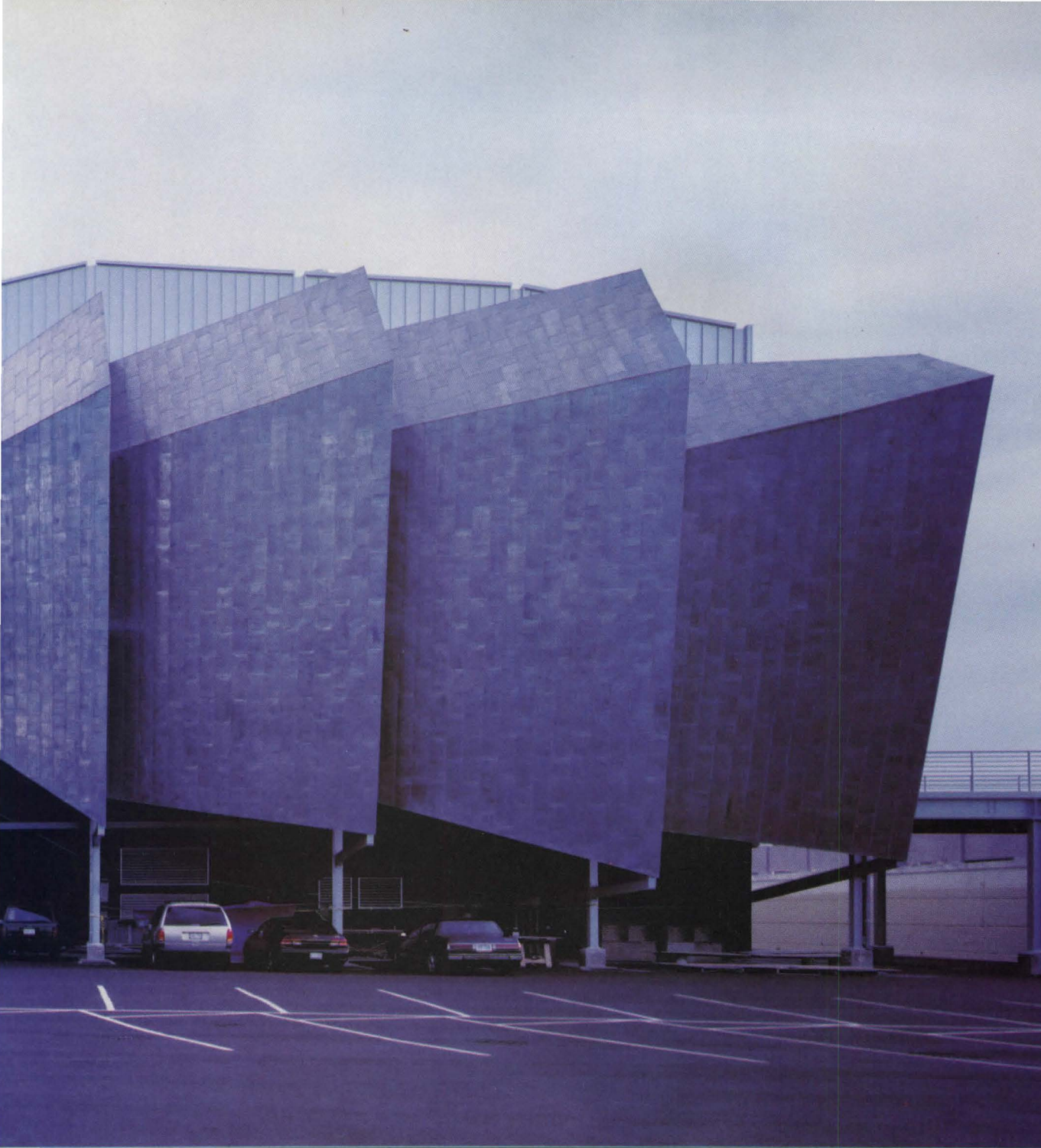
offering segmented views of the Manhattan skyline, while covering an exterior staircase exiting to the parking lot. Classrooms are organized in neat rows below street level in the first-story base.

"We wanted the addition to seem like it was responding to the existing building without seeming like an addition and without swal-

lowing it up into a new whole," says Lynn. Structural analysis revealed that the existing roof could support the congregants in a new sanctuary—if the sanctuary's own roof were independently structured on columns threading through the factory to separate foundations. The architects opted for this scheme,

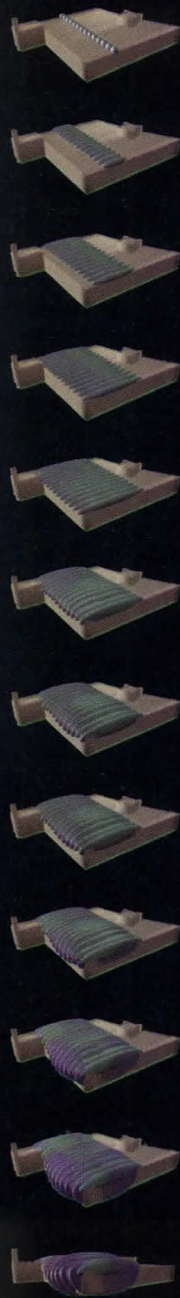
deciding to create a wavy, kinetic new roof profile.

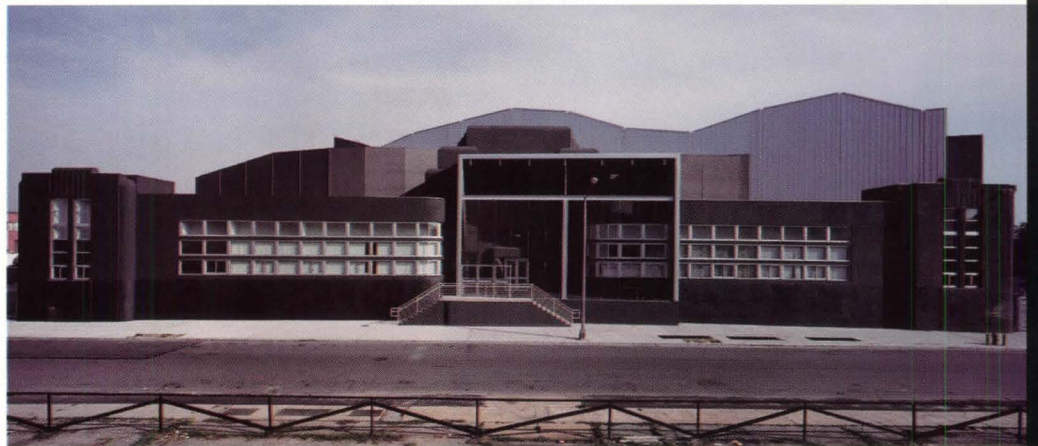
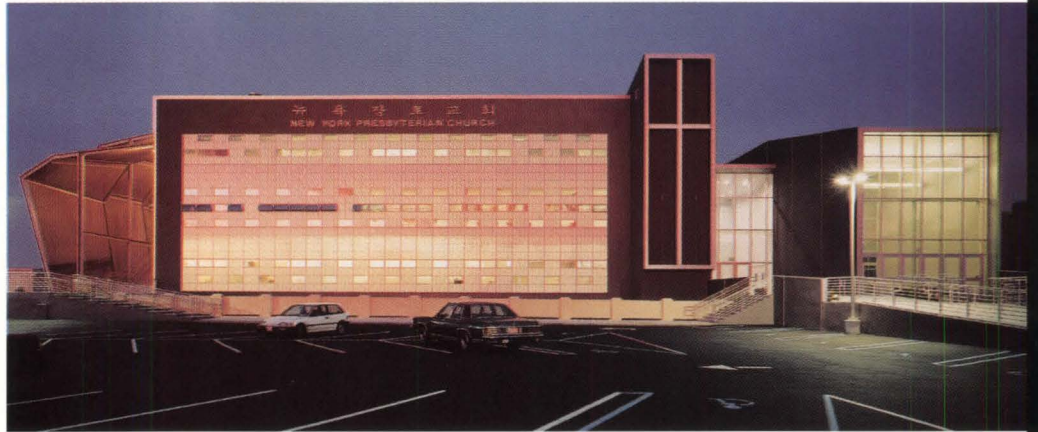
Conceiving the sanctuary as an independent shell within the rooftop shed liberated it from the lumbering steel superstructure, allowing the interior greater latitude. The architects modeled this space as a complex volume that would behave independently of



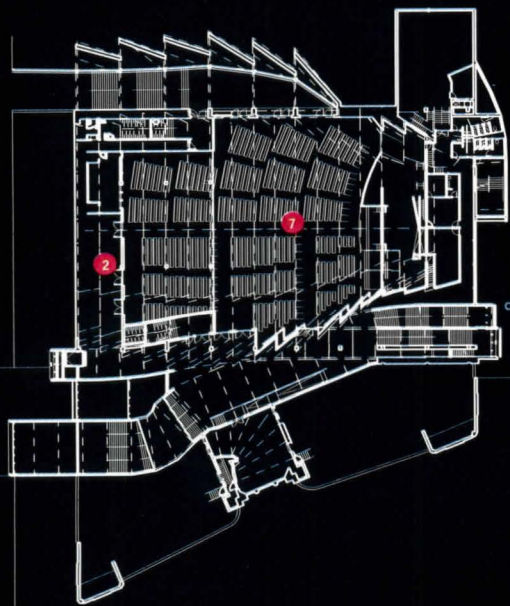
North elevation (above) exemplifies different elements of design: existing factory at base, new undulated metal shed roof, circulation paths that architects call “tubes,” and ribbed shell of sanctuary. Metal shed roof serves as backdrop for armadillo-like enclosure around balcony and exterior staircase (this form continues on interior as ribbed sanctuary ceiling). Wing with giant cross (at left) is terminus of one of circulation “tubes” that converge and diverge throughout building. Ramp passes under pedestrian bridge (at right) to connect north parking lot with higher ground level at street on south side of church. Computer diagram (right) illustrates genesis of auditorium form.

**THE ARCHITECTS DESIGNED
THE SANCTUARY WITH WHAT THEY
CALL “A BLOB MODELER”
MADE FOR AUTO DESIGNERS.**

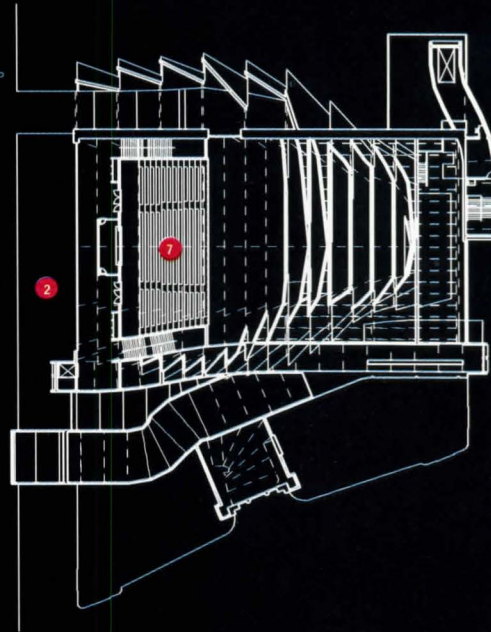




Views of church (from top to bottom) punctuate barren, light-industrial character of its Queens, New York, neighborhood: Oblique view of north and west facades shows church at its most formally expressive; ground level drops 12 feet behind low white wall bounding parking lot. On west facade, glazed rectangular volumes, or "tubes," mark principal entrances to church; translucent fiberglass panels clad subsidiary corridors at back of sanctuary. On south facade, one tube curves to screen approximate center of art moderne original. Vertical glazed projections along west facade mark reciprocal, secondary entrances to "tube" corridors.



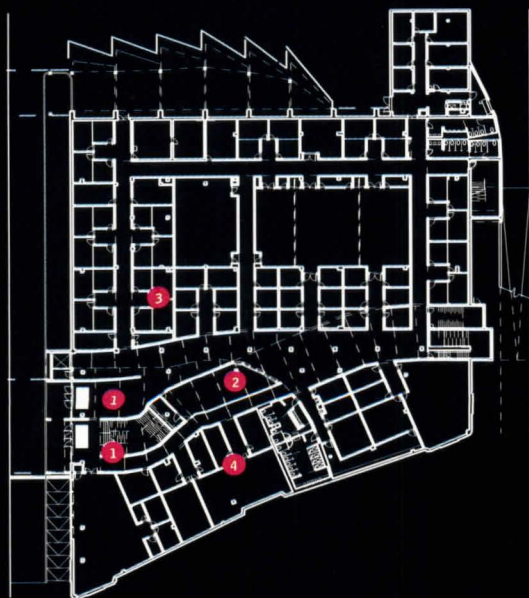
Second-floor plan



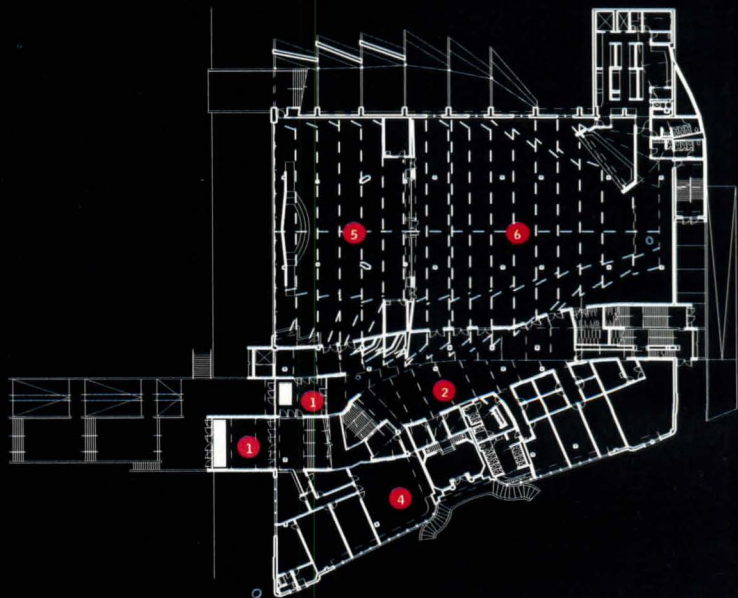
Third-floor plan

THE COMPOSITE FORM—COMBINING THE OLD AND NEW, SYMMETRICAL AND ASYMMETRICAL, MONUMENTAL AND TENTATIVE—CREATES A FIELD OF ARCHITECTURAL UNCERTAINTY OFFERING NO SINGLE READING.

- 1 entrance
- 2 corridor
- 3 classrooms
- 4 offices
- 5 wedding chapel
- 6 cafeteria
- 7 sanctuary



Basement plan | 40'/12m



First-floor plan

Debut

Douglas Garofalo, Chicago; Greg Lynn, Venice, California; Michael McInturf, Cincinnati



For its three relatively young architects, the New York Presbyterian Church presented a remarkable opportunity to build on a large scale. Douglas Garofalo, 41, was the first to learn about the job, through a former student. To muster the necessary resources and experience, Garofalo teamed up with Greg Lynn, 35, whose path he had crossed while teaching at the University of Illinois at Chicago. Lynn knew Michael McInturf, 36, from their days at Peter Eisenman's New York City office. Today, each architect continues to teach and practice separately, though, McInturf asserts, "We're still in close touch."

Virtual collaborators Lynn, McInturf, and Garofalo (from left to right) meet in real time.

the shed. Its lapping inside planes form the segmented carapace that angles toward the altar.

"Siting the sanctuary at the top required circulation paths, which suggested tubular forms flowing within the structural system of the building," maintains Garofalo. Square to the street, the original structure changed direction midbuilding, angling off the orthogonal, forming what project architect Gregg Pasquarelli calls a "crack" in the original design. "The gap between the front and back was a chink in the armor through which we could slide the tubes and bring them up to the roof," explains Pasquarelli.

Each of the partners' architectural offices is small, but together the three fielded 12 to 15 architects working in a shared digital environment. The principals talked over live computer connections, using monitors as a sketch pad. Lynn and McInturf had worked in Peter Eisenman's office, which often designs with generative rules, and they devel-

oped codes to discipline and systematize the basics of the design. Steel I-beams in the shed roof over the sanctuary, for instance, are a constant 22 feet long, but set on columns placed at varying distances. The roof beams consequently assumed sloping angles that created the heaving profile. The architects designed the sanctuary with what they call a "blob modeler" made for auto designers, who like to change isolated areas of a design without changing the whole. "It works like clay," says Lynn. "You take pieces of geometry and add them to the geometry of a larger surface, and the little pieces of geometry smooth in—which is how we did the roof." The architects shaped the space by manipulating surfaces rather than conforming to the coordinates of a regular geometry. The process resulted in a vague, drifting orientation toward the front of the sanctuary.

The mathematics of the computer is always calculus, and when a visitor squints in the sanc-

tuary, the incremental steps of the ceiling and walls blur into a differential shape whose stepping describes an overall trajectory that is almost curvilinear, which Lynn calls smooth. "If you look at elements, you can pull out individual distinctions," he says, referring to "blobs" smoothly absorbed in the design. Sometimes, however, different geometries pass through each other without blending. The circulation "tubes," for example, cross each other in the spatially complex lobbies that ascend to the sanctuary. The architects reinforce the overlapped geometries graphically by picking them out with reglets on the ceiling and splines in the epoxy terrazzo floor.

It is wrong to apply tastes cultivated in voluptuous Catholic churches to a Presbyterian building rooted in warehouse structures. But there is still a disturbing dryness to the church that probably stems from several causes, not the least of which was a bare bones, \$90-per-square-foot bud-

get that sent the designers to fluorescent-light and vinyl-tile catalogues.

Further, one of the potential blind spots of the computer is the sense of materiality; even with texture-mapping buttons, the machine tends to produce airless, immaterial visions. Here the computer confirmed the material austerity set up by the budget and the asceticism of the church. The sum of generic materials, even if used unconventionally, connotes office blocks and factories. In an otherwise rich composition full of spatial complexities, the materials make the church seem diagrammatic.

If the materials offer no reason to touch this building, the architects have built many thought-provoking ideas. Their use of the computer is not simply a tour de force that pumps up design I.Q. The relationship between the computer and design supports a provocative theoretical position at the edge of current debate. In a complex

world and a multicultural society, the designers wanted not only to acknowledge and sustain diversity, but also turn it into a cohesive whole in which that diversity is not considered fragmentary. Without trying to make a statement about fragmentation, the architects created a whole of parts that was not absolute and fixed but relational and in flux. The elements may be diverse, but

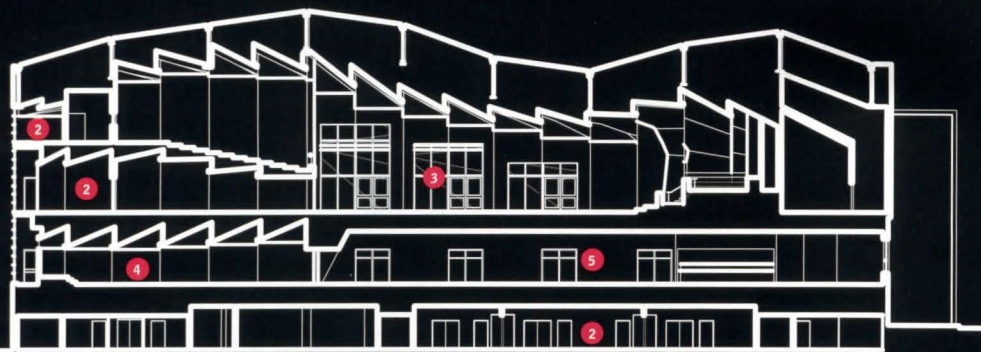
their relationship is intricate and interdependent.

The architects have succeeded in creating a differentiated building that is a freeze-frame mix of simplicity and complexity. But in fact its duller parts—the new fiberglass facade, the amorphous

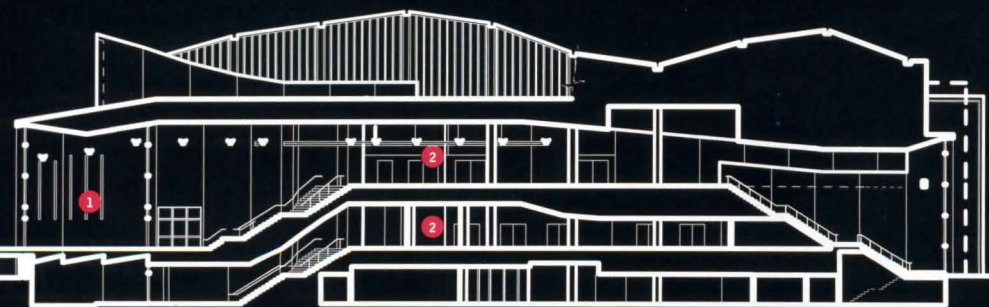
roofscape, and the balanced and poised sanctuary interior—are those that approach unity and balance. The areas suspended in conflict or irresolution, especially the stairway lobbies, are the most compelling precisely because of the tensions of disparate sys-

tems encountering each other without resolution. In the sanctuary, the smoothing of differences leads to a cool self-containment oddly similar to closed platonic forms. The parts that enliven the building make it hard to believe that the duller

THE ARCHITECTS INTEGRATED THE COMPUTER IN THE DESIGN PROCESS IN A WAY THAT SUPPORTED THEORY: THE USE OF THE COMPUTER WAS CONCEPTUAL RATHER THAN MERELY INSTRUMENTAL



East-west section

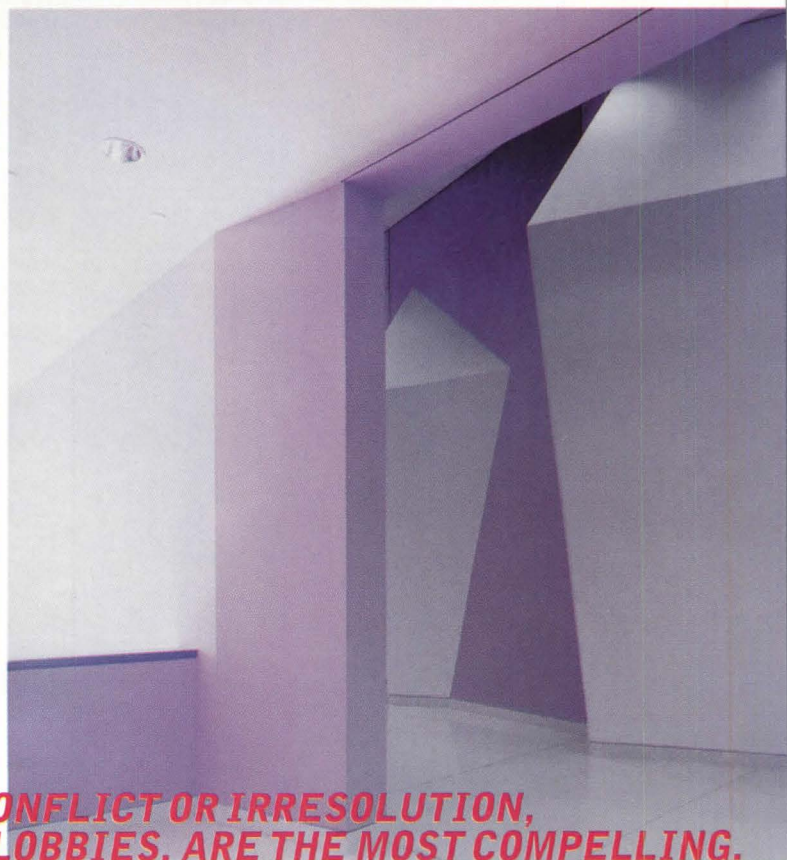
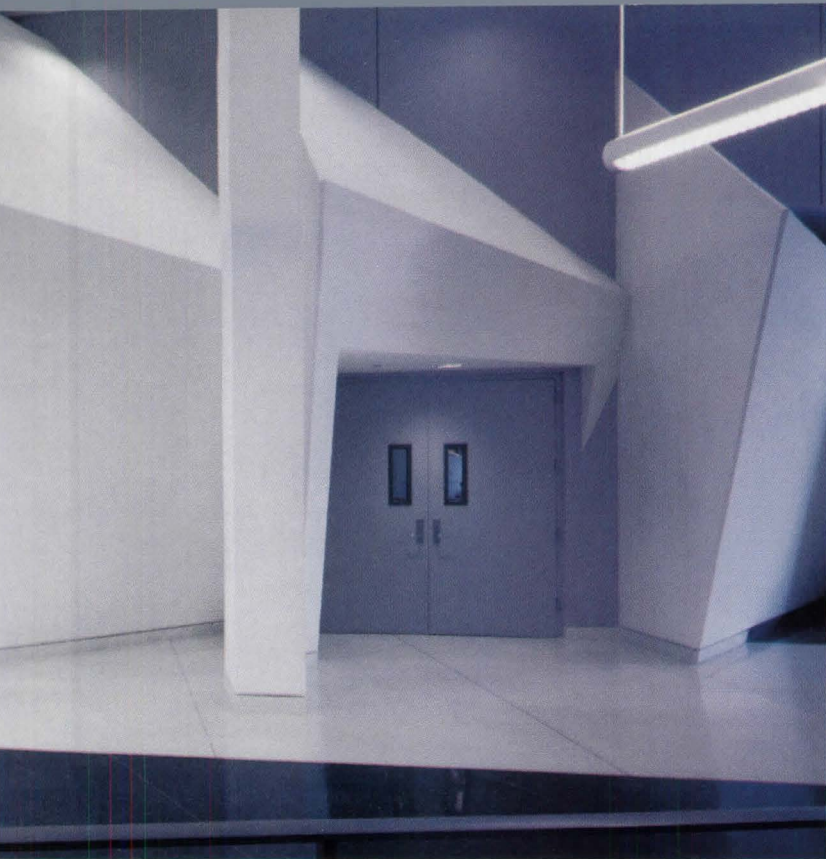


East-west section | ——— | 23'7m

- 1 vestibule
- 2 corridor
- 3 sanctuary
- 4 wedding chapel
- 5 cafeteria

parts are philosophically right. Although the theoretical underpinnings embodied in the church may be debatable, the building is a remarkable achievement because the architects have integrated the computer in the design process in a way that supported theory: The use of the computer was conceptual rather than merely instrumental. The architects used the computer to expand and systematize an open design process, while maintaining procedural and constructive rigor.

Despite the theoretically liberal and sophisticated design climate in New York City, very few significant buildings have been built there in recent decades. The New York Presbyterian Church is one of the few latecomers to venture onto new conceptual ground. Largely because of its genesis through the computer, the church is emerging as a noteworthy building. Hopefully it will prove a spiritual space for congregants as well. Meanwhile, for architects, it is already auratic. ■



THE AREAS SUSPENDED IN CONFLICT OR IRRESOLUTION, ESPECIALLY THE STAIRWAY LOBBIES, ARE THE MOST COMPELLING.

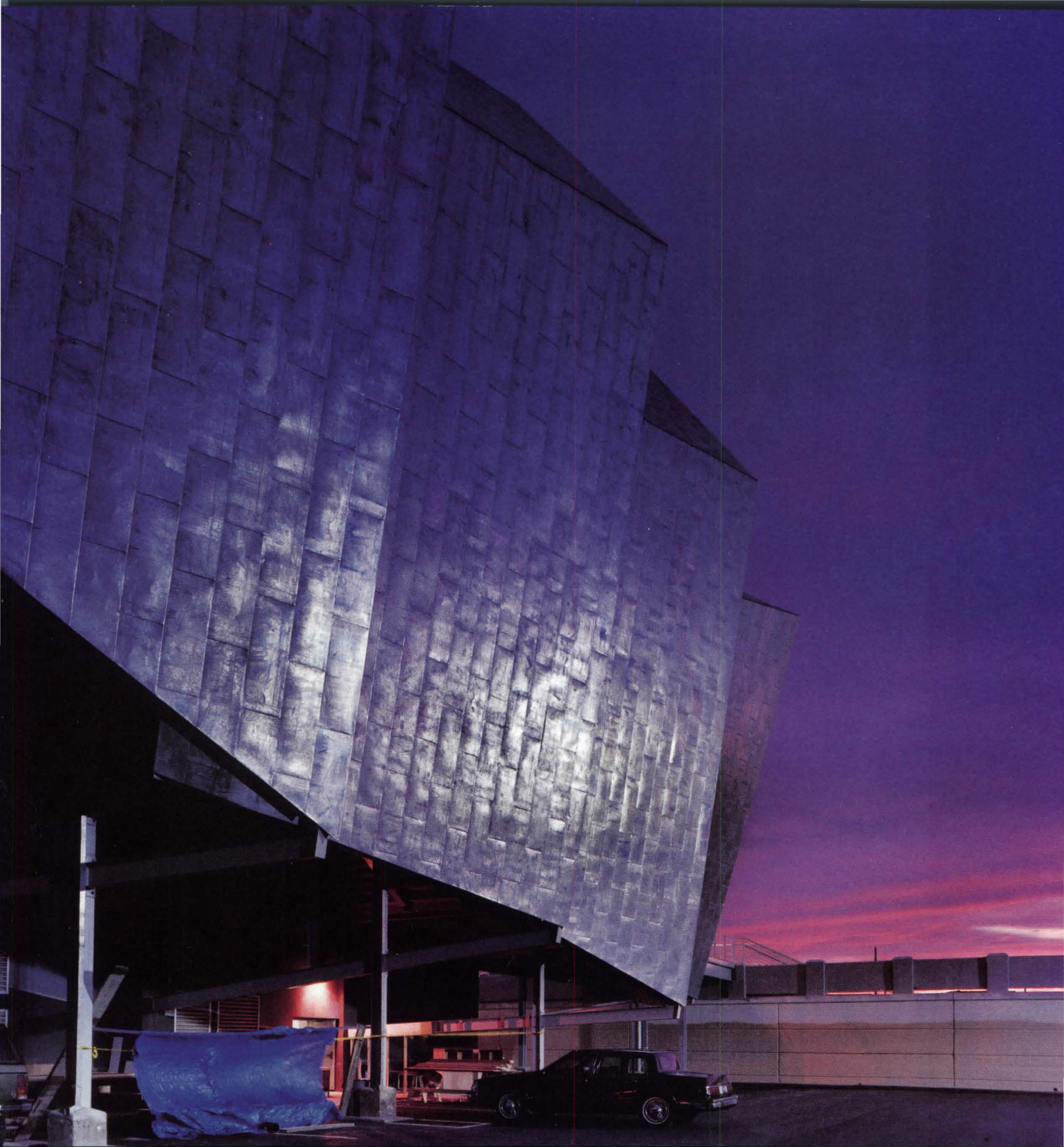
Second-floor hallway (all images, this page) links glazed first-floor entrances on west and east facades via staircases (top right, at left). Wedge-shaped forms (above right) echo ribs of sanctuary beyond (facing page, top left). Streamlined form of altar in wedding chapel (facing page, bottom left) echoes altar in sanctuary (facing page, top right); freestanding backdrop in wedding chapel shelters chapel from light shining through western fiberglass-clad facade. Light streams through translucent fiberglass panels to illuminate secondary corridor outside sanctuary (facing page, bottom right).



WHETHER COMPUTERS CAN—OR WILL—THINK ON THEIR OWN REMAINS AN OPEN QUESTION, AND THE COROLLARY ISSUE NOW PUSHING THE ENVELOPE IN ARCHITECTURE IS HOW THEY ARE EMERGING AS DESIGN COLLABORATORS.

Canopy shades north wall of sanctuary, provides exterior exit, and frames views of distant Manhattan skyline (below); dyed tongue-and-groove redwood lines the underside of folded panels. Sheets of terne-coated metal clad the panels' exterior (facing page).





NEW YORK PRESBYTERIAN CHURCH, LONG ISLAND CITY, NEW YORK

CLIENT: New York Presbyterian Church, Long Island City, New York—Reverend Lee-Young Hee (president); Richard Park (secretary); Kyun Hyuck Im (treasurer)

ARCHITECTS: Garofalo Architects, Chicago, Illinois; Greg Lynn FORM, Venice, California; Michael McInturf Architects, Cincinnati, Ohio—Douglas Garofalo, Greg Lynn, Michael McInturf (design principals); Phillip Anzalone, Gregg Pasquarelli (construction supervision); Dan Behnfeltd, Daniel Cantwell, Richard Garber, Chris Goode, Ellen Grimes, Donald Hearn, Kimberly Holden, Matt Jogan, Steven Rapanos, Min Kyu Whang (design team) **ENGINEERS:** FTL Happold (structural); Lazlo Bodak Engineers (mechanical); Raamot Associates (soil) **CONSULTANTS:** Gerald Caliendo (code); Architext (specifications); Montrose Surveying (surveying)

GENERAL CONTRACTOR: Bethel Constructions **COST:** Withheld at owner's request **PHOTOGRAPHER:** Jan Staller

Plain Spoken

The strip malls, office parks, and ranch houses of Sioux Falls, South Dakota, are spawning so rapidly that, without the tenuous hold of Jefferson's grid, they threaten to cover the Great Plains. The new Jerstad Center, designed by Minneapolis-based Julie Snow Architects, is as much a part of that sprawl as its neighbors on the south side of town. But with meticulous materials and details, a cloistered siting strategy, and massing that echoes the surrounding landscape, the building is just so much nicer about it.

The Evangelical Lutheran Good Samaritan Society (a nonprofit colloquially known as "Good Sam"), which provides housing and other services to the elderly and disabled, built the 49,000-square-foot center for employee retreats. During her interview, Julie Snow recalls, "I asked Good Sam some tough questions," such as how they expected to attract staffers from across the United States to a relatively uneventful part of the country. Snow and Good Sam decided to use the epic character of the prairie as a selling point—a tough order given that the area around Good Sam's once-rural headquarters was rapidly developing.

When the organization hired Snow in 1996, a highway already sliced across the west side of the site and a townhouse development crowded up to the north. Snow saw her client's existing office, an undistinguished brick building on the southwest corner of the property, as equally prob-

lematic. Hemmed in, she opened her L-shaped retreat center southeast across an artificial lake, to what until recently was uninterrupted countryside. (A steel-and-glass-covered bridge connects the new retreat center and the headquarters.) However, by the time the center opened in May, new construction had already overtaken the southern edge of the site and marred the remaining landscape.

Julie Snow's new retreat center delivers a lesson in architectural propriety to Sioux Falls, South Dakota.

lematic. Hemmed in, she opened her L-shaped retreat center southeast across an artificial lake, to what until recently was uninterrupted countryside. (A steel-and-glass-covered bridge connects the new retreat center and the headquarters.) However, by the time the center opened in May, new construction had already overtaken the southern edge of the site and marred the remaining landscape.

Fortunately, the excavation of the lake resulted in a berm that blocks most of the newer interlopers from sight, and, when viewed from within the retreat center, replicates the barren plains beyond. The center itself also echoes the rippling prairie landscape. Its long, lean wings meet in a subtle crescendo of graduated forms and surfaces: boxy volumes alternately clad in terra-cotta-colored precast concrete, flat-seam interlocking zinc panels, and delicate glass curtain walls. The resulting sheltered space around the lake is almost monastic in character, a still valley of grass and water and sky, glass and masonry and metal, with spare young trees providing solitary punctuation.

A staggered rhythm characterizes the center's plan and section as well as its overall shape. The west wing sits on a slight hill, with a double-height lounge and dining hall facing east across the lake. A corridor leads from the dining hall along the length of the perpendicular east wing. Doglegs divide this corridor into three distinct sections. On the west,

closest to the dining hall, the corridor faces south across the lake, and opens onto north-facing classrooms. At the first of the two jogs in the corridor, the ground level drops, and the ground-floor corridor becomes the second floor of the east wing. A double-loaded corridor runs along the center of this wing, with a double-height lounge to the south and offices to the north. Another jog in the corridor brings it to the north side of the building, connecting bedrooms that overlook the lake. Snow relieves the 460-foot length of the stacked bedroom corridors with bursts of southern light from bright, airy lounges.

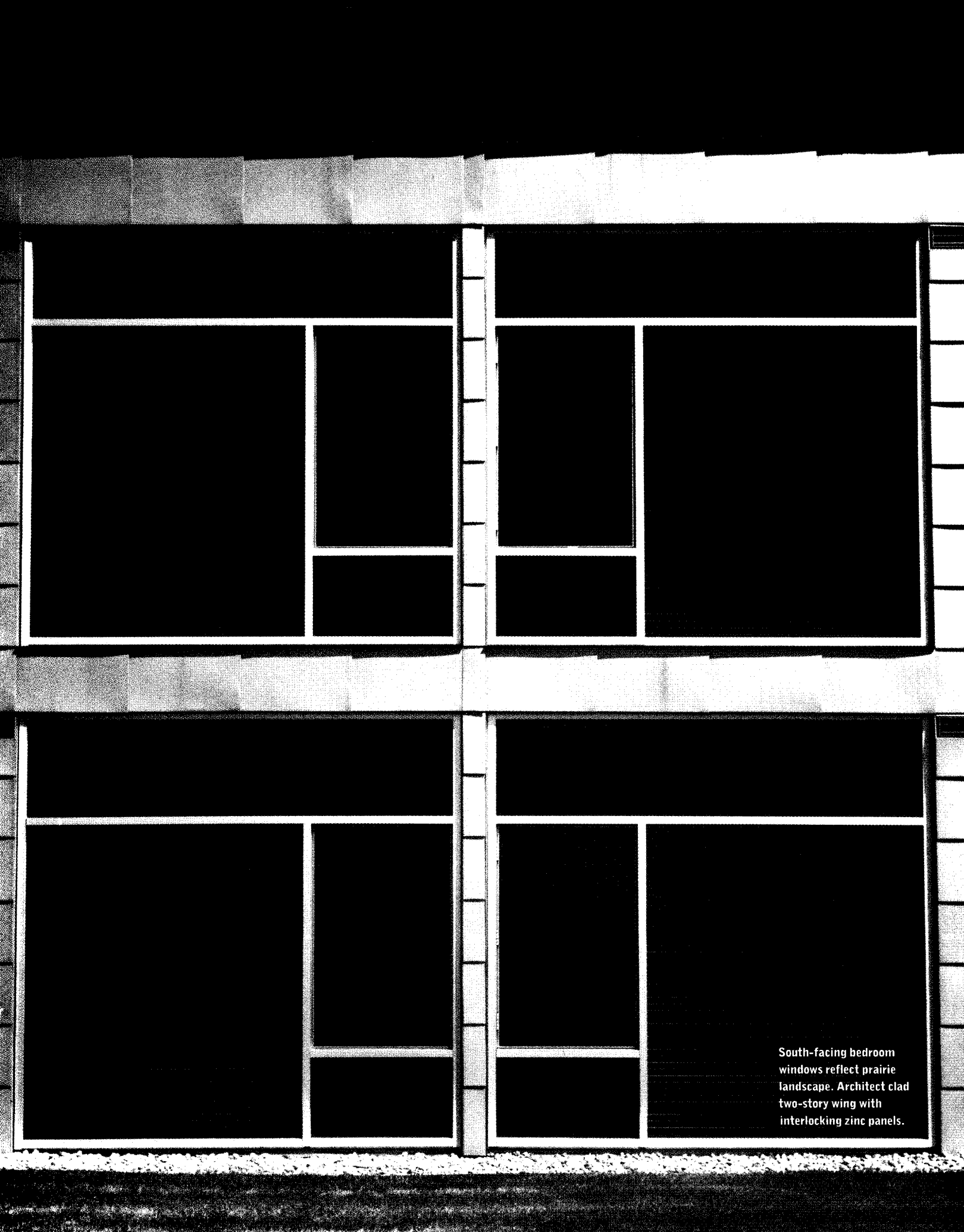
Snow's shifted composition pays an unmistakable esthetic homage to the early work of Ludwig Mies van der Rohe. Most notably, her design resembles a fragment of Mies' famous unbuilt project for a country house (1923), which creates a spatial pinwheel of brick walls that extend into the landscape. In this recollection, the center is an act of architectural propriety: Its clean, unpretentious modernism doesn't demand great esthetic leaps of faith, demonstrating the increasing disconnection between modernist architecture and notions of the avant-garde.

Don't mistake Snow's propriety for a lack of invention, however. Instead of slavish imitation, Snow offers subtle variations and harmonious innovations on modernist signatures and the timeless themes of light, materials, and structure. Where Mies famously fronted his facades with I-beams to suggest the structure within, the thin rods along the outside of Snow's sky bridge serve a physical purpose by transferring the weight of the floor deck to giant beams above. And if the glulam timber beams in the dining room and lounges seem a bit rustic, the two aren't irreconcilable. Remember that when Mies was designing the brick country house, he took a hard look through the seminal Wasmuth portfolio of Frank Lloyd Wright's Prairie Style work of the 1900s.

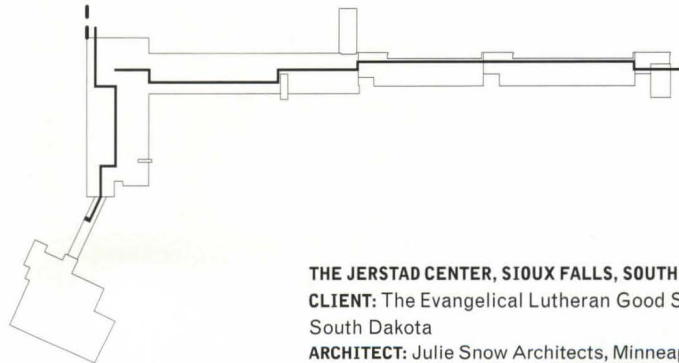
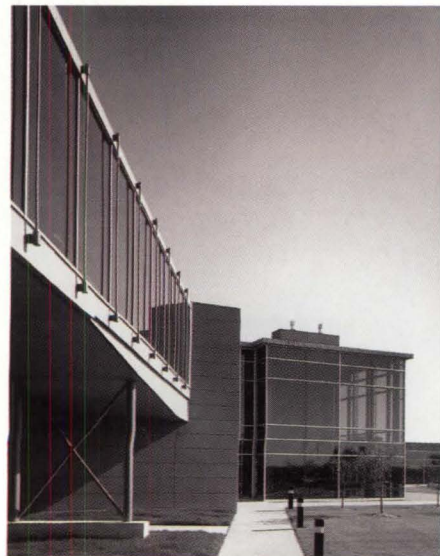
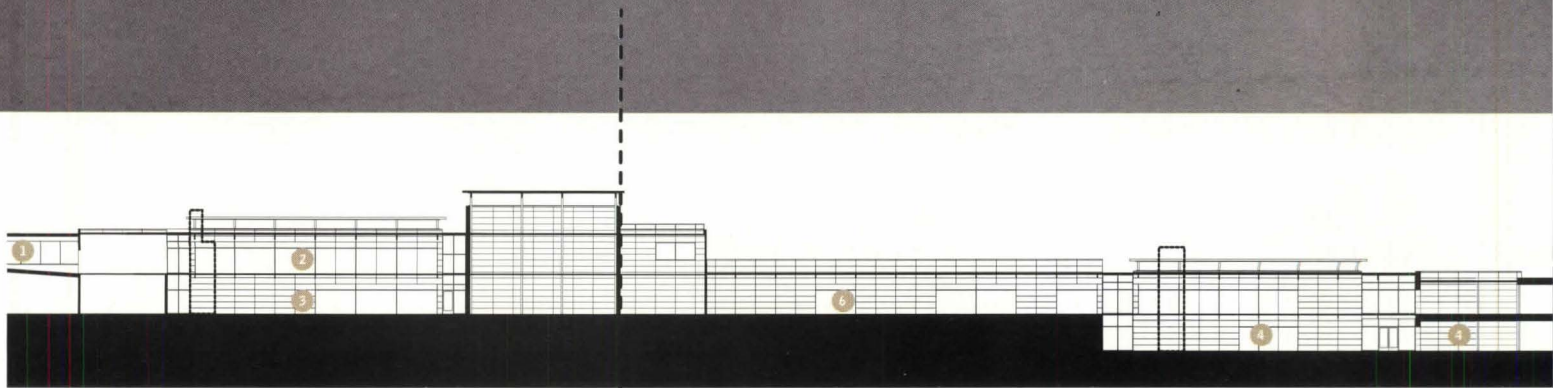
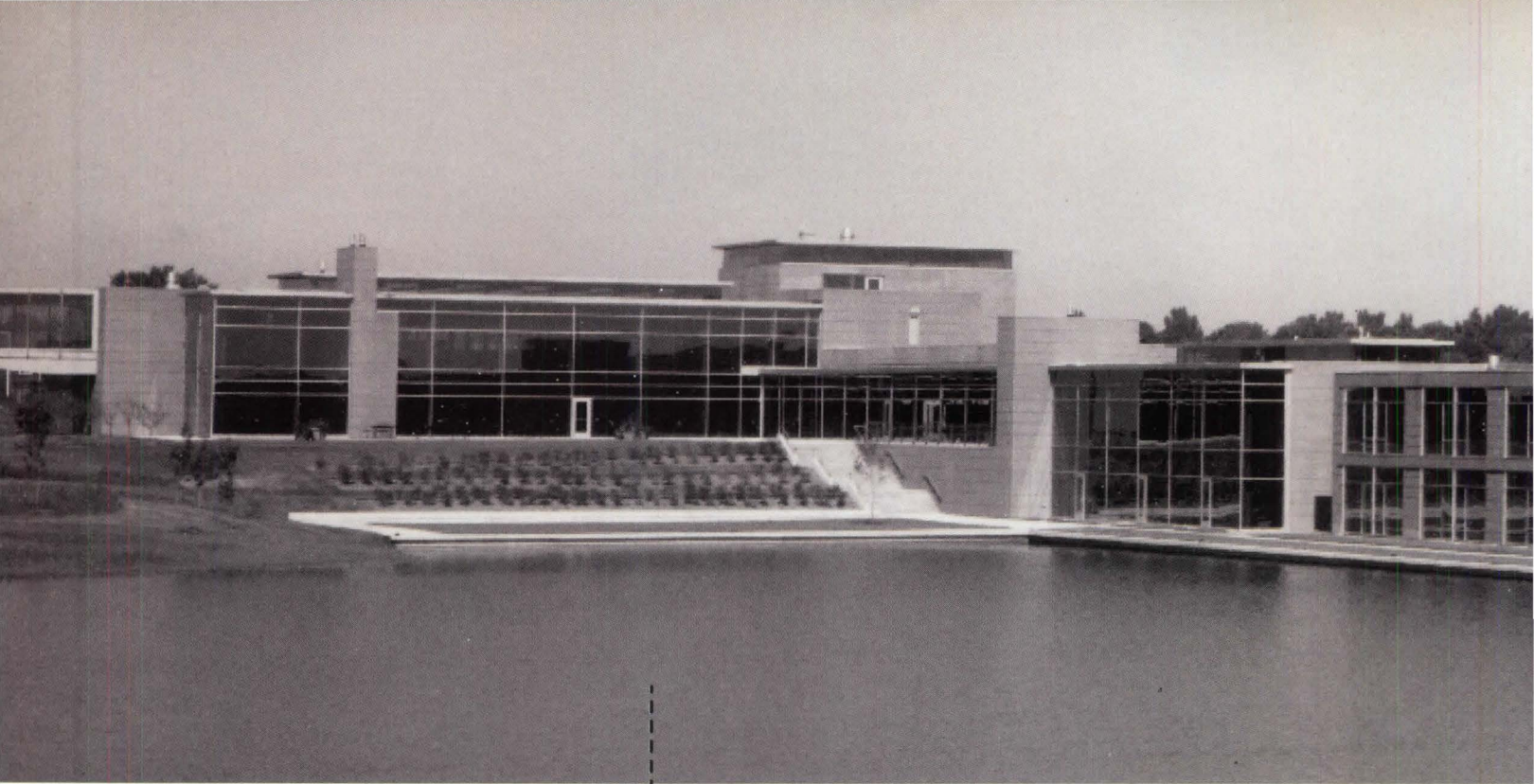
First-time visitors to Wright's residential masterpiece of the era, the Robie House (1909), are invariably surprised by its urban Chicago surroundings. They've grown accustomed to photographic white lies, to images that wish the house could spread its wings more freely—if not on the plains, at least nearby, in the less tightly packed neighborhood of Oak Park. The suburbia of Snow's retreat center can hardly be described as tightly packed, but the comparison applies just the same. Sprawl has denuded Snow's beautiful abstraction of the surrounding prairie into a wistful illusion, and forced it into a defensive posture like pioneers' wagons encircled against imminent attack.

Snow's architectural solution constitutes an act of denial—of both the surrounding sprawl and the architect's implicit contribution to it. But her attempt to ameliorate an irrepressible esthetic and environmental threat is also an act of heroism. ■

By Ned Cramer



South-facing bedroom windows reflect prairie landscape. Architect clad two-story wing with interlocking zinc panels.



- 1 bridge to headquarters
- 2 offices
- 3 dining hall
- 4 lounge
- 5 bedroom corridor
- 6 classroom corridor
- 7 chapel

THE JERSTAD CENTER, SIOUX FALLS, SOUTH DAKOTA

CLIENT: The Evangelical Lutheran Good Samaritan Society, Sioux Falls, South Dakota

ARCHITECT: Julie Snow Architects, Minneapolis—Julie Snow, Doug Coffler, Christian Dean, Mark Larson, Ben Awes, Jim Larson, Krista Scheib, Greg Larson, Mike Christiansen (design team)

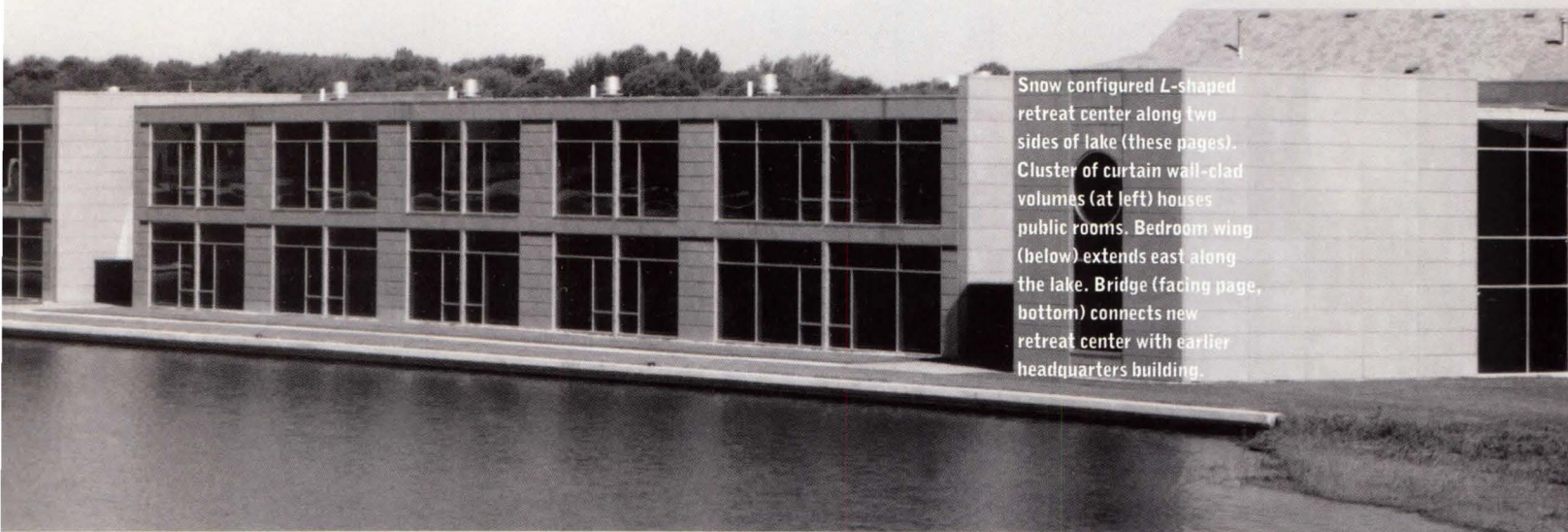
CONSTRUCTION MANAGER: Next, Inc., Sioux Falls, South Dakota—Steve Larson (principal)

LANDSCAPE ARCHITECT: Oslund Associates, Minneapolis
ENGINEERS: Meyer Borgman Johnson (structural); Michaud Cooley Erickson (mechanical, electrical); Stockwell Engineering (civil); Win Johnson (specifications)

CONSULTANT: Next, Inc. (interiors)

GENERAL CONTRACTOR: Sioux Falls Construction **COST:** Withheld at owner's request

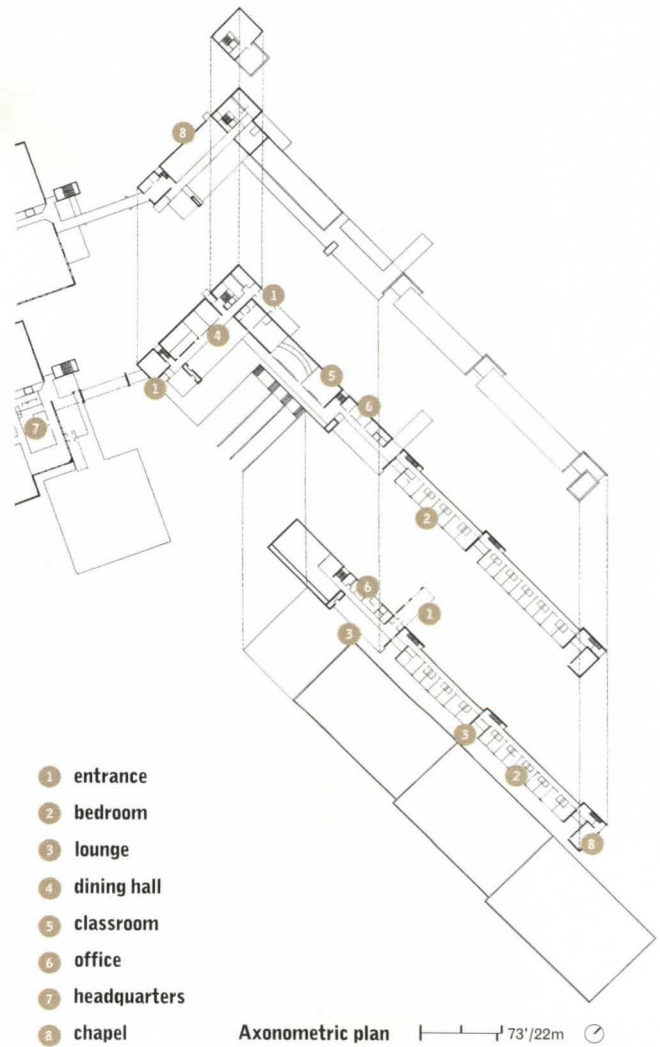
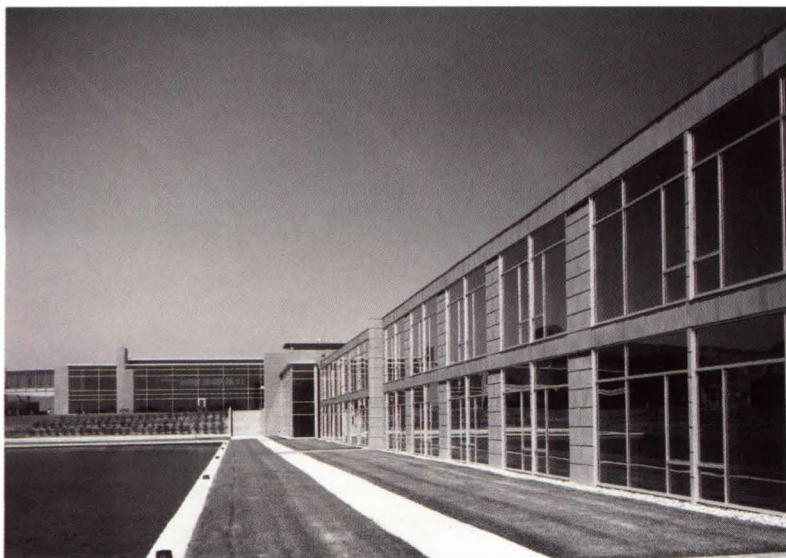
PHOTOGRAPHER: Richard Barnes



Snow configured L-shaped retreat center along two sides of lake (these pages). Cluster of curtain wall-clad volumes (at left) houses public rooms. Bedroom wing (below) extends east along the lake. Bridge (facing page, bottom) connects new retreat center with earlier headquarters building.



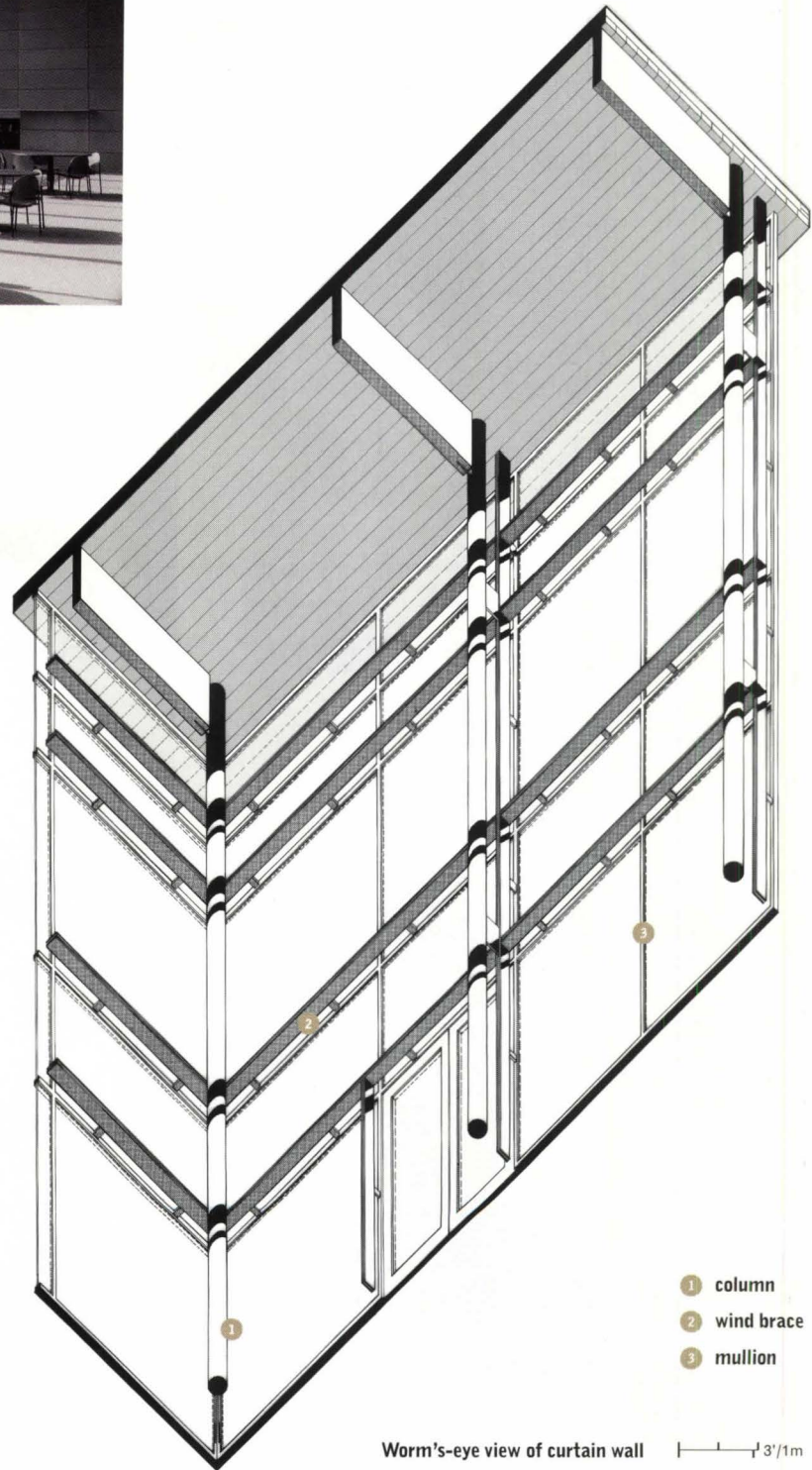
Section | 20'/6m



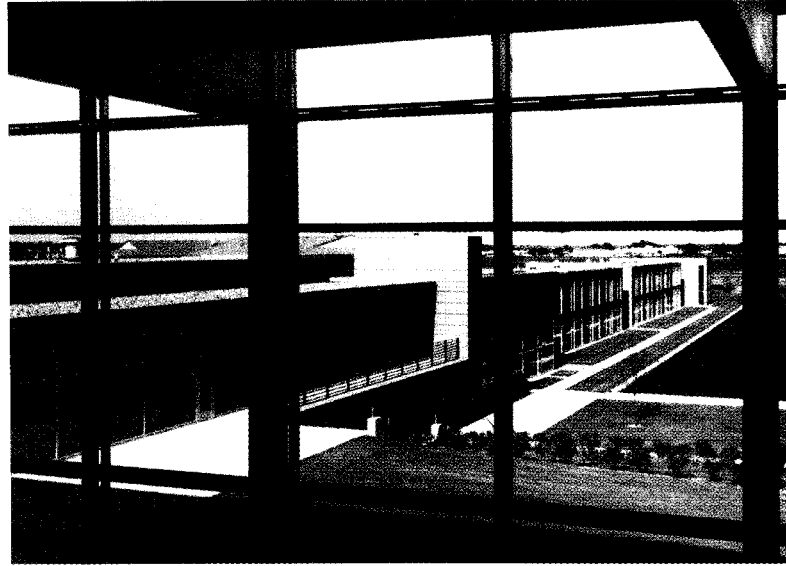
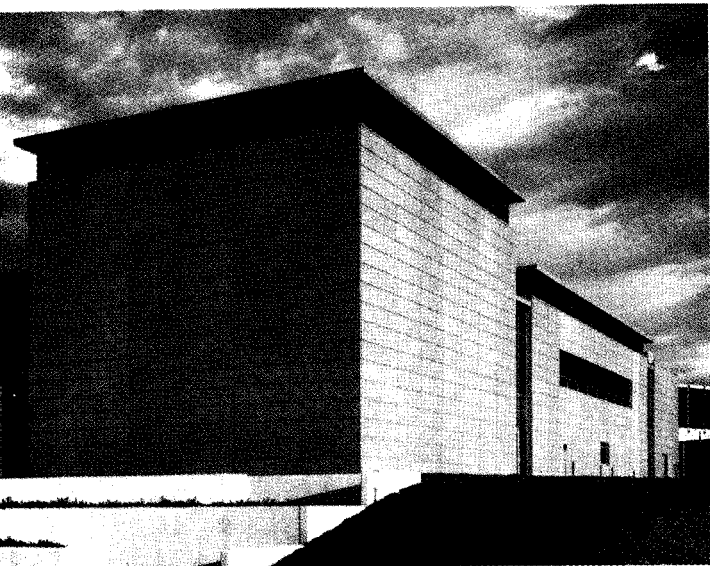
Axonometric plan | 73'/22m



Structure of curtain wall in dining room (above) and lounge (below) is diagrammatic in its simplicity. Snow frames panes of insulating glass in off-the-shelf, 2-inch-face aluminum mullions. Wind brace of two sandwiched plates of 1/4-inch-by-6-inch steel provides lateral support, and attaches to 8-inch-diameter steel columns.

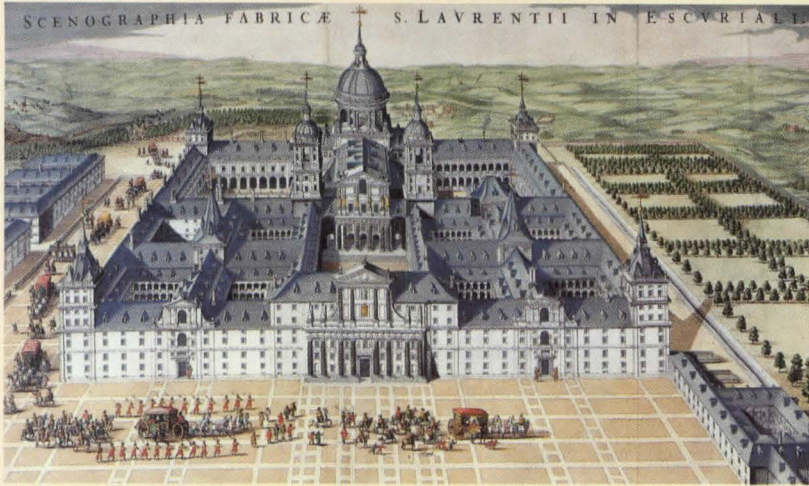


Worm's-eye view of curtain wall | 3'/1m



corridor. Clerestory window of executive boardroom (above) caps northwest corner of retreat center. Lounge in west wing (above right) overlooks lake and development beyond.





THE PROGENITOR:

Juan Bautista de Toledo and Juan de Herrera's El Escorial palace and monastery (above, 1582) outside Madrid, as depicted in Joan Blaeu's 1662 *Atlas Major*.

During the late 1970s, democratically elected socialist governments replaced the stale regimes of Francisco Franco in Spain and Antonio Salazar in Portugal—after nearly half a century of authoritarian rule. A renaissance of cultural activity ensued, first visible in cinema—most famously the films of Pedro Almodóvar—and soon after in architecture. Barcelona, capital of the Spanish province of Catalonia, experienced the most radical transformation, spearheaded by the restoration of the Catalan language, which Franco had outlawed. New museums in Barcelona critically reconsidered and celebrated the avant-garde artistic traditions of Pablo Picasso, Joan Miró, and Antoni Tàpies. The esthetic reverberation was soon evident in the minimalist refurbishing of bars, shops, museums, and the so-called “hard” plazas (because of the disproportion of paving to greenery), such as the one at Sants Station (1983) by Helio Piñon and Alberto Viaplana (with Enric Miralles). And in 1986, as if to vindicate a long-suppressed dialect of modern architecture, the German Pavilion,

The Unmodern Moderns

Richard Ingersoll explores how Spanish and Portuguese modernism overturned the fascist esthetics of Franco and Salazar.

designed by Ludwig Mies van der Rohe for the 1929 International Exposition, was rebuilt with loving precision under the guidance of Ignasi de Solà-Morales. This decade of innovative architecture concluded with the marvelous collection of new buildings, infrastructure, parks, and public works that planning director Oriol Bohigas orchestrated for the 1992 Olympics in Barcelona.

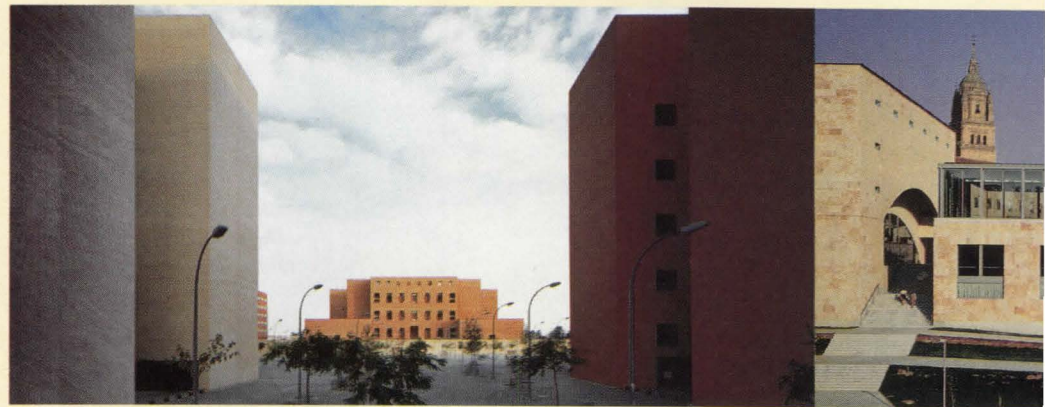
While one cannot deny there was an artistic diaspora at the end of the Spanish Civil War in 1939, including the expatriation of such important architects as Josep Lluís Sert, Antoni Bonet, and Felix Candela (who went to the United States, Argentina, and Mexico, respectively), modernism was not completely extirpated from Franco's Spain. First, in Francisco Cabrero's stripped-down rationalist Trade Union Building in Madrid (1948) and in his grid-based works of the 1950s, and then with the subtler efforts of Alejandro de la Sota and Miguel Fisac in Madrid and Josep Maria Sostres and José Coderch in Barcelona, truly modernist buildings, rooted in sensuous functionalism, began to dislodge the historicist preferences of the regime. The Portuguese School of Porto, represented best by Fernando Távora, maintained the esthetic and ethical principles of the local version of modernism.

Considering these architects' interest in Italian post-fascist modernism, it was not a casual happenstance that the first foreign translation of Italian neorationalist Aldo Rossi's *The Architecture of the City* (1966) appeared in Spanish in 1971. Massimo Scolari, an Italian contemporary of Rossi's, introduced the term *tendenza* to describe the movement in association with his exhibition *Rational Architecture* at the 1973 Milan Triennale, and it became a stylistic catch-all for neorationalist architecture. (In Italian, *tendenza* means a special tendency among many trends.) The three following projects by Rafael Moneo, Antonio Cruz and Antonio Ortiz, and Álvaro Siza (pages 110–129) evoke the esthetic cross-fertilization on the Iberian peninsula of the Italian *tendenza*.

The Iberian version of neorationalism is much more convincing in built form than any design of Rossi's constructed in Italy. This is true for a number of reasons, not the least of which are the solid technical background provided by Spanish and Portuguese schools, and the delayed alienation of craft from modern design that has maintained local traditions of masonry construction. Respect for the Italian origins of the Iberian *tendenza* is apparent in the commissions that Spain has lavished on Giorgio Grassi, the pre-eminent Italian neorationalist (Rossi died in 1997), such as the recently completed University Library in Valencia. The Portuguese have shown similar deference by selecting Vittorio Gregotti, another major exponent of the Italian *tendenza*, to design the Belem Cultural Center in Lisbon (1995). Rossi's epoch-making attack on the "naive functionalism" of the modern movement was for Spanish and Portuguese postmodern architectural culture analogous to the catalytic effect of St. Ignatius Loyola's Spiritual Exercises on Counter-Reformation theology during

the mid-16th century. In this case, Rossi's theoretical ruminations resuscitated Iberians' faith in a rationalist architecture grounded in formal rules derived from conventional building typologies, elementary forms, the spirit of place, and, when appropriate, transcendent monumentality.

For Madrid-based Rafael Moneo and most non-Catalan Spanish architects, the memory of the 16th-century convent of El Escorial, the residence and mausoleum of the Spanish monarchy, lurks as ineluctably as Catholic religious training in the matrix of the creative process. Not in a literal sense, as when the Franco regime pathetically imitated El Escorial's forms for various institutional buildings, but as the essence of rational architecture with rigorous organizing principles. The ponderous stereotomy of El Escorial's severe granite masonry currently haunts the works of Alberto Campo Baeza, Juan Navarro Baldeweg, Manuel de las Casas, and other talented post-Franco architects, while its preponderance as a coherent geometric system conditions such large-scale projects as the Santa



THE NEORATIONALISTS:

Giorgio Grassi's University Library in Valencia (above left); Juan Navarro Baldeweg's Congress Hall in Salamanca (above right).

Justa Station in Seville by Antonio Cruz and Antonio Ortiz (1992).

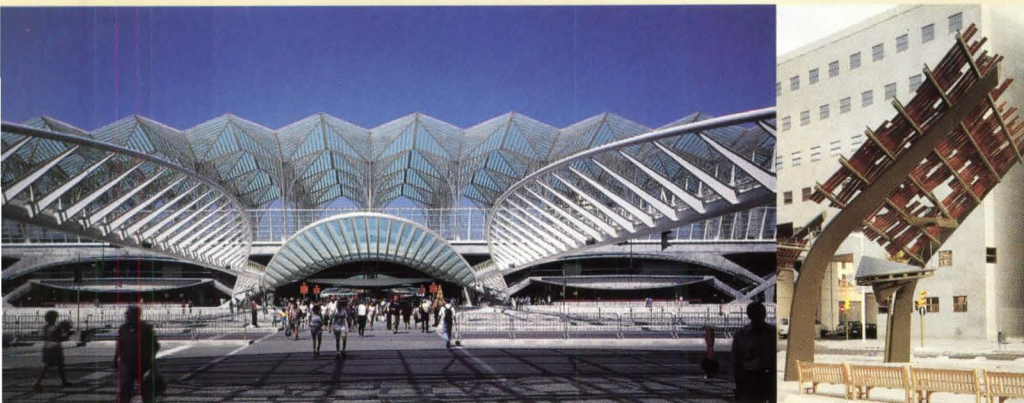
While the neorationalist tendency surfaced first in Barcelona, especially in the work of Esteve Bonell, Carlos Ferrater, and the team of Jaume Bach and Gabriel Mora, there were also several alternative trends. Most notable of these are Ricardo Bofill's adventures in monumentality, which began with colorful megastructural projects, such as the Walden Building (1975), and culminated with the most gargantuan revivals of classicism (constructed mostly in France) since Albert Speer's plan for Berlin. Further, an expressionistic current inspired by the irrational legacy of Antoni Gaudí and Spanish surrealism persists in the biomorphic engineering of Valencia-born Santiago Calatrava. Enric Miralles and Carme Pinós (who have worked separately since the early 1990s) created several unsettling compositions of wildly intertwining lines and canted geometries, such as the twisted canopies along the interior boulevard of the Olympic Village for the 1992 games in Barcelona, which

lamponed the orderly certitudes of the surrounding rational housing blocks.

All over the rest of Spain, new public buildings and housing followed the government's redistricting of the country into autonomous political regions during the 1980s. In these provincial settings the Iberian *tendenza* flourished, generating works that were bold in their geometric rigor but contextualist in their scale and use of materials. Rafael Moneo's Museum of Roman Art in the remote town of Mérida (1986) became canonical of Spain's unmodern modernity, a work that was abstractly modern in its volumes but atavistically premodern in its particulars and technique, in this case a majestic succession of internal brick arches. Although Moneo's output has been stylistically multifarious—ranging from explicitly neorationalist compositions, such as the Atocha Station in Madrid (1992), to neo-Expressionist indulgences, such as the two glazed rhomboidal prisms for the Kursaal in San Sebastian (1999)—he rigorously adheres to the conventions of typology and to contextual determinants of urban

restrictions. His latest work in Spain, the extension of the City Hall of Murcia (pages 110–115), is a consummate example of the Spanish *tendenza*: a pure, stone-clad volume artfully modulated by the irregularly spaced interstices of its loggia to reflect the rhythm and scale of the surrounding historic buildings. To this Latin adherence to rules he has added his appreciation of Alvar Aalto's sensuous palette of geometric license and asymmetry.

Moneo's most accomplished students, Cruz and Ortiz (the "two Antonios," as they are frequently called) have in some ways surpassed their master in the conception of striking Euclidian geometries. Their community-sports stadium in Madrid (1994) is a sublime oval disk, obliquely resting on a succession of free-standing planes. The repetitive rigor of a series of cubic pavilions serving the port of Chipiona (1995) demonstrates a rational method for imposing a rhythmic unity on a chaotic landscape. Their latest building, a public library in their hometown of Seville (pages 116–121), is conditioned in



THE SURREALISTS:

Santiago Calatrava's Gare de Oriente in Lisbon (above left); canopies by Enric Miralles and Carme Pinós at the Olympic Village in Barcelona (above right).

its irregularity by a pentagonal site that overlooks a park. By wrapping the perimeter of the lot with a brick wall, they have been able to establish the quintessential courtyard type.

Álvaro Siza of Portugal has emerged as the acknowledged master of late-20th-century Iberian architecture, though it would be difficult to confine his work solely to the *tendenza*. Resisting prescriptive methods, he has remarked that “any design is an earnest endeavor to capture the nuances of a given instant in a transient reality.” Siza’s originality comes from combining the preponderant regularity of Mediterranean masonry walls and rhythmic shading devices with a Scandinavian sense of subtle facade inflections, uncanny sources of natural light, and irregular sections. He was among the first non-Spanish architects to build in contemporary Spain, completing his celebrated Center for Contemporary Art in Santiago in 1993. Architects Joao Luis Carrilho da Graça, Gonçalo Byrne, and Eduardo Souto de Moura are slightly younger and in some ways more orthodox

practitioners of a Portuguese version of the *tendenza* that has brought new formal vitality to Portuguese cities without causing esthetic disruption.

While Iberian architects noticeably resist awkward, non-Euclidian shapes and glaring surface materials such as glass and reflective metals, one cannot claim that these countries have actively discouraged unorthodox architectural variety. Francisco Javier Saenz de Oiza’s low-income housing project on Madrid’s M-30 motorway is a publicly sponsored exercise in heterogeneity. Its outer facade has square windows resembling Aldo Rossi’s, but the facades of its courtyard use supergraphic balustrades and colorful decoration in the manner of Robert Venturi. And there have been numerous high-tech imports, including several buildings by Sir Norman Foster (most recently the Valencia convention center). Nor should the scudding forms of Frank Gehry’s Guggenheim Museum in Bilbao (1997) go unmentioned as a self-inflicted antidote for neorationalism. Still, the effects of the Iberian *tendenza* contribute

to an unparalleled regional integrity boosted by the dynamism of local production. The serenity that exudes from solid masonry walls, the splendid play of light that filters through artfully incised volumes, and the inalienable respect for the scale and feel of existing historic fabric are the result. There is no place else in the world where the majority of contemporary architecture fits so comfortably into its urban settings, yet transmits such an optimistic sense of the new. ■

BIBLIOGRAPHY:

- Frampton, K., A. Capitel, V. Perez Escolano, I. Solà-Morales. *Building in a New Spain*. Chicago: The Art Institute of Chicago, 1992.
- Solà-Morales, I., A. Capitel, P. Buchanan. *Birkhäuser Architectural Guide, Spain 1920–1999*. Basel, Switzerland: Birkhäuser Verlag, 1998.
- Güell, X., J. Rykwert (introduction). *Spanish Contemporary Architecture: The Eighties*. Barcelona: Gili, 1990.



THE HYBRID:

Francisco Javier Saenz de Oiza’s low-income housing in Madrid (above left and right).





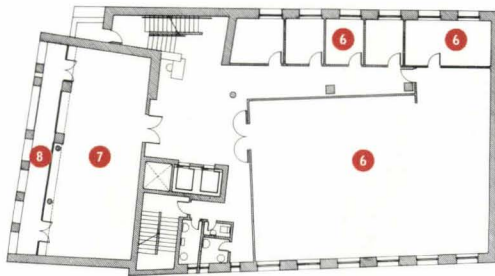
THE UNMODERN MODERNS

Church and State

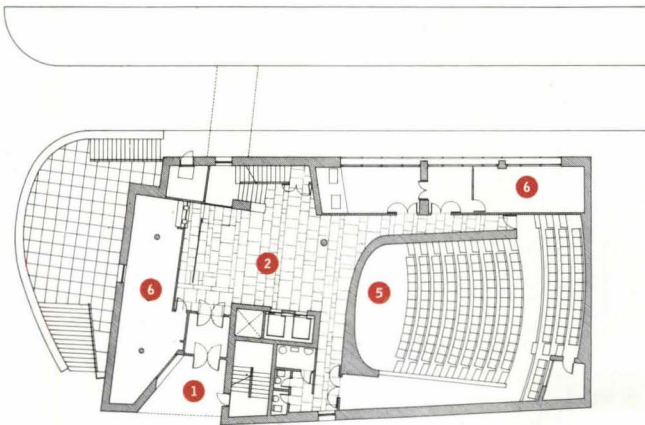
Rafael Moneo completes a civic and religious ensemble in the heart of medieval Murcia, Spain.
By Raul A. Barreneche

Glass-enclosed bridge over street connects new annex to existing 19th-century city hall (facing page). Now closed to motorized traffic, Cardenal Belluga Plaza boasts new paving pattern designed by Moneo (site perspective, above right), with stone bands radiating from civic and religious landmarks around plaza's edge.

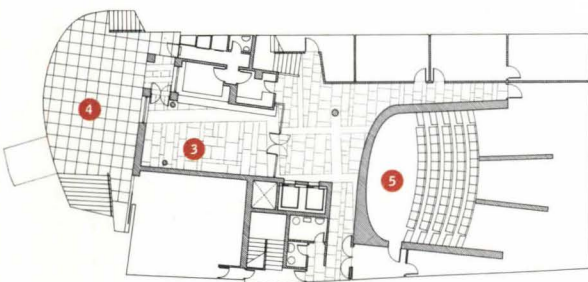
- 1 entrance
- 2 lobby
- 3 café
- 4 sunken patio
- 5 assembly hall
- 6 office
- 7 reception room
- 8 loggia



Second-floor plan

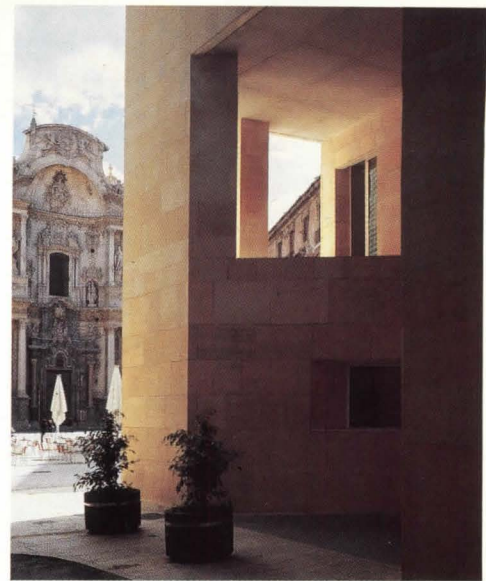


First-floor plan



Basement plan | 17'/5m

Plans (above) reveal split in building's geometry: North and south flanks follow existing street lines; east end rotates to face cathedral across plaza. Curved edge of moat marks orientation of demolished house formerly on site. Entry is between chamfered sandstone walls on north side of annex (above right), achieving Moneo's goal of not adding new entrance from plaza. Top-floor balcony behind square stone columns of east facade opens onto panoramic views of baroque cathedral (facing page, top). Annex's rhythmically patterned main facade overlooks outdoor cafés along northern edge of plaza (facing page, bottom). At left is 1768 palace.

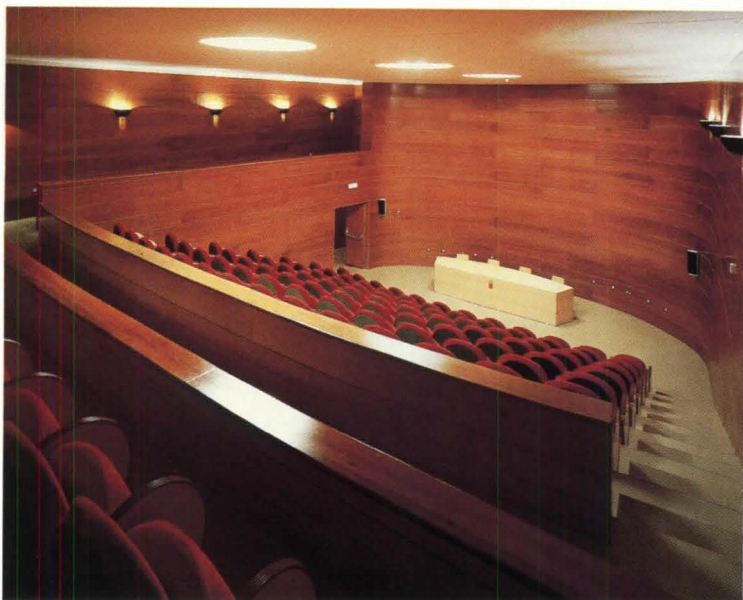


How does one build in a space like the Plaza Cardenal Belluga? asked Rafael Moneo when he began designing an annex to the city hall of Murcia, a dense and picturesque medieval town near the Mediterranean coast of Spain, northeast of Granada. The Spanish architect was daunted by the task of building the final punctuation mark on the plaza, Murcia's grandest and most important public space. Defining two faces of the plaza are an imposing 16th-century cathedral on the east and the quieter cardinal's palace dating from 1768 on the south. Along the remaining edge, a row of 18th-century houses brings to life street-level cafés.

What Moneo faced was in many ways a thoroughly European problem of adding new uses and structures to ancient environments—but with a few twists. In the case of the Plaza Cardenal Belluga, the buildings surrounding the plaza were as strong in character as the irregular space they described; the solids were as important as the voids. And the site of the new city hall annex would put it squarely opposite and on axis with the cathedral, creating an urbanistic tension that Americans might find troubling: a direct confrontation of church and state. In a country where the Catholic Church wielded so much power for so many centuries, the relationship is even more loaded.

Moneo claims to have created a building "content in its role as spectator, without seeking the status of protagonist held by the cathedral and the palace." The building may have been cast as a supporting player in the urban drama of its surroundings, but it has strong character and authority. Moneo filled in a small site directly opposite the cathedral, on the western edge of the plaza, where the city demolished an historic house to make way for an expansion of the 19th-century city hall just off the square. The architect outlined the existing curved boundary of the site with an open moat and oriented the blocky 3,000-square-meter building within this void. Moneo oriented the building to face the cathedral head-on—unlike the site's previous structure—and kept the street lines intact on the site's north and south flanks. The irregular residual space between the building and the edge of its moat became a submerged, open-air seating area for a café at the bottom level.





Wrapped in sweeping wood-clad walls, legislative chamber at basement level doubles as hall for public lectures (top). Councilors' offices on fifth floor open onto narrow balcony overlooking plaza (above left). On second floor, reception room also opens onto loggia, with views of plaza through double-height window (above right). Grid of lighting fixtures brings down scale of airy room. For first time, annex gives city government presence on Murcia's most important public space (facing page). Narrow bridge connects addition to existing city hall, which is entered from south, along Segura River.

MURCIA TOWN HALL, MURCIA, SPAIN

CLIENT: Municipal Government of Murcia, Murcia, Spain—Miguel Angel Cámara (mayor) **ARCHITECT:** José Rafael Moneo Architects, Madrid, Spain—Rafael Moneo (principal); Javier Revillo, Michal Bischoff, Valeria Koukoutsis (project architects); Belén Hermida, Francisco González Peiró (working drawings)

ENGINEERS: Mariano Moneo (structural); JG Associates (mechanical); Francisco González Peiró, Carlos Marín (quantity surveyors)

CONSULTANTS: Rafael Moneo (furniture) **GENERAL CONTRACTOR:** Dragados (Comylsa)

COST: \$3.1 million **PHOTOGRAPHER:** Duccio Malagamba

Citizens enter the annex either through the principal public entrance on the north side or by crossing a glass-enclosed bridge linking the second floor of the addition with the existing city hall to the south. In deference to its neighbors, it was important to Moneo that the building not be entered from the plaza. On the street level of the six-floor building are the offices of Murcia's information and tourism departments, as well as a legislative chamber that doubles as a public lecture hall with seating for 160. Below the ground-floor offices is a small café that opens onto the sunken court. The remaining levels are a fairly standard arrangement of offices. The only notable exception is an airy, double-height reception room on the third level that opens onto a loggia along the east facade, facing the cathedral. The interior palette is dignified but exceedingly quiet for a civic landmark. The stone and wood floors, stucco walls, and wooden paneling are "discreet and almost imperceptible," as Moneo describes them, "though befitting public spaces" with their quiet dignity.

On its north and south facades, the building's exterior says little. Square windows punched into its skin of a golden local sandstone called *lumaquilla* respect the rhythm and scale of the building's tight confines. Solid sills of overhanging stone slabs are the only articulation in the smooth, planar faces.

The plaza facade is where Moneo's design sets forth its ideology. This single elevation, roughly a golden section in profile, encapsulates the entire building's attitudes toward its surroundings and toward history and modernity, order and disorder. Atop its *lumaquilla* base are bands of stark stone piers that support the exposed concrete slabs of balconies tucked behind the shifting scrim of columns. Moneo modulates the rectangular openings of this blunt trabeation floor by floor; each level of this outermost skin is set to its own syncopated rhythm. "This facade," explains Moneo, "could never, nor would ever, want to compete with classical order. It is organized as a musical score: numerically. It resists symmetries and accepts as a key element the balcony of the gallery."

The composition reads like the cold, classically leaning facades of Italian rationalists Giuseppe Terragni or Marcello Piacenti gone haywire. Freed of their structural imperatives, the square columns bunch up and spread out at will. Within a single flat plane, Moneo's civic annex becomes as affected and self-conscious as the baroque cathedral—but never relinquishes its sense of order and rationality. There are moments when the building follows external cues: Window lines mimic those of its neighbors, for instance, and the ceremonial balcony aligns with the piano nobile of the cardinal's palace. The number game Moneo plays within the facade expresses a localized order. Each level of columns follows its own regular rhythm; together, the layers read as simultaneous melodies or separate instruments playing their own part of a symphony. This facade is Goethe's credo of frozen music writ large—and literal.

Although Moneo wanted his addition to defer to its historic setting, it's not as reverent as he claims. The building makes a clever game of playing order against disorder to assert its own identity among its ornamented neighbors. More importantly, though, this annex introduces a new civic role to an important space in Murcia's public and religious life. ■





THE UNMODERN MODERNS

Cool in the Sun



Spanish architects Cruz and Ortiz offer a restrained counterpoint to the spirited streets of Seville.
By Catherine Slessor

“Seville,” wrote Byron, “is a pleasant city, famous for oranges and women.” And for its heat, he might have added, since Seville’s scorching summers are the most intense in Europe. Laying aside Byron’s 19th-century chauvinism, the spirit of his sentiments still rings true. Seville is the greatest city of the Spanish south, the city of Carmen and Don Juan, and the archetype of Andalusian theatricality, brilliance, and promise.

More recently, Seville achieved prominence by staging the ambitious 1992 World Expo commemorating the 500th anniversary of Columbus’ discovery of the New World. The Expo had significant practical consequences for the city. It acted as a catalyst for state-sponsored infrastructure improvements and new public buildings that continue to benefit locals long after the Expo’s glamour has faded. Among these was Santa Justa Station, a major new terminus for the national high-speed rail network, designed by local architects Antonio Cruz and Antonio Ortiz.

Since then, Cruz and Ortiz Architects has completed a series of thoughtful public projects that add to the life of its native city, as well as undertaking commissions in other parts of Spain. Working in an old city like Seville means understanding and accepting the rules it imposes to preserve its integrity. But respect for the past does not affect Cruz and Ortiz’s capacity to design distinctive modern buildings. Each project is an intuitive response to program and context, unhampered by prior stylistic or typological assumptions. As the architects explain, “We would like to join those somewhat opaque architects who are hard to pigeonhole and who maintain a certain distance from the present.”

Exemplifying their sensitive, unrheterical approach to design, the partnership’s latest building is a new public library that opened last month on the eastern edge of Seville’s medieval core. Paradoxically, the library’s cool Mediterranean rationalism seems at odds with the city’s historical reputation for sensuous flamboyance. Yet in its reinterpretation of a basic courtyard form and restrained use of materials, Cruz and Ortiz’s architecture subtly draws on vernacular traditions.

The new \$5.3 million library occupies an irregular plot of land between a large public park and the Guadalquivir River, which meanders through the heart of the city. The site lies at the south end of a loosely ordered campus of exhibition buildings erected for the 1929 Ibero-American Exposition, Seville’s original Expo. Some of these historic curiosities now

Set back from the street edge, Seville’s new library (facing page) is a reticent yet elegant presence among buildings from 1929 Ibero-American Expo (site plan, below). Rusticated base of greenish-gray slate supports crisp geometries of brick and glass.

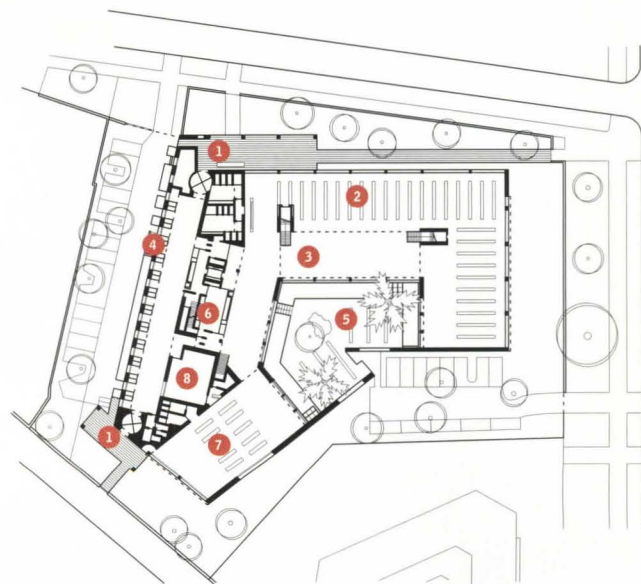


Site plan





On more exposed west elevation (top), louvered screens help diffuse intensity of Sevillian. Library's long, low volumes are capped by zinc mansard roof (above) with clerestories that bring light into book-stack areas. Stacks are arranged around perimeter of library, overlooking double-height reading room (facing page, top). Luminous reading area connects with secluded patio at heart of library (facing page, bottom right).



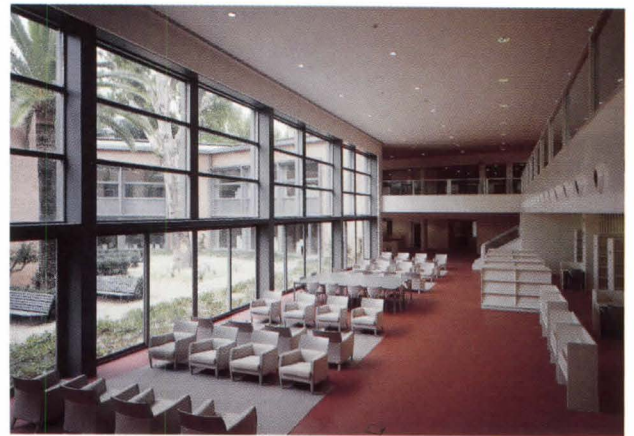
Ground-floor plan | 63'/19m

- 1 entrance
- 2 book stacks
- 3 periodicals and reading area
- 4 gallery
- 5 courtyard
- 6 circulation desk
- 7 children's area
- 8 activity room



East-west section | ——— | 11' / 3m

- ① reading room
- ② book stacks
- ③ courtyard



have new uses, but their stage-set exoticism gives the surroundings the air of a fossilized theme park. Cruz and Ortiz's library is self-contained; it relates to the surrounding buildings by maintaining the same scale, but it is unobtrusive, even modest. It speaks of municipal sobriety.

Wrapped around a hermetic central court, the 5,500-square-meter library resembles an angular doughnut with a section missing. On the east corner a minimal portico discreetly signifies the main entrance. From the surrounding streets, tautly composed geometries of brick and glass present an inscrutable face to the public. Affirming Cruz and Ortiz's capacity for sober abstraction, low-slung elevations of local terracotta brick are crisply incised with visorlike bands of glazing. The brick planes are supported on a rusticated base of greenish-gray slate, punched through at intervals by glazing. Louvered screens on the more exposed elevations help diffuse the glare and intensity of the Sevillian sun. On the building's north elevation glass slots in a mansard roof funnel light into the building like a classic artist's studio.

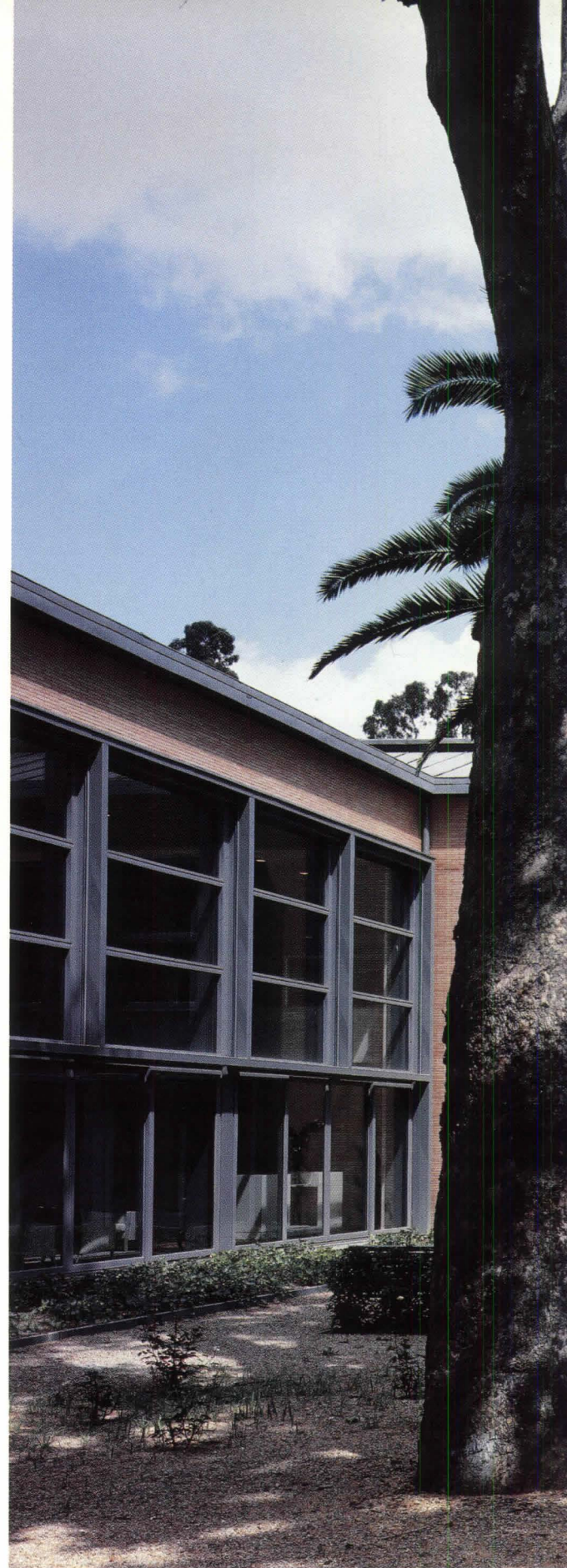
Separated from the reading rooms by a strip of staff and service accommodations, a linear foyer connects with the information and check-out desks that stand sentry over the reading rooms. Beyond this subdued control point, the library erupts into a bright, double-height volume cranked around the landscaped central courtyard. Conceived as a larger version of a traditional Andalusian domestic patio, the courtyard forms the centrifugal heart of the building, binding together the library spaces.

Reading rooms and book stacks are contained within the main double-height volume facing the courtyard, with study areas arranged on both the ground- and second-floor levels. The general collection and children's library are housed on the ground floor, with the reference library, video collection, and additional space for the overall collection upstairs, overlooking the soaring reading room. White walls, white book stacks, and cream-colored furniture add to the sense of lightness and functional elegance. The space is uniform, with identical rows of stacks and reading desks filling the interior. The only distinctions are among the contents of the collection; the architecture is broadly the same throughout.

Tall glazed walls on the courtyard side of the reading rooms heighten the visual and physical connection with the exterior. Landscaped with palm trees, manicured hedges, and rows of slatted wooden benches, the courtyard informally extends the library's interior spaces. On the south side of the court, two freestanding planes bridge the gap between the two ends of the doughnut plan. The trajectory of these walls is such that they do not actually meet, but are joined at right angles by a low glazed wall, like a garden gate. Perforated by vertical glass louvers, the brick planes are transformed into permeable elements that reveal rather than conceal. A sequence of vistas unfolds from the reading room to the courtyard and the park beyond, framed by the freestanding walls.

Casting off the municipal dullness sometimes associated with such buildings, Cruz and Ortiz's library is a dignified addition to the public realm. But it is also a delightful, luminous pavilion with a secret garden that enhances the simple human pleasures of browsing and reading. ■

Cruz and Ortiz abstract and enlarge traditional Andalusian domestic patio to create visual, spatial, and social focus for library. In Seville's Mediterranean climate, courtyard can be used most of the year as outdoor room.



SEVILLE PUBLIC LIBRARY, MARIA LUISA PARK, SEVILLE, SPAIN

CLIENT: Ministry of Cultural Affairs

ARCHITECT: Cruz & Ortiz Architects, Seville, Spain—Antonio Cruz, Antonio Ortiz (partners-in-charge); Blanca Sanchez, Miguel Velasco (project architects)

LANDSCAPE ARCHITECT: Bet Figueras
ENGINEERS: Tedeco (structural, civil); Insur (mechanical, electrical); Building Analysis & Construction (quantity surveyor)

CONSULTANTS: Tomás Ruiz (mechanical); Enrique Cabrera (structural)

GENERAL CONTRACTOR: Dragados y Construcciones

COST: \$5.3 million **PHOTOGRAPHER:** Duccio Malagamba





Light Wash

Álvaro Siza drenches a spare academic cloister in Mediterranean sunlight. By Raul A. Barreneche





Alicante is probably best known to Spaniards as the charming Mediterranean resort town where they spend their August holidays. During the Spanish Civil War, however, the city played a less festive role as the home of Rabasa Military Airport, located in the area of town called San Vicente del Raspeig. After the war, the abandoned airport was transformed into the University of Alicante campus, its former military structures adapted into a quirky combination of new uses. The old barracks, for instance, became dorms; the airport's squat, art deco control tower took on new life as a classroom building; and an old hangar, stripped down to its steel skeleton, was turned into a hollow canopy shielding a garden. Newer buildings filling out the flat, arid campus are a mixed bag. No two buildings look the same; most belong in an American office park, not a Mediterranean college campus.

Enter into this chaotic context Portuguese architect Álvaro Siza, the master of cool cubic composition and whitewashed serenity. Siza's new classroom and office building for the law and linguistics departments occupies a prominent place in the university plan: It frames almost the entire northern flank of the campus' main mall, an arid lawn dotted with olive trees and lavender bushes. Despite its size and location, the building doesn't engage its neighbors; rather, it politely turns its back to them. The broad stone and stucco planes of its exterior are impenetrable but not hostile, a neutral backdrop to its context. Behind these whitewashed walls, the structure reveals itself as a completely different building. The interior realm is informal and permeable, with luminous spaces and austere patios that draw heavily on

Siza's building turns solid, mute face to surrounding campus, including amphitheater at terminus of campus mall (below). Overlooking lavender-filled planters along mall is balcony projecting from second-floor conference room (facing page, left). Users enter building at opposite ends, through tiny door in east-facing courtyard (bottom right) or through square portal at western end of large patio (bottom left).



Spain's Moorish courtyard buildings. Once inside Siza's structure, its occupants are transported far from their mundane surroundings to a sublime world of light and shadow.

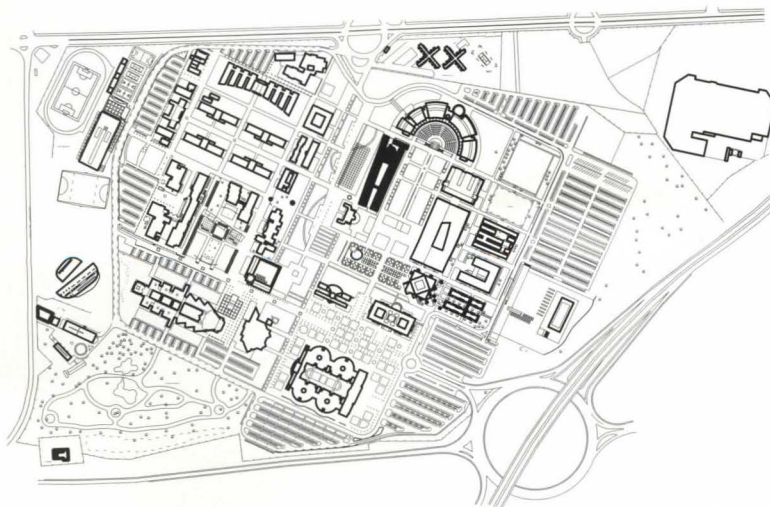
The 75,000-square-meter building's parti is simple: a long, thin *H*-shape with one leg skewed slightly inward. The bar connecting the two legs of the *H*—containing a curved, double-height entry hall—is pushed far off center, creating a pair of courtyards of different scale and atmosphere. The smaller space to the east is a confined, formal forecourt to offices and conference rooms. The long patio to the west of the bar is a sweeping open space flanked by stark arcades and paved in tan-colored sand. Along the arcades are classrooms on the ground floor and offices above, linked vertically by their function; that is, the second-floor offices belong to the professors who teach in the classrooms directly below them.

Users enter the building either from the west through a marble portal onto the courtyard, or through a tiny door at the east end. Within the building are two independent circuits of movement through the cells of the classrooms and offices. Students can amble into the classrooms (and the restrooms) through the courtyard, darting across its dusty center or filing down its deep, sheltering arcades. This back-and-forth activity creates a fluid and informal motion at the heart of the building that one would not likely imagine by looking at its hushed exterior.

The sun is strong in this part of Spain, but in the architect's hands it becomes a soft wash. Sunlight remains untempered only at the very center of the patio; elsewhere, the architect shades and filters it in varying degrees from the outside in. Deep overhangs of smooth, stuccoed concrete soften the light pouring into the tall, narrow classrooms and offices. Glazed doors along the courtyard make these rooms bright enough to virtually eliminate artificial light; glazed panels in doors along the corridors filter daylight into these generally windowless halls. Artificial light, when necessary, is always indirect. Though immaterial, these highlights are the only sensuous flourishes Siza adds to the serene palette of stucco, stone, marble, tile, and wood.

The way the architect joins materials and surfaces seems almost brusque: On the outside walls, a pale limestone base suddenly gives way to stucco. The columns of the internal arcades hit the concrete slab ceiling without so much as a simple capital, and run into the sandy ground with equal straightforwardness. Inside, the sparseness continues: Siza wraps the walls in pale lemon-colored tiles, with stone flooring on the ground level and wooden floors on the second level. Only the public spaces at the eastern end of the building are finished in large squares of tawny marble. This starkness of materials makes users focus on light and space rather than form.

Siza hasn't transformed Alicante's profoundly ungracious campus with delicate abstraction and cool detachment. The building suggests an intelligent approach to a difficult context: Turn a pleasant, though blank face to its surroundings and create a rich new realm inside. The structure lets visitors tune out their surroundings and immerse themselves in Siza's cool new world. ■

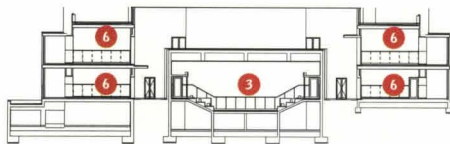


Site plan | 453/136m

At heart of building is vast patio paved in coarse sand (below). Deeply recessed doors along ground-floor arcade lead to classrooms; doors along second-floor walkway, shaded by deep overhangs, access faculty offices (bottom). Blank stucco-clad plane marks setback of office wings.

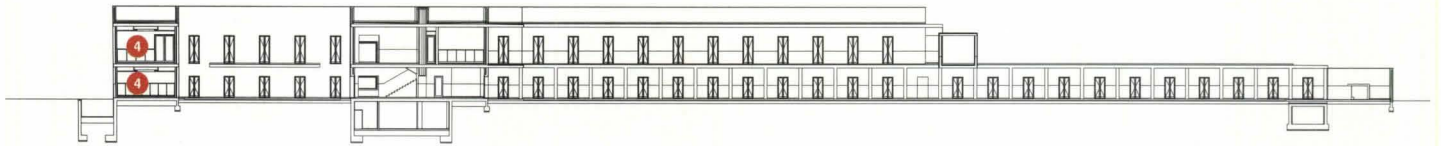


Sunlight entering through doorways and windows wash serene interiors of second-floor hallways (below left and right). Siza limited palette to stucco, marble wainscoting, and polished wooden floors. Daylight fills sweeping half-drum of double-height entry hall (facing page).

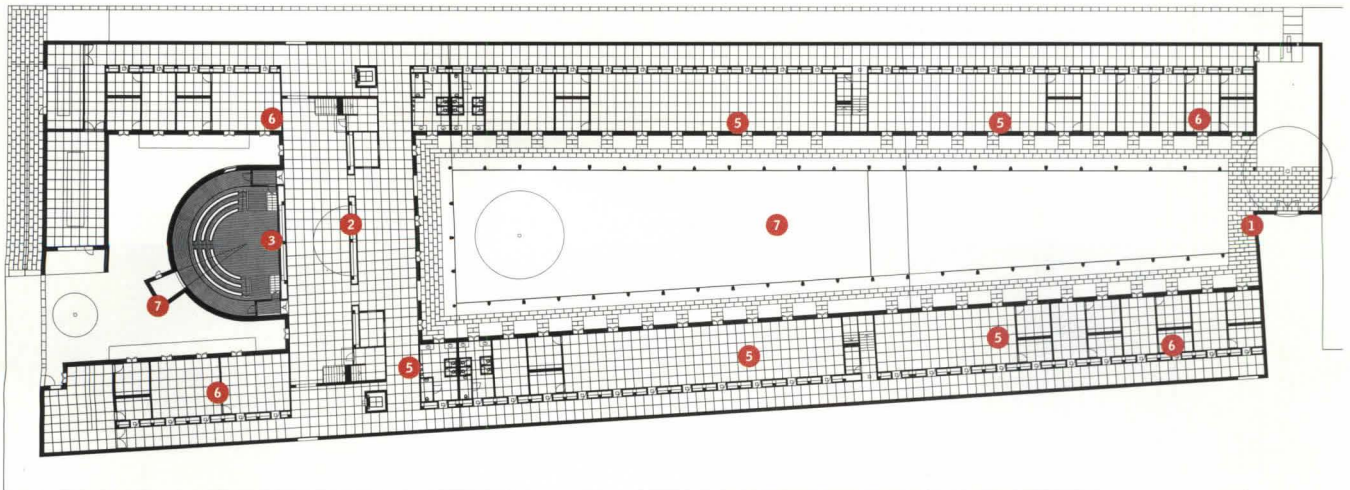


North-south section

- 1 entrance
- 2 lobby
- 3 auditorium
- 4 meeting rooms
- 5 classrooms
- 6 offices
- 7 courtyard



East-west section



Ground-floor plan | 26'/8m

UNIVERSITY OF ALICANTE RECTORY, ALICANTE, SPAIN

CLIENT: University of Alicante, Alicante, Spain **ARCHITECT:** Álvaro Siza Architects, Porto, Portugal—Elisiário Miranda, Luiz Martinez-Planelles (principals-in-charge); Avelino Silva, Carlos Seoane, Cristina Ferreirinha, Hana Kassem, Luiz Diaz-Mauriño (collaborators) **ENGINEERS:** José Luiz Perez Molina (structural, electrical, water systems); Joaquin Solbes Llorca (mechanical) **GENERAL CONTRACTOR:** Gines Navarro (foundations); San José Construction (structure and finishes) **COST:** Withheld at owner's request **PHOTOGRAPHER:** Duccio Malagamba



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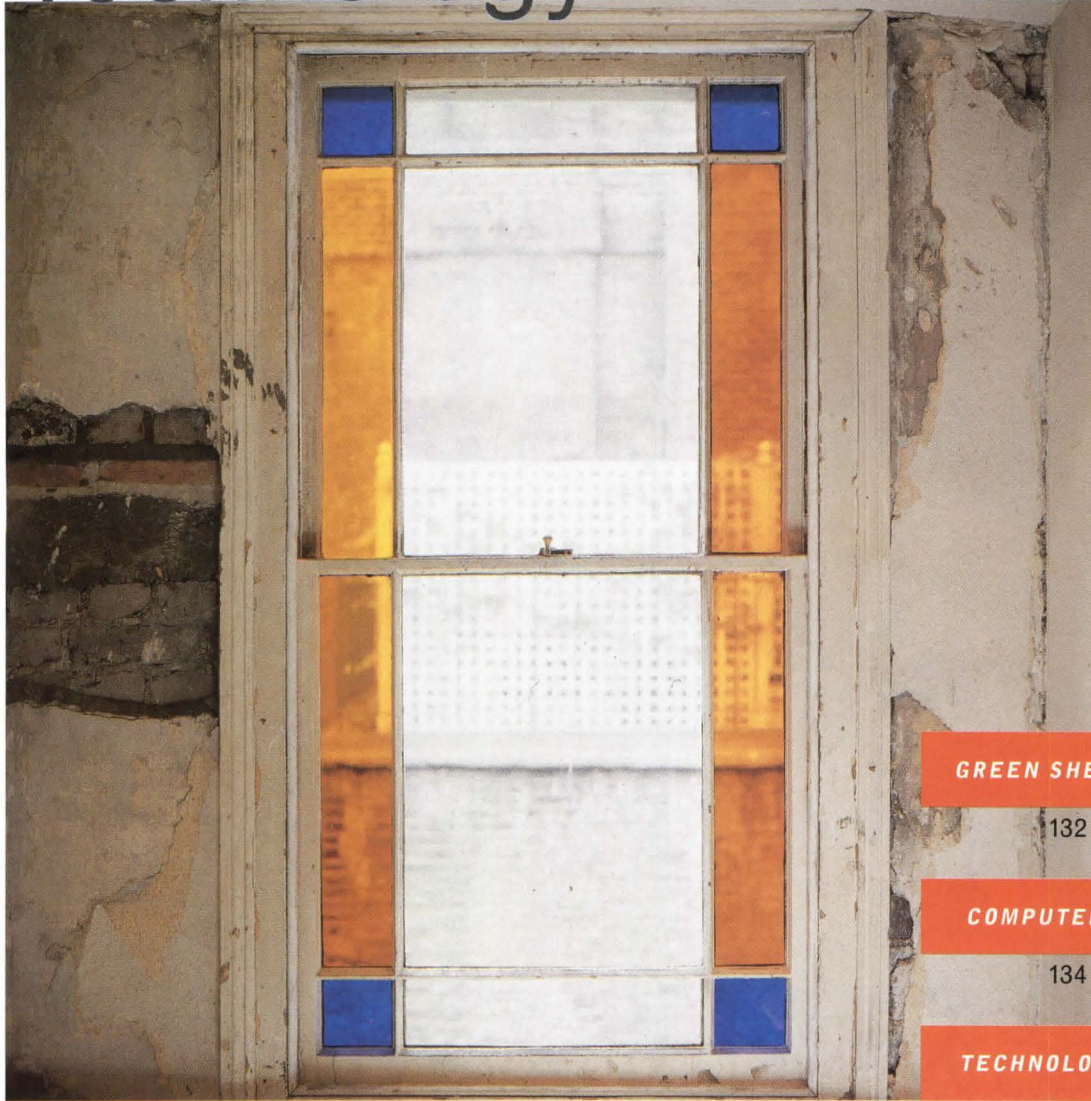
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architecture Technology + Practice



The Georgian row house at 36 Craven Street was Benjamin Franklin's London laboratory and political salon for 16 years leading up to the American Revolution. Along with Mount Vernon and Monticello, Franklin's house **is an architectural link to the founding fathers**. A transatlantic preservation group is now struggling to save it from decades of neglect. The aim is to restore the house to the condition it was in when Franklin lived there. To uphold the 18th-century appearance, authentic handmade glass panes were installed in battered windows.

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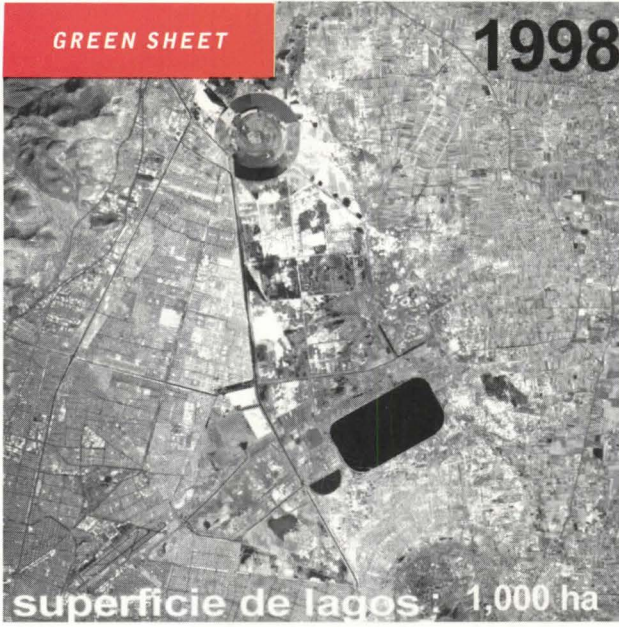
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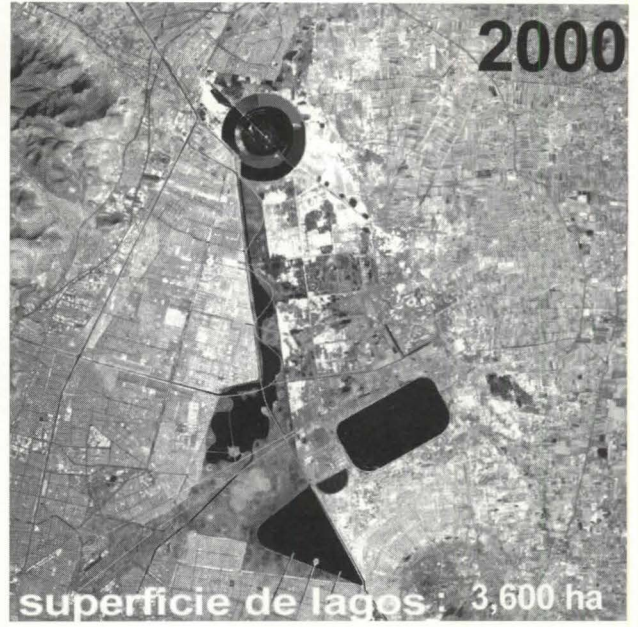
149 Transformed Surfaces

1998



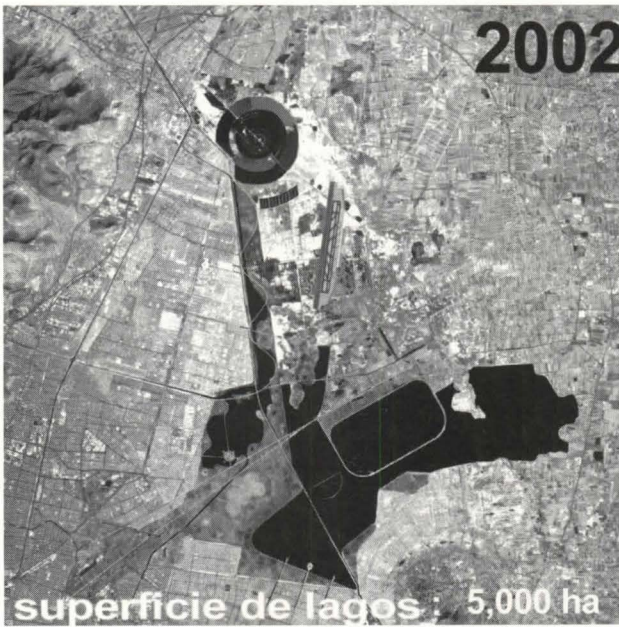
superficie de lagos : 1,000 ha

2000



superficie de lagos : 3,600 ha

2002



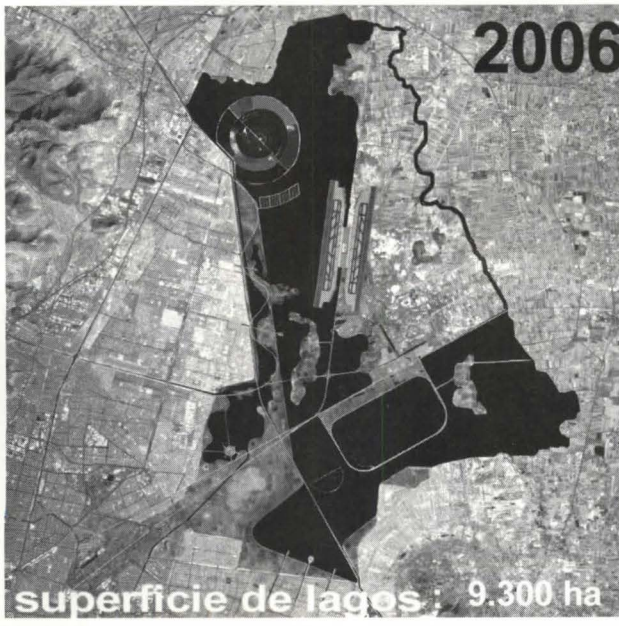
superficie de lagos : 5,000 ha

2004



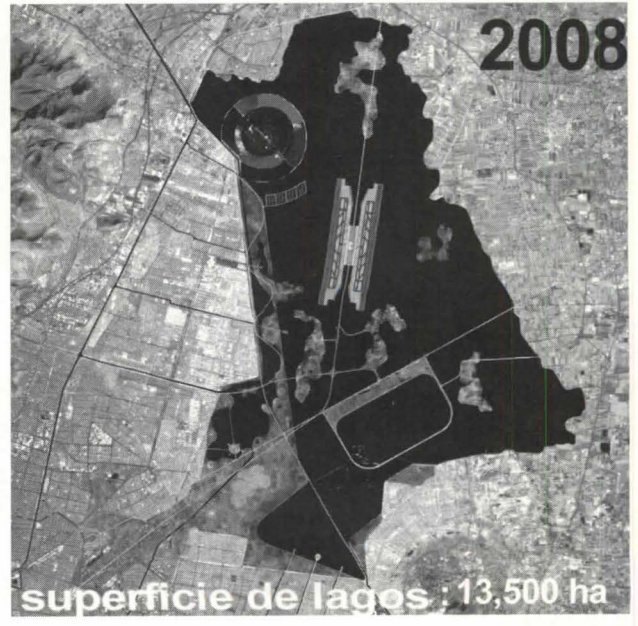
superficie de lagos : 8,760 ha

2006



superficie de lagos : 9,300 ha

2008



superficie de lagos : 13,500 ha

Mexico City's Divining Rod

Architects search for ways to reverse the desiccation of six lakes in the Basin of Mexico.



By Odile Henault

Mexico City has become synonymous with environmental disaster. Since the 1970s, one of the world's largest megalopolises has been plagued with air pollution, sinking grounds, and chronic water shortages. All these are linked, in one way or another, to the deliberate desiccation of the six lakes—Texcoco, Chalco, Xochimilco, Xaltocan, Zumpango, and Lago de Mexico—that at one time made up the Basin of Mexico in which the city lies. The eradication began five centuries ago when conquistadors established the capital of New Spain on top of the architectural ruins of Aztec island city Tenochtitlan. The Spanish, in an effort to control annual flooding, drained the lakes via tunnels, which have been expanded and in constant use ever since.

Today, a 60-mile network of deep drainage pipes channels what remains of Mexico City's lake waters from the Basin into the Gulf of Mexico at a rate of 1,500 cubic feet per second. Mexican architect Teodoro Gonzalez de León deplores the practice and has written the introduction to a new publication, *The City and Its Lakes*, a collection of essays about the dehydration, prepared by experts in architecture, urban development, and environmental planning. Gonzalez de León also tells how he found a report by Nabor Carillo, written in the early 1960s, which proposed reversing the desiccation process in Texcoco Lake. Carillo, a soil expert and professor at the University of Mexico, argued that the constant draining of the Basin lakes was not only costly but futile, and that there were greater benefits in restoring them.

The government actually accepted parts of Carillo's proposal and in 1985 built a 2,500-acre basin on land previously occupied by Texcoco Lake, but then the efforts were abandoned. In 1997, a group of activists calling themselves the Taller Ciudad de Mexico (City of Mexico

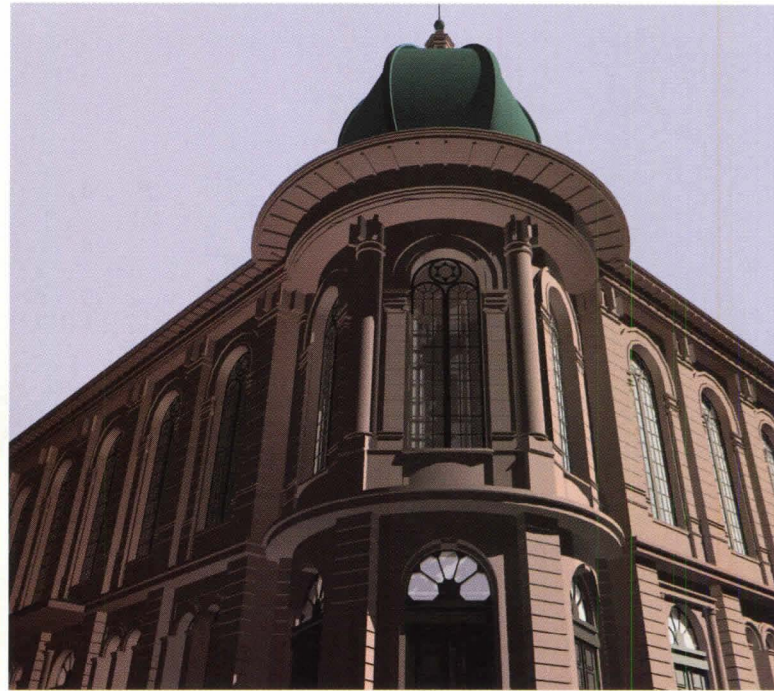
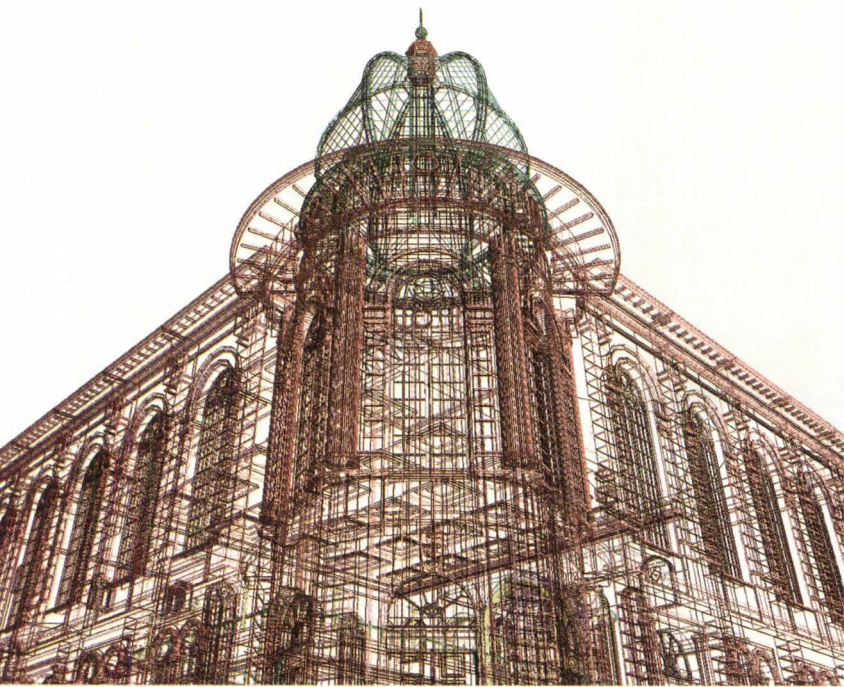
Studio) produced a feasibility study to determine what was needed to realize Carillo's entire proposal. Of the nearly 250,000 acres formerly occupied by Texcoco, the largest body of water of the Basin, 85 percent is urbanized and occupied by more than eight million inhabitants. The Studio, organized by Gonzalez de León and Mexican architect Alberto Kalach, proposed the creation of a body of water in the remaining 15 percent that is controlled by the government. The proposed lake would mostly depend on rainwater and treated household wastewater.

The proposal predicts that by 2010, Texcoco Lake could be 15 times its current size and provide Mexico City both environmental and economic benefits. Environmentally, returning the proposed acreage to a lake would increase humidity levels, which would draw prevalent northwestern winds into the area, helping clean the air and reverse ozone-layer depletion. Economically, the lake—three times the size of the Bay of Acapulco—and surrounding areas would attract thousands of tourists every year. Then, the proponents argue, a coherent, low-density plan for development could be implemented, which they speculate could revive a stagnant construction market.

The plan is ambitious. In Latin America, however, it's not unusual for architects and engineers in private practice to propose large public works. They tend to be more politically involved than their North American counterparts, often holding political office. So there's reason to believe that Kalach and his team could make this happen. After all, it was other concerned architects who, under similar circumstances, helped get a new subway built in Mexico City.

Odile Henault is currently the head of LaSalle College in Bogotá, Colombia.

Satellite photographs (opposite page) are enhanced to show 10-year plan to restore close to 40,000 acres of water to federally owned section of Texcoco Lake. Water would be supplied by abundant annual rainfall and clean wastewater from new treatment plants currently under construction. Plan of Mexico City (this page, above) shows **Basin of Mexico** as it existed in 1628.



Cyber Synagogues

German architecture students digitally rebuild synagogues destroyed by Nazis. By Daryl Scott Lindsey

Wire frame (above, left) shows first stages of virtual reconstruction of **Börneplatz Synagogue** in Frankfurt, which locals referred to as “the red synagogue” because of its red sandstone facade (above, right). Students reconstructed the **Main Synagogue in Judengasse** (facing page) from photograph, which confirmed the Oriental motif, and an unscaled floor plan. More images can be viewed at www.cad.architektur.tu-darmstadt.de/.

On November 9, 1938, across Germany, Nazis ordered the destruction of hundreds of Jewish businesses, synagogues, and institutions in what became known as *Kristallnacht*, or Night of Broken Glass. Thousands of Jews were arrested, many of whom were deported to concentration camps at Buchenwald, Dachau, and Sachsenhausen; others were detained as laborers, forced to dismantle their incinerated synagogues. The destruction continued until cultural and architectural erasure was complete. A recent estimate put the total number of German synagogues destroyed as high as 2,000.

Sixty years later, to protest the sudden resurgence of right-wing nationalism, architectural students at the Technical University of Darmstadt began to build a digital time machine to return to the era when their country’s Judaic culture and religion flourished. After extremists in Lübeck firebombed one of Germany’s last remaining synagogues in 1994, TU-Darmstadt graduate student Marc Grellert and several other aspiring architects presented the idea for reconstructing the

synagogues to professor Manfred Koob, head of the architecture department's CAD program and an expert in historical reconstruction.

"1994 was a year when foreigners and minorities in Germany were increasingly ostracized," says Koob. "The students wanted to make a political statement against [the surge of violent, right-wing activity]." Grellert says he came to the idea through fusing his political activities, which focused on raising awareness about the Holocaust, with his interest in architecture.

While participating in Koob's CAD seminar in 1996, students completed the pilot phase of the project: the digital reconstruction of three synagogues in neighboring Frankfurt. The second phase, which is to be completed before the end of this year is exponentially more ambitious. The next set of sacred buildings encompasses a broad range of architectural styles, including architect Fritz Landauer's Bauhaus synagogue in Plauen; a 1861 Moorish-style synagogue in Cologne by the same architect responsible for the city's 512-foot Gothic cathedral; the Dresden Semper synagogue (1840) by Gottfried Semper, who designed the city's renowned opera house; and an 1870 neo-Romanesque cathedral in Hanover. Funding for the next five reconstructions has come from Germany's research and education ministry and the cities of Munich and Nuremberg, which were once home to the *shuls* (the Yiddish word for synagogues). The project planners have refused donations from Jewish organizations, because they believe the virtual restorations are what Germans owe the Jews.

The process of reconstructing a synagogue takes close to a year and comprises three phases: research, creating two-dimensional CAD drawings, and finally rendering 3D models of the building. Koob, Grellert, and 50 students are engaged in the second phase.

The research phase

Although most of the construction documents, along with the *shuls* themselves, were destroyed by the Nazis or lost during the war, students still collected enough fragments or documentary evidence to create historically accurate models of all five buildings. Acting as detectives, they spent five months culling any artifacts or evidence-plans, models, photographs, literary descriptions, official documents, and any other fragments that might contain clues. The students tracked some information through Jewish museums and local archives in the cities where the synagogues were built.

In the second stage of research, students conducted personal interviews with the few surviving Jews who had worshipped in the destroyed *shuls*, many of whom had relocated to the United States or Israel. Survivors are quite old and the youngest of them were mere children when they attended services.



Digitizing and modeling

With the research gathered, students have either a general idea about or concrete data for a building. They use Hewlett Packard 700 graphic workstations running UNIX and the university's home-brewed Speedikon V8 CAD software to produce 2D foundation and floor plans, elevations, and sections. The drawings are then saved in a graphical interchange format (.dxx) and loaded into the university's four powerful Silicon Graphics (SGI) workstations, which run Xplore 3D modeling and Alias Wavefront's animation software. Using data about the horizontal and vertical axes of the synagogues, the 2D drawings are exploded into 3D building blocks. The plan of a column base, the elevation of its shaft, and the profile of its capital, for example, are pieced together to form a building block. These blocks are then snapped together (like Lego construction) to form the final 3D model, a process that takes four to eight weeks.

At this point, assumptions regarding missing information are introduced into the construction process. "We only put together what we know. But there are some exceptions: You can reconstruct specific geometric elements," says Koob. Simple geometric principles (a column, for example, originates from a cylinder; a 2D photograph of a cupola or turret could be rotated and copied to create a full 360-degree object) can reduce guesswork. Careful study of contemporaneous synagogues, traditional religious motifs, and architectural styles give many additional clues.

Koob himself is an expert in historical reconstructions. He's built a cottage industry of virtual architectural projects in Europe, which German public television recently documented. In past seminars, his students created digital renderings of the Cluny Cathedral, which was destroyed during the French Revolution, and the Vatican Palace, a collaboration between Italy's Roma III University and the German National Art and Exhibition Hall in Bonn.

Rendering

In the rendering stage, earlier building blocks are incorporated with data researchers have collected about the synagogue's textures, materials, colors, and lighting, and a final 3D model is built. Because textural and color details are hard to track in most cases and Speedikon doesn't provide adequate tools for implementing texture, much was left out of the first-generation renderings of Frankfurt's synagogues, which is why they look, according to Koob, like gravestones. "The buildings can't live because there are so many elements and memories missing," he laments. Still, the 1996 renderings are potent. When the walk-throughs are played back in an MPEG (compressed sound and movie files) viewer, the models require very little imagination, even though at times geometry dominates detail, recalling children's wooden architectural blocks. Ironically, knowledge of the subject matter and the laborious road to reconstruction

allows this apparent technological shortcoming to be viewed as a stark statement about the volumes of history lost.

Viewer imagination will be less a factor for the shuls currently undergoing digital reconstruction. The recent acquisition of SGI workstations—the same equipment Pixar used to create the hit animated film *A Bug's Life*—will allow students to incorporate surface and textural elements that weren't technically possible with the Hewlett Packard workstations used in the Frankfurt project. "The [Frankfurt] buildings weren't lively because there were so many elements and memories missing," Koob says. The newer equipment has massive computing processing power with virtual walk-throughs and 3D models commanding an enormous 20 gigabytes of hard-drive space.

The immeasurable scope of the Kristallnacht destruction has made it impossible for the synagogues to be restored with 100 percent accuracy. To get as close as possible to that goal, students will show the interviewees the completed models. The hope is that witness feedback will help them identify and resolve any identified inaccuracies. Once the students are satisfied with the final model, they will begin rendering as many as 10,000 frames and perspectives that will be combined as walk-throughs of the buildings and posted on the project's Web site.

A virtual memorial

This final phase, which will be published on the Web, will provide a comprehensive look at the diverse array of German synagogue architectural

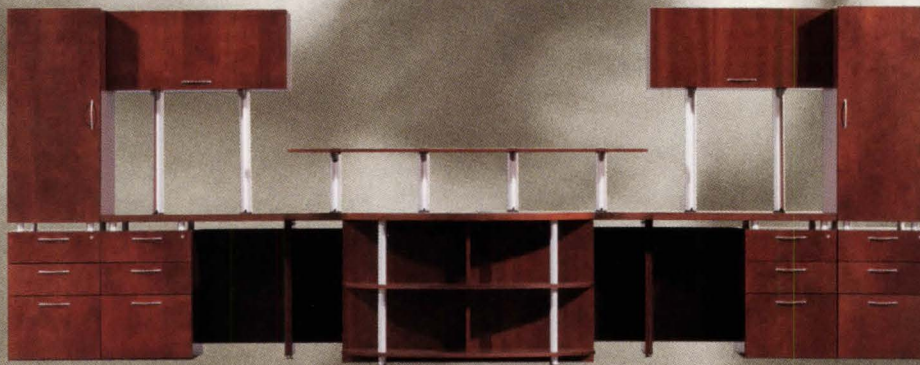
The process of reconstructing a synagogue takes close to a year and comprises three phases: research, creating drawings, and finally rendering 3D models of the building.

styles. Photographs, models, and other artifacts the students dig up in their research will be shown on the site, along with written and oral histories of the project.

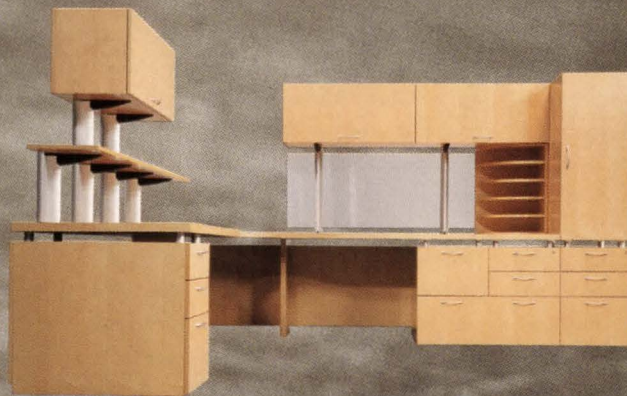
Although the baroque wonders of Dresden leveled in World War II (including the Frauenkirche) are undergoing physical reconstruction, there are no plans to rebuild in real space any of Koob's synagogues. "These communities no longer exist in Germany, and if synagogues were built now, they would be modern buildings," Koob says. "Our point was to show what was destroyed in Germany—architecture, culture, politics." The synagogues may be virtual, but the restored memories are real. ■

Daryl Scott Lindsey is an editor at Salon.com.

rhapsody



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The Swiss Way of Building

Contemporary Swiss architects reinterpret traditions rooted in regionalism, indigenous materials, and precision. By Lynnette Widder

The Swiss have cultivated the image of their building industry as one based on patience, attention to detail, and clients with deep pockets. But Swiss architecture's greatest asset is a symbiosis of design, methods, materials, and construction management. It's an insular industry with a guildlike structure that produces a highly qualified and similarly trained talent pool from technical and vocational schools, as well as universities.

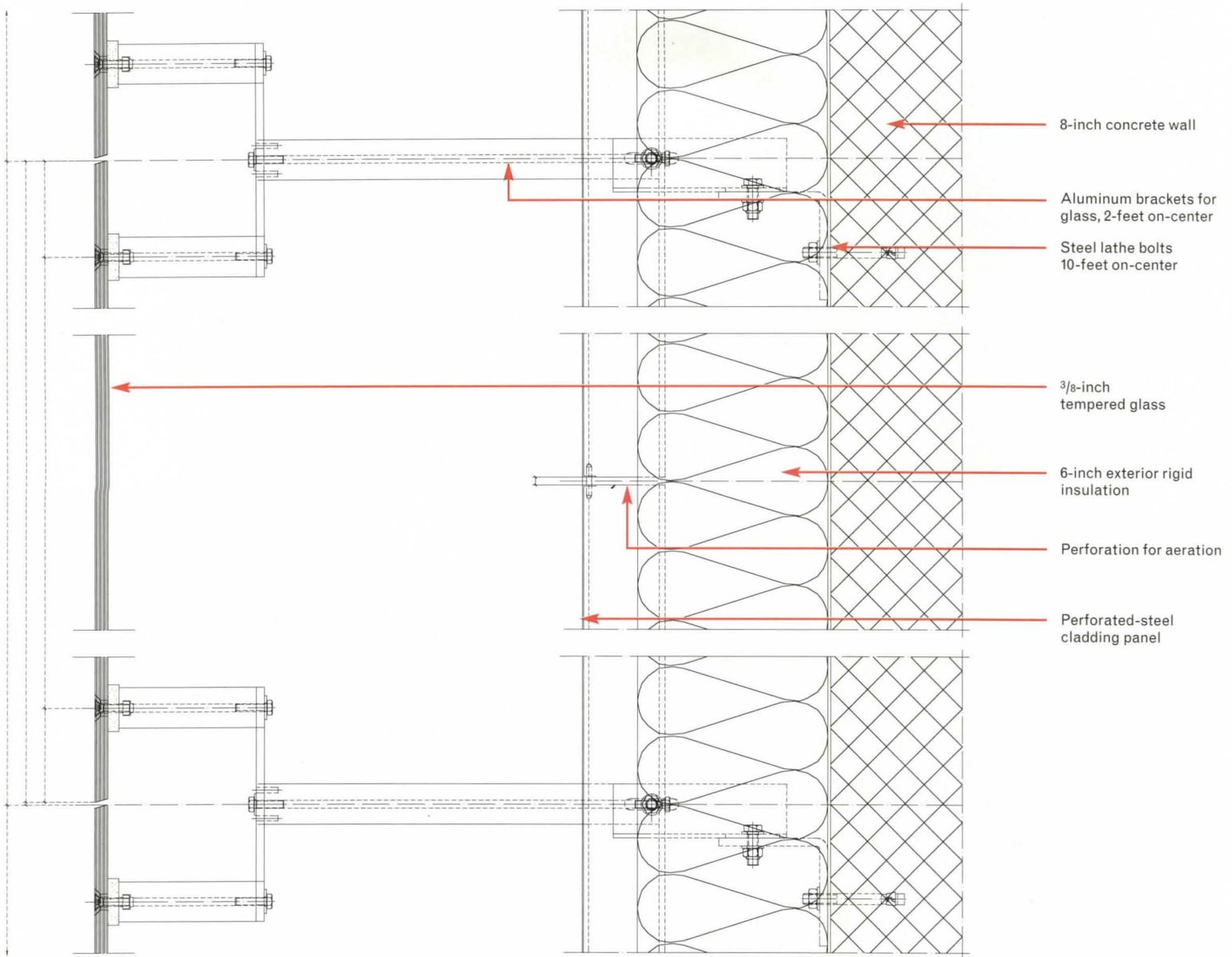
As in other European countries, the Swiss favor solid-wall construction using timber, stuccoed masonry, and polished or smooth-faced concrete for energy conservation and sturdiness. Wood is negligibly ductile and, with sufficient mass, self-insulating; it promotes heat retention in the winter and keeps it out in the summer. The capacity of glue-laminated timber box-beams and high-density laminated panels to span comparable distances to concrete members at only a fraction of the weight allows fast and precise erection.

With regard to the Swiss reputation for expensive construction, the square-foot price of many of the complex case studies presented below is comparable to the \$250 per square foot that is standard for relatively simple interior renovation work in New York City. Longer planning phases and the potential for collaboration with fabricators and craftspeople means more efficient construction sites and better quality construction. Change orders are the exception in Switzerland rather

than the rule, and consultants are generally limited to landscaping and structural engineering.

Each of the following projects is exceptional because the use of structure and materials is subordinate to and expressive of a larger urban or architectural idea: the play between solidity and transparency in the Herzog & De Meuron pharmacy, which sits between a strong street-wall and an amorphous courtyard; the scalar manipulations used by Gigon and Guyer to regulate the Broelberg Housing's relationship to its site; the evocative spaces and surfaces of Sik's community center; the transparency and reflectivity of Burkhalter + Sumi's pavilion, which defines a public space while allowing for views to the landscape beyond; and the maintenance of the void between two existing houses which Könz and Molo achieved through the use of long-span beams and infill slit windows. American architects could learn the most from their Swiss counterparts through their obligation to consider all building components simultaneously, adherence to reasonable construction schedules in order to reduce expensive change orders, their knowledge of materials, and sensitivity to the long-term impact of architecture on the environment and culture. ■

Lynnette Widder is a partner in the New York firm aardvarchitecture and an adjunct professor at Rhode Island School of Design.



Wall section at glass facade

CASE
1
STUDY

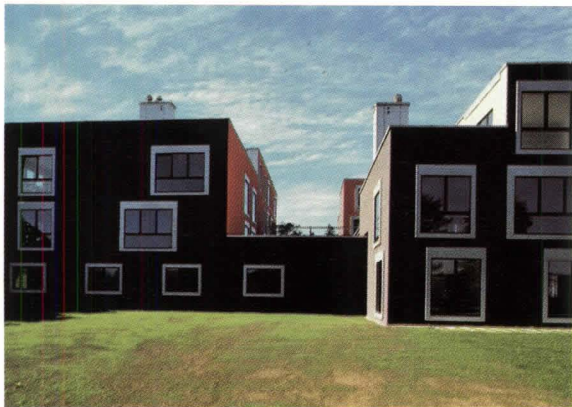
The Institute of Hospital Pharmacy in Basel, designed by local architects Jacques Herzog and Pierre de Meuron, is an office building with an interior courtyard. The street-side southwest facade is made of several layers: an 8-inch concrete bearing wall with steel lath, continuously clad with typical 6-inch exterior insulation with a layer of perforated-steel panels, and a glass-paneled windscreen. The outer windscreen is made of 180 different types of tempered and enameled glass panels, $\frac{3}{8}$ -inch thick, imprinted with a grid of green dots. Custom aluminum brackets attach the screen to the steel lath at 2-foot intervals. The construction is inventive in that standard construction techniques, such as the use of exterior insulation and large-format glazing supported on struts, were used to form an attenuated, glazed windscreen. Although the panel types, the metal cladding, and the struts were all custom designs, their production did not add any significant cost to the building. This is due largely to widespread collaboration between fabricators and architects, who share accountability for the final product. Fabricators are highly skilled and literate, eliminating the elaborate detailing typical in American construction documents.



Street elevation



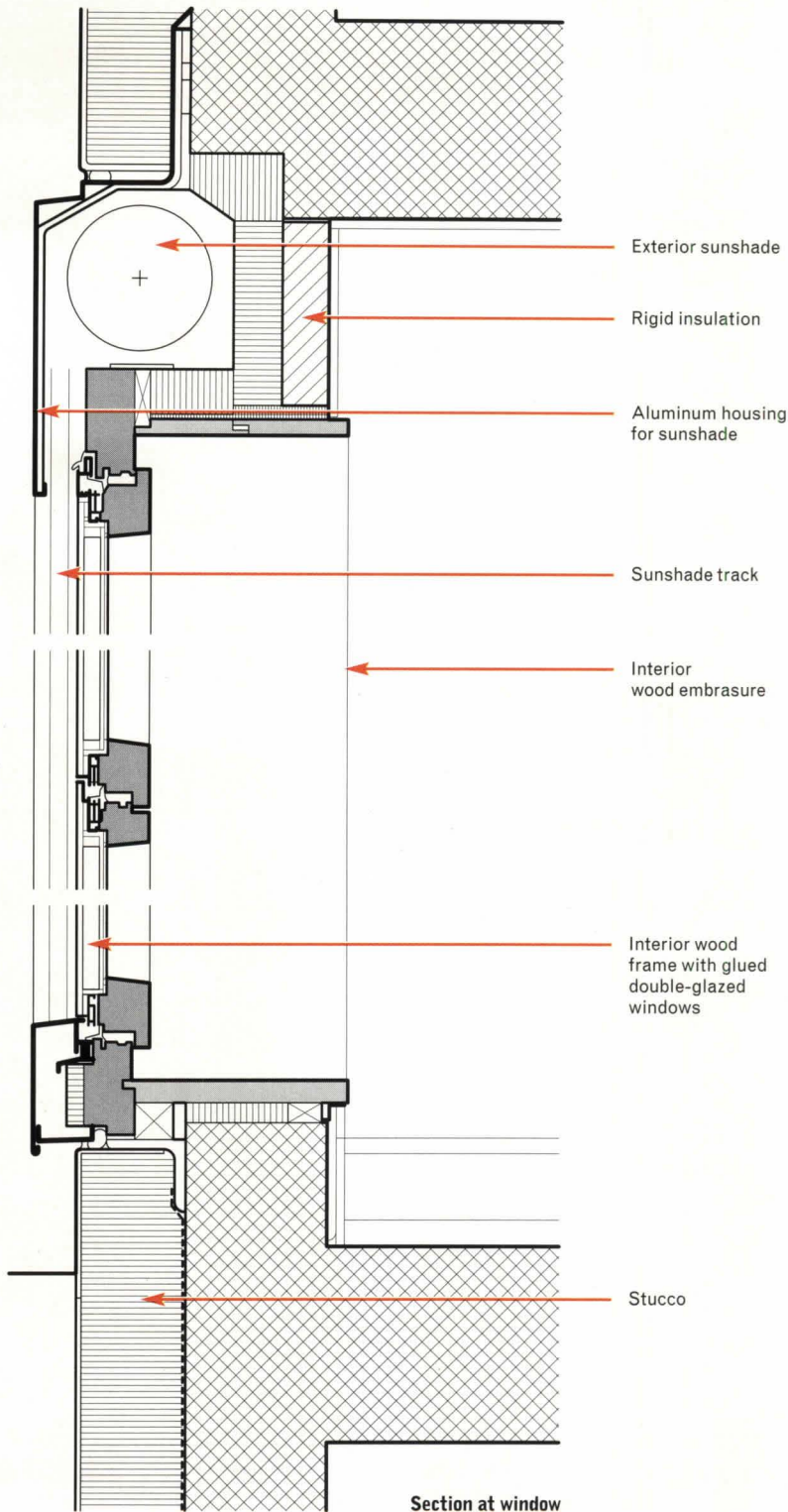
Front



Rear



Courtyard



CASE
2
STUDY

Zurich-based architects Annette Gigon and Mike Guyer designed Broelberg, a housing complex near Zurich, as a series of three concentrated “residential islands” to preserve the openness of the grounds, which had been the site of the developer’s family villa overlooking Lake Zurich. Thick wood windows in aluminum embrasures protrude beyond and overlap the stucco surface, a departure from the usual practice of setting windows within the stucco wall plane. The larger windows reach almost from floor to ceiling and make the interiors appear larger, while the oversized protruding windows create the opposite perception from the exterior.

A conventional masonry system with walls clad in exterior insulation and synthetic plaster—perhaps the cheapest and fastest construction technique common in Switzerland today—generated cost savings, which were transferred to the custom-window budget. The wood window-frames are visible only from the interior, because the glass panes are glued to the exterior side on the frame, a process similar to the way automobile windshields are installed. Because buildings in Switzerland are almost never air-conditioned, the direct sunlight must be deflected before entering the interior. This solution allows tracks for manually operated exterior sunshades to be concealed in the aluminum embrasures.

CASE
3
STUDY

The Catholic community center and church outside Zurich is an addition to and renovation of a church built in Calvinist Zurich by Catholic exiles from the Appenzell canton in north-east Switzerland. Designed by Zurich-based Miroslav Sik, the new community center building is supported by a series of 5-inch-thick, prefabricated, glue-laminated, segmented arches, which were placed by a crane at 4½-foot intervals onto steel shoes cast in concrete foundation walls. The ribs meet at a central glulam beam that also supports the primary longitudinal ductwork. The vents for smaller classrooms and offices branch off the main duct and are concealed in floor-to-ceiling built-in closets. Mullionless wood-frame windows and pine-veneered acoustical boards alternately separate the ribs. The precision with which the glulams are fabricated and positioned is extraordinary: Angled joints are smooth; surface finish is regular; and the minimal tolerances required by an infill-type construction are maintained. The architect created a building that recalls the Appenzellian vernacular style of the church without mimicking it. At the same time, it asserts its own modernity with the use of mass-produced, heavy laminated timber members.



Exterior showing fish-scale shingle roof



Interior during construction

CASE
4
 STUDY

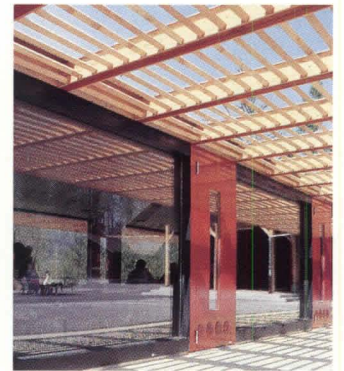
Architect Burkhalter + Sumi, also based in Zurich, designed and renovated a park pavilion in Wildpark Langenberg, a public zoo near Zurich. Positioned between two rustic 1940s structures, the pavilion serves as a dining room adjacent to an existing self-service restaurant. The pavilion's building envelope consists of 11-foot, 6-inch insulated glass planes held by wood frames painted to blend with the doors and columns. The transparent glazing dramatizes the roof, which is a series of beams that cantilevers more than 10 feet off the 18-foot-wide building on both sides and is infilled with smaller wood slats set at a 45-degree angle to the beams. The longitudinal beams, on which the roof beams rest, span the wood columns placed on 4-foot centers in the exterior wall. These 8-inch-deep beams are bolted to a 4 3/4-inch lower chord concealed in the door and window frames. Because one-third of the beams read as framing rather than structure, the cantilever seems to float above the glazed wall. The roof of the main pavilion—which is slightly higher than the unclad beams that cantilever from it—drains via aluminum gutters atop the cantilevering beams to spigots at the rear of the pavilion.



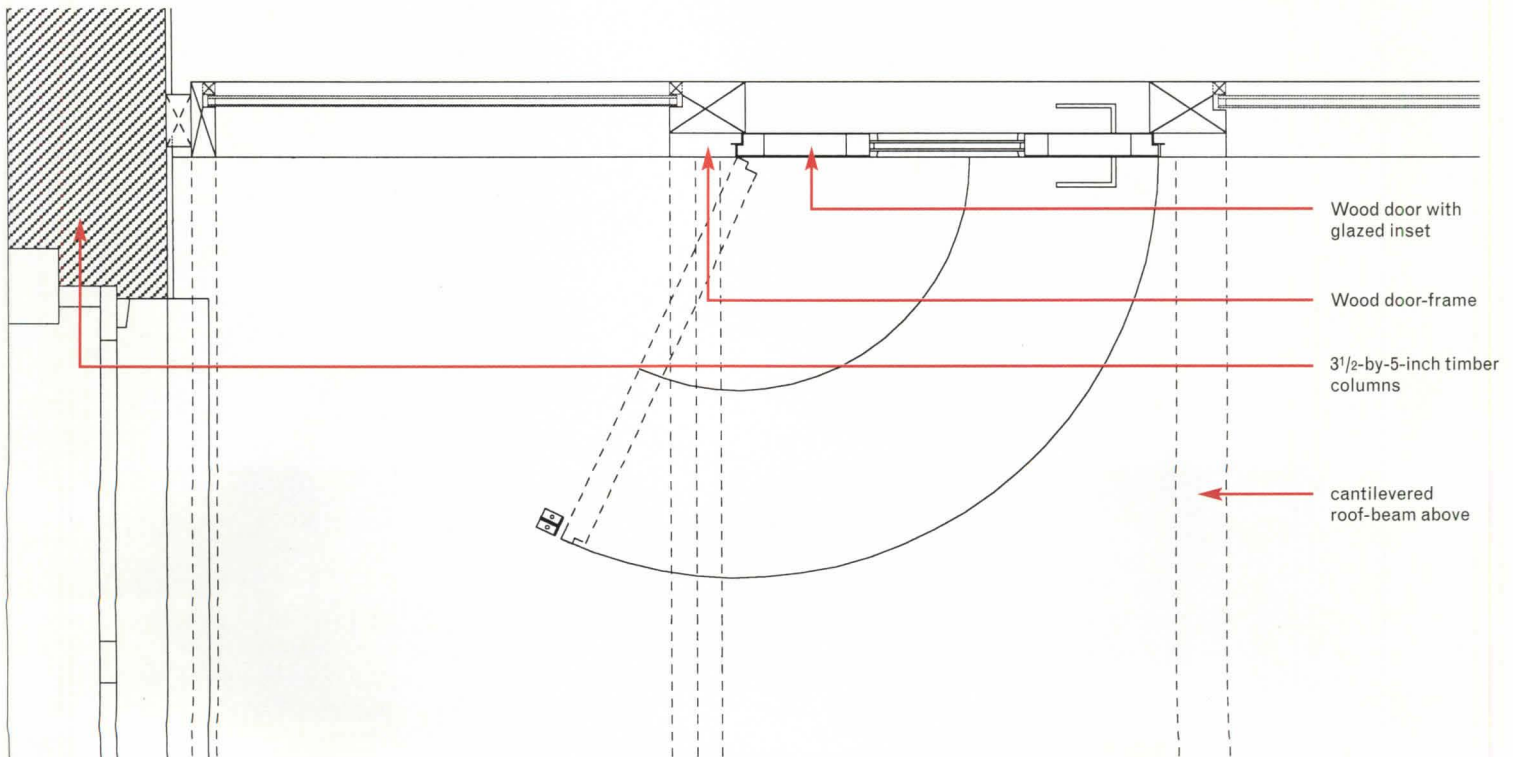
Addition and existing building



Interior



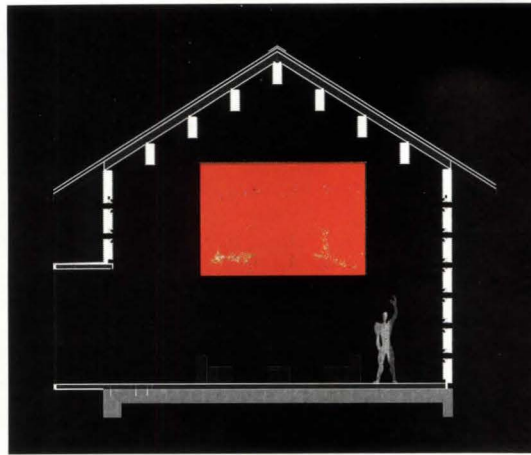
Exterior view of cantilevered roof



Plan detail at door to exterior



Interior

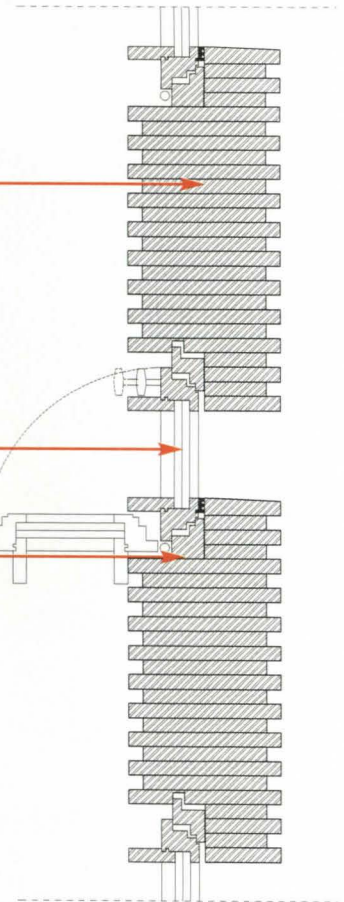


Section through bay window

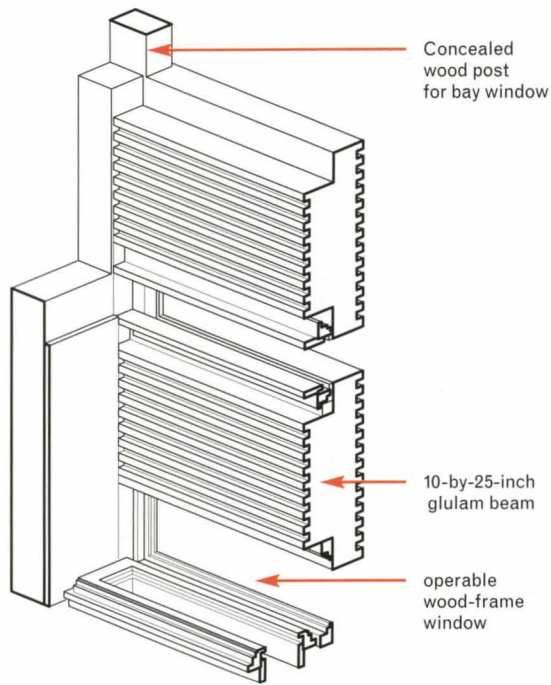
10-by-20-inch Douglas fir glulam beams

Operable wood-frame window

Fixed frame and shim for window



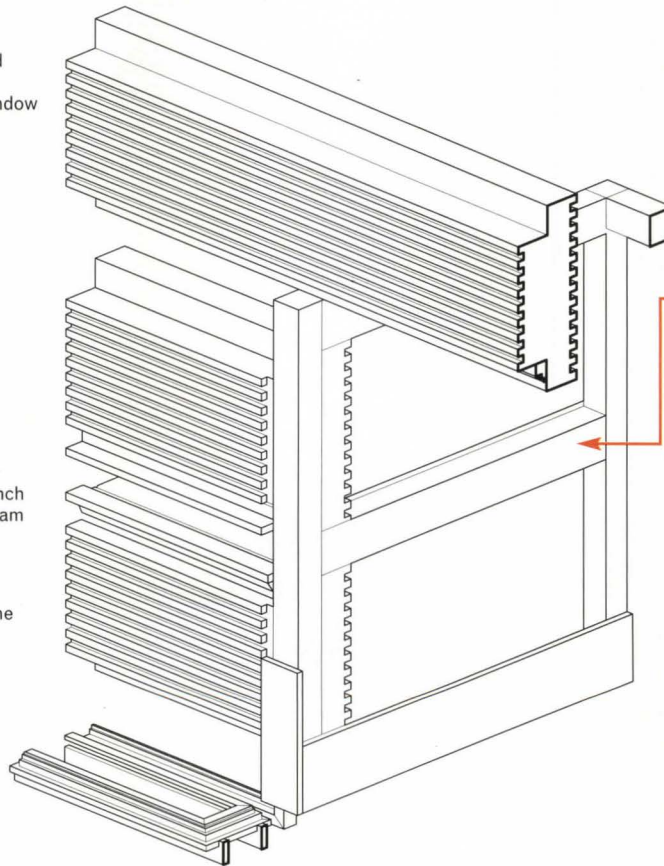
Typical wall section



Concealed wood post for bay window

10-by-25-inch glulam beam

operable wood-frame window



wood frame supports cantilevered window



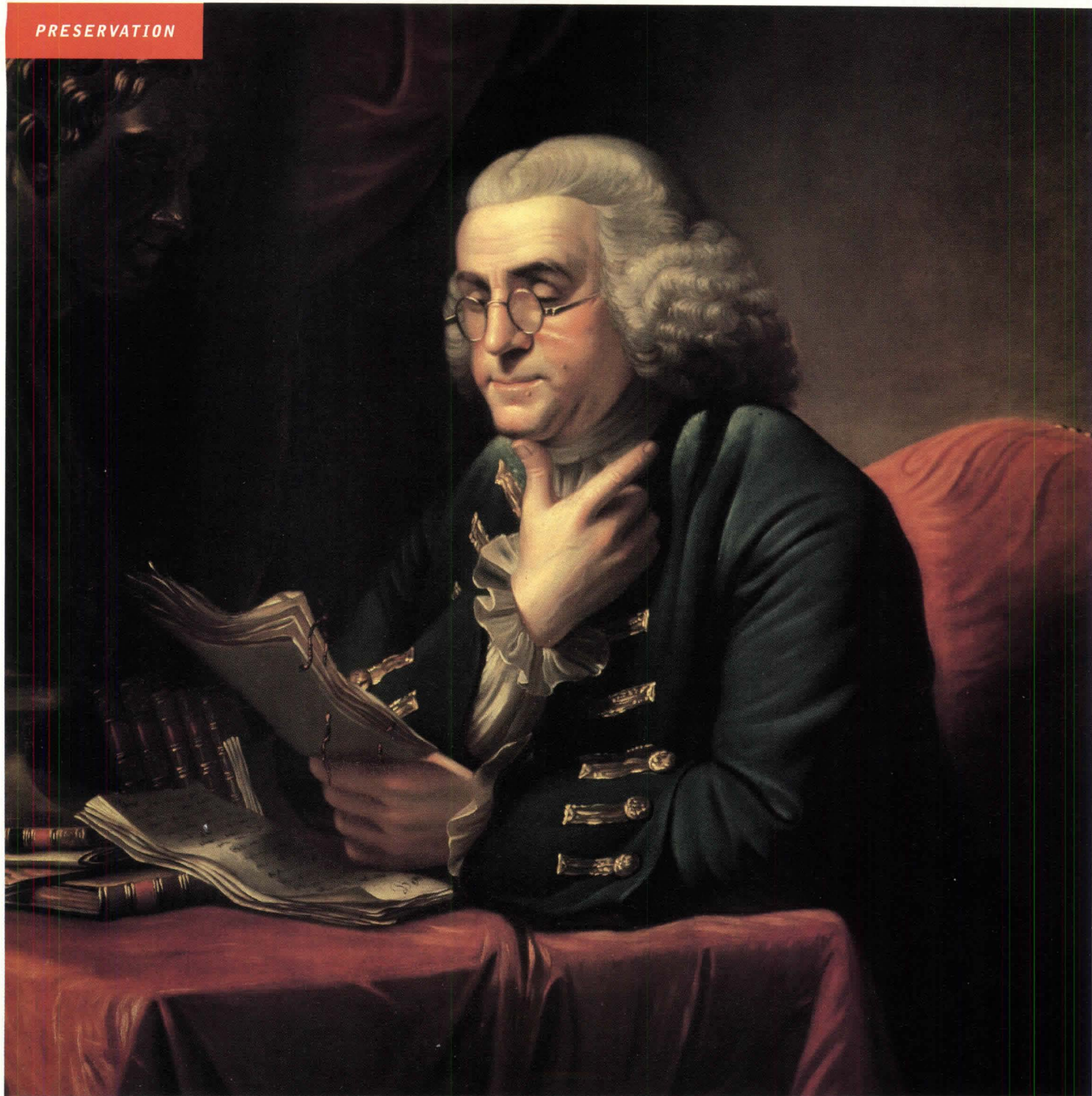
Detail at bay window

Axonometric at exterior wall and bay window

CASE
5
STUDY

On a smaller scale, Lugano-based architects Jachen Kőnz and Ludovica Molo designed a gallery for the exhibition of one painting in the Graubünden canton. The walls are made of unfinished European Douglas fir beams and appear to span the length of the space between the two adjacent, older buildings, but actually rest on columns concealed at the junction between the wooden and plastered walls. Windows were inserted into the gaps between the beams. Positioning and securing the beams required enormous precision: The infill windows required minimal deviation from plumb and can tolerate only slight thermal movement or settling. Nevertheless, workers positioned them with cranes in little more than a day. In this case, longer planning time and precise fabrication translated into on-site erection speed and savings on finishes and cladding. The solid beams are thick enough in section to provide adequate thermal insulation, even at an altitude of over 5,000 feet.

PRESERVATION



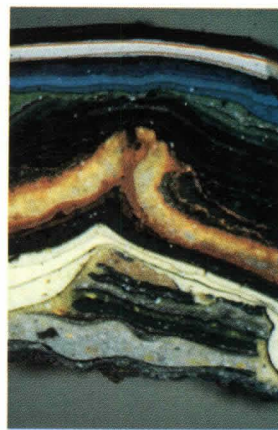
Dr. Fatsides

A British-American team is bringing Benjamin Franklin's London home back from abandonment.



Slept Here

By Michelle Patient



Thirty-six Craven Street is **Franklin's last surviving home** (left). Contractors replaced and repaired floors and paneling in Franklin's parlor (center). Photomicrograph of railing paint layers shows color schemes over a 260-year span (right).

"I have found genteel lodgings in Craven Street," Benjamin Franklin wrote from England in a 1757 letter to his wife Deborah back in Philadelphia. Franklin had traveled to London on behalf of the Philadelphia Assembly (he later lobbied for the upstart American colonies) and took up residence in a Georgian row house until the gathering American Revolution forced him home in 1775.

In typical fashion, the prolifically inventive Dr. Fatsides (as Franklin called himself in *The Craven Street Gazette*, a satirical newspaper he wrote for friends) produced more than just amusing correspondence in his London home. Seated in his second-floor parlor, he negotiated terms that led to the Declaration of Independence. In the adjacent laboratory, he invented bifocals, the Franklin stove, a 24-hour navigation clock, watertight bulkheads for ships, and an apparatus for measuring the temperature of seawater at various depths.

Considered the first American embassy, 36 Craven Street is the only "Franklin Slept Here" structure still in existence. Yet for all its historic import, the building was allowed over time to sink into pitiful disrepair, first as a private residence, and later as a boarding house and offices. It suffered misbegotten structural alterations in the 19th century. Luftwaffe bombs damaged the roof during World War II. It languished until 1977, when The Friends of Benjamin Franklin House, a London and Philadelphia-based charitable trust, began raising funds for its renovation.

Located a few hundred yards from Trafalgar Square, Franklin's Craven Street row house was designed in the 1730s by Henry Flitcroft, a London architect working in the Palladian manner. (The stately home of Pennsylvania founder William Penn stands nearby.) Franklin's narrow, five-floored house contains a nearly intact Georgian interior; the exterior brick-and-cement facade features original iron railings and balconies.

The campaign to save the house gradually won government support on both sides of the Atlantic. In 1992, President George Bush bestowed his official patronage (his endorsement was unaccompanied by federal funds). Three years later, the Friends, led by the American Institute of Architects' (AIA) London preservation chair Anne Prescott Keigher, solicited help from the British Royal Society of the Arts (RSA). (Franklin had once been an RSA fellow.) Armed with the RSA's blessing and a presentation of CAD sectional drawings donated by Swanke Hayden Connell Architects, the Friends applied to English Heritage, a government agency responsible for buildings and monuments of special significance. They couldn't have hoped for a better response: English Heritage bestowed its highest ranking, pledged to monitor repair work, and donated \$202,000. "Besides being a remarkable early 18th-century house, Ben Franklin lived there," explains Historic Buildings Inspector David Morgan.

The money hunt

Official recognition helps, of course, but what the Friends really needed was more than \$1.3 million for basic structural repairs. Soliciting funds for an American-history site on foreign soil proved difficult. An American expatriate named Mary, Countess of Bessborough, kicked off the fundraising in 1976 with a \$200,000 donation from the London and Philadelphia offices of pharmaceutical giant SmithKline Beecham, which enabled the Friends to purchase a 150-year lease on the building from the British government. The Philadelphia-born Bessborough kicked in \$250,000 in private funds. More valuable still, she boosted the project's visibility by persuading family friend Margaret Thatcher to lend her name in support.

In September 1996, the Los Angeles-based Getty Grant program awarded the Franklin project \$100,000—the full amount requested. "All applications are sent out for peer review by architectural and conservation specialists," says Getty program associate Laura Cogburn. "Everyone found this project significant." The Getty funds only projects that conduct architectural training programs, and the Franklin restoration obliged. Keigher organized an on-site instructional course consisting of six three-hour sessions on structural repair, brickwork preservation, and paint analysis, among other topics. Architects earned six AIA education credits for every session attended. "That program made me very popular," laughs Keigher.

With initial funding and official backing in hand, the Friends applied in June 1996 to Britain's Heritage Lottery Fund, which awards money to preservation projects that have already secured between 10 and 25 percent of their budgets. The Franklin project met the requirement; the Lottery donated \$846,000 in March 1997. "This is a large project," noted Lottery spokesman Tamsin Gregory, "but it's worthy because it's a memorial to Franklin's achievements."

Braces, beams, and bones

Having gathered its budget, the Friends then began preservation work in November 1997 in partnership with London firm Donald Insall & Associates, which had previously restored the fire-ravaged Windsor Castle. The first priority: preventing the building's collapse. The house's Victorian-era residents had added a cumbersome mansard roof and severed diagonal bracing on the first floor in order to install interior doors. Both these alterations contributed to the gradual sagging of internal timber walls.

Contractors replaced the mansard roof with a lighter, double-peaked roof in keeping with the one that topped the house in the 1790s. (They mod-



Insulation was installed behind new hand-stripped chestnut laths in top-floor bedroom.

eled the reconstruction on neighboring 18th-century roofs.) The front brick facade had leaned outward by as much as four inches. Contractors bolted it back to the sidewalls with stainless-steel ties. To counteract further sagging of timber floors, corner steel channels were installed with turnbuckles to suspend each floor. Additionally, contractors ran steel plates front to back to support the original primary beams, a process that required meticulous removal, numbering, and replacement of all floorboards.

To uphold the 18th-century appearance, authentic handmade glass panes filled holes in windowpanes battered during years of neglect. Contractors replaced one-third of the walls' wood laths with matching hand-stripped chestnut laths. The Friends chose not to strip the walls down to the original mid-18th-century paint layer. "Every layer of paint is part of the house's story," explains Keigher, who opted for preservation over restoration. To document the layers, Keigher hired Patrick Baty, a London-based historic paint analyst, who had previously consulted on Thomas Jefferson's Monticello. Baty took photomicrographs, or photos through a microscope, of the paint layers and dated them according to the invention of particular pigments. "Clients usually want to determine the first scheme," he says. "I don't often get asked to identify later layers. It certainly was a challenge." The Friends applied fresh paint in the original hues: chocolate-brown skirting and architraves, red-brown shutters, and stone-gray paneling.

Paint colors weren't the only archaeological revelation: A jolting surprise awaited in the basement. While completing structural repairs, contractors uncovered the remains of some 1,500 dissected human and animal parts. The University Institute of Archaeology analyzed the find and determined that William Hewson, a young surgeon married to Franklin's adopted daughter, had established a secret anatomy school in the house during the 1770s. Dissection was illegal, so Hewson had disposed of corpses purchased from grave robbers by burying them in Franklin's basement. But the find amounted to more than just a macabre bone pile. The Royal College of Surgeons considers Hewson to be a pioneer of lymphatic medicine, and the discovery shed light on 18th-century medical practices.

The Friends celebrated the end of structural repairs with a March 1999 luncheon at the Union Club in New York. "The completion of the building's envelope was successful," reports English Heritage's David Morgan. "It was in very shaky shape, but now it's sound as a pound."

The quest continues

The March luncheon also kicked off the project's second phase: exhibitry, interior decoration, and period furnishings to be re-created from descriptions in Franklin's papers housed at Yale University.

So far Friends has raised only \$45,000 of the second phase's \$2.5 million budget, but the board is actively pursuing large donors in both Britain and the U.S. The project's most generous donor might turn out to be Franklin himself. He left \$1,000 each to the cities of Philadelphia and Boston. Philadelphia reportedly spent its portion years ago. Keigher is now tracking down Boston's allotment, which should now be worth more than \$1 million. "Apparently, the money has been protected, but we don't yet know what the [interest] growth is," she says. This month, the British ambassador to the United States, Sir Christopher Meyer, will host a dinner at the British embassy in Washington, D.C., to launch the second phase and support fundraising. "Britain has stepped up to the plate with a ton of money," Keigher asserts, "and it's time for the United States—including Congress—to contribute."

Barring mishap, the Franklin House will open to the public by the end of 2000. It's already registered as the address of the first foreign AIA chapter. "We're doing it!" says Sir Bob Reid, chairman of the British trustees. "How could you be pessimistic about a man like Ben Franklin?"

Michelle Patient is a New York-based freelance writer.

For more information, contact The Friends of Benjamin Franklin House at: Public Ledger Building, Suite 846, Philadelphia, PA 19106-3474 (215) 923-4966 or 36 Craven Street, London WC2N 5NG, United Kingdom (0171) 930-9121 www.rsa.org.uk/franklin

CLIENT: The Friends of Benjamin Franklin House—Sir Bob Reid (chairman)
ARCHITECTS: Donald Insall & Associates, London, England—Anne Prescott Keigher (project chairwoman and treasurer as trustee for the charity), Donald Insall, Jonathan Carey, John Peerless, Tim Ellis
ENGINEERS: Alan Baxter & Associates (structural), Collis Heating (mechanical), Essex Electric (electrical)
CONSULTANTS: Mike Stock, Patrick Baty (English Heritage); Swanke Hayden Connell Architects (paint analysis); Richard S. Hayden, David Walker (CAD presentation)
GENERAL CONTRACTOR: Sindall Construction **COST:** \$1.3 million
PHOTOGRAPHER: Jason Oddy, except as noted



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Transformed Surfaces

CLOCKWISE FROM TOP LEFT: **Textured Glass** Cesar Color has a new line of textured glass products that allows designers to customize embossed patterns. Using a patented process, the Phoenix-based company bonds a clear textured plastic sheet to a single layer of glass. The manufacturer then coats the surface with silica, giving it the appearance of glass. Cesar Color's ImpressionGlass line includes 12 standard patterns, but designers can adapt the existing patterns, as well as apply photographic or graphic images to the glass. Glass sheets are available in thicknesses from 1/4 inch to 1 inch, and in three sizes, the largest being 60 by 120 inches. Cesar products meet ASTM standards for laminated safety glass. *Circle 297 on information card.* **3-dimensional Ceiling** Armstrong's new Serpentina creates three-dimensional ceilings with a custom look. The new system offers five curved aluminum beam options including arcs of 15, 30, 45, 60, and 90 degrees with beam lengths ranging from 4 to 10 feet.

Serpentina is offered in 12 standard colors and can be used with either 2-by-2-foot or 2-by-6-foot panels. *Circle 298 on information card.* **Agricultural Particleboard** Minnesota-based Phenix Biocomposites introduces Biofiber, an alternative to conventional wood particleboard manufactured from agricultural wheat straw. The formaldehyde-free panels are lighter than particleboard. They can be used to build stairs and cabinets or laminated as a flooring substrate. *Circle 299 on information card.* **Surface Tension** With France-based Prestige Design's patented system of installing stretched ceilings and walls—made from a flexible PVC film and held in place by clip-in sections—designers can create three-dimensional forms such as columns and spheres. The system is waterproof and heat-resistant, and the system can incorporate light fittings. The film is available in more than 110 colors. Although not yet available through a U.S. distributor, it is available for import. *Circle 300 on information card.*

Compiled by Joelle Byrer

LEADERSHIP

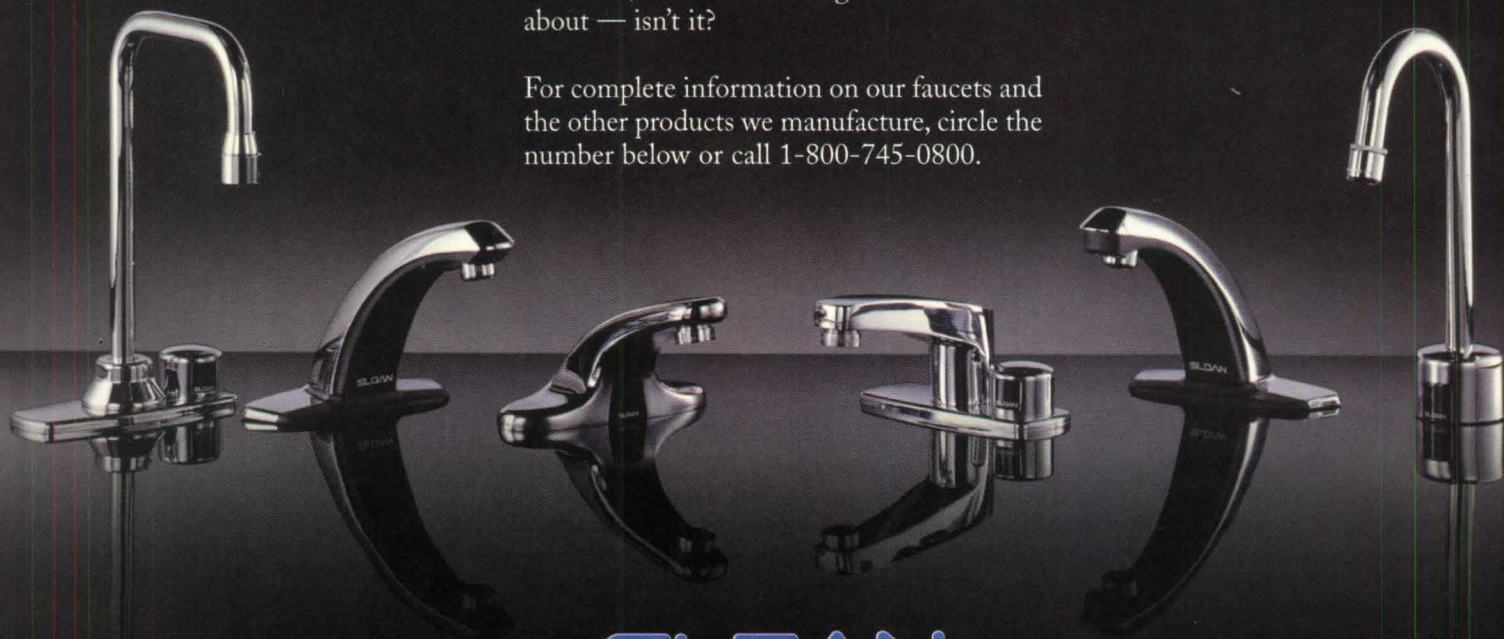
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MATERIALS MATTER

THE JERSTAD CENTER

SIOUX FALLS, SOUTH DAKOTA

CLIENT: The Evangelical Lutheran Good Samaritan Society, Sioux Falls, South Dakota

ARCHITECT: Julie Snow Architects, Minneapolis

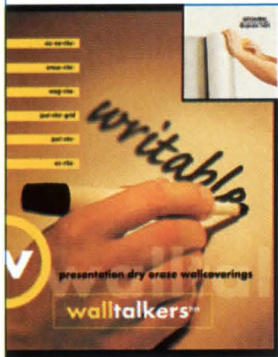
GENERAL CONTROL: Sioux Falls Construction

PHOTOGRAPHER: Richard Barnes

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Versico, Incorporated, supplier of single-ply roofing systems, has released a new comprehensive 24-page brochure, covering their complete line of EPDM and TPO roofing systems along with accessories, insulation, fasteners and metal fascia and coping systems for commercial and industrial buildings. Learn how our nationwide Sales and Technical support teams can solve all of your roofing needs. 800-992-7663: www.versico.com

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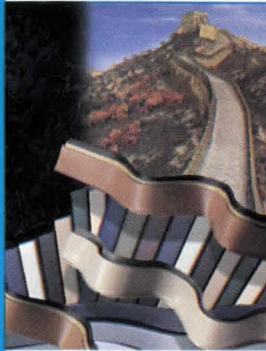
KAWNEER CO. INC.



Kawneer's 2250 IG (Inside Glazed) Ribbon Window and Curtain Wall System is dual purpose and economical. The design includes an optional mullion anchor with diverter clip for water infiltration and condensation management, a narrow 2-1/4" profile and three system depths. Structural silicone glazing is optional and the system has dual finish capability. Shear block or screw spline construction makes fabrication easy.

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MECHOSHADE® SYSTEM



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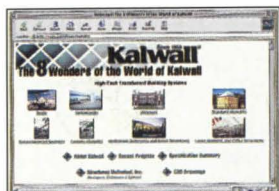
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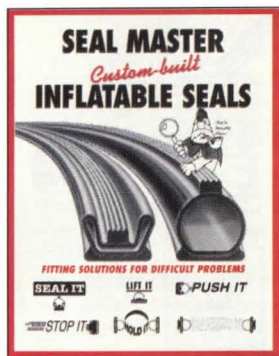
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Americans have translated the white-gloved sophistication of baccarat in Biarritz into the tank-topped tackiness of Vegas slot machines.

By Andrei Codrescu

European and American styles of parting a fool from his money differed considerably for most of the century. In stylish Monte Carlo or Biarritz, only the well dressed were admitted, under the questionable presumption that they were also the well heeled. Las Vegas, in typical American democratic fashion, jettisoned all pretenses and made the riffraff feel right at home.

In 1990 in Budapest, Hungary, there were several old-fashioned gambling palaces where ceremony still reigned. The doormen and coat-checkers were as solemn as royal footmen and the dealers never cracked a smile. A churchlike hush floated under the splendid chandeliers. Heavy velvet draperies shut out the world, and only the roll of dice, the well-oiled turn of the roulette wheel, and the discreet shuffle of cards were heard. Slot machines were nowhere in sight. Serious-faced men did most of the gambling. Women served mainly as decoration, with their long evening gowns and cigarette-holders.

But right across the street, a revolution was in progress. The fall of the Iron Curtain had ironically allowed for the opening of Casino American-style, which encouraged the shoddily dressed masses to have a go at it. Garish neon blinked invitingly outside. Americans in

From Casino Royale to Desert Craps



blue jeans and locals in open-necked shirts jostled loudly around the tables, shouting and swearing. There were mirrors everywhere, but no windows or clocks. Long before consumer society established an actual foothold in the expired socialist world, Las Vegas gambling started teaching American-style democracy.

One would like to think that not all of Europe capitulated. Prague's Casino Palais Savarin is a baroque villa where the etiquette of the Hapsburg empire seems to be still in effect. On closer inspection, however, one finds that half the clientele has been dressed in the checkroom with borrowed jackets. The croupiers and dealers are miniskirted, long-legged Ukrainian and Czech girls, and the pit bosses are as professionally friendly as any employee at the Sands.

Ironically again, Las Vegas now yearns for the grandeur of old European casinos—without the dress code. The newest fantasies on the Vegas Strip are importing all of Europe, not just the palaces. Paris and Venice are there already, stripped of their boring solemnity, but loaded with decorations to awe the average tourist. Why go to Europe when it's all here, everybody speaks English, and I can lose my money without wearing a tie? Even Europe herself has caught on, grudgingly allowing the hoi polloi into the gaming sanctums.

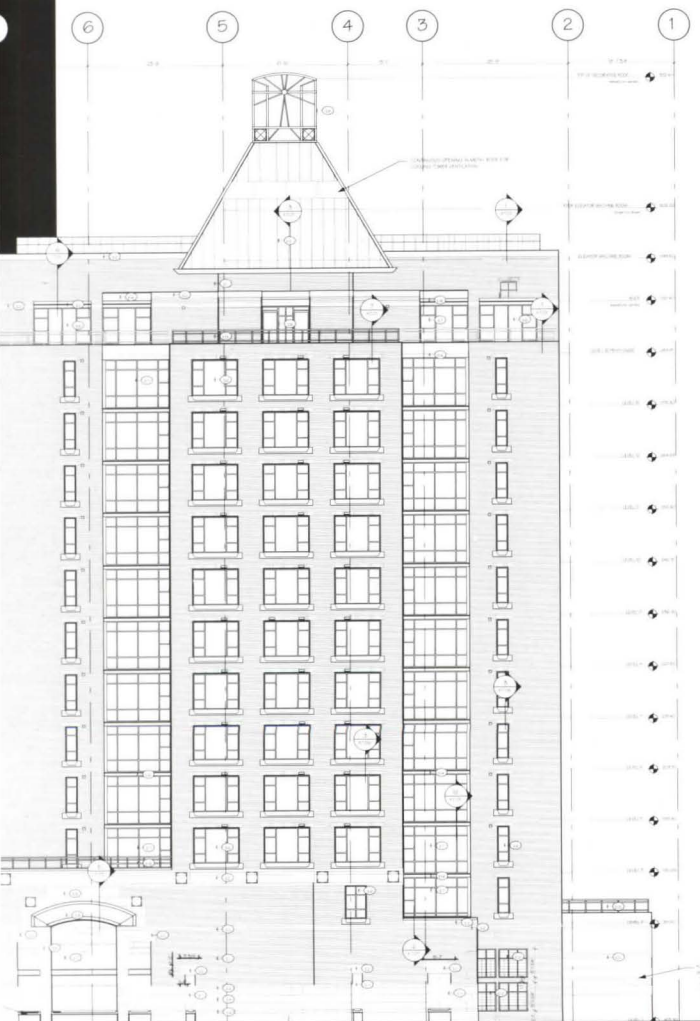
Eventually, postmodernism will fatally scramble the old and new worlds. A gambler in Budapest might feel that he is in Vegas, while the atmosphere of Europe will overcome a gambler in Vegas. Whatever doubts remain will disappear entirely in this world whose secret is that what's outside doesn't matter in the end. Where one is situated actually has very little to do with the pleasant activity of being vampirized. ■

Secret agent man: Sean Connery as James Bond in *Dr. No* (1962) personifies cosmopolitan chic and mysterious allure of European gambling.



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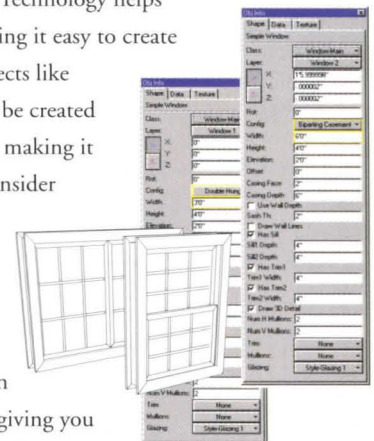


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