# ARCHITECTURAL RECORD

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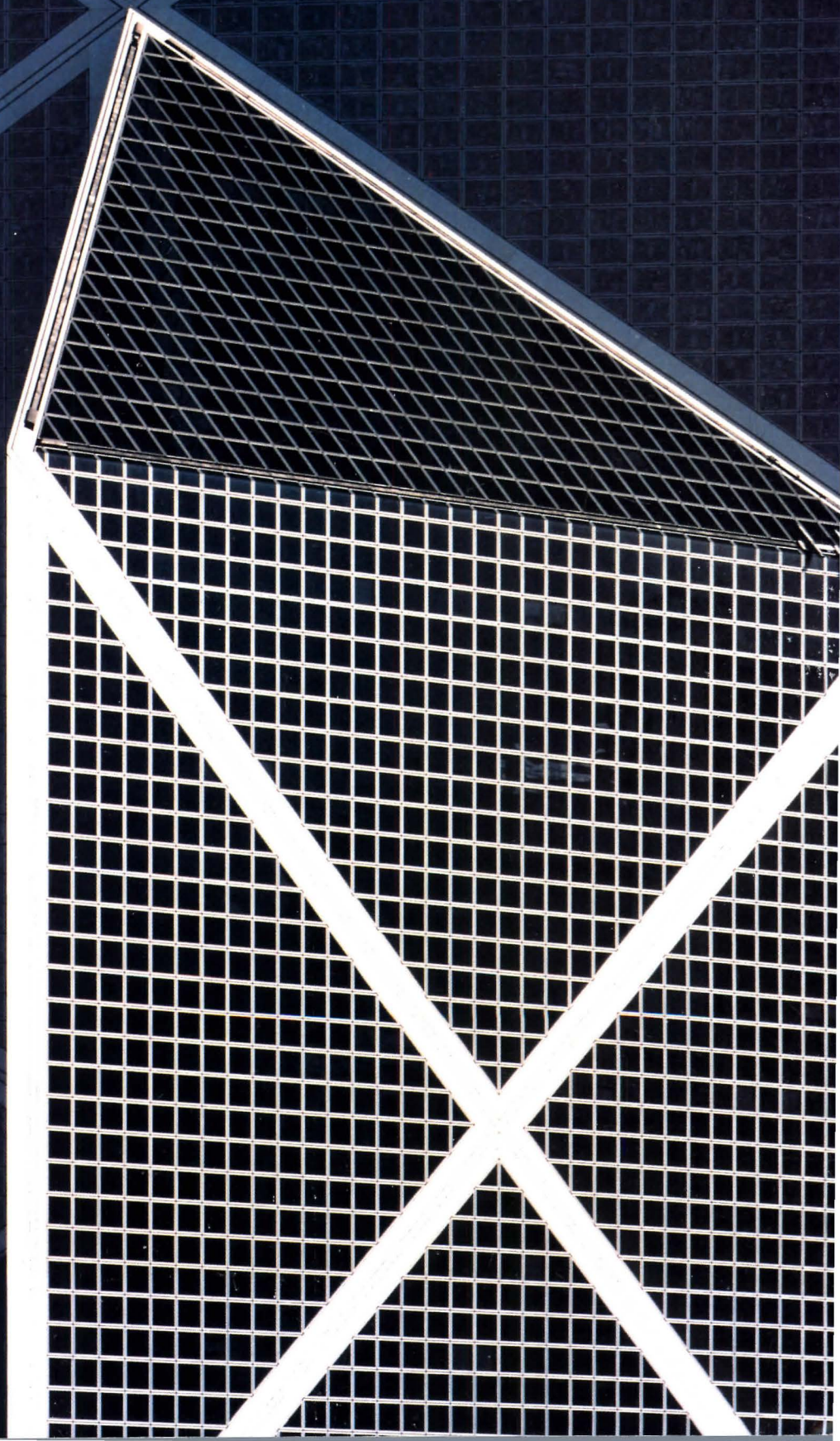

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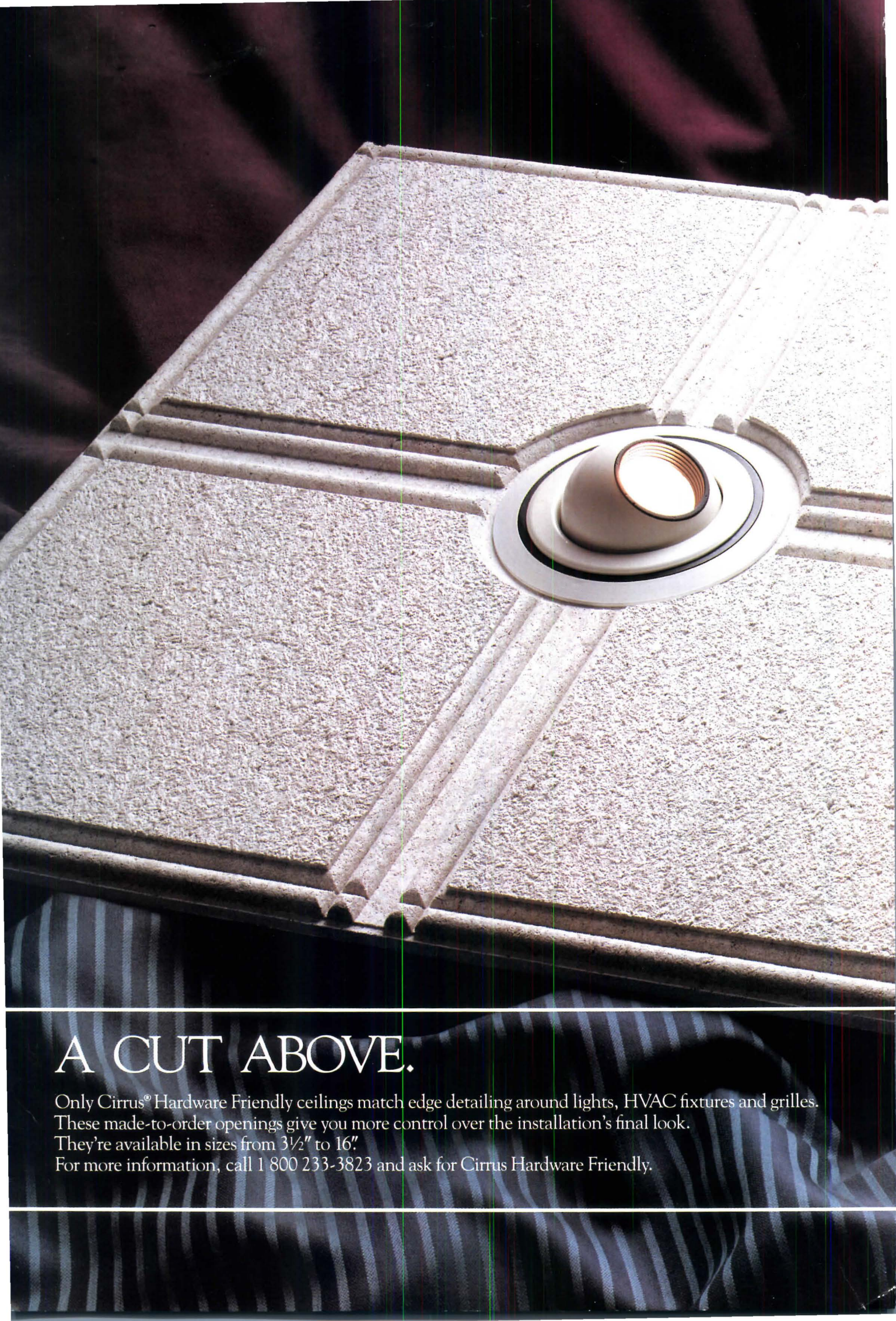
TALL BUILDING

MAKING THE GRADE:
A LOOK AT CURRENT
SCHOOL DESIGN



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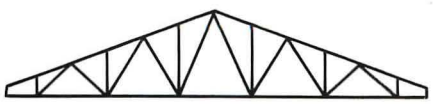
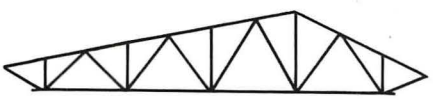
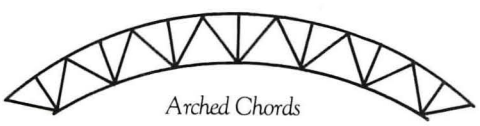


*Gable*

*Scissor*



*Offset Double Pitch*



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**Circle 4 on inquiry card**

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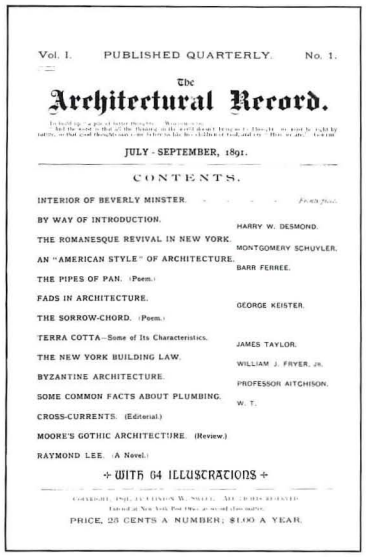

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The
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JULY - SEPTEMBER, 1891.

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+ WITH 64 ILLUSTRATIONS +


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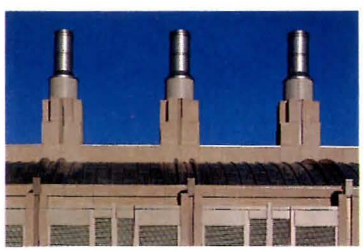

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## FEATURES



## BUILDING TYPES STUDY 687



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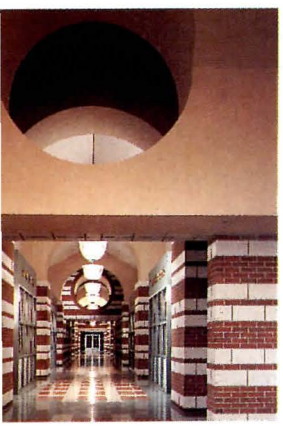

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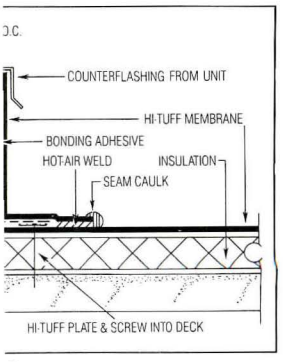


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## BUILDING TECHNOLOGY



## PRACTICE



**COVER:** Bank of China Tower, Hong Kong;
I. M. Pei & Partners, Architect
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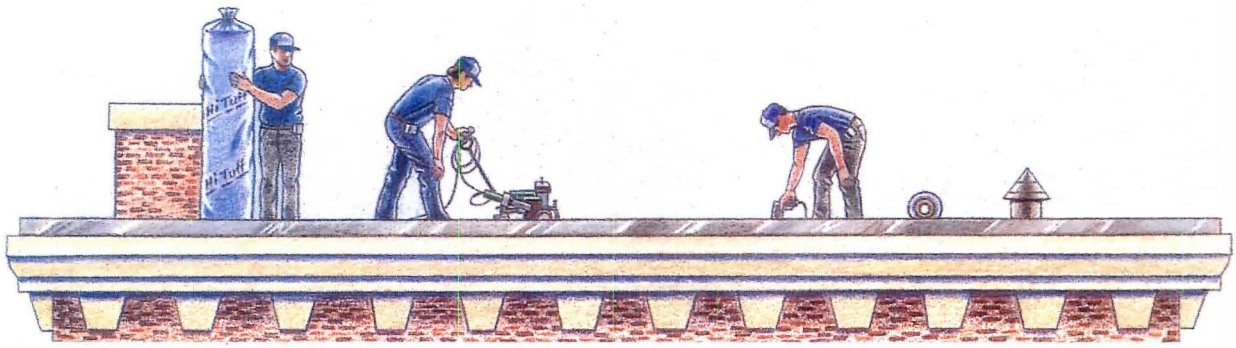

# Their roof gives you more installers. Ours gives you more roof.

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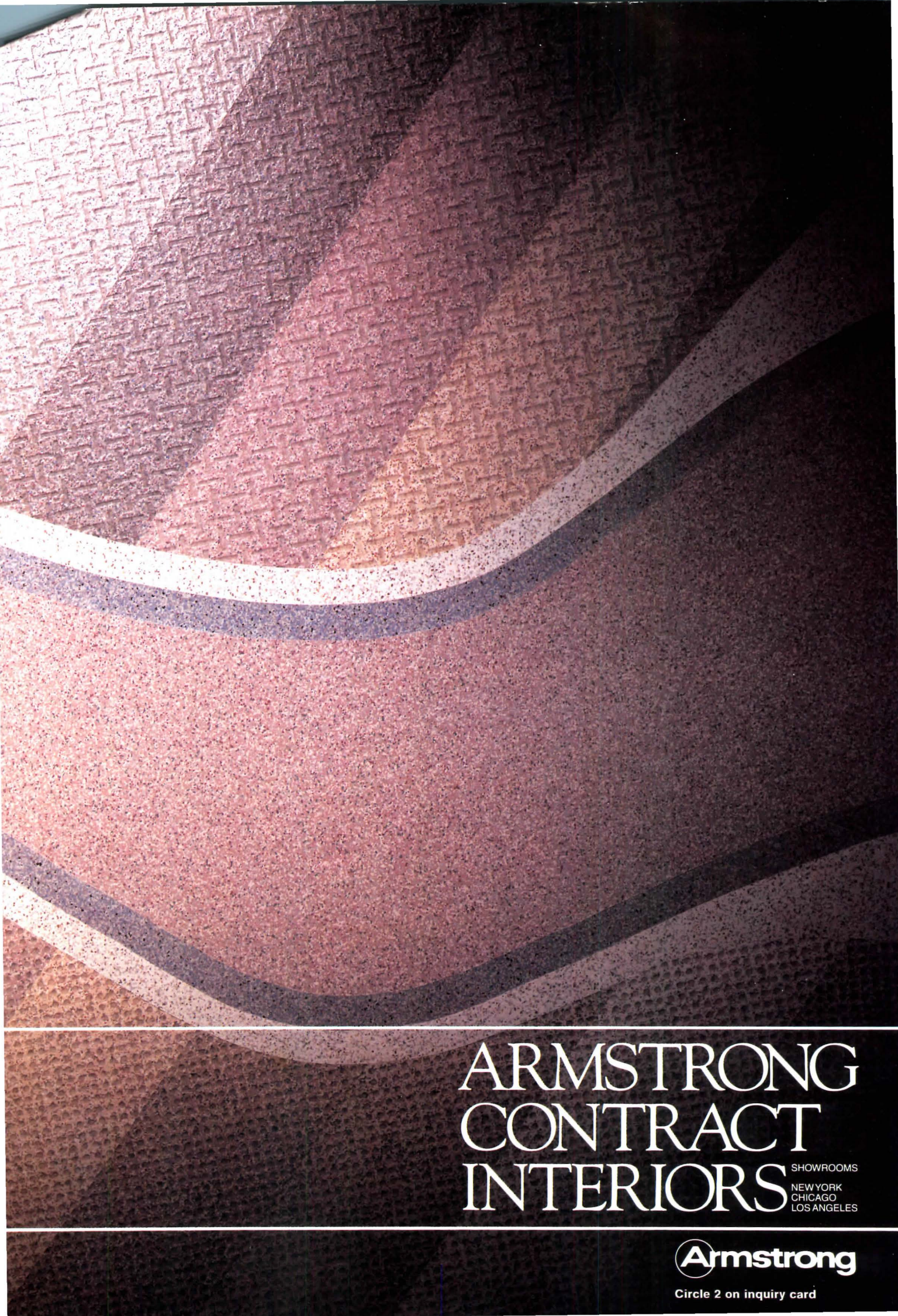
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## San Diego's "New Town"

Donald Canty's article on San Diego's successful Uptown District mixed-use development [RECORD, October 1990, pages 62-67] was well chosen, but Canty's shallow research provides little understanding of the real process that gave birth to the project. The article completely omits a vital six-month process of urban design studies and citizen participation that preceeded the city's selection of the developer and subsequent work of the developer's architects.

The city of San Diego did not simply issue a developer RFP at the outset of the project, as the article suggests. In March 1987, City Council appointed a prominent citizens' task force and selected an urban design consulting team that worked hard to define the recommended land use mix and urban design guidelines for the site. The essential ideas behind the project—the mixed-use concept, pedestrian emphasis, Vermont Street link to the city grid, and many other design elements that were realized—came from this process. They were clearly documented, approved unanimously by the City Planning Commission and City Council in November 1987, and became a part of the developer RFP issued by the city the following month.

As principal consultant to the city, our firm led the multidiscipline team that conducted urban design, financial, and transportation studies for the site's redevelopment. The hard work and creative efforts of the City Planning staff led by Michael Stepner, and the citizens' task force capably chaired by Planning Commissioner Yvonne Larsen, were instrumental in establishing a consensus on an imaginative development concept and key design elements before the developer was selected by the city. Canty did a great disservice to all of those involved in the early part of the process to completely neglect this important groundwork.

This should not detract from the fine work of the development team and their architect, who met the objectives of the city and worked effectively with the local neighborhood as the project design evolved.

If ARCHITECTURAL RECORD continues its coverage of complex urban design and architectural projects, and pretends to review their background, its correspondents have a professional responsibility to do a reasonable amount of homework, and not rely entirely on the public relations releases of project developers and their architects.

**GERALD GAST**
**ARCHITECT AND URBAN DESIGNER**
**GAST & HILLMER**
*San Francisco*

## U. K. practice

The subtleties that differentiate British practice from U. S. practice are such as to confound the most well intended [RECORD, October, page 23]. Quantity surveyors are "gods" unto themselves, and can be a valuable asset to any practice, since they are often retained long before the architect. Utilizing consultants the British way also has its pitfalls. While for the most part extremely competent, they are not quite as flexible as American engineers. For those prepared to make the investment, the rewards will ultimately be there; however, it is a long, sometimes frustrating road.

**E. MANNY ABRABEN, AIA, RIBA**
*Boca Raton, Florida*

## Height limit

I am writing to take exception to the piece in Design News [RECORD, October 1990, page 19] that begins "Given Washington, D. C.'s rigid 130-foot height limit and its industry of federal bureaucracy. . . ." Washington's architectural failures are not caused by its height limit, or even by that catch-all of blame, the federal bureaucracy, but by greedy developers and the cynical architects who cater to them. If Washington's streets are lined with shoddy International Style and watered-down Postmodernist knock-offs, the architects who designed them and the businessmen who bought them must answer for them, not the height limit, which has saved us from taller horrors.

**JONATHAN REEL**
*Washington, D. C.*

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# 100 YEARS OF ARCHITECTURAL RECORD

## A look back and a look forward

Eighteen ninety-one was ARCHITECTURAL RECORD's first year. A quarterly, it was 7 in. by 9 3/4 in. high, set in hot type and printed letterpress. The 55-pound coated paper is now brittle and yellowed at the edges. New buildings were shown mostly as linecuts done from superb ink drawings, but a few photographs did find their way in, including a heavy Richardsonian townhouse at 848 Fifth Avenue in New York, designed by Charles Haight, and the San Antonio National Bank Building done in the Byzantine manner by George Post.

There was a long essay by Montgomery Schuyler on the state of the Romanesque style in New York, and a four-page editorial by the first editor, Harry Desmond, an interesting but rambling piece which raps the sort of crass materialism of the day that elevated the railroad as the "culmination of civilization." There is a piece by George Keister denouncing fads in architecture (how familiar!), a technical piece on terra cotta and another about plumbing, a couple of poems, the first installment of a novel, and about 25 advertisements. Subscription: one dollar.

The magazine was well-named and the name still fits. A review of its pages over those hundred years yields a fascinating grand tour of buildings, ornament, products, the evolution of building codes, the education of architects, the emergence and change of building types, details, construction forecasts, graphic design. RECORD spans unique periods in this nation's history, from the end of the Brown Decades and the Chicago Exposition, through Art Deco, four major wars, the rise, decline, and survival of the Modern Movement, the tremendous surge in building technology, the legitimization of the business of architecture, and the ongoing ebb of the drawing pencil in favor of a keyboard and a mouse.

Contributors have included giants: Schuyler, Mumford, who wrote some 20 pieces between 1930 and 1965, Wright. We kick off our centennial year with some pithy excerpts from Wright's writings for RECORD, which began in 1908 and span 44 years [see pages 12-17].

July is the actual anniversary month. To celebrate the event, we're preparing a spectacular souvenir issue. In addition to a series of articles by top critics covering the major architectural periods, we will bring you the RECORD Album, made up of highlights from older issues; an interview with a 100-year-old architect; and the winning buildings from a major survey of our readers whom we are asking to identify the most important buildings of the past century (be sure to send us your ballot, which faces page 52).

And we'll look at the future—of design, of architectural education, of the architect's own office, as seen by today's sharpest thinkers.

But let's not forget: a centennial is merely a marker on a road. Think of our pages as a series of brief camera takes in time, a look back and a look forward, in this constantly moving procession which those who come after us will assess when their turn comes.

**STEPHEN A. KLIMENT**

# FRANK LLOYD WRIGHT: ON THE RECORD

## Throughout his career, Wright used the pages of ARCHITECTURAL RECOR as a pulpit to preach his gospel of Organic architecture.

Editor's note: Although ARCHITECTURAL RECORD can hardly take credit for Frank Lloyd Wright, the magazine was one of the first to recognize his genius and remained a friend through thick and thin. Before Wright became known much beyond Chicago, RECORD took note of his achievements. In April 1904, the magazine looked at the new spirit of architecture in Chicago and stated, "It really derives its momentum and inspiration chiefly from the work of Mr. Louis Sullivan, and from a very able architect, who issued from Mr. Sullivan's office, Mr. Frank Wright." Two decades later, when Wright's career was considered over by many observers, RECORD provided him with a powerful pulpit from which to preach his gospel of Organic architecture. Shortly thereafter, his career took off once again.

Wright was a frequent contributor to RECORD throughout his career. Never one to soft-pedal his ideas, Wright spoke out on a variety of topics—from the nature of materials to the evils of "Modern-architecture." In March 1908 he wrote an essay for RECORD entitled "In the Cause of Architecture," which outlined his principles of Organic architecture and included his six "propositions" of good design. Six years later, in the May 1914 issue of RECORD, Wright further elaborated on his philosophy of architecture, again under the title "In the Cause of Architecture."

From May 1927 through December 1928, Wright penned a series of 14 essays that elaborated many of the points he had made in his previous articles. Although set below the now-familiar heading "In the Cause of Architecture," the 1927-1928 essays carried subtitles such as "The Architect and the Machine" (May 1927), "The Logic of the Plan" (January 1928), and "What 'Styles' Mean to the Architect" (February 1928). Wright was paid the very generous sum of $7,500 for these articles, money he sorely needed at the time. Years later, he would remind RECORD editors that he had been hired to write 15 articles for the series, but had only produced 14. "I still owe you one article," he would joke. Finally, in May 1952 he came through with his missing piece, a sharply worded critique entitled "Organic Architecture Looks at Modern Architecture."

What follows is a selection of quotations from Wright's writings for RECORD, organized by topics, and reprinted in Wright's sometimes idiosyncratic writing style. **C. A. P.**

UPI/BETTMANN PHOTOS

**Wright in 1957 with drawing of his never-built Mile-High Skyscraper.**

### Wright's six "propositions" of 1908

I.—Simplicity and Repose are qualities that measure the true value of any work of art.

But simplicity is not in itself an end nor is it a matter of the side of a barn but rather an entity with a graceful beauty in its integrity from which discord, and all that is meaningless, has been eliminated. A wild flower is truly simple. Therefore

1. A building should contain as few rooms as will me conditions which give it rise and under which we live which the architect should strive continually to simplify the ensemble of the rooms should be carefully considere comfort and utility may go hand in hand with beauty. the entry and necessary work rooms, there need be but rooms on the ground floor of any house, living room, room, and kitchen, with the possible addition of a 'social really there need be but one room, the living room with re ments otherwise sequestered from it or screened within means of architectural contrivances.

2. Openings should occur as integral features of the ture and form, if possible, its natural ornamentation.

3. An excessive love of deta ruined more fine things from the point of fine art or fine living tha one human shortcoming—it is hop vulgar. Too many houses, when th not little stage settings or scene ings, are mere notion stores, baza junk-shops. Decoration is dangero less you understand it thorough are satisfied that it means som good in the scheme as a whole; f present, you are usually better of out it. Merely that it 'looks rich' justification for the use of orname

4. Appliances or fixtures as su undesirable. Assimilate them to with all appurtenances into the de the structure.

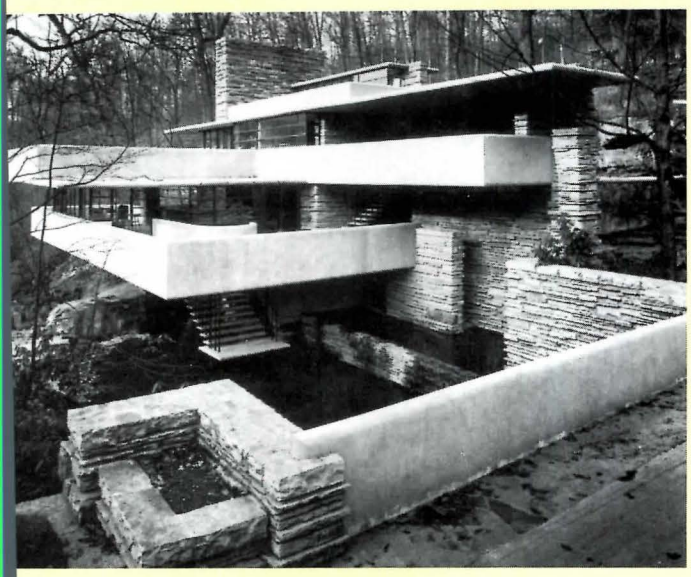
5. Pictures deface walls oftene they decorate them. Pictures sho decorative and incorporated in the al scheme as decoration.

6. The most truly satisfactory ments are those in which most o the furniture is built in as a part original scheme considering the whole as an integral u

II.—There should be as many kinds (styles) of hou there are kinds (styles) of people and as many differen as there are different individuals. A man who has indivi (and what man lacks it?) has a right to its expression in environment.

III.—A building should appear to grow easily from and be shaped to harmonize with its surroundings if Na manifest there, and if not try to make it as quiet, sub and organic as She would have been were the oppo Hers. (In this I had in mind the barren town lots devoid or natural incident, town houses and board walks evidence.)

We of the Middle West are living on the prairie. The has a beauty of its own and we should recognize and a ate this natural beauty, its quiet level. Hence, gently roofs, low proportions, quiet sky lines, suppressed he



The
Architectural Record

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## In the Cause of Architecture

The reader of architectural discourses encounters with increasing frequency discussions on American Architecture, Indigenous Architecture. These are generally to the effect that in order to establish a vital architecture in the United States, it is necessary for the architect to sever his literal connection with past performances, to shape his forms to requirements and in a manner consistent with beauty of form as found in Nature, both animate and inanimate. Articles in this strain have appeared, from time to time, in this and in other architectural journals, and have been in most cases too vague in their diction to be well understood, either by the lay reader or the architect.

The sentiment for an American architecture first made itself felt in Chicago twenty years ago. Its earliest manifestation is the acknowledged solution of the tall office building problem. An original phase of that early movement is now presented, in the following article and illustrations, the work of Mr. Frank Lloyd Wright.

—Editors of THE ARCHITECTURAL RECORD.

Radical though it be, the work here illustrated is dedicated to a cause conservative in the best sense of the word. At no point does it involve denial of the elemental law and order inherent in all great architecture; rather, is it a declaration of love for the spirit of that law and order, and a reverential recognition of the elements that made its ancient letter in its time vital and beautiful.

Primarily, Nature furnished the materials for architectural motifs out of which the architectural forms as we know them to-day have been developed, and, although our practice for centuries has been for the most part to turn from her, seeking inspiration in books and adhering slavishly to dead formulae, her wealth of suggestion is inexhaustible; her riches greater than any man's desire. I know with what suspicion the man is regarded who refers matters of fine art back to Nature. I know that it is usually an ill-advised return that is attempted, for Nature in external, obvious aspect is the usually accepted sense of the term and the nature that is reached. But given inherent vision there is no source so fertile, so suggestive, so helpful æsthetically for the architect as a comprehension of natural law. As Nature is never right for a picture so is she never right for the architect—that is, not ready-made. Nevertheless, she has a practical school beneath her more obvious forms in which a sense of proportion may be cultivated, when Vignola and Vitruvius fail as they must always fail. It is there that he may develop that sense of reality that translated to his own field in terms of his own work will lift him far above the realistic in his art; there he will be inspired by sentiment that will never degenerate to sentimentality and he will learn to draw with a surer hand the every-perplexing line between the curious and the beautiful.

A sense of the organic is indispensable to an architect; where can he develop it so surely as in this school? A knowledge of the relations of form and function lies at the root of his practice; where else can he find the pertinent object lessons Nature so readily furnishes? Where can he study the differentiations of form that go to determine character as he can


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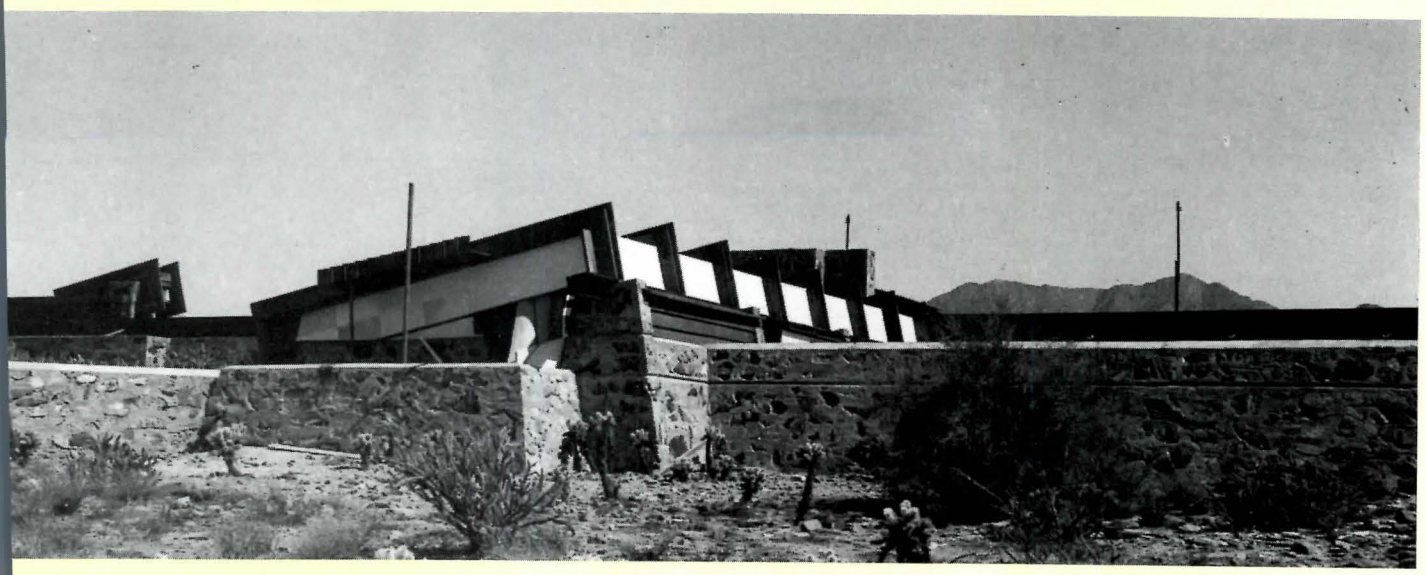
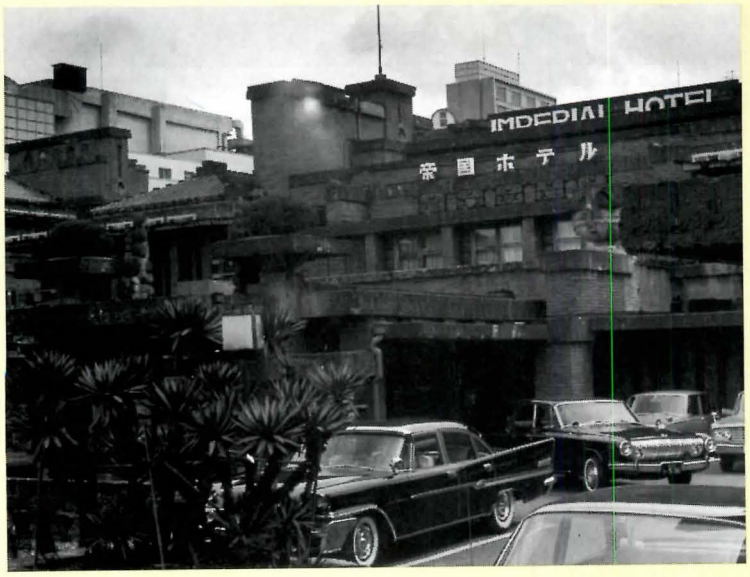
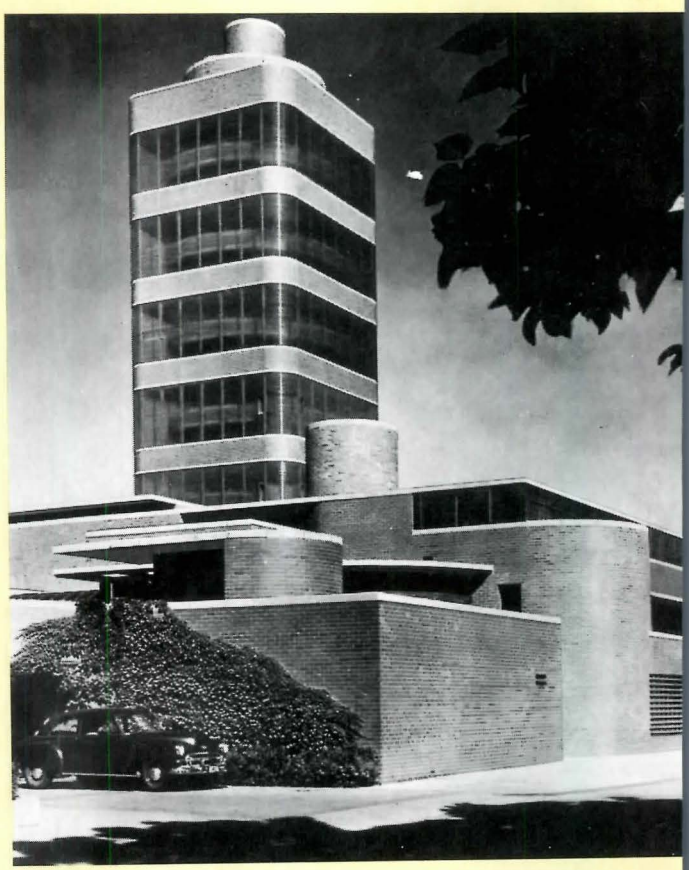
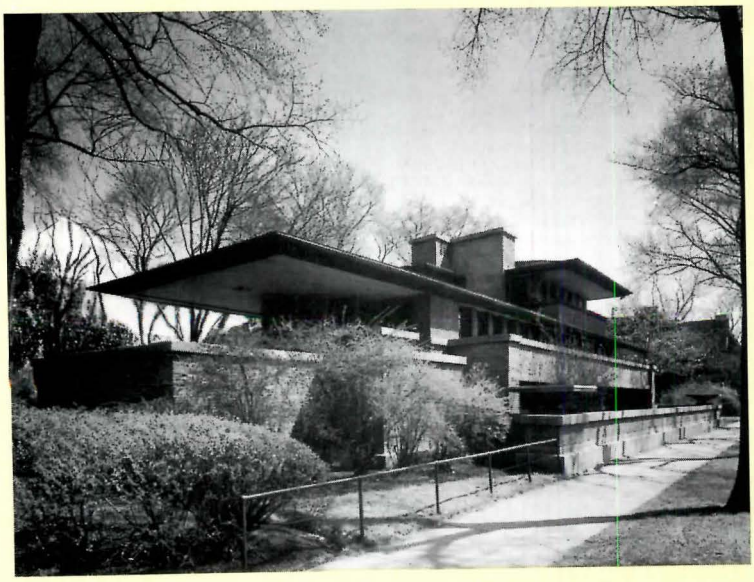
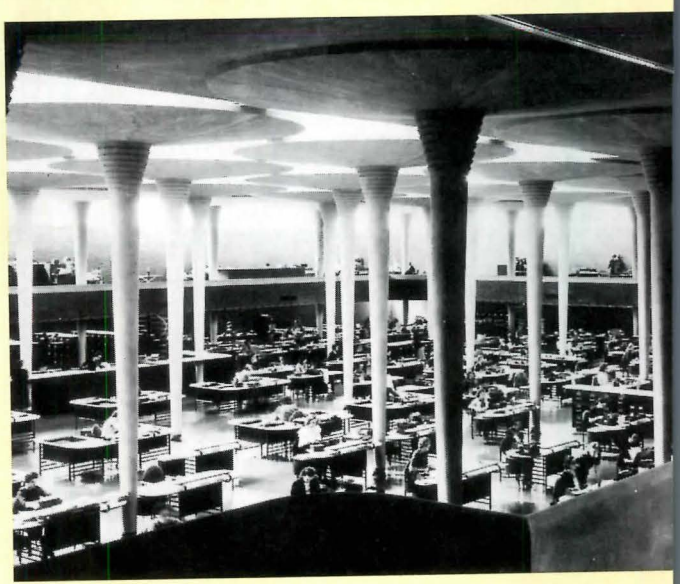
**The opening salvo: Wright's first article for ARCHITECTURAL RECORD in March 1908 (above right) included his "six propositions" of good design. Throughout his career, Wright applied his principles of Organic architecture to works such as Fallingwater in 1939 (top left), the interior of Taliesin in 1925 (above left), and Taliesin West in 1940 (below). The buildings carefully melded natural materials and Modern construction with their rugged sites.**



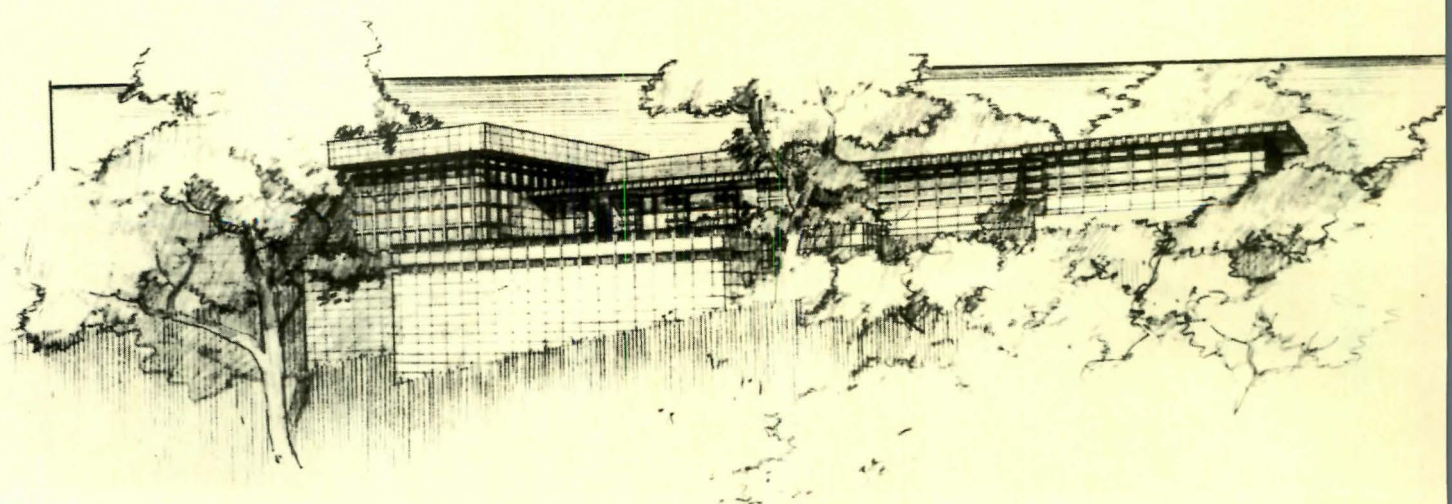






Wright's Imperial Hotel in Tokyo (built in 1923) used volcanic stone and a sophisticated earthquake-resistant foundation. The Robie House (above), built in 1907, epitomizes the Prairie Style, with its strong horizontals and flowing spaces. The Johnson Wax headquarters (top right and above right) pioneered a new kind of corporate design, while the Sussman House of 1955 (below) represented Wright's Usonian ideas.



eys and sheltering overhangs, low terraces and out-reach-alls sequestering private gardens.

—Colors require the same conventionalizing process to them fit to live with that natural forms do; so go to the and fields for color schemes. Use the soft, warm, opti- tones of earths and autumn leaves in preference to the istic blues, purples, or cold greens and grays of the counter; they are more wholesome and better adapted in cases to good decoration.

-Bring out the nature of the materials, let their nature tely into your scheme. Strip the wood of varnish and let e—stain it. Develop the natural texture of the plastering ain it. Reveal the nature of the wood, plaster, brick, or in your designs; they are all by nature friendly and ful. No treatment can be really a matter of fine art when natural characteristics are, or their nature is, outraged or ted.

—A house that has character stands a good chance of ng more valuable as it grows older while a house in evailing mode, whatever that mode may be, is soon out shion, stale and un- ble. . . .

dings like people must e sincere, must be true nen withal as gracious ovable as may be. . . . all, integrity. The ma- s the normal tool of our tion, give it work that do well—nothing is of r importance. To do this e to formulate new in- al ideals, sadly needed. *1908.*

**ture:**

rily, Nature furnished terials for architectural out of which the archi- al forms as we know oday have been devel- nd, although our prac- centuries has been for ost part to turn from eking inspiration in books and adhering slavishly to dead ae, her wealth of suggestion is inexhaustible: her riches than any man's desire. I know with what suspicion the regarded who refers matters of fine art back to Nature. that it is usually an ill-advised return that is attempt As Nature is never right for a picture, so is she never r the architect—that is, not ready-made. Nevertheless, a practical school beneath her more obvious forms in a sense of proportion may be cultivated, when Vignola ruvius fail as they must always fail. *March 1908.*

**ganic architecture:**

e of the organic is indispensable to an architect; where develop it so surely as in this school? A knowledge of ations of form and function lies at the root of his ; where else can he find the pertinent object lessons so readily furnishes? Where can he study the differenti- f form that go to determine character as he can study the trees? Where can that sense of inevitableness eristic of a work of art be quickened as it may be by rse with nature in this sense? *March 1908.*

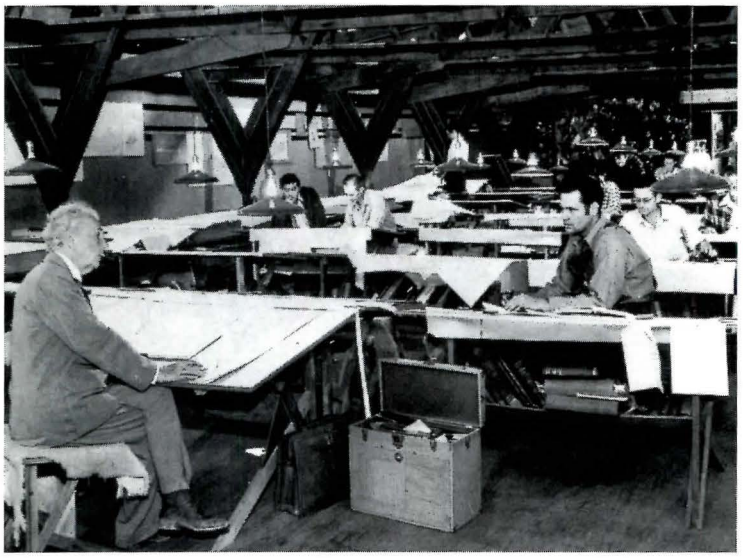
organic building (an integument rather than a box) as one with its site and occupancy. Nor could these s be imagined anywhere else nor for any other purpose r than where and for what they were built. *May 1952.*

**and elevation:**

ve endeavored in this work to establish a harmonious relationship between ground plan and elevation of these buildings, considering the one as a solution [to] and the other an expression of the conditions of a problem of which the whole is a project. *March 1908.*

Moreover, these ground plans are merely the actual projection of a carefully considered whole. The 'architecture' is not 'thrown up' as an artistic exercise, a matter of elevation from a preconceived ground plan. The schemes are conceived in three dimensions as organic entities, let the picturesque perspective fall how it will. No man ever built a building worthy the name of architecture who fashioned it in perspective sketch to his taste and then fudged the plan to suit. Such methods produce mere scene-painting. A perspective may be a proof but it is no nurture. *March 1908.*

Plan! There is something elemental in the word itself. A pregnant plan has logic—is the logic of the building squarely stated. . . . A good plan is the beginning and the end, because every good plan is organic. That means that its development in all directions is inherent—inevitable . . . Scientifically, artistically to foresee all is "to plan" . . . All is there seen—purpose, materials, method, character, style. The plan? The prophetic soul of the building. . . . *January 1928.*



**Wright addresses his apprentices in 1945 in the studio of Taliesin West in Scottsdale, Arizona.**

To judge the architect one need only look at his ground plan. He is master then and there, or never. *January 1928.*

**On scale:**

In the matter of scale, the human being is the logical norm because buildings are to be humanly inhabited and should be related to human proportions not only comfortably but agreeably. Human beings should look as well in the building or of it as flowers do. *January 1928.*

**On styles:**

I do not believe we will ever again have the uniformity of type which has characterized the so-called great "styles." Conditions have changed; our ideal is Democracy, the highest possible expression of the individual as a unit not inconsistent with a harmonious whole. The average of human intelligence rises steadily, and as the individual unit grows more and more to be trusted we will have an architecture with richer variety in unity than has ever arisen before; but the forms must be born out of our changed conditions, they must be *true* forms, otherwise the best that tradition has to offer is only an inglorious masquerade, devoid of vital significance or true spiritual value. *March 1908.*

"Styles" once accomplished soon become yardsticks for the blind, crutches for the lame, the recourse of the impotent. *February 1928.*

**On ornamentation:**

In the main the ornamentation is wrought in the warp and woof of the structure. It is constitutional in the best sense and is felt in the conception of the ground plan. *March 1908.*

Our esthetics are dyspeptic from incontinent indulgence in "Frenchite" pastry. We crave ornament for the sake of ornament; cover up our faults of design with ornamental sensualities that were a long time ago sensuous ornament. We will do well to distrust this unwholesome and unholy craving and look to the simple line. . . . *March 1908.*

Unfortunately, there is a conviction in certain quarters—if it amounts to a "conviction,"—chiefly European—that ornamentation is untrue to the Machine in this, the Machine Age. That

the use of ornamentation is a romanticism and therefore inappropriate .... The contrary is the case ... But it is true that ornamentation in the old sense as an "applied" thing, as something added to the thing superficially, however cleverly adapted or "composed" is dead to this new world. *August 1927.*

**On the machine:**

The machine is here to stay. It is the forerunner of the democracy that is our dearest hope. There is no more important work before the architect now than to use this normal tool of civilization to the best advantage instead of prostituting it as he has hitherto done in reproducing with murderous ubiquity forms born of other times and other conditions and which it can only serve to destroy. *March 1908.*

The Machine is the architect's tool—whether he likes it or not. Unless he masters it, the Machine has mastered him. *May 1927.*

**On standardization:**

An Oriental rug ... gleaming with all the brilliant pattern opulent Oriental imagination conceived, has a ... basis of standardization in warp and woof. In the methodical stitches regularly taken with strands of woolen yarn, upon that regular basis of cotton strings, stretched tight, lies the primitive principle of standardization .... Standardization here serves the spirit well—its mechanics disappear in the glowing fabric of the mind .... *Standardization* should have the same place in the fabric we are weaving which we call civilization—as it has in that more simple fabrication of the carpet. And the creative artist must put it into the larger, more comprehensive fabric. *June 1927.*

**On sin:**

The sins of the Architect are permanent sins. *May 1914.*

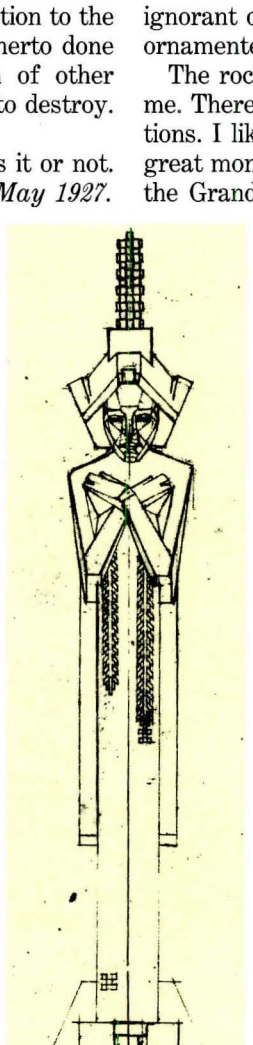
**On criticism:**

To promote good work it is necessary to characterize bad work as bad. *May 1914.*

So the standard of criticism is not only low—it is often dishonest or faked somewhere between the two, largely manufactured to order for profit or bias. Criticism is worked as an advertising game, traders' instincts subject to the prevailing commercial taint. *May 1914.*

**On discipline:**

Discipline! The architect who undertakes his work seriously on these lines is emancipated and imprisoned at the same time. His work may be severe; it cannot be foolish. It may lack grace; it cannot lack fitness altogether. It may seem ugly; it will not be false. No wonder, however, that the practice of architecture in this sense is the height of ambition and the depth of poverty! *May 1914.*



**Wright designed decorative figures for Midway Gardens.**

**On designing from the inside out:**

The building is no longer a block of building material dealt with, artistically, from the outside. The room within is the great fact about the building—*the room* to be expressed in the exterior as a *space enclosed.* This sense of the *room* within, held as the great *motif* for enclosure, is the advanced thought of the era in architecture, and is now searching for exterior expression. *February 1928.*

**On materials:**

Steel is the epic of this age .... Steel has entered our lives as a "material" to take upon itself the physical burden of our civilization .... This is the Age of Steel. And our "culture" has received it as ancient Roman culture received the great gift of the masonry arch. For centuries the Romans pasted the trabeated Greek forms of their "culture" on the arch in front as architecture, while the arch did the work behind .... Finally the noble virtue of the arch overcame the sham culture of the period and came forth and lived as a great and beautiful contribution to mankind .... Steel is still smothered in esthetic gloom, insulted, denied and doomed by us as was the masonry arch by the Romans. Inh virtue will triumph here, too, in course of time. So much w time! *August 1927.*

In most Architectures of the world stone has suffered imi of the stick. Even in oldest cultures like Chinese civilization, constructions of stone imitate wood posts and beams in ery .... The ideas of forms that became associated with ide the beautiful in this use of wood took the more enduring ma ignorant of its nature, and foolishly enslaved it to the idea ornamented stick. *April 1928.*

The rock-ledges of a stone-quarry are a story and a longi me. There is suggestion in the strata and character in the f tions. I like to sit and feel it, as it is. Often I have thought, great monumental buildings ever given me to build, I would the Grand Canyon of Arizona to ponder them. *April 1928.*

It [wood] is the most humanly intimate of all rials. Man loves his association with it, likes to under his hand, sympathetic to his touch and eyes. Wood is universally beautiful to Man. *May*

But the essential difference between stone and crete is still unconsidered. And that essential ence is the plasticity of the material itself as guished from natural stone, which has none at a I should say that in this plasticity of concrete li esthetic value. As an artificial stone, concrete h great, certainly no independent, esthetic value wh er. As a plastic material—eventually becoming like in character—there lives in it a great es property, as yet inadequately expressed. *August*

**On the Renaissance:**

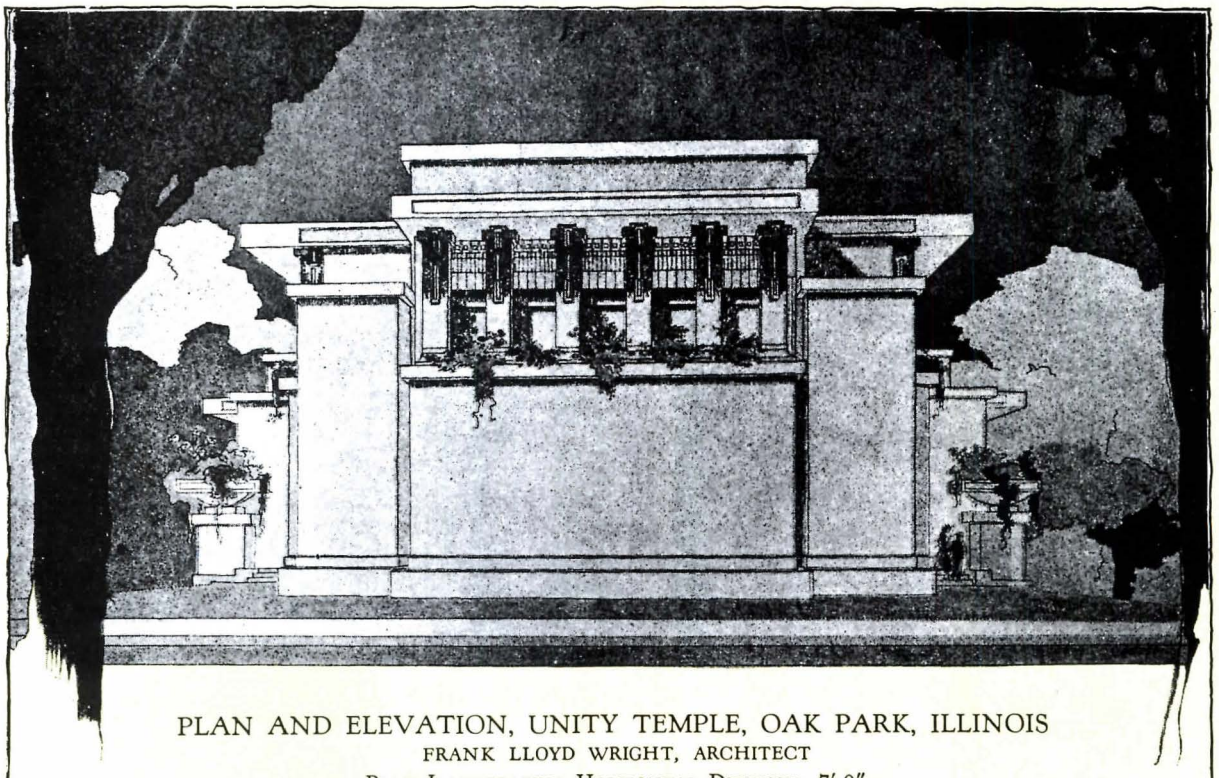
The "re-birth" of architecture. Unless a matter wrong and died too soon there could be no oc for "re-birth." But according to architects, ar ture has been in this matter of getting itself con ly re-born for several centuries until one might b it never properly born, and now thoroughly dead repeated "re-birth." As a matter of fact, archit never needed to be born again .... *February*

**On Michelangelo and St. Peter's**

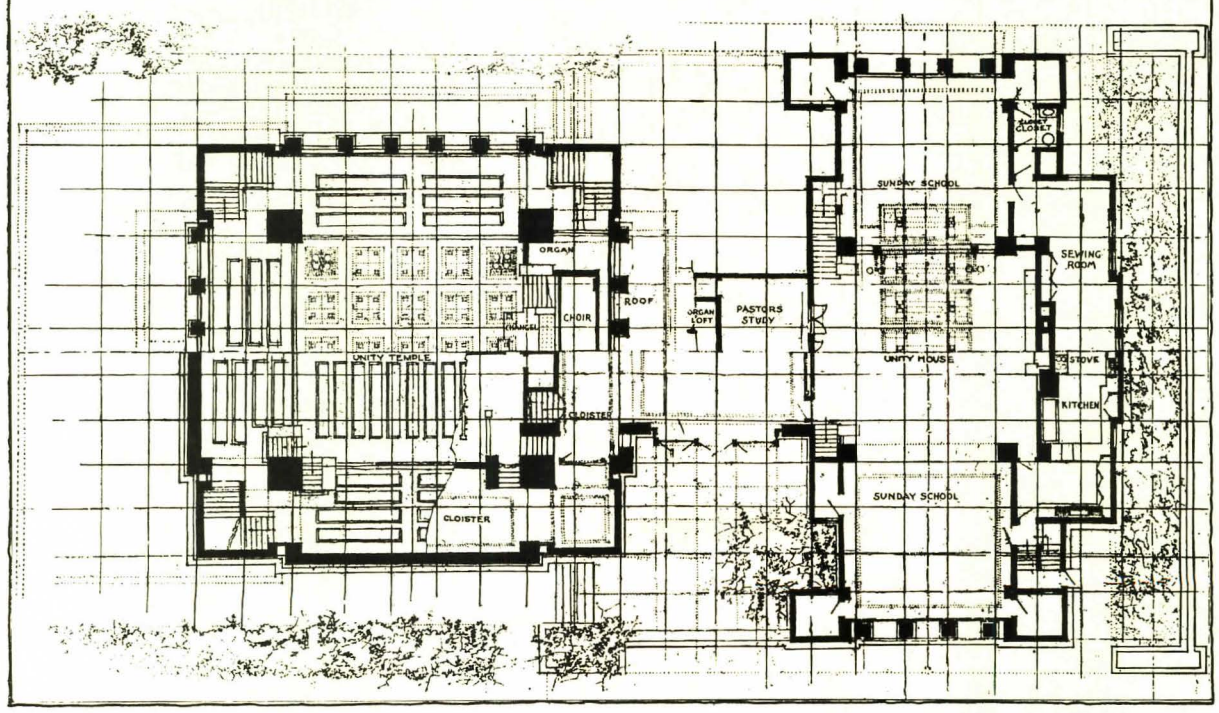
Let the architect cling, always, to the normal h figure for his scale and he cannot go so far wr Michelangelo did in St. Peter's in Rome. St. Pet invariably disappointing as a great building, f until the eye deliberately catches a human figu purposes of comparison does one realize th building is vast. All the details are likewise hug the sense of grandeur it might have if the masses were qualified by details kept to scale—this effect of grandeur—is lost in the de tion of the human figure. A strange error for a tor to make. *January 1928.*

**On the impact of European Modernism in America:**

Well, this import was not an affair of construction at all mere "esthetic," a painter's, not an architect's. Soon a clich fruitful [contributions] made by Organic architecture in dimensions now reappeared as a two-dimensional affair. *A* ment was scraped off. A high box would be contrasted long low box, or square boxes were placed together alo very tall boxes. Or on came the nude box cut open, or se the air on posts without pants. But always, nevertheles notwithstanding—the BOX. Thus surfaced, the box was ably painted white to emphasize the fact that it did not being a becoming feature of the ground upon which put .... The imported cliché was not only easy to teach. " more" unless less, already little, becomes less than nothin and "much ado about nothing...." Thus Modern-architec Organic-architecture deprived of a soul .... Any "interr style" would probably be a cultural calamity fit for Fasci intolerable to democracy. *May 1952.*



PLAN AND ELEVATION, UNITY TEMPLE, OAK PARK, ILLINOIS
FRANK LLOYD WRIGHT, ARCHITECT
PLAN ILLUSTRATING HORIZONTAL DIVISIONS, 7'-0"

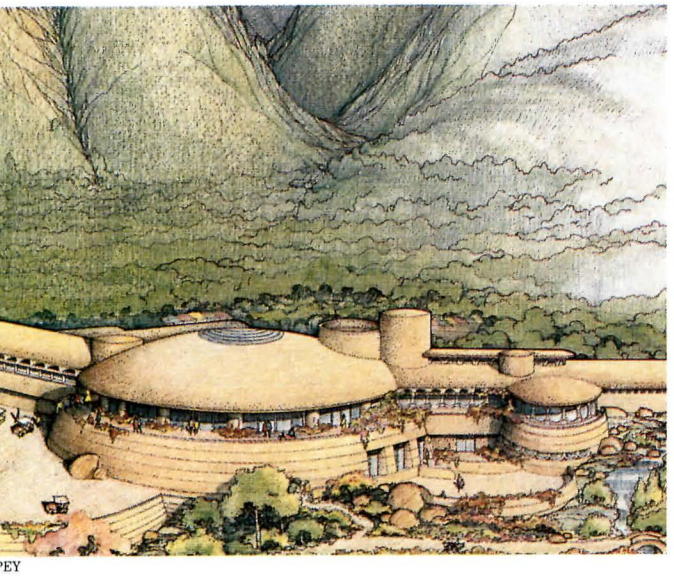



**Rejecting the nave and transept plan derived from cathedral architecture, Wright designed Unity Temple in Oak Park, Illinois (1906), as a less hierarchical place of worship with congregants seated around a pulpit. The building is a poured-in-place concrete structure with concrete-slab roofs. The simple cubical masses of the project "are in themselves great concrete blocks," said Wright.**

*Contact Kawneer, Department C, Technology Park—Atlanta, 555 Guthridge Court, Norcross, GA 30092. 404-449-5555.*

# DESIGN NEWS

## ıi Clubhouse from Wright Designs



EY

Backed by Japan's Shimizu development corporation, an American developer based in Hawaii is going forward with plans for a 600-acre "golf park" on Maui. The centerpiece of the project will be a 70,000-square-foot clubhouse, synthesized by John Rattenbury of Taliesin Associated Architects from unbuilt Frank Lloyd Wright designs. The designs, spanning 1949 to 1957, were intended for homes for Robert Windfohr, Raphael Balleres, and Marilyn Monroe and Arthur Miller, in Texas, Acapulco, and Connecticut, respectively. A second phase of the development will include up to 30 houses, also drawn from unbuilt Wright designs. Construction will begin soon and take about 18 months.

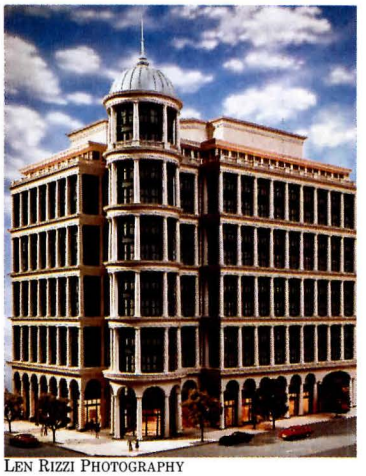
The clubhouse's main dining room is also the building's focal point, a 100-foot-wide, 32-foot-high central dome topped with an inverted skylight. Projecting to left and right are a series of smaller restaurants and terraced lounges, an equipment shop, and administrative offices. In order to preserve the integrity of Wright's designs, says Rattenbury, almost two-thirds of the structure will be below grade, where locker rooms and mechanical services will be located. The steel-framed structure will be covered with reinforced concrete and faced with synthetic stucco. □

## t-Iron Redux by Hartman-Cox

ocession of freestanding ns wraps around 1501 M , a speculative office build- esigned by George Hart- f Hartman-Cox. Although -story building is rising the many 1960s office igs in Washington, D. C.'s ercial district, the colon- ecalls—and was inspired ıe late 19th-century cast- uildings of New York SoHo, a landmarked his- istrict.

precast columns are in one piece and acid- to match limestone. To own costs on the $80-million, 180,000-square-foot project, the columns do not change orders as they rise. They are set on 3-foot bases at each level, 8 inches away from the metal-and-glass recessed facade. The 11th floor is set back and opens onto a terrace surrounded by a balustrade. A windowless dome of wood and copper caps the corner tower, which projects some 20 feet above the roof.

The two-story, domed lobby is also loosely modeled on turn-of-the-century mercantile opulence, with marble floors and cherry columns and wainscoting. It should make an inspiring



LEN RIZZI PHOTOGRAPHY

entry for the art students of Washington's Studio School, which will occupy two floors. □

## don Confab Hits Tourist Pollution

ıddress at the first Euro- Ionuments Forum on No- : 6, Professor Sir Ernst ich raised the notion that impossible to restore a g to its original glory." mark underscored the di- s facing Europe's historic rationists as they met at ı's Spencer House, in a ence sponsored by the Monuments Fund.

Julius Norwich, a noted ctural historian, spoke of "tourist pollution," and suggested the use of appointments to tour historic monuments. He cited the harrowing number of visitors to Venice—up to 36,000 per day—and the devastation from the July 1989 Pink Floyd rock concert in the Piazza San Marco.

Suzanne Massie, author of *Pavlovsk, The Life of a Russian Palace,* recounted the construction, destruction, and reconstruction of the 1777-1825 palace as mirroring the life of the Soviet nation. Miroslav Masak, architectural adviser to Czechoslovak President Havel, spoke on the need to preserve 36,000 Czech architectural monuments. English country gardens specialist John Harris, noted that select "modernist buildings, too, need to be addressed."

Jacob Rothschild, citing the meticulously restored Phoenix Room in Spencer House (a WMF project), wished the Fund "many many Phoenixes in the future." **DAVID MASELLO**

## Briefs

• **For a second time,** Murphy/Jahn's Cityspire in New York City is in trouble with the law. First it topped off 11 feet higher than its allotted 803-foot height. Now it's being fined for whistling. Neighborhood residents and workers complain that the building's louvered dome emits a loud whistle under certain wind conditions, and the city's Department of Environmental Protection issued an $880 fine for noise pollution. Solution? If that dome is 11 feet too high...

• **Barton Myers** has been tapped to design a $70-million, 2,700-seat performing arts center for Newark, New Jersey. The center will fit into James Polshek's master plan for the area, and is the first part of a $149-million redevelopment effort.

• **In association** with architects Renzo Piano/Building Workshop, Cambridge Seven is developing content and design for the $60-million Genoa Aquarium, planned as part of the Expo '92 celebration in Christopher Columbus's birthplace. Cambridge Seven has formed IDEA, Inc., a management arm, which will oversee the interior exhibits when the aquarium opens. □

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## eum-Mad Frankfurt

its nickname "Bankfurt" oe, Germany's financial Frankfurt, is fast devel- nto a museum metropolis. past 10 years Frankfurt tracted architectural tal- m America and Europe to te, extend, and/or build seums around the River "Museum Bank."

spectacular museums the way: Hans Hollein's n Art Museum, wedged site in the historical city and Richard Meier's Eth- al Museum, set near his m for Applied Arts.

nkfurt has made a serious to incorporate its new in- ons into the historical re of the city. Some are in their original villas,

such as the Liebig collection of antique sculpture, and the paintings of collector Friederich Stadel. The Stadel extension (left), completed in 1990, a monumental white marble building by Viennese architect Gustav Peichl, is a strong addition to the cityscape. Next door, work is in progress on Peichl's design for the highly respected Stadel art school. Two Rothschild mansions on the north bank were renovated by Ante Josip von Kostelac to form the Judisches Museum. A Carmelite convent served as the basis of Josef Paul Kleihues's Museum for Pre- and Early History.

For the Deutsche Postmuseum (right), Gunter Behnisch & Partners joined an airy, almost aeronautic modern building in glass and metal to a 19th-century stone villa, now converted into the museum's library and offices. In order to obtain the required volume of exhibit space and to save trees on site, Behnisch went underground. Inside, bulges in the below-grade exhibition hall indicate tree roots. A huge conical glass wall soars up and over the round opening in the ground floor that provides entry to the main exhibit hall.

Frankfurt's building craze is not confined to the arts. Helmut Jahn and Kohn Pedersen Fox are at work on major commercial projects. After all, Frankfurt wouldn't be Bankfurt if the boom had passed the business world by. **TRACY METZ**

ROBERT ORLEMANS

## gn for Schmoozing

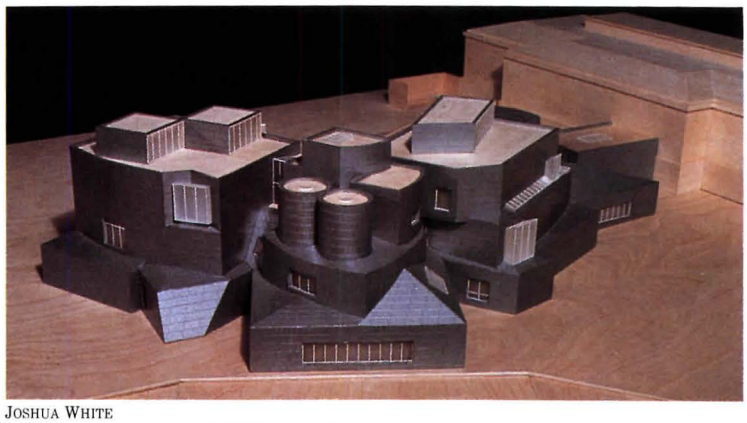
liam H. Whyte, author of 'schmoozing," the happy e of people-watching, is ence of the urban experi- But schmoozing spaces issipated by suburban and destroyed by the im- ı of malls and parking hyte spoke last October Second International Cu- nposium on Architecture ulture, held by Texas and the University of n schools of architecture. odlands, a new town out- uston, formed the back- the symposium.

Eisenman lectured that asive media has forced s in the concept of the leed, of reality: "The ob- ıo longer the content of ıce; every object is a l every sign is a question pretation." Thus, archi- becomes merely episodic. Modern utopian city planning extracted from historical models often ignores social theory, warned Kaisa Broner-Bauer, professor of architecture at Finland's Oulu University. She urged a search for "a new spiritual basis" for city planning.

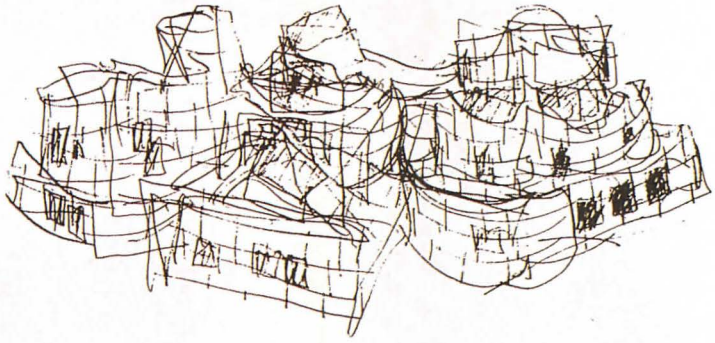
Peter Calthorpe presented his "remedial urbanism" approach, the insertion of pedestrian pockets into existing urban/suburban environments. New York landscape architect Anthony Walmsley, who sees landscape as essential to a balanced urban environment, warned that "our future is linked to protection of nature and natural processes."

"People will go to Disneyland and pay good money to walk through a simulation of an old-fashioned street," said Whyte. "Why can't we build a real urban experience?"

**GERALD MOORHEAD**



JOSHUA WHITE



## Gehry Art School in Toledo

One of Frank O. Gehry's most overtly sculptural buildings to date is the recently announced University of Toledo's art school, a $10-million, 51,000-square-foot new building that will rise adjacent to the Neoclassical Toledo Museum of Art. Phase I of a long-range two-part project, the L-shaped, three-story structure forms a courtyard with the museum's leafy East Lawn. A glass-walled corridor surrounds the courtyard. The school's pewter-toned, lead-coated copper and glass facing contrasts with the museum's white marble exterior, but it is a contrast that serves to unify the grouping. Studios and classrooms requiring natural light are on the top two floors, and skylights atop the two main structures are aligned to catch northern light. Groundbreaking is set for June. □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## Francisco AIDS Center

iro Hakomori's design for Francisco's Life Center, a inated HIV/AIDS service or- ation, was chosen in a re- design competition for the with which it expresses ee functions: a sanctuary clerestory level; AIDS ser- offices at the third and floors; a home for the Names Foundation on the lower levels. The Names Foundation's main project is the AIDS Memorial Quilt, a gigantic, ongoing quilt made up of panels dedicated to people who have died of AIDS around the world; because of the quilt's size, only part of it can be shown at one time, and much storage space is required.

The competition's joint sponsors, the Names Foundation and Trinity United Methodist Church, liked the serenity and regularity of the design by the 32-year-old, U. S.-educated Japanese architect, intended to create a sense of welcome to visitors and provide a contrast to the commotion of Market Street.

Searching for "an image that would represent the AIDS crisis," the architect placed a tree in front of the building. "I wanted to show a positive force—the tree as a metaphor for the cycles of life." That metaphor is echoed in the large timbers—"a grove of trees"—that support the roof and form the clerestory.

Hakomori is returning this month to San Francisco from Tokyo to oversee work on the project as design architect; the architect of record on the project will be the San Francisco firm of Robinson Mills & Williams. Life Center officials hope to start construction later this year on the $4-million building, which probably won't be completed before early 1993. **P. D. S.**

## Charles W. Moore Wins Gold Medal

Charles W. Moore has been awarded the American Institute of Architects' highest tribute, the Gold Medal, in recognition of decades of achievement as architect and educator.

Moore, who is known for his highly personal design style, becomes the 49th recipient of the Gold Medal since the award was established in 1907. The medal joins the architect's four previous national AIA Honor Awards for best design of the year, spanning 1967 to 1988. □

## npetition endar

Pont Flooring Systems is ting entries through Feb- 15 for its ninth annual An- )esign Award. The compe- is open to interior ners and architects in the and Canada, and includes tegories: large and small , hospitality, health care, spaces, and store plan- For information: 212/614- r 800/448-9835.

• The Architectural League of New York is accepting entries in its tenth annual Young Architects Forum competition. This year's theme is "Practice"; the deadline for entries is February 23. The competition is open to entrants 10 years or less out of college or graduate school. For information: 212/753-1722.

• An international call for entries is issued in a design competition, titled "A Square With a Monument," for Keihanna Interaction Plaza, the center of Kansai Science City, now under construction near Kyoto. Several substantial cash awards. Request registration forms and information in writing from the Office of the International Competition, A Square With a Monument, Yachiyo Bldg.-Higashi-Kan, Kita 1-21 Tenjinbashi 2-chome, Kitaku, Osaka 530, Japan. Postmark deadline for application: February 12.

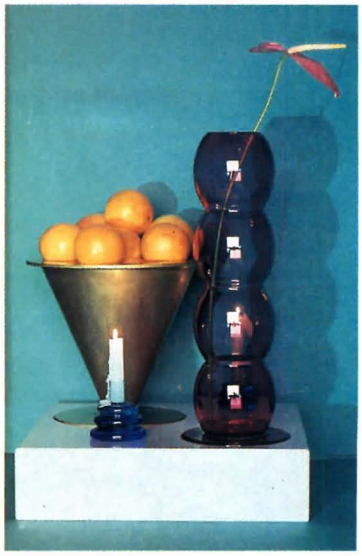
• Santa Clarita, Calif., is sponsoring an open two-stage competition to select architects to develop a master plan for its new civic center and to design a city hall. First-stage submissions are anonymous. Distribution of competition programs begins March 1. Contact the competition secretary: 805/259-2489.

• A two-stage design competition is being held to select an architect for a new Museum of Scotland, to be built in Edinburgh. Application materials and informatiom: Kate Comfort, Royal Incorporation of Architects in Scotland, 15 Rutland Square, Edinburgh, EH1 2BE. Deadline for first-stage (anonymous) submissions is April 15. □

## the (Very) Well-Dressed Table

hey go again. The current Powell offering of archi- signed objects for the s a tasteful spendthrift's Having sailed down- in an up market by offer- atively inexpensive, mass- ed tabletop objects in the 30s, they are now swim- upriver by presenting a costly, limited-edition col- of hand-crafted items in a market.

Swid and Addie Powell d their architects to fol- ir most mineral-encrust- ies when designing their objects. Thus we get Robert A. M. Stern's 13 1/2-by-9-inch sterling silver ice bucket surrounding a drum of cobalt-blue glass and topped with a gold finial (far right), in an edition of 20. Ettore Sottsass's centerpiece of marble, colored Venini glass, and bronze objects (right) is more restrained. The collection, with prices ranging from $2,500 to $45,000, also includes pieces by Frank Gehry, Stanley Tigerman, Richard Meier, Laurinda Spear, and six others, and plans are afoot to expand the offerings in the fall. □



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# Angeles: Recent Urban Design

geles has finally come to
vith its dual heritage: the
pen spaces of its boule-
nd the themed communi-
gns bred by the film in-
and adopted by shopping
d residential developers.
ntrast is yielding a new
f strips and enclosed en-
ents that ignore the re-
wisdom of grid planning
aracterized most cities in
S.

Hollywood Boulevard
Urban Design Plan, put
d by the Community Re-
ment Agency of Los An-
s an attempt to revive the
st strip of them all, by
ng" the district after the
ays of Hollywood.

redevelopment scheme
taking shape around
Chinese Theater and the
f Stars seeks to bring
e once vital—though al-
omewhat seedy—experi-
ong this strip. The rezon-
an, says John Kaliski,
al architect of the CRA,
nizes that this is a won-
stage set, one store

plan proposes a massive
in the single zoning of
a, in order to encourage
se development heavily
ed toward entertainment
Density transfers and
ea ratio bonuses would
ge rehabilitation of his-
ollywood theaters, while
esign guidelines govern
ion, materials, and

dea that parts of Los An-
an be developed follow-
eme has long driven the
Jon Jerde, the designer
1984 Olympics. The core
ork remains in shopping
design: "Shopping cen-
hich were designed to
e needs of large num-
people in the suburbs,
at," says Jerde, "but
n't have anything emo-
them. So we need to
mallness out and make
o town centers."

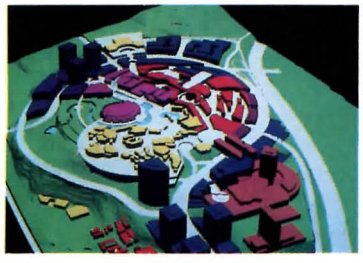
ost recent effort in this
is the so-called City
otos this page), a strip
s, restaurants, and at-
that will connect three
ty's largest destination
e Universal City Studio

Tour, the Universal Amphitheater concert venue, and the 18-screen Universal Cineplex Odeon—a hilltop company town for Universal's parent, MCA Corporation. The site will contain facilities for the UCLA Extension Program and an MTV-run series of clubs and record stores, designed by Morphosis.

For Jerde, the challenge was to turn this artificial community core into "a real part of Los Angeles." He designed a street of scaffolding for signs, and convinced the client to eliminate all restrictions on tenant improvements. The result is an area organized around focal points such as major billboards, which give a giant scale to this purposefully "unknowable" linear experience.

Yet even the vitality of this new kind of outdoor shopping mall without rules remains bounded. When asked about the absence of those who cannot afford to shop at City Walk, an MCA official responds that "if we need bums to make it more like a real city, we can just call central casting."

"What's left out in all of this," notes Bill Fain, partner in the firm of Johnson Fain Pereira, "is open, public space." Fain recently did a comparative study



of New York, San Francisco, Boston, and Los Angeles. He found that while New York devotes some 17 percent of its land area to open space, and Boston and San Francisco each about 8 percent, only 4 percent of Los Angeles is to be found in parks and other public outdoor spaces.

In their designs for the 5-million-square-foot Los Angeles Center [RECORD, November 1990, page 15], Johnson Fain and Pereira proposed a system of linear parks with small, vest-pocket open spaces radiating out through the blighted areas around it, and connecting to existing public spaces like MacArthur Park. At the University of California at Irvine, designed by the founder of the firm, William Pereira, Fain has proposed inserting a spine of retail and housing, connecting the circular campus layout to a shopping mall across the street.

It is the issues of closed-off artificiality, single-use zoning, and the dominance of the strip that the Playa Vista Design Team seeks to address in the largest urban design project currently underway in Los Angeles, a long-term, $30-billion effort to develop a community of residences, office buildings, and retail. The site stretches for two miles from the ocean to a major freeway between the airport and some of L. A.'s fanciest residential communities.

Recent development efforts ran into massive community resistance, until developer Maguire/Thomas, known for its sponsorship of high-quality architecture and for its responsiveness to community pressures, acquired the property.

The developer engaged a team made up of Elizabeth Plater-Zyberk, Andres Duany, Stefanos Polyzoides, Peter de Bretteville, Ricardo Legoretta, Buzz Yudell, and landscape designer Laurie Olin. They devised a scheme that gives nearly 40 percent of the land over to public wetlands, concentrating all buildings in dense configurations. Combining local traditions with the small-scale blocks, public focal points, and the deference to the vernacular that Duany and Plater-Zyberk had pioneered in Seaside, Florida, the team created a grid of multi-unit buildings based on the hybrids between courtyard housing and apartment blocks that make up much of Los Angeles.

These blocks—12,000 units of housing in all—are grouped around multi-use neighborhood functions, while major avenues also contain ground-level retail. Only an "office campus" remains relatively isolated, its 5 million square feet of speculative construction tucked away at the back of the site. An elaborate landscape plan creates recognizable plantings for each neighborhood, while tying the development together with Royal Palm trees.

Playa Vista promises to be one of the most intelligently designed new neighborhoods in

Los Angeles. Yet its success is due not only to the complete suppression of the automobile, but also to the economic pressures on this area. The whole development is to be raised on parking plinth, so that cars will be present, but hidden. The inclusion of a large percentage of low-income units, spread throughout the project rather than concentrated in future ghettos, is also an important factor in keeping Playa Vista from becoming a totally exclusionary community.

The same team of designers has been hired by the city to produce a Downtown Specific Plan. It must now convince thousands of property owners banking land for future office buildings to agree to zoning changes and new neighborhood guidelines, plans that could cost landowners.

Will these urban design approaches lead to a more comprehensible city? Developments like Playa Vista or City Walk will either produce a more integrated urban texture, made up of a patchwork of carefully themed, well-defined environments, or leave a set of barricaded, "secure" neighborhoods turning their backs on the communal needs of Los Angeles.

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# PRACTICE NEWS

## ing the ycatters

ne of copycat buildings is ly a thing of the past now ıe President has signed a ɔpyright law giving archi- copyright protection of *lesigns*. (The old law pro- only drawings.) Copycat ıgs have caused several reported legal wrangles ECORD, May 1989, pages

y architects may seek an tion to stop construction en may obtain a court or- demolish or seize infring-ing buildings if the infringement is clear. On the other hand, the new law allows building owners to make design changes to their buildings without authorization by the copyright owner.

The non-controversial "Architectural Works Copyright Protection Act," sponsored by Representative Robert Kastenmeier, passed the House with virtually no debate in late November just before adjournment. (It was an amendment to H. R. 536, the Judicial Improvements Act of 1990.) It had already passed the Senate. Testifying for the law were the AIA, The Frank Lloyd Wright Foundation, and architect Michael Graves.

"The law fullfills a treaty obligation under the Berne Copyright Convention," says AIA federal-liaison director Albert Eisenberg. The U. S. recently joined that international convention, which has tougher requirements than old U. S. law.

The copyright legislation was initiated by a U. S. Copyright Office study last year, which found that existing copyright laws were insufficient to protect architects' output and that they lagged substantially behind the protection afforded architects in other countries. Says Eisenberg: "In some countries you can't even photograph buildings without permission of the architects, but in the U. S. you can as long as it is publicly visible." He says the bill's sponsors sought a provision to ban photography if the purpose is infringement, but this section was thrown out. He adds that, in some countries, owners are not allowed to make alterations to buildings without the architects' permission, "but we didn't think that was a good idea."

**PETER HOFFMAN**
*Washington, D. C.*

## the Press l Downturns?

ɜas the question asked of a ɑt this year's Build Boston ence (see right). "This urn is not as bad as the ge of '74-'75," said Keith ıonds of *Business Week*. of what we're seeing is ɔlogy feeding itself— ing inventory, delayed ng." Why this psycholo- ɑ business downturn is a ɔig story and we will cov- oroughly and aggressive- d one newspaper editor. is the situation as dire as ɔurnalists would have us ? A thick pile of clippings ent Northeast construc- ɯrts shown by *S/F* maga- publisher Douglas Green d that many types of con- ɯ are still active—elder- ɜing, affordable housing, ɑdominiums among them. are pockets, but they're obvious as they used to said.

ɾnalists are expected to ɑble sources of informa- ɑid moderator Joan Cap- ecause they are targets unending flow of data ɜsess unflagging curios- ɑts may not be the only killed by curiosity in tuations.

**C. K. H.**

BSA

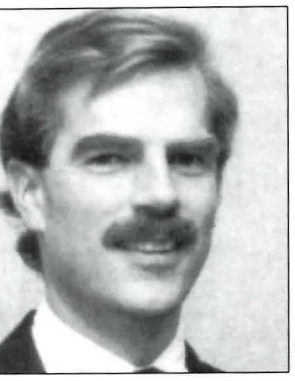
## Marketing in a Ski Suit: a Boston Report

"Showmanship, if tied to substance, can distinguish a firm from its competition—and wake up a selection committee," said Adel Foz, director of strategic planning at Masssport. One architect, showing how he would go after a commission for a mountain resort, showed up in a ski suit. Such was the substance of the workshop *Winning Presentations* at this year's annual trade show and conference Build Boston held in that city on November 14-16. Originally the Boston Society of Architects' annual convention (and still organized by that group), the event has grown over the years by including other related cosponsors such as the ACEC, the American Society of Interior Designers, and the Associated General Contractors. Not surprisingly, considering the Northeast's depressed economic condition [RECORD, December 1990, page 22], show attendance (8,500) and exhibitors (some 250) held nearly steady with last year, but, for the first time, failed to rise. And a good number of the workshops dealt with the business of getting business.

In *Winning Presentations*, three Boston architects competed for the same hypothetical project. A group of public and private developers played the selection committee and the audience, too, pitched in. Discussion centered on the mix of substance and spirit that produces successful proposals. Everyone agreed that good presentations are detailed and structured, and go beyond generic discussions of credentials. "It's important to connect with the client's needs and to address the specifics of the site and the project," said Carol Gladstone, a vice president of The Beacon Companies, who clearly argued for substance. But, said Gregor Smith, a corporate architect at General Cinema Corporation: "Personal rapport is enormously influential in determining who gets the job."

Management consultant Mark Zweig led a session, *Motivating, Appraising, and Developing Design Professionals*. His observations: "Human resources aren't as precise as the design of a sewer line, but not as intuitive as you'd think. Design firms will be happier *and* more

: Switching horses



n: Pushing rapport

able if principals develop a tent hiring process, listen arly to employees, promote within whenever possible, nize superior performance igher pay, and avoid using ble standard for manage- and staff."

*Value Pricing for Engi- and Architects*, Frank wski of Practice Manage- Associates Ltd. challenged ers to be as creative about usinesses as their build- Architects are compara- poorly paid, he argued, in because they do not de- adequate compensation eir work and, in part, be- they have stuck too long ditional ways of doing ss. "Most architects bill for the *time* it takes o do a project, and that's oblem," he said. "Never e. Bill instead for the *val-* he products and services d." Stasiowski advises cts to negotiate lump- nit-price, or percentage- truction-cost contracts, void work on per-diem or rates, and contracts with o-exceed" clause.

*ssessing the Future of and Construction in ngland*, Robert Kuehn of n Development Corpora- tion in Cambridge, Mass., noted that cycles in affordable housing often run counter to cycles in the rest of the real-estate industry: "It's hard to have affordable housing on unaffordable land." The provision of moderately priced housing, he suggested, might help New England recover from its recession by encouraging businesses and people to stay or settle in the region. "Massachusetts in the '80s became unaffordable," he said. "That's bad for business."

*Alternate Approaches to Careers for Architects* assembled a panel whose training took them in unexpected directions. In architecture school, Lionel Spiro found: "It was hard to get supplies." As a young practitioner, he took a three-month leave to start a design-supply business. That was 26 years ago and the business is Charrette.

*Mentoring* explored growing importance for the NCARB's intern-development program. Elizabeth Ericson (Shepley Bullfinch Richardson and Abbott) and Susan Wright (Bergmeyer Associates) agreed that mentoring is epsecially meaningful to women, given their thin representation at the highest levels of the field.

Cutting staff and expenses, and developing new markets were explored in *Midsized Firm Survival and Transformation Strategies*. James Crissman of Crissman & Solomon Architects affirmed the importance of upholding, even in hard times, high standards of design. Warren Freedenfeld of Freedenfeld & Associates suggested that this can be a time for introspection: "Many of us have time now to think about things we probably haven't examined in a long while," he said. "When times improve, we'll be in better shape."

The BSA would like Build Boston to broaden local architects' horizons. To that end, its sponsors plan to take a version of the show to Budapest this spring. To be cosponsored by Boston's World Trade Center, *Building for Business Budapest: North American Design and Construction*, will, its planners hope, be a showcase for local architects abroad and thus provide them with an exciting new market. **NANCY LEVINSON** *Boston*

## Greener Pastures?

Thinking of pulling up stakes and striking out for greener professional pastures? With work soft in many locations, you may be considering just that. What are your chances of success? Richard Fitzgerald, executive director of the Boston Society of Architects, decided to find out.

He prepared four basic questions: What is the current market status in your area (five choices, from boom to bust)? Is that status improving, worsening, or stable? Where do you think the hot markets are? And should architects move to your region, stay put, or call? Fitzgerald mailed about 60 of his one-page questionnaires to AIA chapters nationwide and, within a week, had received 39 back.

Boom: Idaho, Wisconsin, Hawaii. Bust: Arizona, Washington, D. C., and New Mexico. Eleven chapters reported steady growth, but four of those—Detroit, Seattle, Pittsburgh, and Iowa—predicted that conditions might worsen.

There was no consensus on where hot markets are, though suggestions ranged from Mars to Minneapolis. Several respondents suggested the Pacific Northwest. Portland and Seattle did report "purring" markets, but neither was convinced of market strength or depth.

Thirteen chapters are in declining markets, nine in flat. Most of both types were in the East, Midwest, and Southwest, although Houston reported improving conditions (as did central Oklahoma and Oakland, California).

A whopping 28 chapters urged everyone to *stay put*. Eight chapters—up, down, and flat—suggested calling for information: Oakland, Michigan/Detroit, Portland, Oregon, Utah/Salt Lake, Baltimore, Houston, Louisiana, and Eastern Oklahoma.

Surf's up: The only state suggesting architects should move there—after securing a job—is Hawaii. **PETER D. SLATIN**

## Report from Eastern Europe

Gunnar Birkerts is one of an increasing number of U. S. architects practicing in foreign countries. And he relishes the prospect of his firm, located in a Detroit suburb, taking on more projects abroad.

In the last two years, more and more U. S. architects realized the potential for practicing abroad [see roundtable report, page 37]. In fact, U. S. design firms topped the design billings in Asia, Australia, and Europe, as well in America, according to a survey conducted by *ENR* and reported in its August 2, 1990, issue. Overall, the top 200 international design firms worldwide posted $7.4 billion in foreign billings for design services in 1989, the survey shows. Responses came from a variety of architecture, engineering, and engineering and construction firms.

Opening relations with Eastern Europe contributed to Birkerts's recent commission to design the Latvian National Library in his birthplace, Riga. (see RECORD, December 1990, *Design News*, page 20). His firm also works in Italy and South America.

Birkerts acknowledges there are complications involved in carrying out projects in foreign countries. Plans to finance the library in Latvia, for instance, are unresolved at this time. Latvia is still controlled by the central government in Moscow, but negotiations are underway on Latvian independence. Regardless, the library will be built, Birkerts says, and adds: "The Latvians would like to finance their own cultural building as a matter of pride." If he has any concern, it

*Continued on page 56*

SUSAN SLEZNICK

**Birkerts**

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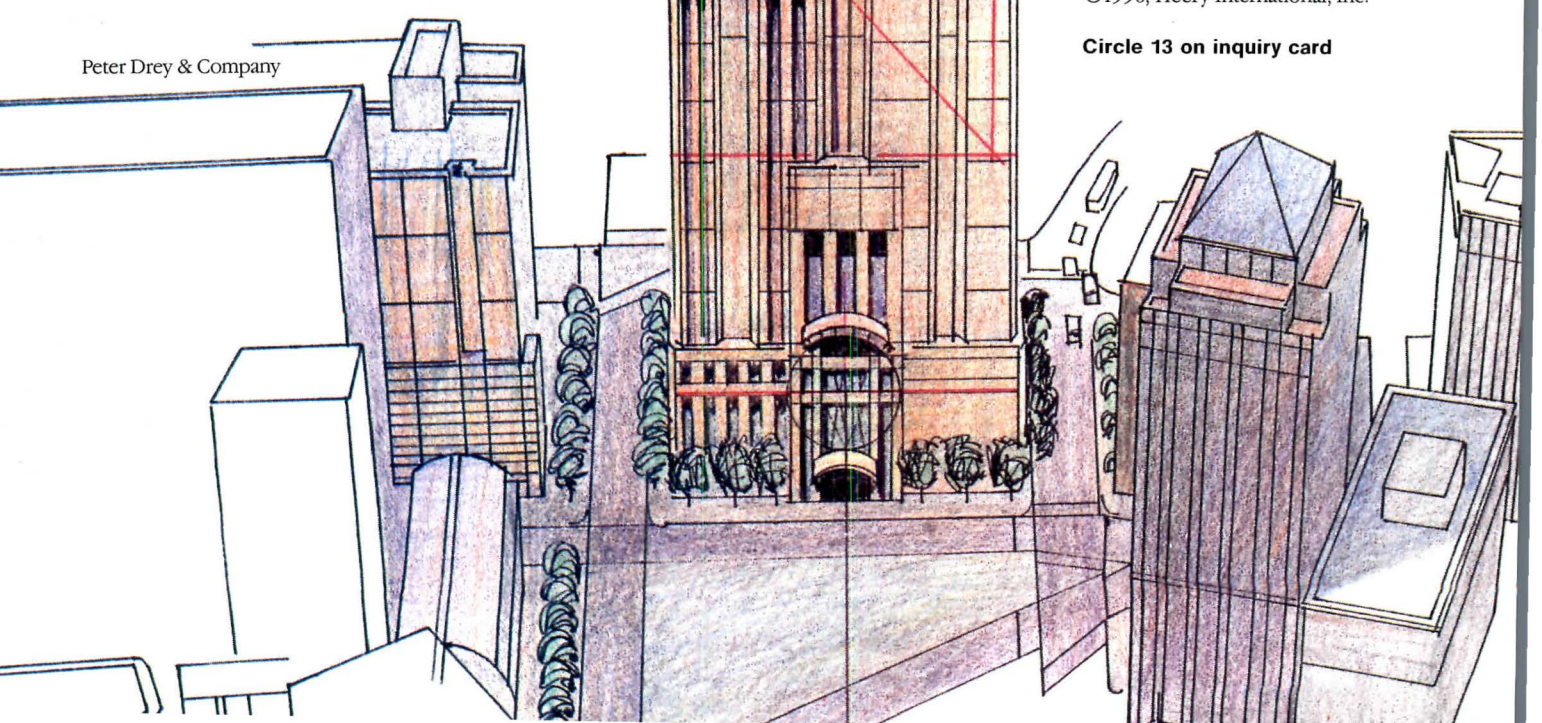

# OVERSEAS WORK: WHERE IT IS AND HOW TO WIN IT

## A RECORD roundtable calls on the experts to impart their experience. Part one of this report tells where the work is and how to find it.

*ome time, the large U. S. itectural firms have de- ed work abroad in the ral course of expanding markets. Smaller firms have been doing work ad—usually because the cipals had the right con- rather than aggressive keting strategies. The big s saw an opportunity to out the perennial up- down swings in the vol- of buildings they design. them, it has become the nate step in geographic rsification.*

*w that many firms, large and l, are having serious trouble find- ork, interest in foreign markets has r been keener. This matches the gen- attitude of our times in the U. S.— e people in all fields have come to ze that the country is not alone, but of a global economy.*

*t what have the adventurous firms d when they went abroad? Did their riences match their expectations? did they avoid the pitfalls and what hey learn if they fell in? Where and did they know to find work?*

*ese were just some of the questions RD wanted to answer when it invited rincipals of large and small firms seasoned in overseas work from nd the country (plus one expert on gn practice) to come to New York all. They were:*

*uel T. Balen*
*utive vice president; National Coun- Architectural Registration Boards*

*i Chan*
*ner; Prentice & Chan, Ohlhausen*

*rt P. Cooke*
*dent; Perkins & Will International*

*ine Fallon*
*dent; Computer Technology Man- ent, A. Epstein Companies*

*D. Hinklin*
*ner; Skidmore, Owings & Merrill*

**Perkins: Making sure it is worth it. Sobel: Finding the right contract. Thomsen: Looking beyond technology.**

*Fred Koetter*
*Partner; Koetter, Kim & Associates*

*L. Bradford Perkins*
*Principal; Perkins Geddis Eastman*

*Robert Sobel*
*President; Emery Roth & Sons*

*Charles Thomsen*
*President; 3D/International*

"We see Eastern Europe as a huge market—especially for modern offices, hotels, and industrial facilities."

*RECORD editor Stephen Kliment moderated with the help of senior editor Charles Hoyt. Here are the panelists' answers:*

**Knowing where the work is may mean digging deeper than the obvious locales**

"A country's dollar volume of construction, taken by itself, is not the only major criterion for deciding whether or not there are opportunities there," said Perkins. "One of the major criteria is strong need for American services even though there may be a relatively small dollar volume. Strong need may create much better opportunities than in, for instance, some of the countries of Western Europe that may have high volume, but also lots of very good architects." His experience abroad includes managing two foreign offices for Llewelyn Davies International and project teams in 15 countries, and his observation seems particularly apt, considering recent downturns in, e.g. the U. K.. He was once a partner in that British firm and now does work in Spain and South America.

"The World Bank is one good barometer," said the NCARB's Balen. "Its work is primarily with Third World countries and it's looking at Poland, Pakistan, and China." He is currently assembling and comparing foreign standards for U. S. architects who want to work abroad.

"We see Eastern Europe as a huge market," said Epstein's Fallon. "Epstein has 30 to 40 people in its Warsaw office. The only reason it hasn't more is that there's not enough office space. There's a tremendous need for modern office space, hotels, and industrial facilities. It is promising because we see very little U. S. competition there—especially in the industrial sector." The most competitive countries? "West Germany, Sweden next." Epstein is also being approached to work in Hungary.

Who are the clients? "You're no longer looking to governments to fund projects," responded Fallon. "Often, you're looking to Western money." This may mean going in with outside developers and it may mean taking an equity interest in outside businesses opening up there (which requires the same sort of economic-feasibility research as for a U. S. project).

Cooke concurred in the importance of taking on such risks.

Epstein has equity arrangements with a U. S. manufacturer and a U. S. meat processor; both ventures have Polish partners. Some advantages of Poland? "Essentially there are no restrictions about taking money out and the exchange rate is fairly stable," explained Fallon.

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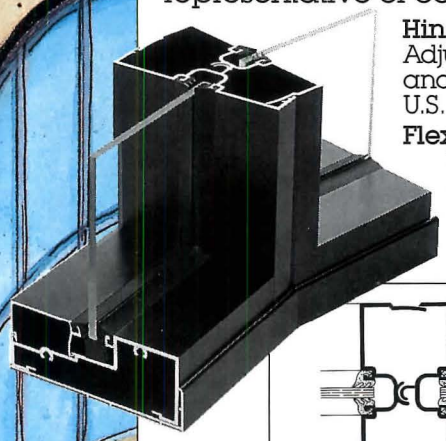

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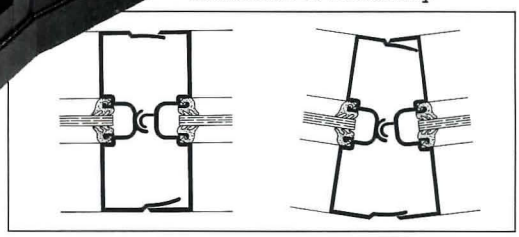

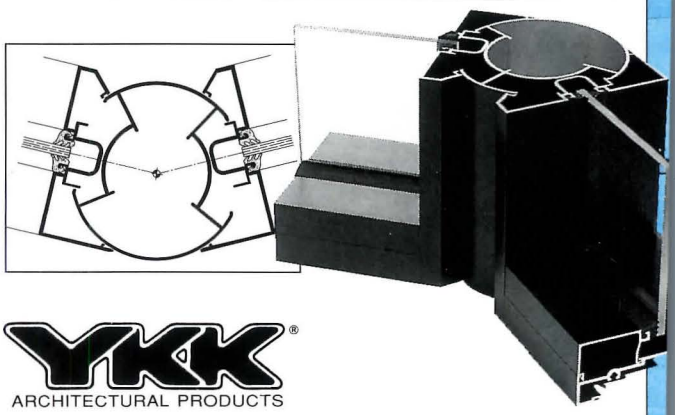

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**ing what you are wanted for—in ulfilling a craving for technology**

l World countries, in their drive for nization, will adopt all kinds of rn technology," said Chan. "And rn technology often brings with it rn architects. They understand it than the locals—even the simplest like air conditioning." His firm's spearhead into China was the Na- Crop Germplasm Center in Beijing.

nen we started working overseas, we old that we were going to be experts transfer of technology," said Sobel. after becoming experts, we found was no such thing as the transfer of ology. There is only the practice of ecture and the selection of systems." has worked on projects in Bangkok Kuala Lumpur, a gigantic condomini- Singapore, and the massive China Trade Center in Beijing. He has cre- the China/U. S. Architectural Alli- to pursue projects there, here, and here. "If you are in an environment e it's appropriate to select sophisticat- stems, or if you're dealing with build- ypes unfamiliar to the locals," adds "then probably you have a contribu- o make in that market."

other words, not all is technology; is basic planning. Sobel told of being iewed by a newspaper in Singapore 12 years ago. The reporter asked: t do we need you for? Our guys went rvard; you went to Harvard, so you the same education. Our guys ed for big American firms; you work for a big American firm, so we have the same experience." Replied Sobel: "If you feel our experience with a particular building type exhibits the synergies, relationships, and organization for which you have no models, then I think we can help." He adds: "It was the architects who were asking why they needed us. The clients didn't have a problem figuring it out."

"Obviously, we have some technology that somebody wants," observed Thomsen. "They come to us for that technology. But, look at the technology of Western Europe and Japan. Where do we lead?"

Sobel: "We have a tremendous opportunity to lead."

Chan: "We certainly have a lead in such areas as security." He talked about his current project for a museum in China: "Chinese architects seldom, if ever, design museums. We can offer that technology."

Thomsen allowed that we could export some kinds of technology—for instance, the ways certain types of buildings work or advanced mechanical, electrical, and plumbing systems. The design of especially high-rise buildings involves both technologies together, responded Chan.

**Top: Koetter and Chan. Bottom: Hinklin and Balen.**

**Knowing if there is a market**

"Do you think there is a market for office buildings in Surabaya?" a group of architects in this large industrial city in Indonesia once asked a panel of Americans that included Sobel. "Don't you have office buildings?" asked the Americans. "Not really," responded the Indonesians. "We have shop houses like all of Asia." The exchange was repeated for apartment houses. "But where do you live?" asked the Americans. "In bungalows," responded the Tunisians. It was the same for shopping centers. "So there are building types in America, which we take for granted, that are not in demand all over the world," concluded Sobel.

But, what if clients do want American building types? "Because of the size of the U. S. market, we've had a lot of volume,"

## Will the State of Our Profession Help Us Abroad?

We live and practice in a world of contrasts," said RECORD editor Stephen liment in opening the meeting. "It's a orld of specialization [by some firms] id of other firms that feel they can ndle all tasks with the help of the w practice aids.

"There's change in other ways. Overad expenses are up enormously and t operating income tends to be level sliding downward. The workplace is anging for architects *and* for junior afting people. There is a trend to wnsizing toward leaner firms—to t more out of less.

'New management tools are very soisticated. New software comes on the rket almost daily. It is supposed to ke managing offices easier—and rting branch offices, running them, l possibly closing them.

'But, how do you train those who are make use of these new kinds of ls? We are told that computerization, ecially the use of CAD, is supposed make offices more productive.

"In practice, it's not really happening. You still have to have somebody run the CAD system *and* you must depreciate capital cost of the equipment. So, when you add these two together, you may not have greater productivity so much as a valuable by-product: probability of controlling quality, greater accuracy, and greater inter-office sharing of data bases.

"Architects are in a tough environment. Their jurisdiction is being nibbled away by specialists—construction managers, facilities managers, specialists in all the little pieces that you can slice practice into. It's almost to a point where design itself is looked at by clients as a commodity much like soybeans or pork bellies, bought at the lowest price.

"On the marketing side, the process seems to have come full circle to having the person who will be doing the work doing the marketing. There was a period through the mid-1980s when much of the marketing was given over to people with titles such as marketing coordinator. There's also a curious dichotomy between sophisticated promotion tools such as CAD-generated videos and the enormous power of individual personalities to make the actual 'sale.'

"Some things haven't changed, and won't. Networking as a source of leads will continue to be a major source of work. Track records will continue to be major client turn-ons. And last but certainly not least, the rewards will continue to be commensurate with the risk that you take.

"So what does all this have to do with work abroad? What I have just described in capsule form is the environment in which U. S. firms practice. It is the professional baggage that we bring to getting work overseas and to overseas practice. And the questions we hope to address are how much of this works, how much has to change, what net benefit do we bring overseas, and what are the challenges and opportunities facing us."


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ed Thomsen, "so the traditional ar-
's knowledge of how to house a cli-
function is an exportable thing. We
ople come to the U. S. to find some-
who knows how to put together a
floor plan of an office building or
. The Saudis came to the U. S. be-
we built more colleges and universi-
an anybody else in the world."
perience is exportable," seconded
. "There is the impression we have
t together and are well organized."
d we know a lot about what clients
because we have been
by our clients," added
sen.
e level of sophistication
modern multi-tenant of-
uildings, even in very so-
ated countries with many
architects, is very limit-
bserved Perkins. He also
d out the advantage in
cans' higher energy lev-
d greater interest in cli-
concerns. "The typical ar-
here has developed a
f knowledge much earlier
is foreign counterpart."
nerican architects bring
r responses to problems
nore flexibility in inter-
g situations," added
er. He spoke from the ex-
ce of his firm's fast-
ng two-year-old branch
in London set up to do
scale projects [RECORD
er 1990, pages 23-25].
robably true on the conti-
as well, but Britain cer-
gives the advantage to
mericans." There still
to be a market for U. S.
in the established mar-
lespite local downturns.
re are Americans at a
antage? "I worry about
cific Basin," said Thomsen. He cau-
about the Japanese; they are gain-
*construction* technology. The big-
nstruction companies sell design as
a turnkey package.

**st ways to structure your fees**

n's fees are a little higher than they
e, but so are expenses," said Koet-
ne might take economic advantage
wledge gained over time, but it's tre-
usly expensive to learn, so the high-
aren't really valuable to us." The
e: Wherever you go, you will have
igher fees to break even.

are fees computed? Volunteered
re, Owings & Merrill's Alan Hink-
ur fees in London have been based
rcentage of estimated construction
a fixed amount. But they tend to
expenses."

Cooke: "In the U. K., they do have a published rate structure for fees, but that's changing. U. S. and EEC architects have made things more competitive. Still, we are profitable, which implies greater efficiency in delivering our product."

Hinklin: "It's built into us to be quicker, more efficient, and use systems."

What about Eastern Europe? "We're not looking at fees," said Fallon in reminding the panel how her firm now works. "Our industrial projects in the 1970s were turnkey, lump sum. We designed it, built it, equipped it, trained the operations people, sold it back to the government, and the money we made, we made. It's still similar. Today we even consider operations involvement. The measure of success is the return on investment."

"We think, based on practice there, that percentage fees are very dangerous," said Sobel. "First of all, you can only compute them in the local currency and you're already in never-never land when you start doing that. Second, try to find out the construction cost of a project there. Try to get a client there to open his books so you can run after that final 10 percent. Try to figure out construction costs at the beginning of a project and then at the end after currency fluctuations."

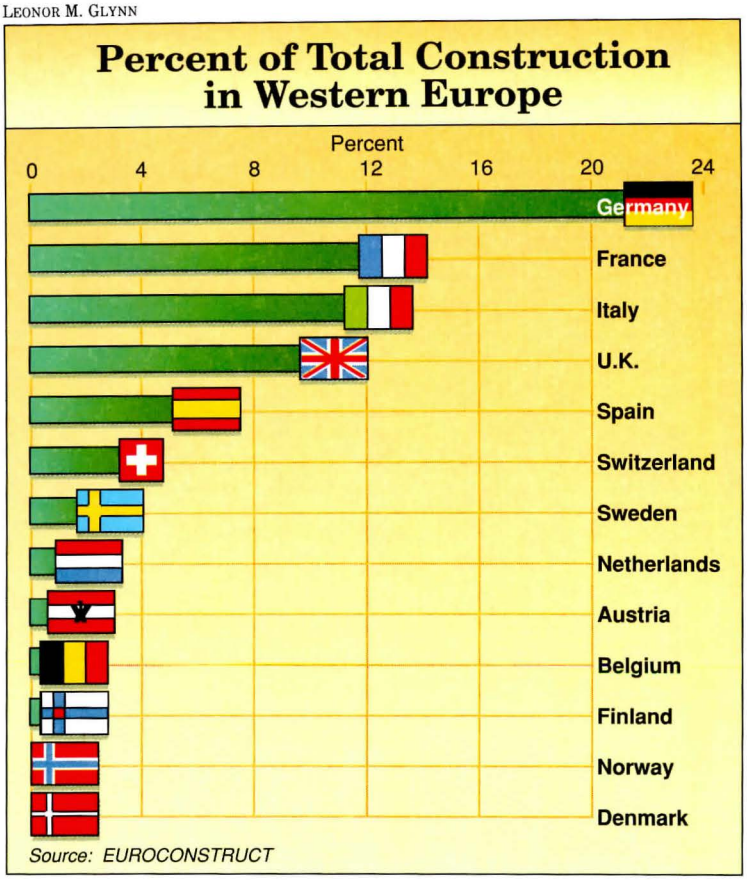
"What we have done is estimate construction costs, converted a percentage to a lump sum, and said that's it, win, lose, or draw. And by the way we would like it paid in U. S. dollars net of local taxes." Roth also works with a lump sum for expenses. "I hate reimbursables," Sobel quotes one client as saying. "You rent yourself out by the hour like a taxi." But, cautions Sobel, "The client wants them rolled into the fee and the locals will then want to tax you on them as revenue."

"Most countries want fixed price contracts," said Cooke. "People want to know how much is it going to cost in advance."

"Having said all this," added Sobel, "we are being paid partly in Hungarian currency, which is not interchangeable. We have a bank account there with money we can't spend except in that country, which is a very good argument for opening an office there. It's about the only way we can do business. It's not the best of all worlds. We are living for the day when the currency is convertible or else we are going to have to start buying things."

Thomsen: "We had a project years ago in Egypt with an Egyptian client who paid in dollars. Then we did a project for the State Department. We got the project because we accepted Egyptian pounds."

LEONOR M. GLYNN




**Western Europe has a current total of $330 billion in construction (compared to $264 in the U. S.), but demand for our services may be limited. Source:** EUROCONSTRUCT.

**Collecting fees**

"If you ask about problems collecting fees in the U. S., the answer depends on the caliber of clients you are dealing with," said Thomsen. The principle applies abroad as well. "If you don't know your client in the U. S., you can be in as much trouble as if you don't know him overseas," added Sobel.

"Take an American attitude about sending bills," advised Cooke. "Say 'payable in 30 days or interest will be added.'" But, he cautioned: "Foreign clients may accept these terms in contract negotiations, but still wait four months to pay. You have to do your homework and understand the reality of how you are going to be paid irrespective of what the contract requires. I usually gamble on it taking longer. The first thing you must do is take a minimum of 10 to 15 percent of your fee and put it away as a contingency."

Perkins listed two warning signs of trouble before you get involved: currency that is not totally convertible and a lack of appropriate tax treaties with the U. S., meaning, for instance, that you may be taxed for expense reimbursables even though they are not part of the fee.

Sobel spoke of trying to sell work as intellectual property abroad because sales

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always less than tax on services. But led because the various tax jurisdic- would not accept it. "Whichever way e most money, that's the way they in- et the rules." He asked if any of the ists had been successful in collecting fees up front. They had not.

**chance for small firms abroad**

nsen: "The specialized knowledge we xporting can come in small as well as packages. There's no place for a big abroad that doesn't have that knowl- It's not production capability."

has to be much more of a rifle-shot oach," advised Perkins. "Targeted dependent much more upon personal ionships. I have a lot of very close ds in other countries, and I'm their resource for doing things when they to bring in American expertise."

What brought us overseas were con- ons in the States," said Chan, "people were interested in giving something nina in one instance.

bel saw similar promise for work in ern Europe—"Europeans who made in America and would like to give ething back. Take a $10-million project. llion comes from the States. With that es an American architect. That's a ket for the small firm."

You get some of that in Israel," said on. "Americans wanting to contribute nool or other special facility."

You get one or two such opportuni- cautioned Chan. "You can't build a tice on them."

oke talked about the traditional path arge and small firms finding clients seas—U. S. companies investing . "If you have established a rapport ad, U. S. clients will take you with when they invest there. Show them know some of the pitfalls, how you nelp them mitigate some of the prob- that, to them, seem like a mine field."

mall firms have focused decision mak- said Koetter. "Working abroad is a situation for clients *and* architects, there are many adjustments taking on an almost daily basis. If one per- n a firm makes decisions as well as ns, there's a great advantage."

small firm has to look very long and at why it pursues work abroad," said ns. "The glamour of international wears off the third or fourth time suitcase arrives in Istanbul when e in Madrid. Small firms are built id a few key people. If you're drain- neir energy, it can be devastating to ractice back home."

other route for small firms abroad: iation with big ones. "Skidmore gets big projects because it's a big firm," Hinklin. "Often the clients want them quickly. Many times, when that hap- we associate with smaller firms and divide up the work." Also: "U. S. develop- ers sometimes have worked with smaller firms on smaller projects and we put to- gether a collaboration."

**The impact of 1992—sweeping yes, but probably not soon**

Cooke: "One of the problems I don't see be- ing solved is the wide variety of codes, building requirements, and government-ap- proval processes in Western Europe."

"Currently within Western Europe, peo- ple have national practices," said Fallon.

**Cooke and Fallon**

There's very little crossing national bound- aries. That, I think, will change. Issues of reciprocity and licensing will be resolved. We will see more competition, say, from the Germans for work in England or Brit- ain for work in Spain."

"Some of the people making that happen are U. S. developers," asserted Koetter. "Disney in Paris awarded construction management to an Italian firm."

> "Most countries will allow architects not locally registered to practice in joint venture with a local one—or hire one."

"Every country surveyed by the NCARB about registration requirements," said Ba- len, "indicated a free flow of people from one country to another, but more limita- tions on U. S. architects."

"We shouldn't underestimate residual national barriers," said Perkins. It's not just codes, but cultural differences. There is a free-trade agreement between the U. S. and Canada, but, having had an of- fice there, I can tell you it's hard to cross that open boundary. Many of the pres- sures that make practices local in the U. S. will exist in every sophisticated society."

Koetter observed that, despite the inter- nationalization of economies and construc- tion, local traditions run counter to the trend. "The confrontation is going to be in- teresting and exciting to see."

"The Treaty of Rome states that compa- nies already established in the European community, regardless of ownership, will be treated the same," revealed Fallon. "Hence the flurry to get a subsidiary es- tablished before 1992 to maintain rights."

**Leaping the registration barrier**

Sobel spoke of being met at the airport in Kuala Lumpur by a group of architects saying that his group was illegally repre- senting itself as architects because it lacked registration in Malaysia. "You in- troduce me to your wives in the U. S.," he had responded. "You weren't married in my country but I still deem you married."

"Registration or lack of it is used for business bargaining purposes," observed Chan. "Local architects know you must as- sociate with them. Hong Kong architects negotiating for work in the Peoples Re- public have long complained of the high percentages local associates demanded."

Balen reported on the results of ques- tionnaires sent by the NCARB to over 50 countries around the world; 75 percent re- sponded that local registration was re- quired to practice. But most of the coun- tries will allow unregistered architects to practice in a joint venture with a local ar- chitect—or by hiring one. The panelists all favored a local partner in any case.

Any surprises in the NCARB survey? "The Soviet Union does not require regis- tration and Austria won't let a non-native practice even if he could get it." All of the countries registered individuals, not firms. In Ontario, you must carry the Ontario As- sociation Insurance as well as your own because the Ontario Association sells in- surance. What about registration reciproc- ity with Canada? "We expect to implement new reciprocity in September 1991." Why did England drop reciprocity with the U. S.? "We changed our standards."

Balen talked about the importance of recognizing local sensibilities. One point: Appearing to take the money and run breeds local resentment—especially in Af- rican countries where outside architects are expected to not only provide architec- tural expertise, but fulfill a teaching role.

"There can be great expectations for our small fees abroad," observed Cooke. "Quite often we don't have enough dia- logue with each other to know exactly what it is that each one of us wants to get out of a particular opportunity. That's what misunderstandings are about any- where." **CHARLES K. HOYT**

*Next month in RECORD, the panelists will talk about getting the work done after you get the commisssion.*


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# A STITCH IN TIME

## What to do when your financial statements look like these.

By Peter Piven

| 7 | Smith & Jones |
|---|---|
| fit<br>rcent of net revenues) | 12% |
| roll utilization<br>ect project salaries<br>ded by all salaries) | 64% |
| erhead ratio<br>tal indirect expenses<br>ded by direct salaries) | 1.6 |
| ned multiple<br>t revenues divided<br>direct salaries) | 3.0 |
| rrent ratio<br>ort-term assets divided<br>short-term liabilities) | 1.7 |
| counts receivable divided<br>accounts payable | 1.7 |
| uity divided by net revenue | .27 |

| 1988 | Smith & Jones |
|---|---|
| Profit<br>(Percent of net revenues) | 6% |
| Payroll utilization<br>(Direct project salaries<br>divided by all salaries) | 57% |
| Overhead ratio<br>(Total indirect expenses<br>divided by direct salaries) | 1.8 |
| Earned multiple<br>(Net revenues divided by<br>direct salaries) | 3.0 |
| Current ratio<br>(Short-term assets divided<br>by short-term liabilities) | 1.5 |
| Accounts receivable divided<br>by accounts payable | 1.3 |
| Equity divided by revenue | .20 |

| 1989 | Smith & Jones |
|---|---|
| Profit (loss)<br>(Percent of net revenues) | (24%) |
| Payroll utilization<br>(Direct project salaries<br>divided by all salaries) | 50% |
| Overhead ratio<br>(Total indirect expenses<br>divided by direct salaries) | 2.3 |
| Earned multiple<br>(Net revenues divided by<br>direct salaries) | 2.7 |
| Current ratio<br>(Short-term assets divided<br>by short-term liabilities) | 1.1 |
| Accounts receivable divided<br>accounts payable | .8 |
| Equity divided by net revenues | .13 |

**applies measures of firms' financial health to give early-warning signals of needed action. Had the hypothetical & Jones so tracked their own progress, it could have headed off a difficult bind.**

e common belief is that the profes-on is in a tailspin and everyone is g. Not so! Some firms continue on successfully. What can be learned others that have not fared well? s a composite of recent situations.

### he ball starts rolling...

g 1987, Smith & Jones' revenues substantially and its profit (before in- distributions, and taxes) was 12 per- f net revenues. Its overhead was ex- on the profession-wide mean and its l multiple was respectable. It added o produce increased work and bor- money to finance growth; its inter- pense was 1 percent of its revenue. strong. Its clients included some of ea's largest developers and it began orporate and institutional work.

### lls...

into 1988, Smith & Jones looked for- o continued growth. Backlog was and, in response, the firm did what l appropriate—reorganized to create le-management level of department directors and added CAD hardware, a CAD manager, architects, administrative, marketing, and clerical personnel. One consequence was that payroll utilization fell. While work and revenues increased 20 percent, expenses—including interest on substantial new borrowing—increased almost 30 percent, eroding profit.

### ... and rolls too far

At the beginning of 1989, the picture changed dramatically. The firm's developer clients stopped building. Revenues fell 50 percent. Although direct expenses had remained reasonably constant, indirect expenses had climbed to 73 percent of revenues. Operations had produced a 24-percent loss.

### How it got that far

The fundamental problems:

- Firm-wide and project structures inappropriate to a needed downsizing.
- A focus on long-range marketing vs. short-range selling.
- Inattention to financial obligations.
- Inability to make timely decisions.

In this situation, a basic choice has to be made: to continue being motivated by goals that may not be achievable or become survival-driven.

### The lessons to be learned:

**1.** Understand the pros and cons of specialization vs. diversification. Focusing the firm's efforts on a limited market yields beneficial results when that market sector is very active, but is disastrous when that market turns abruptly and/or severely.

**2.** Know what it costs to produce projects and run a firm. For any but the smallest, this means having a good management system and knowing what to look for yourself or finding someone who does.

**3.** Firms change for various reasons, including expansion and contraction. The organization, structure, process, roles, and responsibilities that are appropriate at one size may be inappropriate to another.

**4.** Act promptly to meet changing needs, if not in anticipation, then as soon as an emerging situation becomes clear.

Economic cycles may be inevitable. So too will be your need to react to them. □

# CONSTRUCTION COSTS UNDER PRESSURE

## The construction downturn has its silver lining as new construction becomes more affordable.

Architects who send construction documents out for bids from contractors these days may be noticing that bids are a lot more reasonable. Contractors are more eager for work due to slack volume. (All construction had just slid 5 percent and housing 16 percent at the end of the second quarter of 1990, the period analyzed by this report.) And both contractors and material manufacturerers are cutting their profit margins a lot closer. So whereas the number of projects being designed and built is down, costs are under pressure.

Costs in the second quarter did manage to rise, but just slightly on a national basis—0.11 percent. Curiously, an aberrational swing of upward pressures from the Eastern half of the U. S. to the Western half, noted in the last report [RECORD, October 1990, page 38], reversed itself in the second quarter as the Eastern U. S. resumed its traditional role of leader in cost increases, despite the depressed volume of construction in the Northeast (down 24 percent), disappointing returns in the Southeast (down 15 percent), and the relative health of construction in the West, which held steady.

**SUMMARY OF BUILDING CONSTRUCTION COSTS**

| | Number metro areas | 4/90 to 7/90 | 7/89 to 7/90 | 1977* to 7/90 |
|---|---|---|---|---|
| **Eastern U. S.** | | | | |
| Metro NY-NJ | 18 | 0.24 | 1.59 | 2009.69 |
| New England States | 33 | 0.13 | 0.43 | 1858.14 |
| Northeastern and North Central States | 120 | 0.22 | 0.97 | 1767.73 |
| Southeastern States | 106 | 0.12 | 0.32 | 1824.61 |
| **Average Eastern U. S.** | 277 | 0.17 | 0.70 | 1815.99 |
| **Western U. S.** | | | | |
| Mississippi River and West Central States | 122 | 0.03 | 0.50 | 1715.20 |
| Pacific Coast and Rocky Mountain States | 106 | 0.03 | 0.71 | 1823.90 |
| **Average Western U. S.** | 228 | 0.03 | 0.60 | 1765.73 |
| **United States Average** | 505 | 0.11 | 0.65 | 1793.30 |

*Using only cities with base year of 1977

As usual lately, labor the cause of the rises tha occur. All materials held st or declined. The biggest lo Structural steel was dov percent and concrete was some 3/4 percent.

What of the future? Hou volume (which consti more than half of all cons tion) declined a further 20 cent in the third quarter. expected to stabilize in but nonresidential constru is expected to decline anot percent [RECORD Nove 1990, pages 33-43]. We well see costs come dow they did in last quarter of before they go up again.

A good number of indiv cities are already exhib this trend—including De Baltimore, Birmingham, sas City, Los Angeles, M Minneapolis, Philade Pittsburgh, and St. Louis.

CHARLES K.

*Data supplied by Dodge Cost Sys Marshall + Swift*

**HISTORICAL BUILDING COSTS INDEXES** Average of all Nonresidential Building Types, 21 Cities — 1977 average for each city = 1000.

| Metropolitan area | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 1st | 1990 2nd | 1990 3rd | 1990 4th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | 2098.6 | 2078.0 | 2360.6 | 2456.7 | 2448.7 | 2518.3 | 2561.9 | 2580.9 | 2697.3 | 2740.4 | 2726.7 | 2719.5 | | |
| Baltimore | 1446.5 | 1544.9 | 1639.5 | 1689.7 | 1703.7 | 1743.8 | 1765.2 | 1780.2 | 1849.1 | 1886.8 | 1900.6 | 1894.6 | | |
| Birmingham | 1407.2 | 1469.9 | 1468.1 | 1535.7 | 1594.7 | 1565.7 | 1587.4 | 1542.6 | 1612.5 | 1643.0 | 1647.1 | 1639.3 | | |
| Boston | 1283.7 | 1432.5 | 1502.0 | 1569.9 | 1646.0 | 1721.0 | 1773.6 | 1883.0 | 1921.6 | 1917.2 | 1939.9 | 1941.3 | | |
| Chicago | 1323.6 | 1344.7 | 1425.8 | 1439.5 | 1476.7 | 1528.0 | 1599.9 | 1591.4 | 1636.5 | 1672.8 | 1680.1 | 1688.3 | | |
| Cincinnati | 1385.2 | 1350.4 | 1362.6 | 1430.8 | 1484.5 | 1486.6 | 1499.4 | 1510.9 | 1526.8 | 1560.7 | 1563.6 | 1570.3 | | |
| Cleveland | 1388.2 | 1459.5 | 1511.4 | 1475.9 | 1464.0 | 1474.1 | 1525.7 | 1541.8 | 1550.7 | 1556.3 | 1559.7 | 1550.7 | | |
| Dallas | 1481.9 | 1750.6 | 1834.3 | 1925.9 | 1958.0 | 1963.3 | 1973.9 | 1947.2 | 1927.2 | 1877.3 | 1889.3 | 1868.6 | | |
| Denver | 1487.4 | 1632.2 | 1679.1 | 1800.1 | 1824.3 | 1821.8 | 1795.8 | 1732.7 | 1725.3 | 1725.9 | 1716.6 | 1692.3 | | |
| Detroit | 1447.4 | 1580.3 | 1638.0 | 1672.1 | 1697.9 | 1692.6 | 1696.6 | 1689.3 | 1734.4 | 1751.2 | 1761.2 | 1766.4 | | |
| Kansas City | 1233.2 | 1323.4 | 1381.8 | 1407.5 | 1447.1 | 1472.5 | 1484.7 | 1493.7 | 1505.6 | 1518.8 | 1526.4 | 1526.1 | | |
| Los Angeles | 1387.5 | 1474.3 | 1503.3 | 1523.9 | 1555.1 | 1571.0 | 1609.7 | 1675.1 | 1789.5 | 1813.7 | 1831.5 | 1819.1 | | |
| Miami | 1380.6 | 1369.1 | 1392.1 | 1467.6 | 1522.2 | 1540.6 | 1566.2 | 1589.2 | 1625.2 | 1641.3 | 1641.3 | 1640.4 | | |
| Minneapolis | 1327.7 | 1442.6 | 1576.8 | 1624.6 | 1640.4 | 1661.0 | 1674.0 | 1677.0 | 1690.6 | 1712.5 | 1728.0 | 1706.4 | | |
| New Orleans | 1505.7 | 1572.7 | 1616.9 | 1650.5 | 1691.4 | 1762.5 | 1760.2 | 1699.8 | 1707.3 | 1685.0 | 1707.7 | 1711.6 | | |
| New York | 1319.4 | 1419.2 | 1491.8 | 1672.5 | 1747.2 | 1806.7 | 1899.9 | 1980.9 | 2065.3 | 2157.2 | 2148.4 | 2148.4 | | |
| Philadelphia | 1539.5 | 1660.7 | 1769.4 | 1819.5 | 1922.1 | 1967.9 | 1992.7 | 2023.5 | 2171.4 | 2244.3 | 2290.7 | 2287.9 | | |
| Pittsburgh | 1341.7 | 1493.2 | 1479.5 | 1497.2 | 1576.1 | 1611.0 | 1665.8 | 1647.3 | 1700.3 | 1721.3 | 1717.9 | 1713.4 | | |
| St. Louis | 1320.0 | 1397.3 | 1451.2 | 1524.9 | 1625.5 | 1641.8 | 1647.4 | 1653.5 | 1705.7 | 1761.1 | 1759.8 | 1754.5 | | |
| San Francisco | 1644.8 | 1776.4 | 1810.1 | 1856.8 | 1935.3 | 1961.8 | 1995.5 | 1992.0 | 2090.9 | 2114.3 | 2145.6 | 2155.7 | | |
| Seattle | 1616.8 | 1814.9 | 1962.7 | 1979.0 | 1948.9 | 1937.9 | 1925.3 | 1874.7 | 1968.0 | 1987.0 | 1999.3 | 2012.8 | | |

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.) divided index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first perio divided by 200.0 = 75%) or they are 25% lower in the second period.

# HITTING THE CEILING: HEIGHT WITHOUT ROMANCE

## Critic Robert Campbell reconsiders the tall building and its place in American life and lore.

ght caps for buildings are all the ge today. Yet I'm old enough to re- r a time when tall buildings were major thrill. A coming-of-age ritual and my siblings was a trip to New and I've never forgotten going to of the RCA Building at night to ut, like a flabbergasted explorer Mars, over the unbelievable million f the great city.

ers were as wonderful then, to a kid he provinces, as Disneyland is to- 's impossible to imagine any red- d American city back in, say, the egislating a height cap (always ex- the unique case of Washington).

buildings scraped God's own sky. were expressions of everything dy- ebullient, Utopian, everything *can*, for heaven's sake. Tower after like so many Jack Dempseys or Joe s, sought and won the title of 's tallest building." America's lead- tic, Lewis Mumford, though a hu- nevertheless called his *New York*- lumn "Skylines." Our leading ct, Frank Lloyd Wright, wowed the with his Mile High Skyscraper pro- for Chicago. Tourists (like me) to the top of the Empire State g and the other legendary giants.

y, 40 years later, the biggest tourist on in my own city of Boston is not a pheric tower but a basement tavern coric neighborhood, one that has re- itself "Cheers" after a TV sitcom. mobbed is a crowded festival mar- e that first was built in 1826. Some- as changed.

looking at a major symbol shift. er was vertical, *silent, lonely,* and , and it pointed toward the future. he architectural equivalent of tall oper or the Lone Ranger, stalking at American plain. The tavern and lace in Boston, by contrast, are al, noisy, social, matter-of-fact, k with the past. They are precisely by, confused, culture-bound com- that Cooper and the Lone Ranger disdained.

e it's in the context of cultural that we can best understand what ning to tall buildings. They appear ing out of fashion. Height itself is now controversial. Proposals for Port America outside Washington and Columbus Circle in New York City were widely hated on the basis of height alone. When developer Donald Trump proposed yet another World's Tallest Building for a New York site five years ago, he was regarded not as a Utopian dreamer, like Wright, but merely as a pretentious boor.

Last year the city of Seattle, by popular initiative, cut the base height (before bonuses) of buildings in its retail core from 240 to 85 feet. Boston, Portland, San Francisco, and many others are finding less drastic ways to lower the skyline.

Or take the case of Washington. That city's famous rule—that nothing can be taller than the base of the cupola atop the Capitol dome—is ever more influential because it has succeeded in controlling the scale of new development. Washington doesn't possess much remarkable architecture, but it does possess something more important: sunny, well-scaled, well-defined street space. It's worth remembering that Paris, so famed for its beauty, doesn't have a lot of remarkable architecture either. Like Washington, it's largely the product of architects filling up zoning envelopes to create streetscapes in which the interest is concentrated not at the skyline but along the sidewalk. My one-time employer, the AIA Gold Medalist Josep Lluis Sert, accurately described Paris as "elephants and parrots"—a city where a typical street frontage resembles a circus parade of gray elephants (the buildings) and bright parrots (the shops and cafés with their awnings and bustle of people). Like Washington, Paris is a horizontal city.

Not to exaggerate: every city isn't out to kill the tower. Most American cities, especially those in the South and Southwest, still permit heights governed only "by the market and the FAA," (to quote Beth Dunlop, *Miami Herald* architecture critic and RECORD correspondent). Philadelphia recently abandoned an informal "gentlemen's agreement" restricting building

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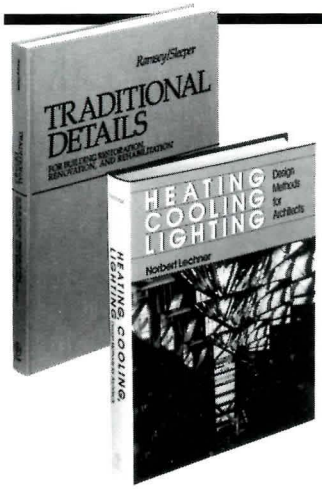
**Yesterday's icon: the Empire State Building (top) stands aloof. Today's Houston: "the Oz view" (above) shows a cluster of towers on the plain.**

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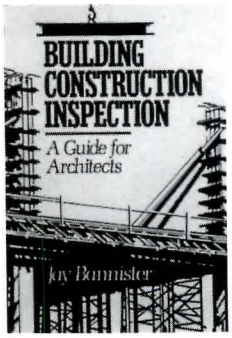


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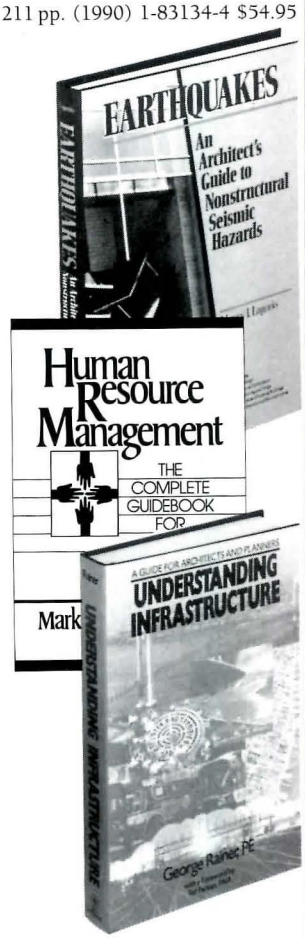
Offering practical solutions to real-world situations, this timely, fully illustrated work focuses on the frequently faced challenge of contextual architectural design: the combination of new, old, and recent architecture. Projects of varying sizes and success— most from the 1980's—are employed to illustrate innovative and imaginative approaches and solutions to a host of contextual situations.

211 pp. (1990) 1-83134-4 $54.95

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ht to the base of the statue of William
n atop City Hall. But even as it went
he Penn standard, the city also, in a
urban design plan by Robert Geddes,
ed the zone of tall buildings to a single
-west spine along a transit corridor.
y guess is that we're seeing only the
nning of the anti-tall-building move-
t. During the 1990s, it will join with a
ving environmentalist consciousness
ecome a commonplace concern of ur-
planning. There are many reasons
the skyscraper is no longer the em-
ment of the American dream, and not
f them are obvious. I'd like to suggest
e: the rocket, the bomb, and the chip.

**ne rocket.** It's hard to get excited
ut the difference in height between the
ysler and the Empire State buildings
feet, as it happens) in an era when
ets climb millions of miles into space.
ed, the rocket of today, standing at
n before take-off, is our equivalent of
pointed tower of the past. It too is si-
lonely, aspiring. Romance gathers
nd it. Compared to it, the static tall-
of buildings seems trivial.

**ne bomb.** The arrival of the nuclear
b, with its promise of annihilation,
ged everything in ways we're only be-
ing to understand. Before the bomb, it
possible to believe in the future and in
lt of Progress in which everything
ld be forever newer, bigger, faster,
taller. No one believes that today. So
skyscraper, architectural symbol of
th and progress, feels suddenly hol-
In place of a belief in progress, we
titute a belief in historic preserva-
—an unconscious response, perhaps,
e nuclear threat of the ultimate demo-
of all history. In the great era of the
craper, the Golden Age was in the fu-
something to aspire toward; now the
en Age is in the past, something we
o hang on to.

**ne chip.** Every era has its essential
ol. Ours is a mysterious black box
aining an array of miniaturized silicon
. We are perhaps the first period in
ry to possess for our symbol some-
so close to invisibility: a black hole
ad of a bright star.

r all these reasons the tall building, as
architectural program, has become
thing less than a thrill. As the local
paper critic in Boston, I found I
ln't get up the energy to review the
atest towers here by architects Kohn
rsen Fox. Both are excellent by the
lards of the recent past. They support
tive pedestrian street life, they pos-
visible entrances and handsome lob-
and they look interesting enough to
rd at least momentary attention. But
are qualities we should take for
ed, as basics of urban design. Beyond
the buildings offer little except two
ways to sculpt and ornament an office
tower. One is roundish, the other squarish. One is finished in an Otto-Wagnerish pseudo-industrial manner with what look like exposed bolts, and the other is a frosted, wedding-cake, Beaux Arts kind of concoction. Yawn. The last tall building to excite me as architectural sculpture was the First Interstate Bank (formerly Allied Bank) in Dallas by Henry Cobb of Pei Cobb Freed and Partners, and I suspect that Cobb's masterpiece may prove to be the end of a road. How many new shapes and surfaces, after all, can there be? Why even bother to seek individual expression in a building type that, in principle, is nothing but a repetitive vertical filing cabinet for paper and people? Shouldn't that kind of expression be devoted to buildings of greater civic significance?

Architects who design skyscrapers are nervous. They sense the loss of public interest in the type. They've been responding in at least three ways.

One way, the Way of Kitsch, is to copy the beloved skyscrapers of old in the hope of trading on fond memories. Good examples are prominent new towers in Atlanta by Philip Johnson and John Burgee (IBM), in Minneapolis by Cesar Pelli (Norwest Center), and in New York by David Childs of SOM (WorldWide Plaza). All imitate the towers of the '20s with understanding and success. But all have the inevitable shallowness of knock-offs.

An opposite approach is the Way of Now, the attempt to make the skyscraper seem fresh. You can take your tower, for example, to the haberdashery shop to try on a new suit of Deconstructivist clothes, as Burgee and Johnson did in their revised proposals for Times Square.

Still a third approach is the Way of the Wink, the sly mockery of the whole concept of the contemporary skyscraper. The versatile Burgee and Johnson once again head the class here, with buildings in Denver and Boston that appear to be surfaced with patterned wallpaper that has been cut out with scissors and wrapped tightly around a steel frame. Since wrapping a frame with a skin is, in fact, the way we do build today—let's face it, our skyscrapers are tall tents—these examples have the virtue of some ironic bite. But jokiness is seldom a lasting virtue in architecture.

The Way of Kitsch, the Way of Now, the Way of the Wink: none of them is going to restore the old thrill. Perhaps we should admit that the tall building, at least as a myth, is hopelessly time-bound. It is a relic of the American frontier.

American literature and art, especially in the 19th century, repeat constantly a single image, one of people looking across great empty spaces, often westward, at a tall object on the horizon—a mesa, a ship, a mountain. That image is an icon of our culture, and the skyscraper is a late version of it. Crossing the desert or the plain today by car, and seeing for the first time the towers of Dallas or Denver rising in the distance, we gain a pale taste of what it must have been like to be a pioneer and suddenly view, after weeks of travel, the great range of the Rockies. David Dillon, the architecture critic of the Dallas *Morning News*, is a native Easterner who has come to love the office parks of suburban Dallas by learning to see them in this way: as surrogates for landscape forms, as man-made mesas, as something essentially of the frontier.

But skylines of the great frontier cities are more than metaphors for landscape. They are also metaphors for civilization. Seen from afar, those Dallas or Denver or Houston towers stand upright in a cluster, like a sociable group of human figures around a campfire, or perhaps like a circle of wagons drawn tight against the danger and emptiness of the surrounding land. The towers are surrogates for ourselves, writ large enough to matter in a North American landscape. And in an example like Houston, the towers all make a point of looking as different from one another as possible. This is an American society, after all, a place of free individuals standing tall, jostling one another—not a European place of settled rules and institutions.

*Continued on page 57*

Drawn for ARCHITECTURAL RECORD
by Sidney Harris.

*"What I was hoping for was a 27-story glass slab office tower that would say more than just 27-story glass slab office tower."*

**EASTERN EUROPE. . .**

*Continued from page 31*

the economics of working in the Eastern bloc—that is, how do you get paid? Payment in U. S. currency would be ideal, he says.

Legal matters can also be complex. Birkerts says attorneys handle them for him while he focuses on design. However, he admits: "We are not clear about all the legal aspects of projects because [American practice there] has not been tried out before." Contracts are written in Latvian and English.

How does Birkerts operate a project so far away? He finds that sheer distance between Latvia and Michigan hampers communication. Mail moves slowly, long-distance telephone service is poor, and fax machines are unavailable over there. He sometimes relies on "messengers"—people who regularly travel from the U. S. to Riga or visit the Soviet Union and return to the U. S.—to speed the flow of correspondence between the two countries by taking and bringing back documents with them.

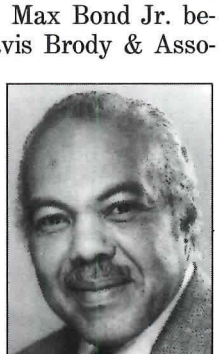
Language can be a barrier too, especially since Birkerts is the only one in his firm who speaks Latvian. While fluent in his native language, Birkerts sometimes has a struggle to explain technical subjects.

It is important for architects to understand the history and culture of the country they want to work in, Birkerts says. "You have to have a certain compassion for the country you build in." He sums up his experience working abroad: "The design process is the same wherever you build except the ingredients change. So you have to be very aware of the ingredients from the other side."

SUSAN R. BLEZNICK

## Max Bond Joins Davis Brody

After 21 years as head of his own firm, Bond Ryder Wilson, J. Max Bond Jr. becomes a partner at Davis Brody & Associates of New York. Eight other architects from Bond Ryder have joined Davis Brody; the merger took place at the invitation of Lewis Davis following the retirement of Donald Ryder earlier this year. Bond remains dean of architecture at City University of New York. □



**Bond**

**The Domestic Architecture of Sir Ed Lutyens**, *by A. S. G. Butler. Suffolk, England: Antique Collectors' Club, 1 297 pages, $125.*

This impressive large-format book is a print of a three-volume set published *Country Life* in 1950 (six years after L yens's death). The other two volumes ered the British architect's corporate public buildings and have also been printed recently by the Antique Collect Club. All three volumes feature plans, vations, sections, and detail drawings convey Lutyens's great eye for comp tion and detail. Nearly 300 black-and-w photographs and five chapters of text complete the story of Lutyens's dome architecture.

**Palladio Drawings**, *by Lionello Pu New York: Rizzoli, 1990, 108 pages, $9* Another large-format book, this publ tion displays 50 recently restored drawi and studies by Palladio that now resid the City Museum of Vicenza. The dr ings are mostly idealized reconstructi of ancient buildings and a few of Pallad own projects. Historical notes on e drawing will please scholars, while drawings themselves speak directly architects.

**Michael Graves: Buildings and Proje 1982-1989**, *edited by Karen Vogel N*

*Patrick J. Burke, and Caroline Han-*
*:. New York: Princeton Architectural*
*ss, 1990, 352 pages, $49.95.*
n the Humana Building in Louisville to
Bloomingdale's shopping bag, from
much-acclaimed Clos Pegase Winery in
Napa Valley to the passed-over plans
the Federal Triangle in Washington,
book runs the Gravesian gamut. Es-
by Christian Norberg-Schulz and
ert Maxwell help put Graves's work in
pective, while texts accompanying
project tend to give only the barest-
ones information.

**nk Lloyd Wright Drawings**, *by Bruce*
*oks Pfeiffer. New York: Harry N.*
*ams, 1990, 304 pages, $65.*
ffer, the director of the Wright Ar-
es at the Frank Lloyd Wright Founda-
knows the architect's drawings better
anyone alive today. Organized into
sections, the book examines six build-
types (residential, religious, high-rise,
and cultural, hotels, and commercial
educational) and three other topics
Imperial Hotel, graphic and decorative
gns, and miscellaneous commissions).
chapter begins with an introduction,
includes brief, but insightful, ana-
of the drawings themselves. Rang-
rom conceptual sketches to presenta-
drawings, the works still dazzle. □

**HITTING THE CEILING. . .**

*Continued from page 55*

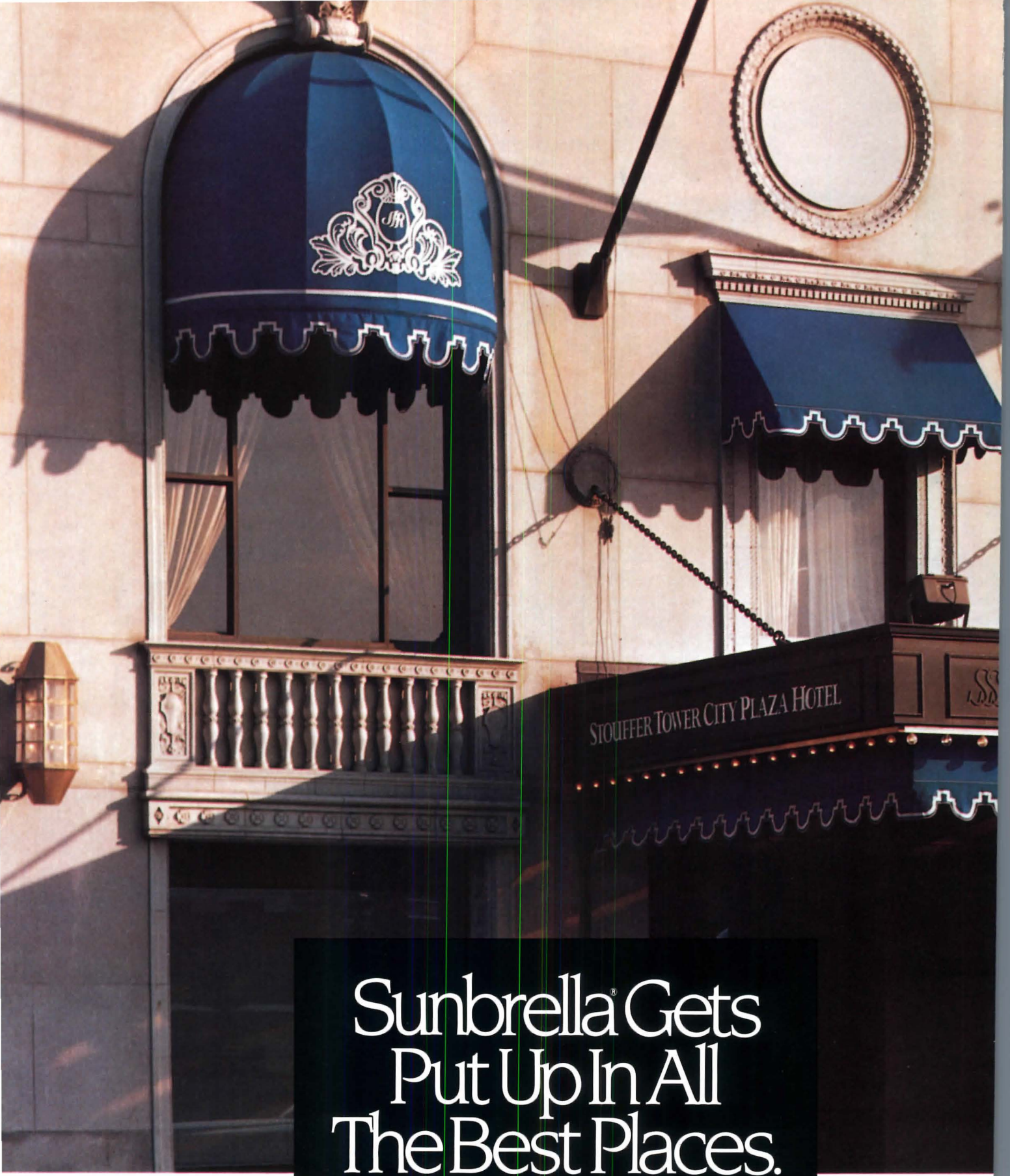
Such symbolism is powerful. But it matters less with the passage of time, as the Western cities grow more Eastern, adding trees and suburbs and losing the raw sense of encampments on the frontier.

Houston reminds us of another characteristic of tall buildings. They are graphic representations of the power structure. Male culture is dominated by the concept of hierarchy, as anyone who has ever sat through a weekend of football on television can attest. Throughout European and American history, whoever has been on top of the hierarchy has signified the fact by building the tallest building. Succeeding one another as boss have been the Church (Chartres Cathedral), the king (Edinburgh Castle), the oligarchy (San Gimignano), the Republic (the U.S. Capitol), and the Corporation (Sears Tower). The skyline of an American city today is virtually a bar graph of power and money in the business community at a given moment.

Is it possible, then, that the current dismay over tall buildings is a revolt against the whole value system of hierarchy itself? I recently read a wonderful new book, *You Just Don't Understand: Women and Men in Conversation* (by Deborah Tannen, William Morrow & Co.). It argues that men and women communicate badly because men view the world as a competitive hierarchy, while women see it as a community of mutual support. If that's true—and I think it is—the concept of the hierarchical city may be about to change.

Tall buildings undeniably have their virtues. They can be an expression of fantasy, like the glittering glass city that is downtown Houston seen from afar, which Houstonians aptly call "the Oz View" and which recalls the magical "Invisible Cities" of author Italo Calvino. They can assert the presence of human civilization on a barren land. They can express the physical order of a city and even its history and geography, as does Boston's satisfying High Spine above a historic transit corridor that was also once the narrow neck of the original Shawmut Peninsula.

My own view is that most American cities would be better off, for a host of reasons, with a six- or eight-story height limit. I'd quickly trade the aloof Emerald City of Houston for a real downtown, jammed with pedestrians enjoying access to every conceivable human activity. I'd also trade an office on the 80th floor of a silent tower and its Berchtesgaden power vista for an office that opened onto a private garden with a few dozen restaurants in easy walking distance. □

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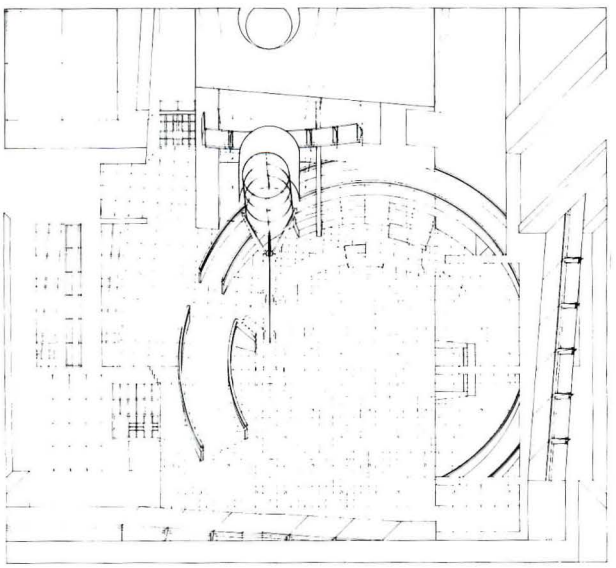
# In This Issue

RECORD's editors and correspondents traveled across the country—and in one case halfway around the world—to assemble the diverse group of projects featured on the following pages. For his review of I. M. Pei's Bank of China Tower (pages 76-83), Peter Blake journeyed to Hong Kong, where he found a building of truly international significance, blending extraordinary high-rise building technology with traditional Chinese bamboo symbolism.

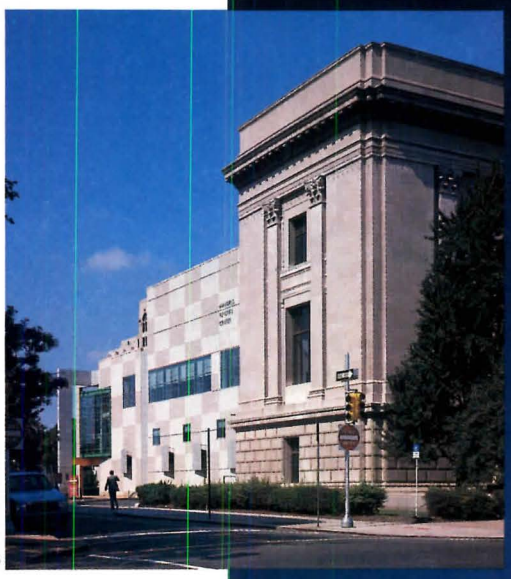
A successful marriage of art and technology also characterizes featured buildings in this country. In Philadelphia, notes editor Margaret Gaskie, Geddes Brecher Qualls Cunningham's sleek expansion of the Franklin Institute both complements and completes its venerable predecessor (pages 62-67 and drawing below); in downtown Chicago, Perkins & Will has produced a state-of-the art medical-research tower for Northwestern University that merges seamlessly with its Collegiate Gothic academic setting (pages 68-71); and in central Alabama, Valerio Associates' health and recreation center for Kimberly-Clark reconciles the opposing natures of a pine forest and a paper-manufacturing plant (pages 84-87). In our Building Types Study on schools (pages 91-105), editor Cliff Pearson reminds us that although new technology and the need for computer-equipped media centers are making public schools more complex, the time-honored lessons of community involvement and functional flexibility—along with old-fashioned concern for a child's small size—are still worth remembering. Three case studies that address these considerations are located in Florida and Indiana.

Not all of this month's featured projects were so far afield. To reach Philippe Starck's suave renovation of the Century Paramount Hotel (pages 72-75), editor Karen Stein simply had to leave RECORD's Rockefeller Center offices and walk five blocks south. The most original architecture, it seems, is sometimes right in our own backyard.



Futures Center, The Franklin Institute
Geddes Brecher Qualls Cunningham, Architects

The Benjamin Franklin whose four-times-lifesize seated figure gazes benignly on the rotunda of the Philadelphia science institute that bears his name (and usually on a swarm of children clambering around his white-marble feet) would delight in the building his image now introduces. Centered on a big lively atrium bright with light and crayon colors, the appropriately named Futures Center updates for a new century the hands-on science exhibits the Franklin Institute has pioneered. By expanding both space and content, it strengthens the original museum. And in resolving the sensitive issue of adding to a landmark, it also shows courtesy to the neighborhood around it.



© Tom Bernard

Designed in the late 1920s, the institute was conceived by architect John T. Windrim as a symmetrical full-block composition of galleries arranged in a hollow square around a grand exhibition hall. On the north its Beaux Arts facade edged a major thoroughfare, while the east-facing front, its colonnaded portal set atop a monumental flight of stairs, joined with the city's main library and art museum to frame the formal civic space of Logan Square. As the Depression took hold in the early '30s, however, and funding dried up, construction halted with the south and west wings and the great hall at the core of the Neoclassical scheme still unbuilt, reducing the museum to an L-shape rife with dead-end galleries—and reducing Franklin's rotunda, the imposing Memorial Hall, to a cul-de-sac.

The hiatus in development was shared by the area to the south and west, an enclave of small shops and houses on quiet narrow streets, where long years of benign neglect were broken only recently by a burst of spontaneous regeneration. The neighborhood's revival made local residents a force that the institute and architects Geddes Brecher Qualls Cunningham had to reckon with as they planned the museum's "completion."

The expansion had three goals. The first was to incorporate a number of complex (and unwieldy) new program elements—an Imax theater with a domed wraparound screen and steeply raked seating for 340 viewers, a smaller (150-seat) video-equipped lecture hall, and two galleries housing new futures-oriented permanent exhibits—as well as parking for 350 cars. The second was to integrate the new spaces with the old building. And a third rapidly emerged: to accomplish these aims with minimal impingement on the adjoining area.

The urban issues raised by the community—concerns about both the sheer size of its neighbor-to-be (90,000 square feet plus parking) and the added volume of traffic it would attract—spurred the architects toward the taut and inventive scheme finally developed. Certainly these issues prompted the crucial decision not to pursue the original plan with its long institutional wings. Parking was not only placed underground but positioned to route museum visitors along the parkway and other well-traveled streets at the edge of the adjoining community. Over the garage, the addition's new spaces were stacked vertically and pulled away from the perimeter of the site, leaving space for a 38,000-square-foot science garden to act as a buffer landscape on south and west. Finally the building's major elements, augmented by bold exterior stair towers, were expressed as distinct volumes that break the larger mass into an assemblage of familiar forms—cube, cylinder, pyramid.

The exterior materials too are dominated by familiar limestone and gray brick that blends with both the older building and its immediate neighbors. (A subtle gray-on-gray grid plays on the 14-foot module of nearby house-lots.) Although the large window openings and thrusting components of brightly painted steel animate the sober backdrop, the addition's most striking accent

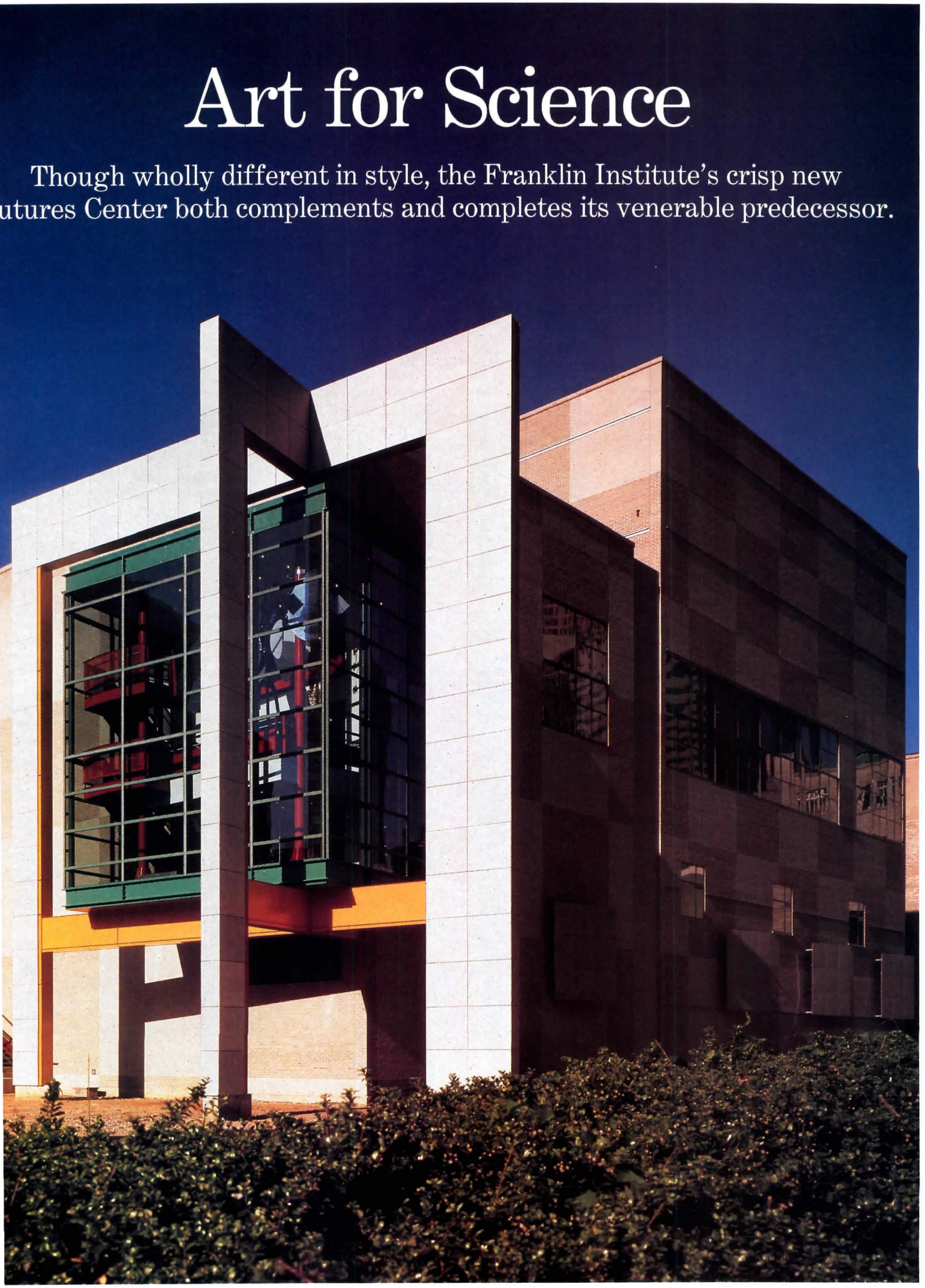


**Futures Center**
*The Franklin Institute*
*Philadelphia, Pennsylvania*
*Geddes Brecher*
*Qualls Cunningham, Architect*

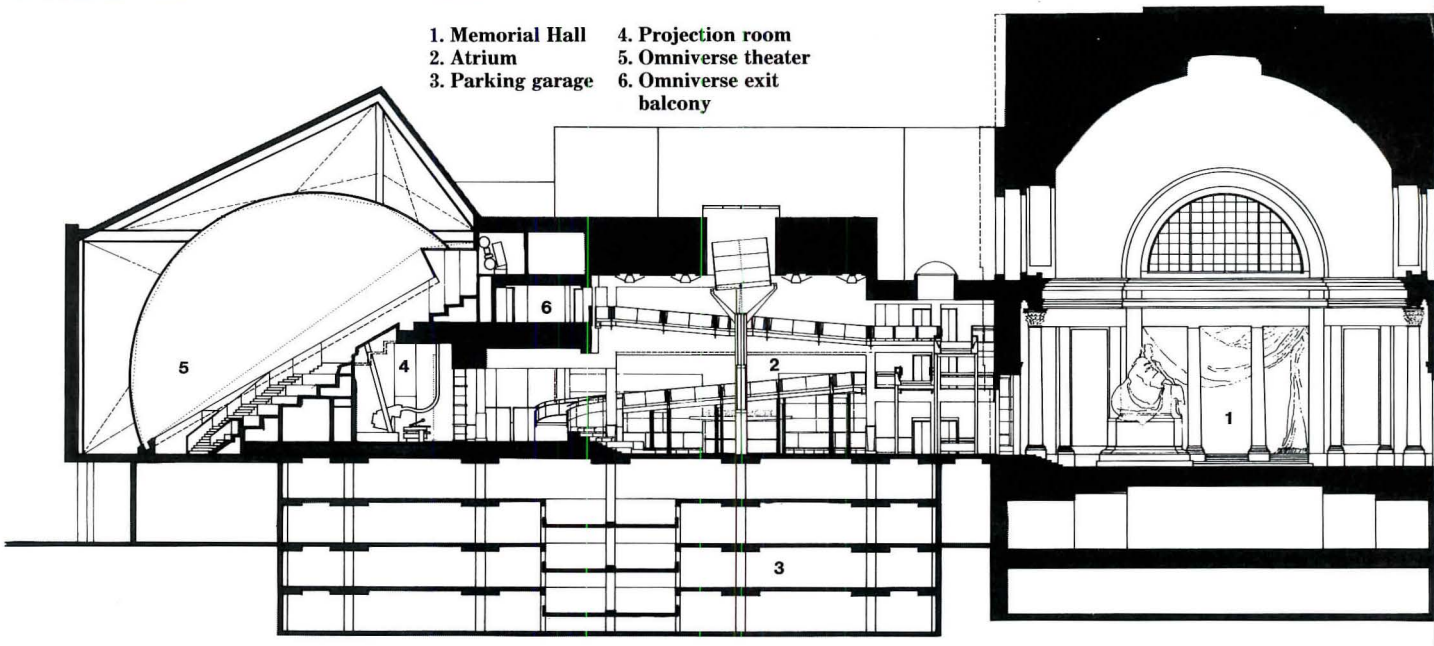
© Durston Saylor Photos, except as noted

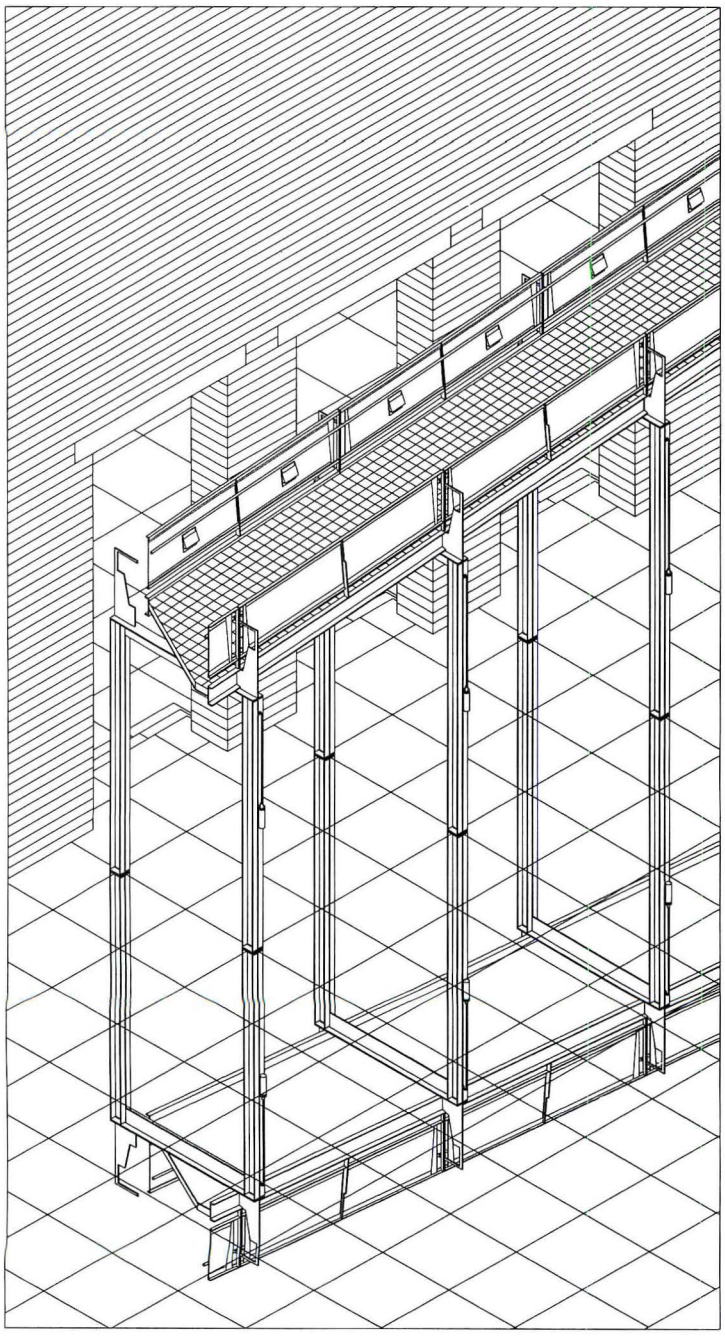
# Art for Science

Though wholly different in style, the Franklin Institute's crisp new utures Center both complements and completes its venerable predecessor.

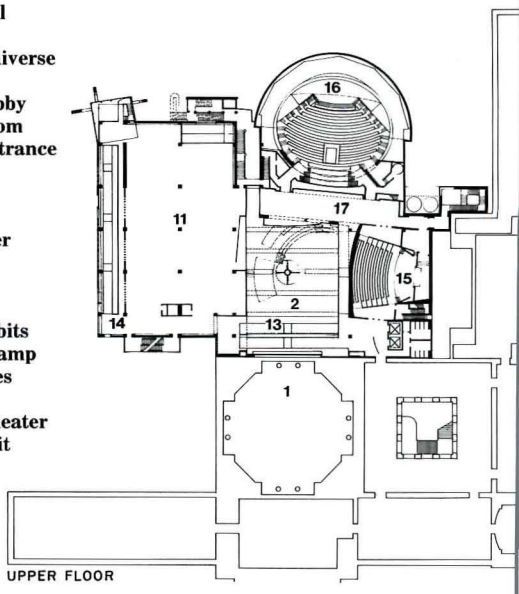


1. Memorial Hall
2. Atrium
3. Parking garage
4. Projection room
5. Omniverse theater
6. Omniverse exit balcony

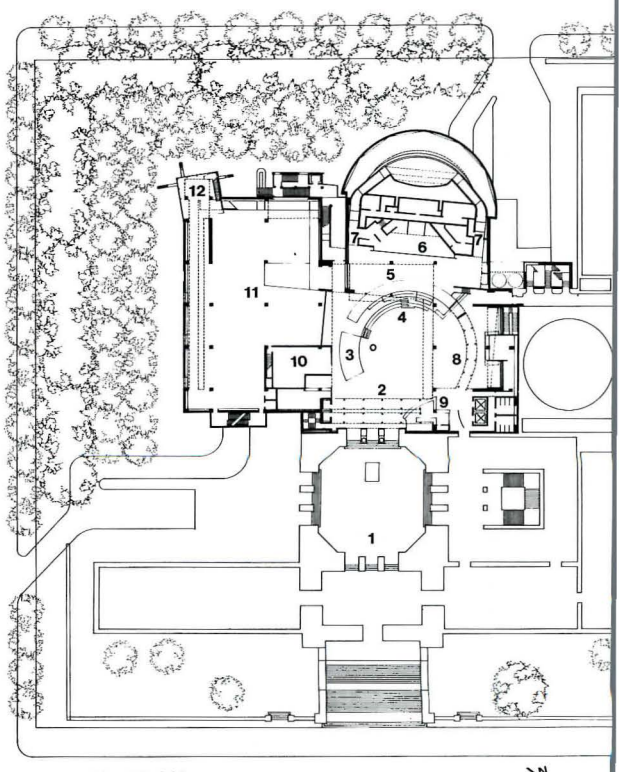


1. Memorial Hall
2. Atrium
3. Ramp to Omniverse
4. Amphitheater
5. Omniverse lobby
6. Projection room
7. Omniverse entrance
8. Omni Café
9. Ticketing
10. Bookstore
11. Futures Center exhibits
12. Science Park overlook
13. Ramp to exhibits
14. Exhibit hall ramp
15. Future Choices Forum
16. Omniverse Theater
17. Omniverse exit balcony

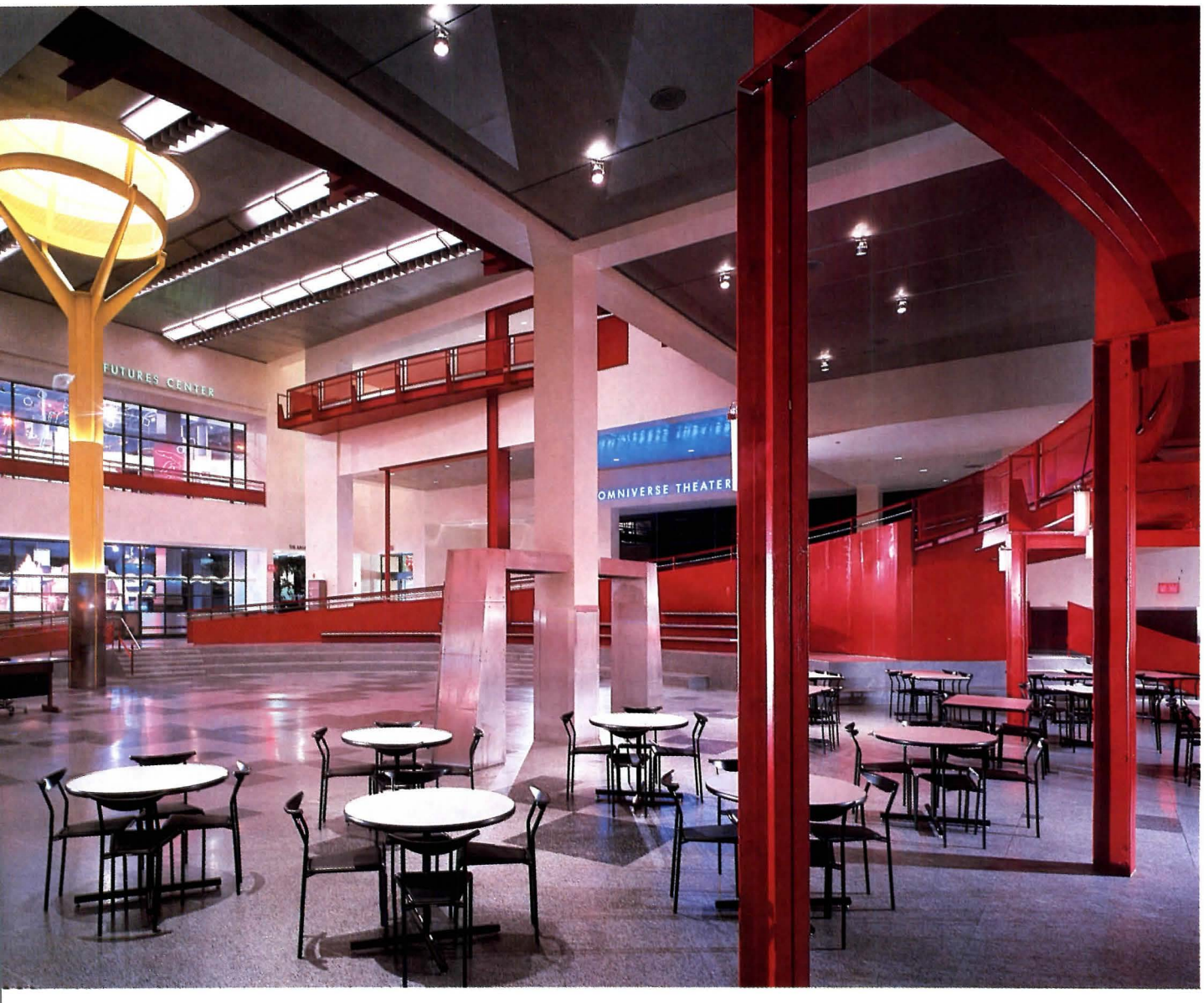


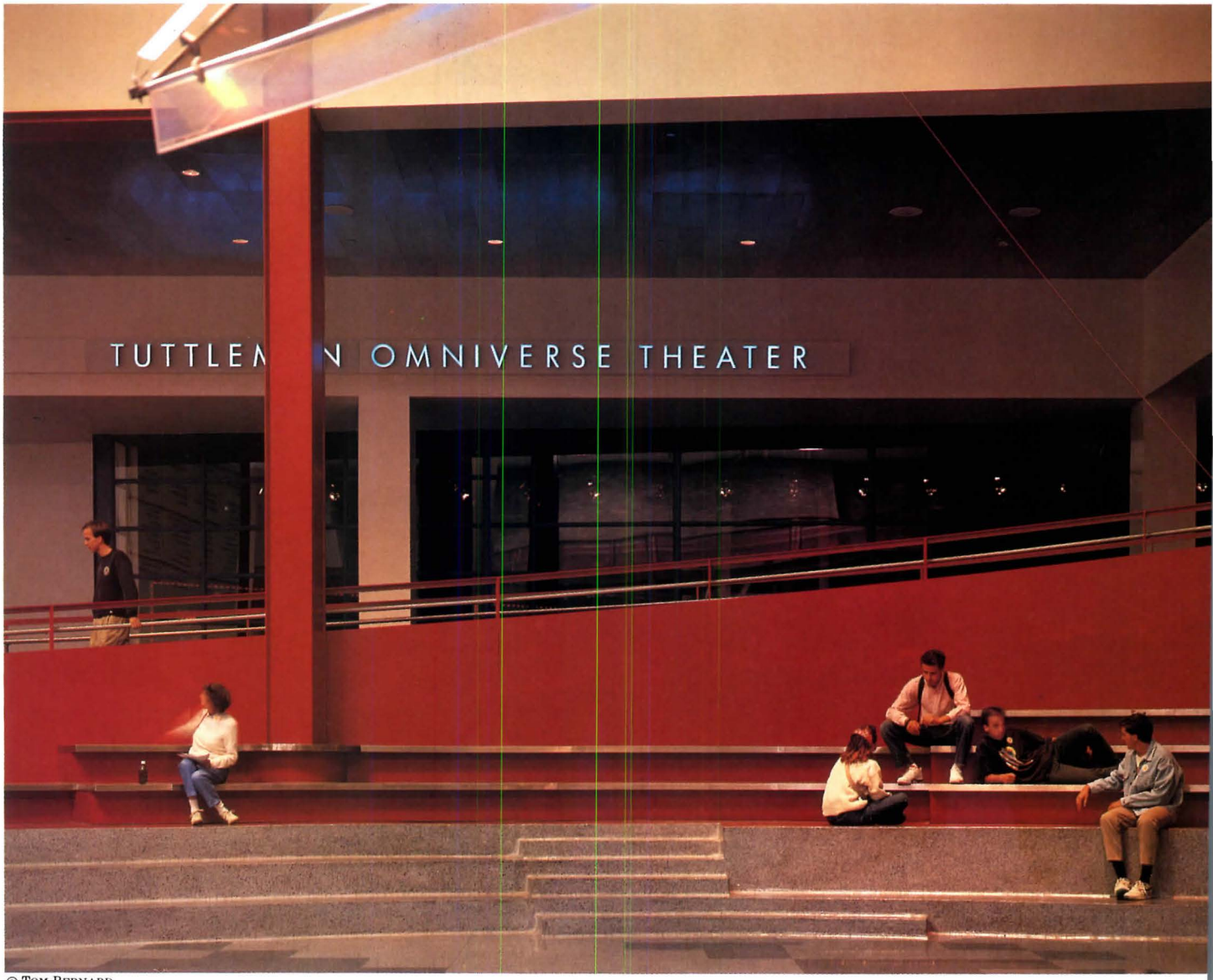

UPPER FLOOR




MAIN FLOOR →N

layfulness that makes utures Center's shell a e of geometric forms nating in the pyramid- d cylinder of the verse Theater is also t in the atrium, where ry yields to such edgy materials as ed glass and brightly ed metal. The pivot of ace is a 50-foot-high column crowned by a ht above a perforated- sculpture known as ucket." Around it s a sweeping red ramp l opposite left), the on's key circulation nt, which connects all unding spaces save the vel exhibit galleries, are linked by an endent internal ramp.






© Tom Bernard

is the academic witticism of a transparent full-story corner "showcase" and garden overlook that follows the true compass, canting 9 1/2 degrees off the putative north-south orientation of the city's street grid.

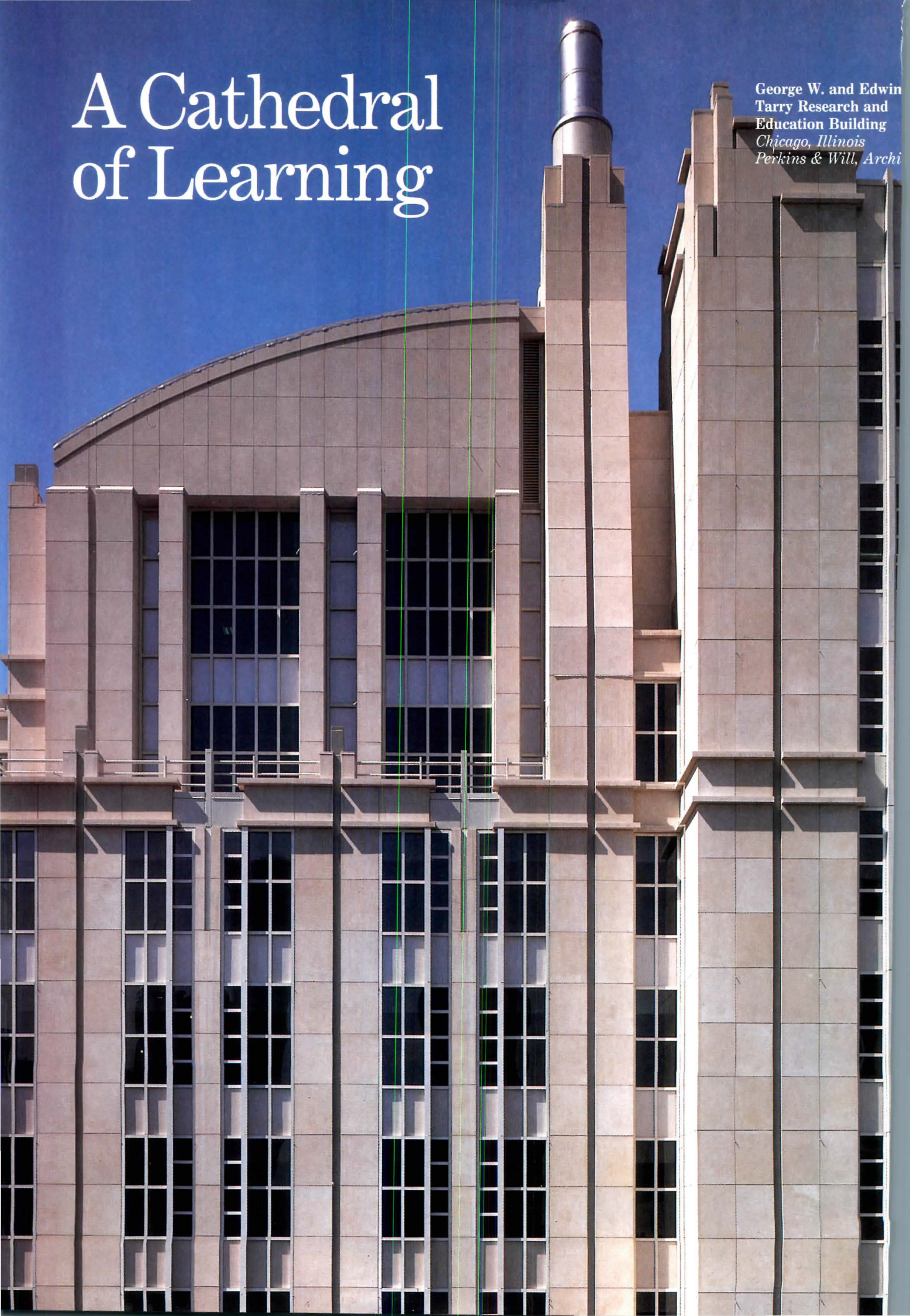
Despite the marked differences in style, however, the Futures Center honors the concept of its Beaux Arts predecessor by supplying the grand exhibit hall at its heart. Set into the angle formed by the original wings, the atrium serves as a circulation hub for the existing Science Museum as well as the addition's special attractions. To one side of the open space, the crossing of the building's original axes is commemorated with a vivid yellow steel column that flares to a stop just short of an overhead skylight. Around it winds a fire-engine-red spiral ramp (set at the correct pitch for wheelchair access) that lends cohesion to the huge space and imparts a sense of energy through the flow of visitors along its slope.

Although the atrium can be reached directly from the underground garage, the ceremonial passage is through Franklin's rotunda. To one side lie the stacked permanent-exhibit galleries, which are linked by an internal ramp; on the other an open café (photo opposite) shelters beneath the second-level interactive lecture hall housing the Futures Forum. The Omniverse Theater on the opposite side of the atrium is reached by steps that form a miniature amphitheater (photo above) and a lobby where the glass-encased projection booth for the 70-mm reels itself becomes an exhibit. To smooth audience movement between film showings, viewers enter the theater from the ground floor but leave by way of an upper balcony that joins the ramp. Finally, the atrium is a destination in its own right, a celebratory bridging past and future. Its public role is reinforced by admission that includes access to such special atrium-cer events as mime performances and science demonstratio well as the museum shop and café—and to matchless oppo ties for people-watching. **Margaret G**

*Futures Center*
*The Franklin Institute*
*Philadelphia, Pennsylvania*
**Owner:** *The Franklin Institute*
**Architect:** *Geddes Brecher Qualls Cunningham—Warr Cunningham, principal-in-charge; Michael Kihn, Robe Geddes, design principals; Charles Capaldi, James Row project architects; Thomas Buck, Adrienne Carruth, Maitland Jones, Daniel Russoniello, Kevin Scholl, Eric Sternfels, Brian Wait, Charles Berman, Nadia Breed, A Clark, Cecelia Denegre, Alejandro Firpi, Margaret Kampine, Charles Kelley, Gina Weckel, project team*
**Engineers:** *Geddes Brecher Qualls Cunningham—E. F Brecher, principal; Thomas Normile, Arun Parikh, pro engineers (structural); Jaros, Baum & Bolles (mechani*
**Consultants:** *Hammel Green & Abrahamson, Architec (Omniverse Theater); W. Michael Sullivan (theater); Pu + Noppe + Associates (theater acoustics); Jerry Kugle Associates (lighting); Romano/Gatland (food service); S Milsom & Wilke (audio-visual and acoustics)*
**Construction Management:** *Barclay White, Inc.*


OMNI
CAFE

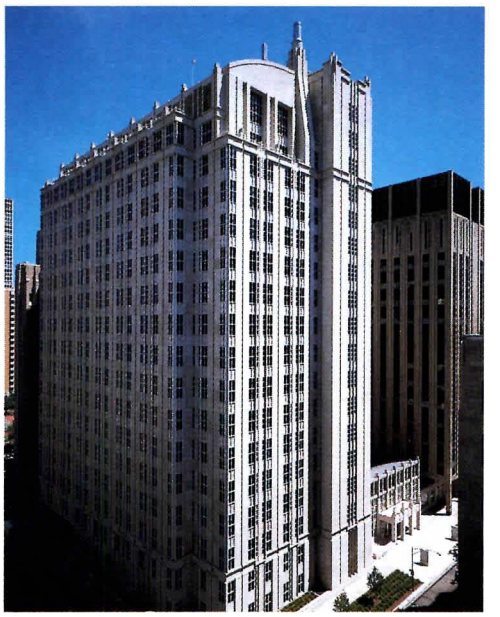
# A Cathedral of Learning

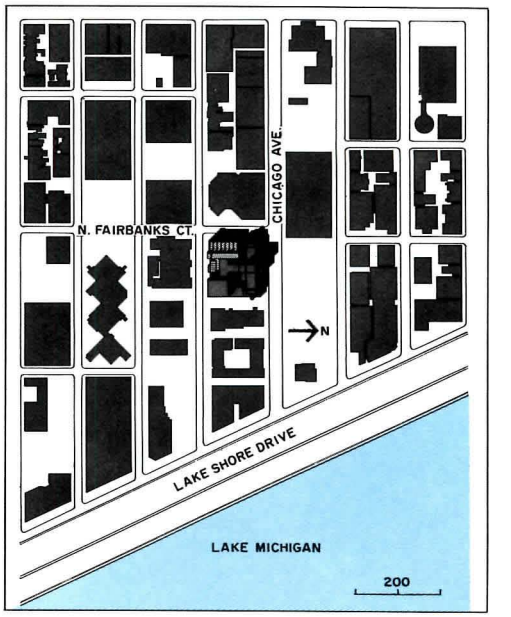


**George W. and Edwin Tarry Research and Education Building**
*Chicago, Illinois*
*Perkins & Will, Archi*

# A successful marriage of art and technology, Northwestern University's new medical-research tower merges seamlessly with its Collegiate Gothic academic setting.

hether it is viewed as completing the last empty corner of a dense urban block near Chicago's Lake Drive or as adding the final building cademic quadrangle, the George W. lwina S. Tarry Research and Educa- uilding is deeply engaged in a dia- with its surroundings. Architects s & Will chose to clad the 15-story, rced-concrete facility in a cloak of one that harmonizes with existing thic buildings, erected mainly in the that make up Northwestern Univer- lowntown medical-school campus. ond being merely a handsome exer- urban contextualism, however, the Building also addresses a difficult l agenda: to provide 280,000 square f flexible laboratory and teaching state-of-the-art mechanical systems, nvenient connections to existing aca- departments in older buildings. Per- Will has responded with a clear de- at wears its garb with assurance. laboratories designed after Louis Richards Medical Research Build- the University of Pennsylvania have measure up to the clarity that Kahn t to bear on his design. On the oth- d, Kahn has been faulted for subdi- the served lab space into tiny s, an arrangement that makes it dif- o expand an experiment and dis- es informal faculty interaction. Re- ng to these problems at the Salk te, Kahn used gigantic trussed in- al floors to carry the mechanical s and eliminate all subdivisions. the older Northwestern buildings ouse the connecting departments an interstitial scheme impossible. up each new lab floor with the ex- 12-foot floor-to-floor construction ted most of the room needed for tal ductwork, and forced the intro- of several vertical chases at the g's core. Modular laboratories are ed around these mechanical shafts. wer floors house teaching labs pro- ed for classes of up to 180 students; stories accommodate research labs. gh individual labs are as small as are feet, they are easily expandable ng to the requirements of research. terrupted limestone piers, tall win- n faculty offices ringing the labs, expressed elevator core that steps vard the street all accentuate the g's verticality. Likewise the spire-



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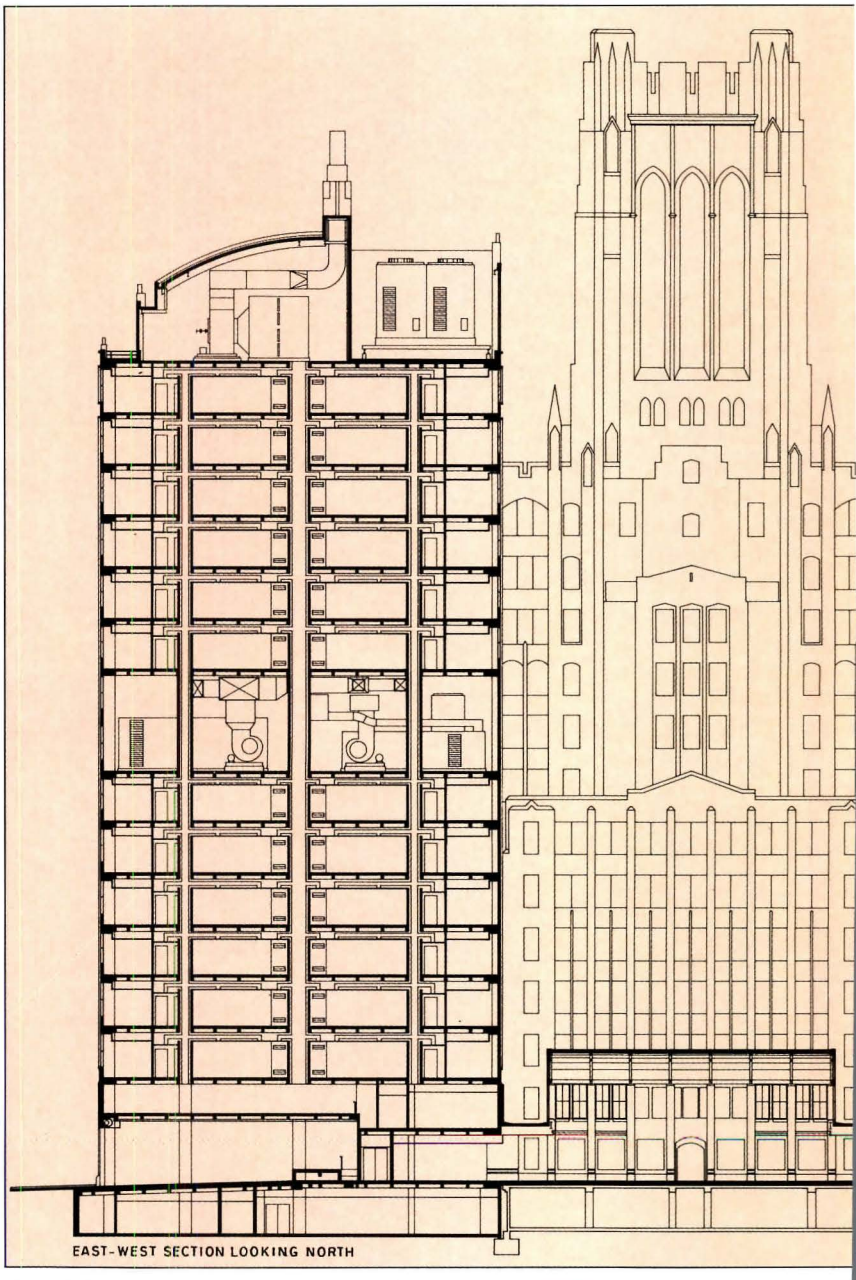
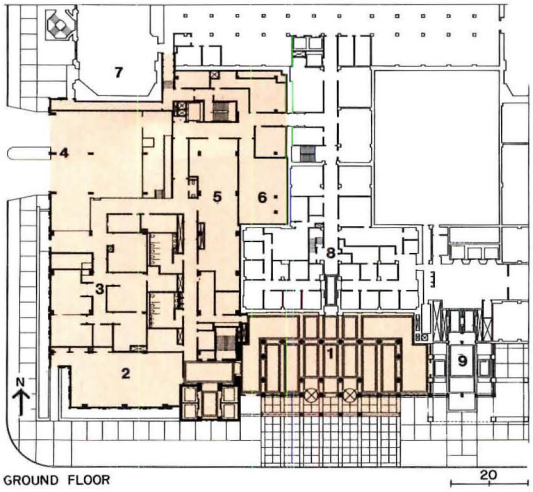
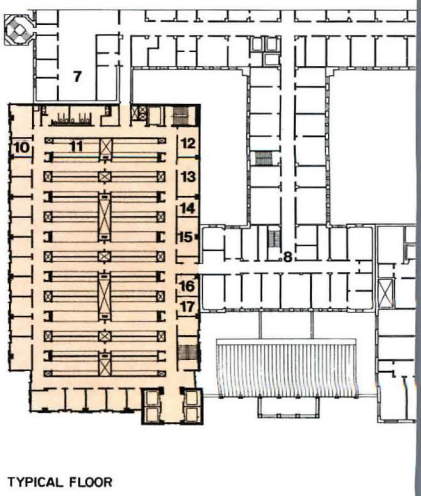
**Situated at the southwest corner of the Northwestern Medical School campus (site plan), the Tarry Building catches the sun and shadows with detailing reminiscent of adjoining neo-Gothic academic buildings (top left and opposite). Filtered exhaust ducts rising from limestone piers create spires on the Chicago skyline (above).**

**The Harold Method Atrium (below) serves as an entrance pavilion to Tarry and several older buildings. Its stone detailing echoes ornament found on existing campus buildings (bottom).**



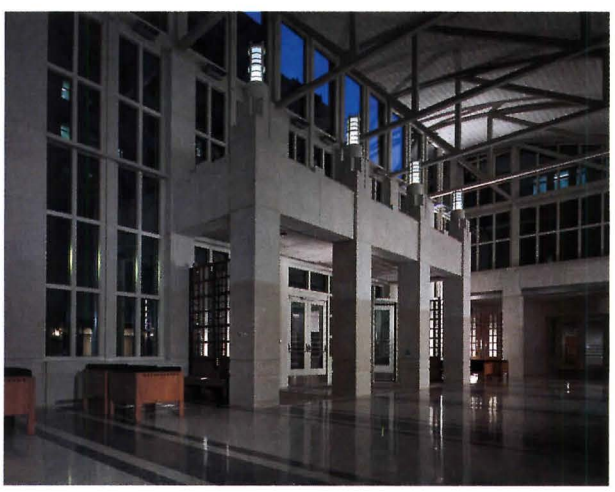

1. Lobby
2. Seminar
3. Storage
4. Loading
5. Administration
6. Mechanical
7. Existing Ward Building
8. Existing Morton Building
9. Existing Searle Building
10. Offices
11. Laboratories
12. Equipment
13. Cold room
14. Electrical
15. Cell culture
16. Glass wash
17. Photo developing



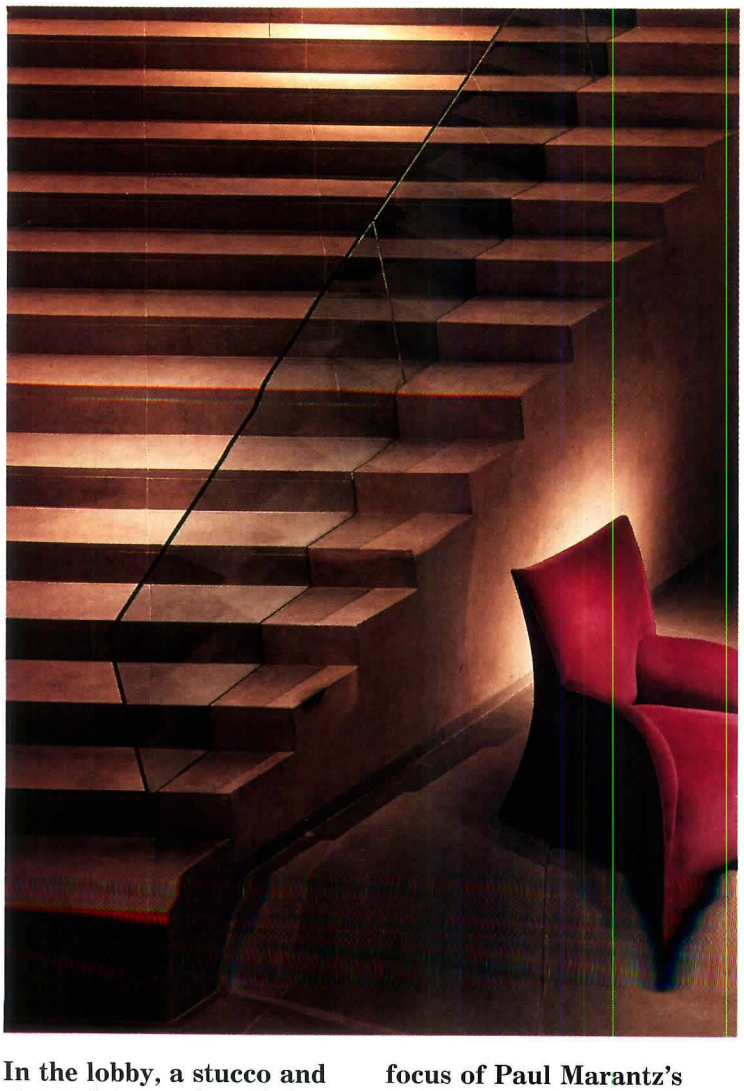



exhaust stacks, which echo similar
s on the adjacent Ward Building.
e Tarry Building's ground-floor lobby
ects the various neighboring buildings
gives the entire quadrangle a much-
ed front door. Atop the lobby, a
ed half-vault presents a rakish profile
e street. Inside, finely chiseled stone
ling and wood paneling create an in-
ing neo-Gothic contrast with the roof
es, which reach up toward clerestory
ows. Although a similar half-vault at
uilding's crown at present houses gi-
c exhaust fans, a faculty club is
ned for part of this loftlike space.
two-story-high belt of clean-air supply
rs is hidden midway up the building
d limestone and aluminum curtain-
detailing. Breaking the building into
vertical zones fed from the middle
the supply chases smaller, and al-
d an entirely open educational labora-
in the basement.
e limestone blocks and painted alumi-
extrusions of the building's skin are
hung by stainless-steel clips from a
orting grid of galvanized-steel an-
—a system that has become the stan-
for today's tall buildings. The ex-
dinary number of ledges and
tations entailed in the neo-Gothic de-
g, however, will surely test the high-
sealants and weep channels that
between Windy City weather outside
the carefully controlled environment
n. **ANDERS NEREIM**

*ge W. and Edwina S. Tarry*
*arch and Education Building*
*hwestern University*
*ago, Illinois*
**ER:** *Northwestern University*
**ITECT AND ENGINEER:** *Perkins &*
*—Ralph E. Johnson, design*
*cipal; John E. Nunemaker,*
*aging principal; James Tworek,*
*ct manager; Elizabeth Fakatselis,*
*ct designer; Robert Goldstead,*
*r technical coordinator; John*
*batsos, structural engineer;*
*nori Kanazawa, mechanical/*
*rical engineer*
**RIOR DESIGNER:** *Perkins & Will—*
*Frankel, design principal; Mark*
*nt, project designer; Anita Ambriz,*
*hic designer*
**TRUCTION MANAGER:** *Schal*
*ciates*



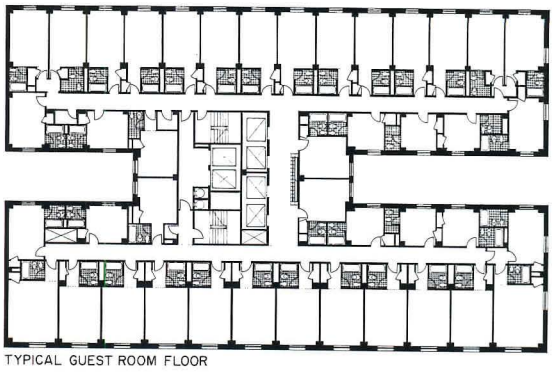
**Soft daylighting through clerestory windows emphasizes the scale of trusses inside the Harold Method Atrium (above). Indirect fixtures provide nighttime illumination (left). Finely chiseled limestone detail and rich wood paneling and furniture give the room a grandeur that befits its function as a new front door to the Northwestern Medical School quadrangle.**

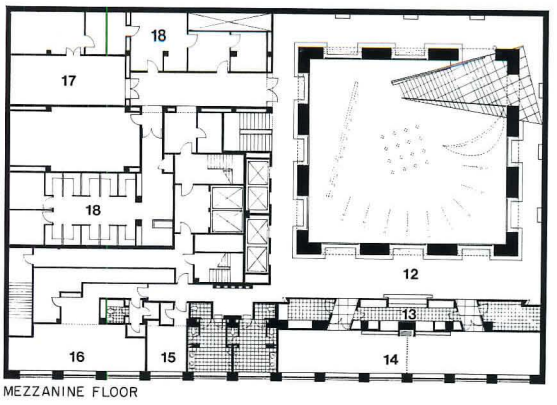


**In the lobby, a stucco and stone staircase is split in two by glass panels that act as a banister (above). On one side, the staircase is framed by a wall with hand-applied white-gold-leaf. The wall, which leans 17 degrees, is the dramatic focus of Paul Marantz's lighting (previous page). Upstairs, Starck-designed chairs and tables fill a cozier mezzanine dining room (top). A typical guest room is shown opposite.**

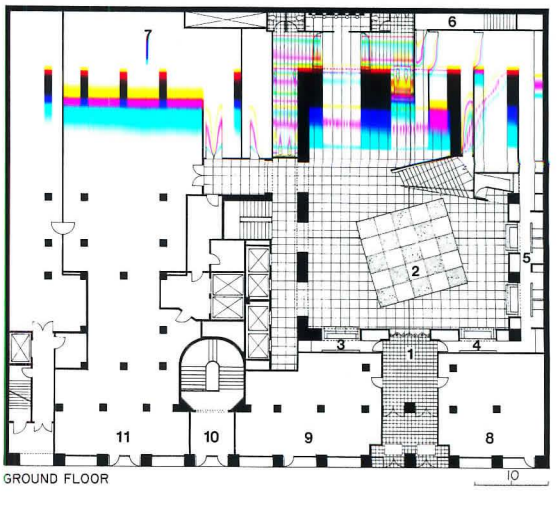
er long-running hit? He is leaving nothing to chance: w
plotting his next venture on New York's Upper East S
Schrager has temporarily moved into Paramount to make
his carefully tuned extravaganza stays sharp. **KAREN D. S**

*Paramount Hotel*
*New York City*
**OWNERS:** *Ian Schrager, Philip Pilevsky, Arthur Cohen*
**MANAGEMENT GROUP:** *Morgans Hotel Group—Michael Overington, project director; Anda Andrei, project manage*
**INTERIOR DESIGNER:** *Philippe Starck*
**ARCHITECTS:** *Haigh Space Architects (facade, lobby, mezzanine)—Paul Haigh, principal; Barbra Haigh, associa Scott Weinkle, project architect; Nicolas Macri, Justin Bologna, team; Leitenberger/Bronfman Associates (guest rooms)—Gustavo Leitenberger, principal*
**ENGINEERS:** *Ambrosino DePinto & Schmieder—Dominick DePinto, principal (mechanical); Stanley H. Goldstein PC-Michael Guilfoyle, associate (structural)*
**CONSULTANTS:** *Jules Fisher & Paul Marantz, Inc. (lighting) Paul Marantz, partner; Donald Kaufman (color); Tracy Turner (graphics); Pamela Durante, Helka Puc (F. F. & E)*
**CONSTRUCTION MANAGERS:** *Clark Construction Corp. (faca lobby, mezzanine)—John Adir, Richard Dantes, project managers; Robert Werthamer, field supervisor; Morgans H Group (guest rooms)—Nat Cusumano, project manager; Mark Robinson, assistant*


TYPICAL GUEST ROOM FLOOR



MEZZANINE FLOOR

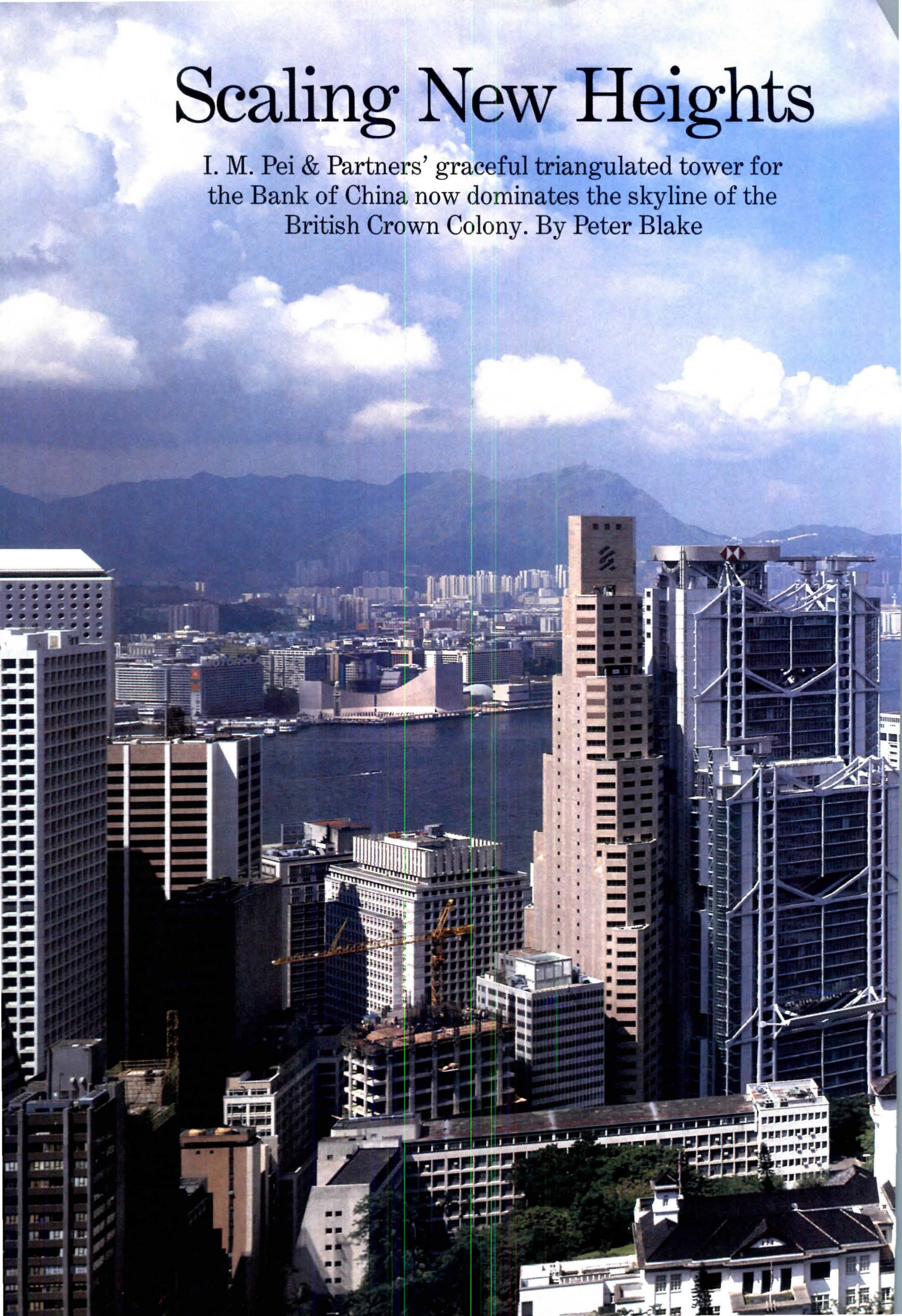


GROUND FLOOR

1. Hotel entranc
2. Lobby
3. Newssta
4. Concier desk
5. Front d
6. Reserva office
7. Baggag storage
8. Food sh
9. Bar/gri
10. Supper entranc
11. Restaur
12. Mezzan hotel dining room
13. Bar
14. Meeting room
15. Playroo
16. Gym
17. Movie theater
18. Office

# Scaling New Heights

I. M. Pei & Partners' graceful triangulated tower for the Bank of China now dominates the skyline of the British Crown Colony. By Peter Blake



**Bank of China Tower**
*Hong Kong*
*I. M. Pei & Partners, Architects*

The new Bank of China Tower, designed by I. M. Pei & Partners and located in the center of Hong Kong, is a building of superlatives: at 70 stories, it is the tallest building in Asia and, as of this writing, the fifth loftiest in the world; it is probably the most innovative skyscraper structure built anywhere to date; and it is, in the view of many who have seen it (this writer included), the finest Modern skyscraper since Mies van der Rohe's Seagram Building was completed over 30 years ago.

Before discussing the Bank of China as a work of architecture and engineering, let me list some of its vital statistics. At 1,209 feet to the top of its aerial, it is the tallest skyscraper outside North America. It contains just over 1.4 million square feet of space, everything included, which makes it more than twice the size of the Seagram Building. At the ground floor, the enclosed area measures 29,000 square feet; on the 70th floor, the enclosed area (a "sky lounge") is only one quarter the street-level footprint, or 7,265 square feet. The Bank of China's public spaces are contained within the tower's three-story base, which is treated almost like a separate building that has been seemingly carved out of the site's bedrock. The skyscraper's four powerful legs rest on this rocky base. The building's cost: $150 million.

Above the base, the bank's offices occupy about a dozen floors, which are topped by an elegant space that serves as a staff lounge and cafeteria. (The bank's offices are grouped around a 12-story atrium that runs all the way up from the ground-floor banking hall to the staff cafeteria.) The 50 floors above the Bank of China's offices contain speculatively leased office space, while the sky lounge, on the top floor, is for the use of the bank and its guests.

Because the two-acre site slopes quite steeply, there are two principal entrances to the tower: one, at the lower level and facing Queensway on the north, leads to elevator banks that serve the office tenants; the second entrance, on the south or uphill side of the tower, leads into the tall banking hall and serves customers as well as bank employees. Forty-six elevators and two pairs of escalators transport passengers and freight to the tower's various levels. Several underground levels contain, among other things, parking spaces for 370 cars.

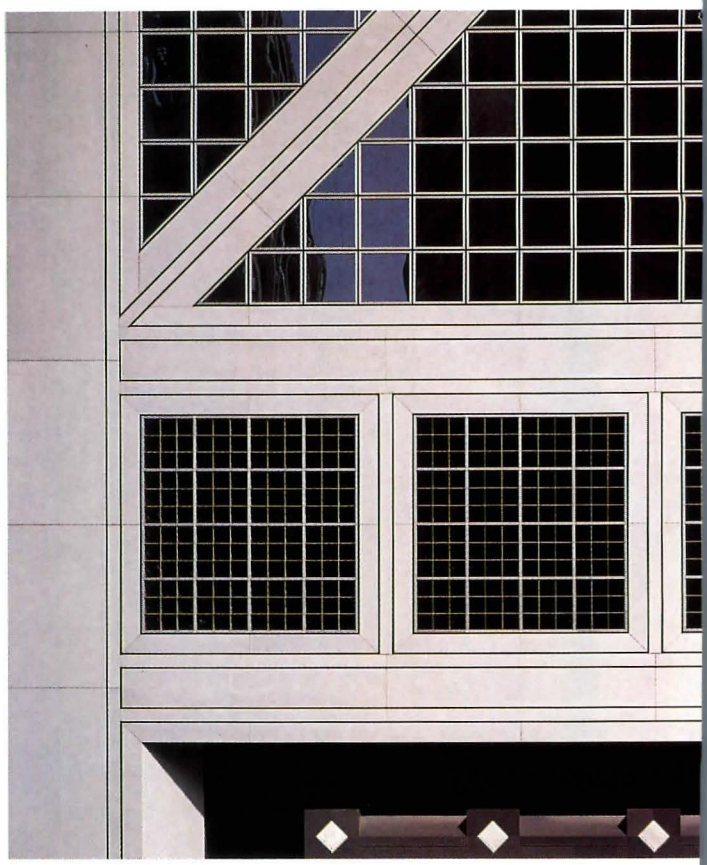
**Setting a new structural standard**

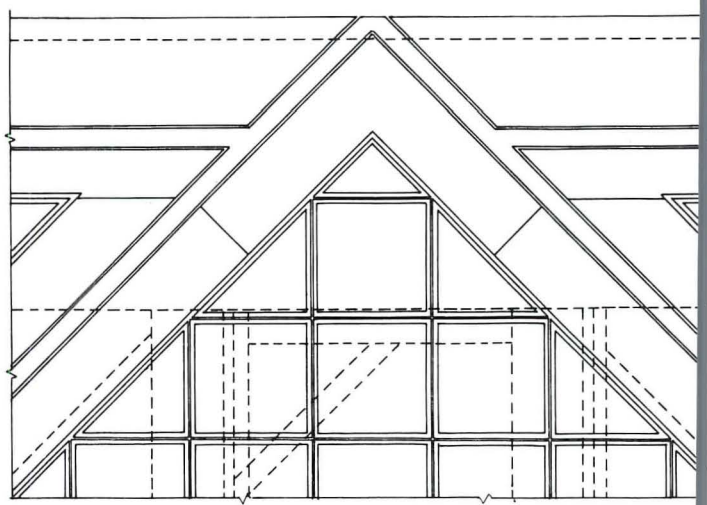
So much for the facts and figures. In the hands of a conventional architect and builder, the Bank of China perhaps would have been translated into a 50-story box, with a standard-issue rectangular cage of steel or concrete forming the structure.

I. M. Pei realized from the start that the conventional way of building a skyscraper is, in fact, quite inefficient. As everyone knows, the forces that shape a skyscraper's structure are not primarily the vertical loads transmitted to the foundations but the lateral loads generated by winds and other natural forces. In Hong Kong, these can be fierce: winds there blow twice as hard as they do in Chicago or New York, and earthquakes can be four times as severe as they are in San Francisco. The conventional way of resisting these forces is, of course, to add diagonal bracing to the rectangular structural frame, and this is the way it has been done, routinely, ever since skeleton-framed skyscrapers came into being.

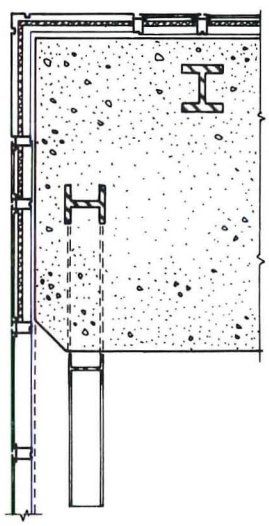
But Pei and others before him have long realized that this practice meant, in effect, making two structures to hold up one building. The wastefulness of such a configuration has been obvious to early pioneers like the Russian Constructivists and to more recent practitioners like Louis Kahn. But nobody had ever succeeded in translating his insight into built reality—a giant step, as it turned out. Now that Pei has done so, all skyscrapers built henceforth will be measured against this spare and splendid structure.

The *geometry that Pei* developed for the Bank of China Tower is quite simple: the building starts up from the ground



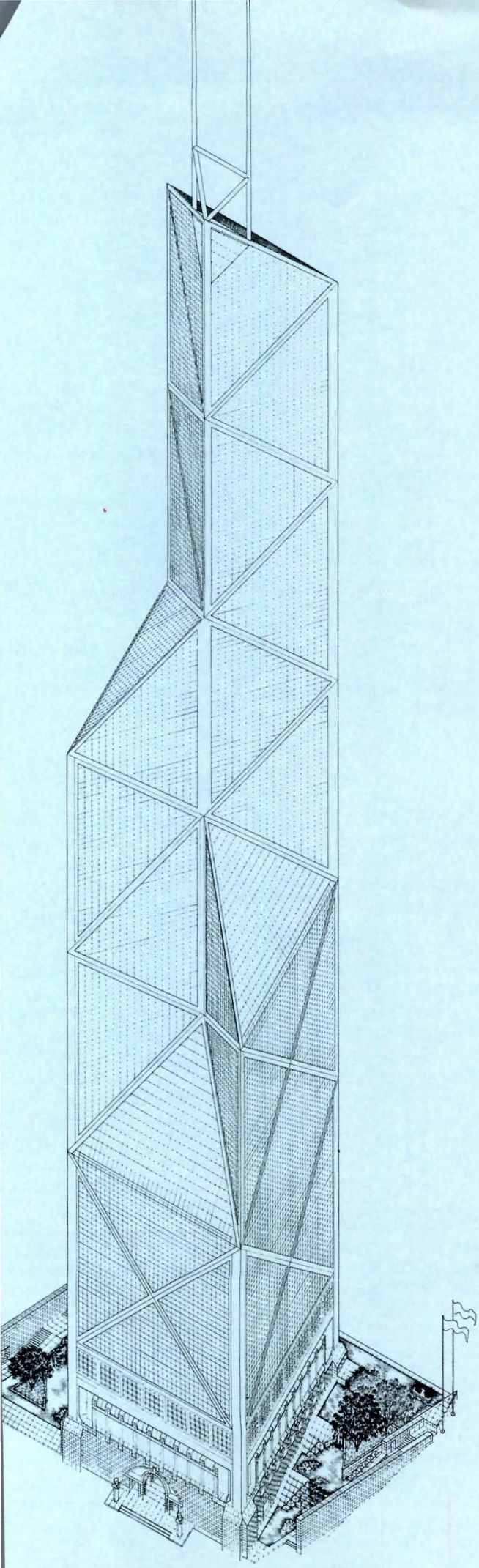


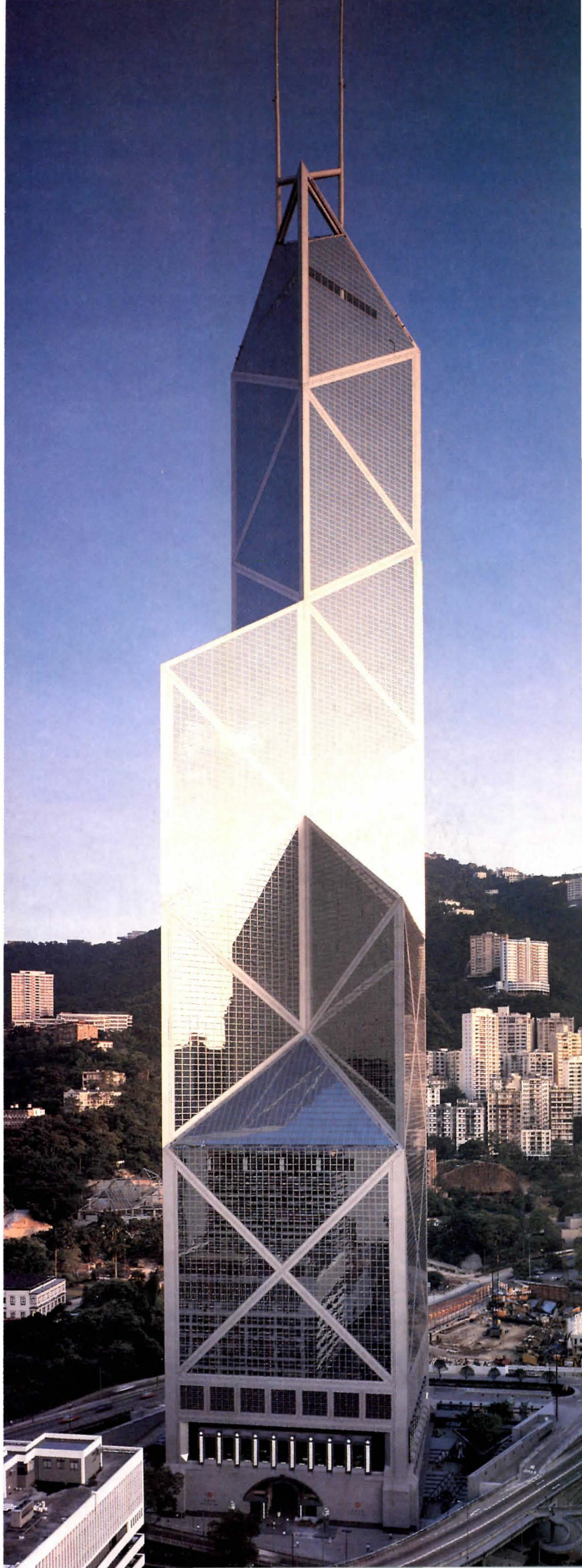
CORNER CONDITION OF CURTAINWALL AND COLUMN

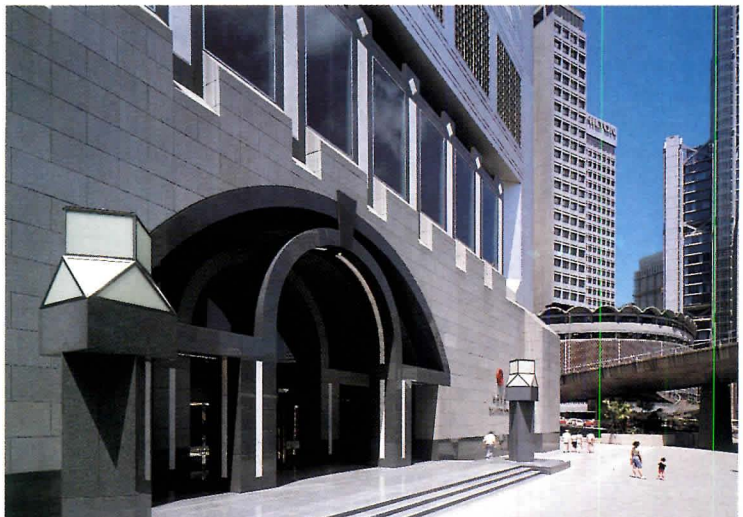


**A curtainwall of anodize aluminum and reflective glass forms the skin of t Bank of China's triangulated structural frame (axonometric and photo opposite, and curtainwall detail top). Detail drawings of the curtainwall and column (above and left) illustrat the concrete connection that envelops steel members where they me at the tower's corners.**

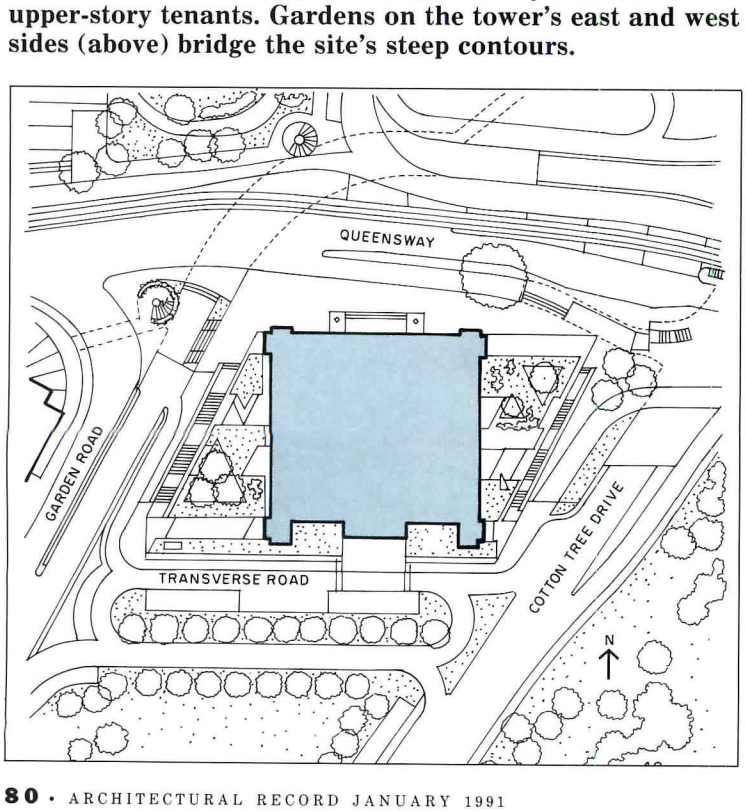
© PAUL WARCHOL PHOTOS EXCEPT AS NOTED







**The north entrance (top) faces Queensway and serves upper-story tenants. Gardens on the tower's east and west sides (above) bridge the site's steep contours.**




as a shaft about 165 feet square in plan. Pei divided this so into four triangular quadrants by crossing it with diagonals.

As the tower rises, the first quadrant falls away, abou fourth of the way up. The next quadrant disappears a halfway up the building, and the third quadrant drops about three-fourths of the way up. The top floors of the t are thus only one quadrant in area—a slender stalk that t nates in a triangular tip containing the sky lounge. The for the tower is thus defined by the verticals, horizontals, diagonals of the structural frame, and by huge triangl reflective glass that make up the building's skin. The fra clad in bright, anodized aluminum. The tapering silhouet the building is not unlike that of a tall stalk of bambo though its reflective facets of glass and metal pick up ligh shade the way a crystal might. Five principal columns ho this 70-story stalk—one on each of the four corners a central column that extends from the top of the tower dow the 25th floor, where its loads are transmitted diagonally t corners.

**Bamboo symbolism as architectural inspiration**

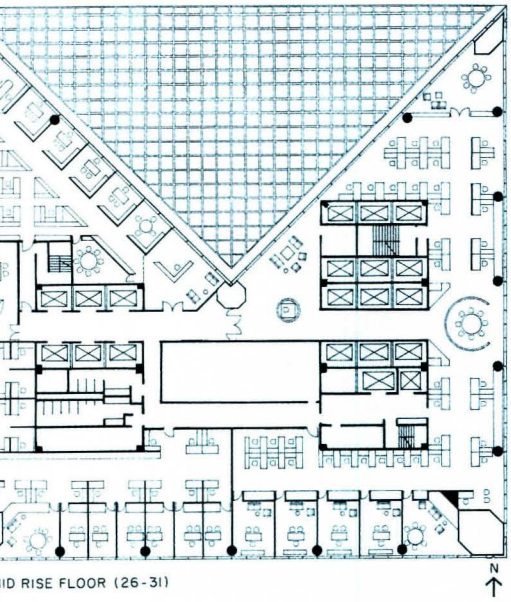
At the time the Bank of China commissioned Pei to desig tower, the architect saw that there were two principal lems: the first was the site, a steep slope surrounded by st and fly-over highways that would require some realignm and the second was the fact that the building parcel was al invisible on the Hong Kong skyline when seen from Kow on the other side of Victoria Harbor. So the new tower ha be very tall indeed if it were not to be swallowed u surrounding skyscrapers.

Pei recalls the early stages of the building's design. "I a my son, Sandi, to cut out four triangular wooden stick different lengths, and we started to play with them, reco ing that the building should taper as it went up." Pei sla the ends of the triangular sticks, and assembled them in ters. He recalls a Chinese proverb that uses the tapered boo stalk as a symbol: its sectional trunk, propelled higher higher by each growth, is a metaphor for taking meas steps in a quest for strength and excellence.

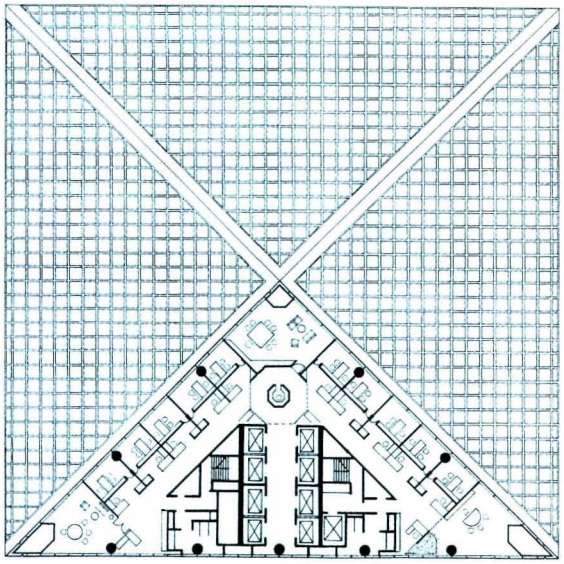
So this was how the formal architectural concept was d oped. But it was New York City structural engineer L Robertson who translated the concept into reality. "Les is a theoretician and a very practical engineer," Pei says. knows how to make advanced theories work for him." Pei Robertson a good deal of the credit for coming up with the to the building's realization: a critical joint at which the cal, horizontal, and diagonal members of the steel fram come together. This joint is not a welded connection, nor all-steel; it is, in effect, a block of reinforced concrete envelops all the columns, stiffening trusses, beams, and braces.

"I saw the tower as a series of triangles," Pei recalls. Les saw the triangles as a structure, as a superframe. was his conception." The superframe—a kind of three-d sional space truss—was surprisingly economical: Pei and ertson estimate that the Bank of China tower used on percent as much steel as a conventional skyscraper fra this size would normally have used—and this despite the that Hong Kong is located in a typhoon zone that call exceptional wind bracing.

Given that Pei's tower is located just two blocks ea Norman Foster's highly publicized Hong Kong and Sh Bank Headquarters, comparisons between the two struc are inevitable. The Foster building—a super-high-tech extravaganza—is, in reality, a fairly conventional stru with a central atrium and a brilliant display of structura mechanical innards on its north and south facades. Fo building seems to use its dramatic structure as a for

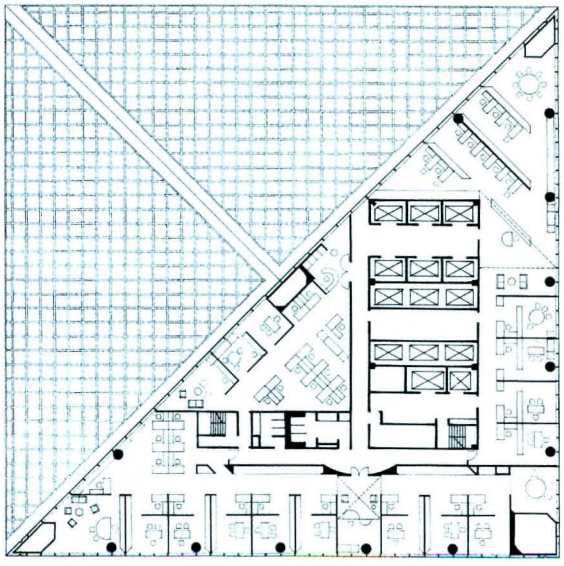


ID RISE FLOOR (26-31)



HIGH RISE FLOOR (51-66)

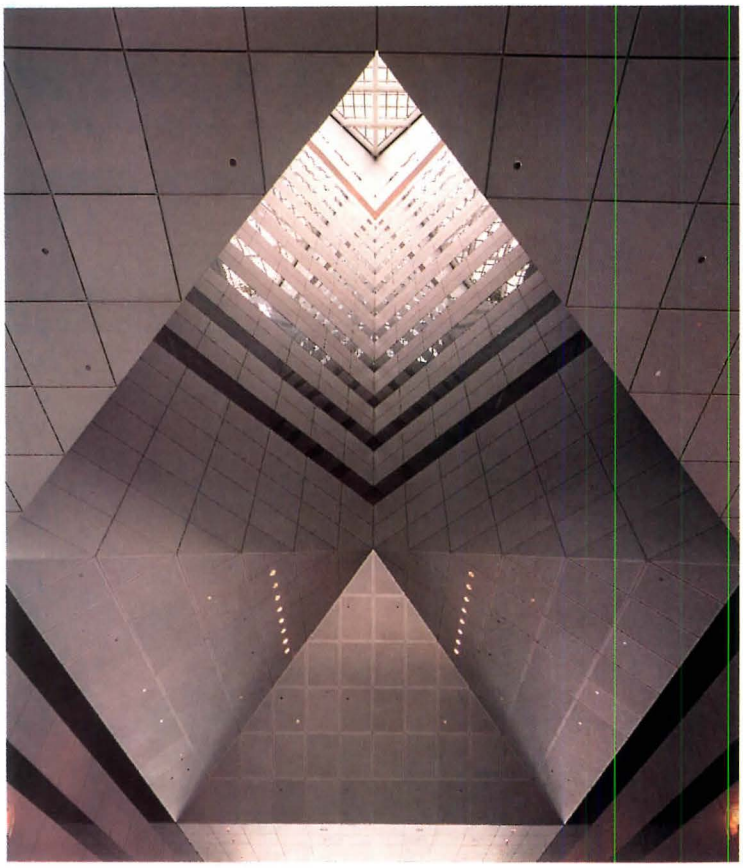
ISE FLOOR (6-16)



HIGH MID RISE FLOOR (38-44)



**ıs of the tower at four erent levels show typical e layouts for the Bank hina's use (low-rise) for tenants (low mid- high mid-rise, and -rise). A square atrium 17 stories through the er of the lowest floors, bringing natural light into the tower's banking hall. A lounge situated on the 70th floor is for Bank of China VIPs and guests. Upper floors also contain executive dining suites and apartments for visiting dignitaries.**



**A skylit atrium (top) extends from the banking hall to a staff cafeteria and executive lounge on the 17th floor. The barrel vault of the north lobby (above) is sheathed in gray and white granite; floors are marble. A reception and banquet hall, located in the 70th-floor sky lounge (opposite) enjoys 360-degree views across Hong Kong. A tubular steel superstructure supports and braces communications towers that rise above the building's apex.**

decoration, whereas Pei's tower is a flawless integration pure structure, function, form, and urban symbolism. Noth could be added to it and nothing could be subtracted with doing damage to the whole. (What is more, the per-square-f cost of Pei's building is only one-sixth the cost of the Ho Kong and Shanghai Bank.)

**The office building as art**

Will Pei's and Robertson's elegantly triangulated structure widely copied in North American cities? Probably not. As g as it is, the Bank of China is less efficient in terms of rental ty than most builders of commercial office structures wo wish—although Pei points out that the great variety of re able office spaces in the Bank of China, and the availability spectacular views in all directions, serve the Hong Kong of market exceptionally well. Even so, there may be proble with triangular-shaped corner offices, and with occasio cross-braces slicing across the interiors—or so some peo will think.

Clearly, the Bank of China tower sacrifices a fair amoun potentially rentable square footage to—well, art. And until commercial market recognizes the dollar value of art, build will shy away from structures such as this one.

That, of course, is too bad. Mies van der Rohe once said t we would not be building any cathedrals in our time, and was probably right. In some respects, the skyscraper may the closest thing to the cathedral in this century and the n especially if it takes its place on the skyline as gracefully as visibly as the Bank of China does. It is ironic that H Kong's new cathedral has been built by the present ruler Beijing; and it is doubly ironic that the architect was the so a former president of the Bank of China, who was driven ou his native land by the present rulers of China.

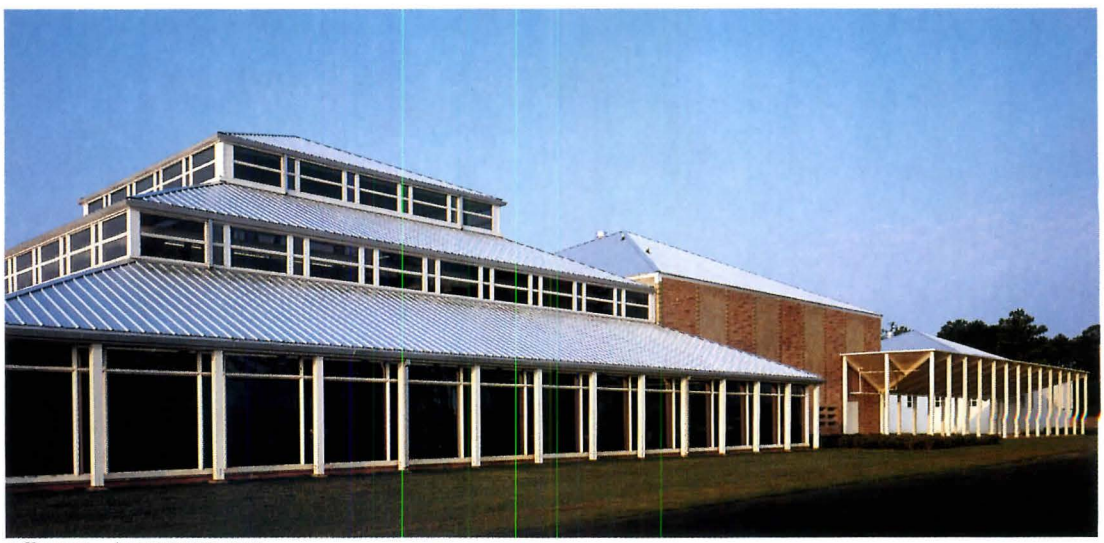
Still, perhaps this handsome new building will teach its c ers a lesson or two about grace, civility, and integrity. It w not be the first time that architecture has played such a r

*Bank of China Tower*
*Hong Kong*
**Owner:** *Bank of China/Hong Kong*
**Architect:** *I. M. Pei & Partners—I. M. Pei, partner/desig Eason Leonard, partner/administration; Michael Flynn, partner/curtainwall; Kellogg Wong, associate partner/ administration; Abe Sheiden, associate partner/producti Bernard Rice, senior associate/design; Robert Heintges, curtainwall; L. C. Pei, stonework and public spaces; Calv Tsao, water gardens; Senen Vina-de-Leon, cores; William Cunningham, job captain; Tom Woo, resident job captai Gianni Neri, construction administration; Richard Gorman, specifications; David Litz, senior resident architect; Pat O'Malley, resident architect*
**Associate Architect:** *Wong/Kung & Lee—Sherman Ku principal-in-charge*
**Engineers:** *Leslie E. Robertson Associates and Vallentin Laurie, and Davies (structural); Jaros Baum and Bolles Associated Consulting Engineers (mechanical/electrical)*
**Consultants:** *Fisher-Marantz (lighting); Rolf Jensen & Associates (fire protection); Cerami and Associates (acoustical); Peter McLaughlin Associates (security); Tra Associates (traffic); R. J. Van Seters Co. (fountains); Vinc Ponte (planning); Levett and Bailey (quantity surveyors) Verta Corp. (exterior maintenance); Peter X(+C) Ltd. (signage); George C. T. Woo & Associates (interiors)*
**General Contractor:** *Kumagai Gumi*

*Peter Blake is professor of architecture at Catholic University. He is a practicing architect and critic, and the former editor of* Architectural Forum *and* Architecture Plus.

# Exercising Options

## Valerio Associates' health and recreation facility for Kimberly-Clark combines the opposing natures of an Alabama forest and a paper-manufacturing plant.



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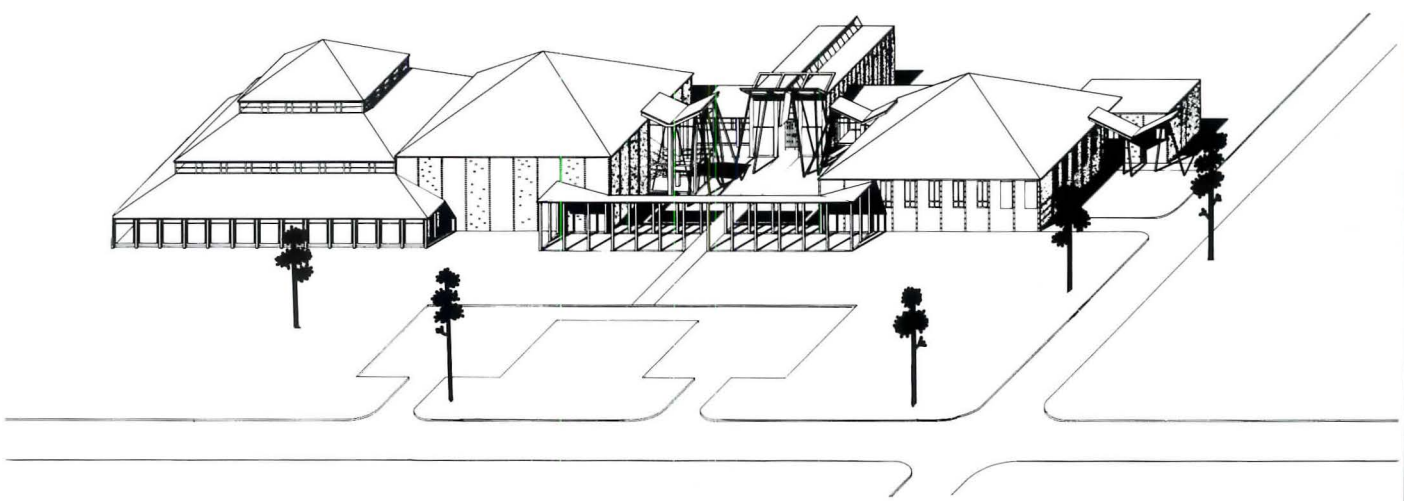
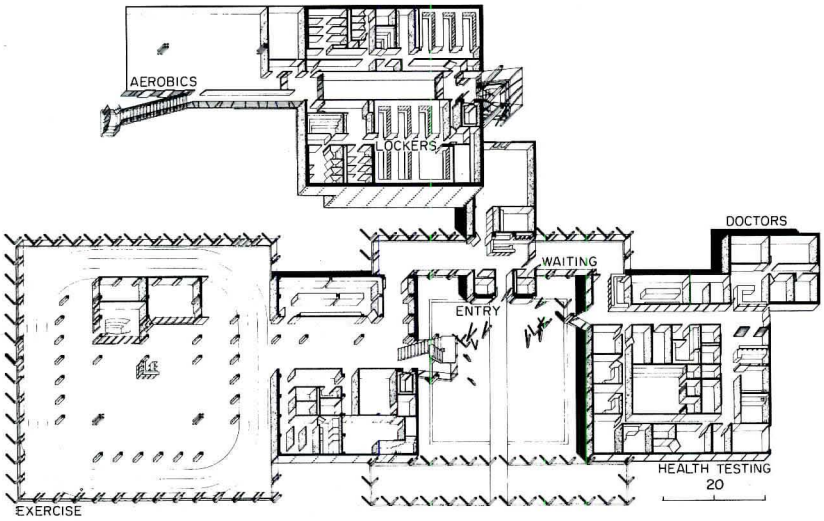


Kimberly-Clark's Coosa Pines pulp and paper mill sits amid the vast pine forest that stretches southeast of Birmingham, Alabama. The huge mill has provided jobs in the area for generations, along with generous benefits that include voluntary employee counseling on fitness, diet, and exercise. The company's far-sighted policies are intended to keep employees healthy and happy, and at the same time reduce the costs of illness, injury, and insurance.

In designing Kimberly-Clark's new Coosa Pines Health Center, Valerio Associates was challenged to produce a 32,000-square-foot building whose program has two major components: health screening, which includes a diagnostic clinic and an occupational-health suite for industrial accidents, and recreation, which incorporates a gymnasium, lounges, and meeting rooms. The architects also had to contend with the jumbled industrial environment that characterizes any large paper mill. The mill's overwhelming size, together with its unavoidable noise and pollution, could easily have handicapped efforts at "place-making." By turning the building inward, and pu the entrance to the meeting room, exercise facility, and nostic clinic in a courtyard behind a skeletal colonnade, p pal Joseph Valerio buffered the health center from the h environment and gave the building a more human scale.

Although the mill's existing buildings display no parti stylistic consistency, their vernacular form and scale dicta straightforward approach to construction: a successio hipped-roof pavilions with clerestories and repetitive struc bays. Anything fussy or pristine here would have seeme of place. For formal precedents, Valerio looked to such un ed sources as an Early Christian entrance atrium and a S multistaged wood belfry. The architect rationalizes his bo ing of seemingly alien historic form by observing that A can culture's "total absence of history and tradition afford architect] perfect freedom." If the result seems an odd co diction—what does an Early Christian atrium have to do v health center in an Alabama pine forest?—it is a contrad

cabulary of sloping elements appears just inside the center's entrance colonnade (above and below).




**The exercise and health screening facilities (belo left) are both entered through doors whose muntins have been cut t resemble pine trees. A corridor in the diagno clinic opens onto the entrance courtyard (bel right), re-orienting first- time visitors. An elevate walkway from the wom locker room leads into t gymnasium (opposite). Women's aerobics class held behind the wall to right, are discreetly concealed from the wei room below.**

that deliberately "embraces the ambiguities of modern times," according to the architect.

Upon entering this carefully thought-out building complex, one encounters the strangely sloping porticoes that surround the entrance courtyard. At first glance these look amusingly like the kind of angled shoring that holds up old porches while their classical columns are being replaced. Though it isn't hard to find man-made industrial precedents for these canted elements throughout the mill, the real source of their inspiration is the natural environment of the nearby pine forest. It is only when one reaches the gymnasium that the metaphor becomes clear. There the tall spaced columns and randomly sloping wind bracing seem like old-growth forest surrounding a clearing—a forest that has undergone an industrial transformation while losing none of its mystery and quiet light. (Another, perhaps more subtle reference to the nearby woods appears in the mullions of the center's entrance doors, which are cut in profile to resemble pine trees.)

The delicacy of the gymnasium's wooden roof struct made possible in part by hidden tension rings at the e each hip. The wood portion of the structure is then coun anced over a concrete peristyle that separates the r track from the weight room. Poured resin floors, simple finishes, and inexpensive aluminum lighting fixtures hel keep the building within its modest budget. **ANDERS N**

*Coosa Pines Health Center*
*Coosa Pines, Alabama*
**OWNER:** *Kimberly-Clark Corporation*
**ARCHITECT:** *Valerio Associates—Joseph M. Valerio, Ran Mattheis, David Jennerjahn, project designers; Brad P Gregory Randall, Daniel Ikeda, project team*
**ENGINEERS:** *A. Epstein and Sons, Inc. (structural, mechanical, electrical); EWI Engineering Associates (c*
**CONSULTANT:** *Nancy Willert (interiors)*
**GENERAL CONTRACTOR:** *Universal Construction Compa*


EXIT
CYBEX
AEROBICYCLE

# Making the Grade

While new technology makes schools more complex, a few old lessons—such as getting communities involved and keeping a child's size in mind—are worth remembering.

Fifty years ago a small elementary school in Winnetka, Illinois, set off a quiet revolution. School design has never been the same. The two-story Victorian box housing rigid classroom cells and scaled to impress parents (and intimidate children) was swept away. Buildings imprinted with an institutional stamp gave way to ones with a more residential feeling.

It all began with the Crow Island School, a one-story brick building that embodied the progressive educational program of the local superintendent, Carleton W. Washburne. Designed by the fledgling firm of Perkins Wheeler and Will with help from Eliel Saarinen, the school organized classrooms into three wings so each could have its own identity. Instead of shutting students off from the outside world, Crow Island provided classrooms with direct access to outdoor yards. It brought ceilings down to nine feet (from the more typical 12 feet) to establish a less formal environment, and lowered windows to a child's height.

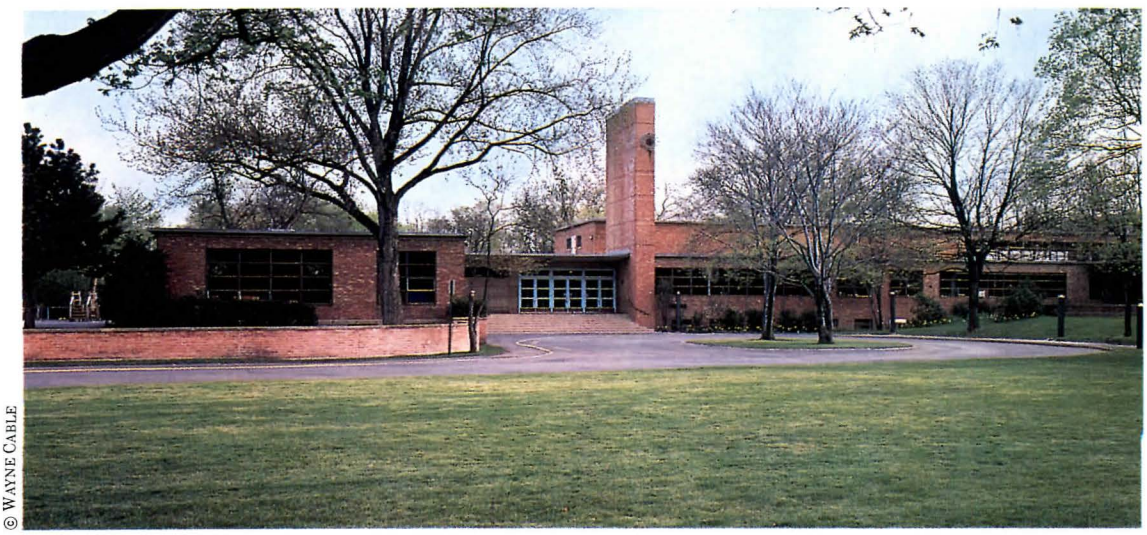
While educational philosophies have gone through several cycles in the last half-century, the lessons of Crow Island are as valuable today as they were in 1941. The latest generation of schools maximizes contact between classrooms and outdoor spaces, placing important design elements at children's height, and creating relaxed settings for education—just as Crow Island did.

Although clearly a Modern building with flat roofs and rectangular blocks sliding past one another, Crow Island fits comfortably into its local context. Its residential scale helps it harmonize with nearby houses, while its sensitive use of natural materials such as brick and wood allows it to rest easily on its wooded site. Such contextualism is also at work at the three projects profiled on the following pages. The Jane S. Roberts Elementary School in Dade County, Florida (pages 98-101), for example, responds to its tropical climate especially well by establishing a system of covered (but not enclosed) walkways and palm-studded courtyards.

**Involving users in the design**

Before designing Crow Island, Lawrence Perkins spent many hours listening to teachers, administrators, students, even janitors. Bringing these user groups into the design process is now standard operating procedure. For example, William Brubaker, a principal at Perkins & Will—the successor firm to Perkins Wheeler and Will—met personally with members of every department at Warsaw Community High School (pages 94-97) at least twice to discuss their suggestions. At each meeting Brubaker would translate their ideas into sketches and then listen to their reactions. "Is this what you had in mind?" Brubaker asked over and over again.

For a small town like Hope, Indiana, the design of a new school became a community event. Taft Architects carefully listened to what adults and children had to say. As a result, Hope Elementary School (pages 102-105) is as much a community resource as it is a school. Its main design feature, an indoor street, works equally well for parents heading for PTA meetings and for students on their way to class.





**The Crow Island School helped change the course of school design.**

While the glut of office space now on the market will probably depress commercial building for the next couple of years, the need for new and renovated schools continues to grow rapidly. According to a study by the Education Writers Association, $84 billion in new construction and retrofitting is needed to overhaul the nation's education infrastructure. Paul Abramson, president of Stanton Leggett & Associates, an education consulting firm in Westchester County, New York, projects that $35 billion will be spent over the next three years on school construction. "The one cloud on the horizon," notes Abramson, "is whether the public will be willing to fund all this."

**Tight budgets may slow construction**

With exactly that cloud in mind, F. W. Dodge expects just a 2 percent increase in square-footage built in 1990 for the entire education sector, which includes college and university projects in addition to primary, junior high, and high schools. According to Dodge, tight state and local budgets will force new education construction actually to decline by 2 percent in 1991, from 141 million to 139 million square feet. Growth, however, should revive in 1992 and continue through at least 1995.

Some of the difference between Abramson's optimism and Dodge's caution reflects Dodge's inclusion of college and university construction. Because many Baby Boomers in their 30s and 40s just recently began to have children, most growth in the school-age population is now occurring at the elementary-school level rather than the college level.

No one, though, can deny the remarkable growth in education construction during the past several years. From 1982 to 1989 new building soared 87 percent to reach 139 million square feet per year.

Some of the nation's largest states and local districts have begun ambitious school-building programs. California, for example, has projected it will need 800 new schools by 1993, while Florida estimates it will need 816 new facilities within the next 10 years. Dade County (Greater Miami) alone has launched a $1.5-billion school development program that will include about 50 new facilities and more than 300 renovated schools

A growing percentage of education cons tion now involves renovating and expandin isting schools. In 1970, 73 percent of the m spent on education building was for new f ties, with 21 percent going for additions and 6 percent for alterations. By 1989 new cons tion accounted for just 52 percent of the money spent, while additions had jumped t percent and alterations had grown to 18 per Part of the reason for this change was incre activity in the Northeast and Midwest, whe older stock of schools existed.

The rapid growth of the school-age popul over the last decade has put great pressur cities such as New York to expand facilitie quickly as possible. Until recently, New Y standard response was to erect pre-engine metal annexes in school yards. When the was finally forced by a watchdog agency t velop a less dreary solution, it turned to a tects Weintraub & di Domenico.

**Silk purses out of sows' ears**

Employing the same Type-V construction corrugated metal as had been used in the Weintraub & di Domenico designed a serie four "minischools" whose playful, and brig colored forms won immediate praise (three shown on this page). "We have a knack for ing silk purses out of sows' ears," says Jo Domenico.

Instead of trying to disguise the humble struction technology, the architects worked it to create a variety of whimsical pedim portals, and columns that give each buildin own identity. "We didn't want to fudge it," plains di Domenico. "We didn't want to jus a brick veneer on a metal shed. So we too palette of materials that's typical of this b ing type and shook it up."

The minischools are 60 feet wide with 2 20-foot classrooms loaded on either side of a ridor. Each one cost about $2 million and about six months to build.

While the so-called Baby Boomlet and th gration of Americans to the Sunbelt spurred much recent school construction, a er major factor has been the expanding rol

**Using the same kind of pre-engineered construction that had previously resulted in unadorned metal sheds, architects Weintraub & di Domenico designed a series of lively school annexes for New York City (above and right). The rigid-frame, metal-skin structures provide fanciful elevations for classes to pose in front of and windows set at a child's height.**

asingly complex function of schools. Simply schools are bigger today because more s place there. Increasingly seen as commu- resources, schools must now accommodate t classes, community meetings, senior-citi- groups, and year-round athletic events. At ame time, parents are demanding more so- icated (and spacious) science facilities, com- r labs, special-education programs, and dra- c-arts spaces. Not long ago, an elementary- ol library was a room with books; today it is edia center" with computers and elaborate o and video equipment, as well as books.

cording to Perkins & Will's Brubaker, me- enters, dining halls, and courtyards offer tects the opportunity to create "great es" that can serve as important meeting s for students and teachers and help estab- trong identities for schools.

**ols are getting bigger**

udy by *American School and University* azine of 110 new schools nationwide showed the typical elementary school today is 7 gross square feet and has 655 students. her words, the average elementary school tes 96 square feet to each pupil. According ul Abramson, 20 years ago that figure was t 62 square feet per pupil.

e survey also showed that the typical high ol has 153,000 square feet for 967 students, 6 square feet per pupil. Twenty years ago, Abramson, the figure was 120 square feet.

hile increasingly complex education pro- is are forcing schools to grow bigger in s of square-footage, judicial decisions and lative mandates in many states are requir- ewer students per classroom. In Texas, for nce, the state legislature now limits all es to no more than 22 students.

ny educators also advocate fewer students chool, especially in urban areas with social ems. "There's a lot of evidence to show children do better in smaller schools," says mson. Last year the Architectural League w York and the Public Education Associa- a private advocacy group, organized an ex- of designs for smaller schools.

· a proposed site in the Washington Heights section of Manhattan, HMFH Architects designed a five-story structure with a rooftop playground (below and right). Shoehorned onto a site the size of two town-house lots, the school includes a ground-floor daycare center and second-floor community services office that work independently of the three floors of classrooms and school facilities above. An atrium rising the full height of the building brings natural light into the entire facility.

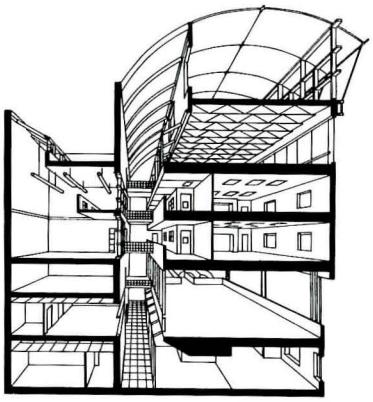
"The overriding concern," explains Stephen Friedlaender, president of HMFH Architects, "was to show it's feasible to build small schools that have all the amenities often lacking in New York City buildings—lots of light, outdoor recreation, and community services."

Although few educators want to repeat experiments with open classrooms, "teachers really do want flexibility," says Abramson. "They want to be able to plug in a computer or a television anywhere in the room." They also want classrooms that can accommodate different kinds of activities—from lectures to individual learning. Some teachers even want various activities to be able to take place at the same time—computer training at one table, reading at another, and storytelling across the room.

Because education is more diversified than ever before, classrooms must handle gatherings of varying size—from a special-education class of seven students to a traditional course with 27, says Ben E. Graves, head of Educational Planning Consultants of Austin, Texas.

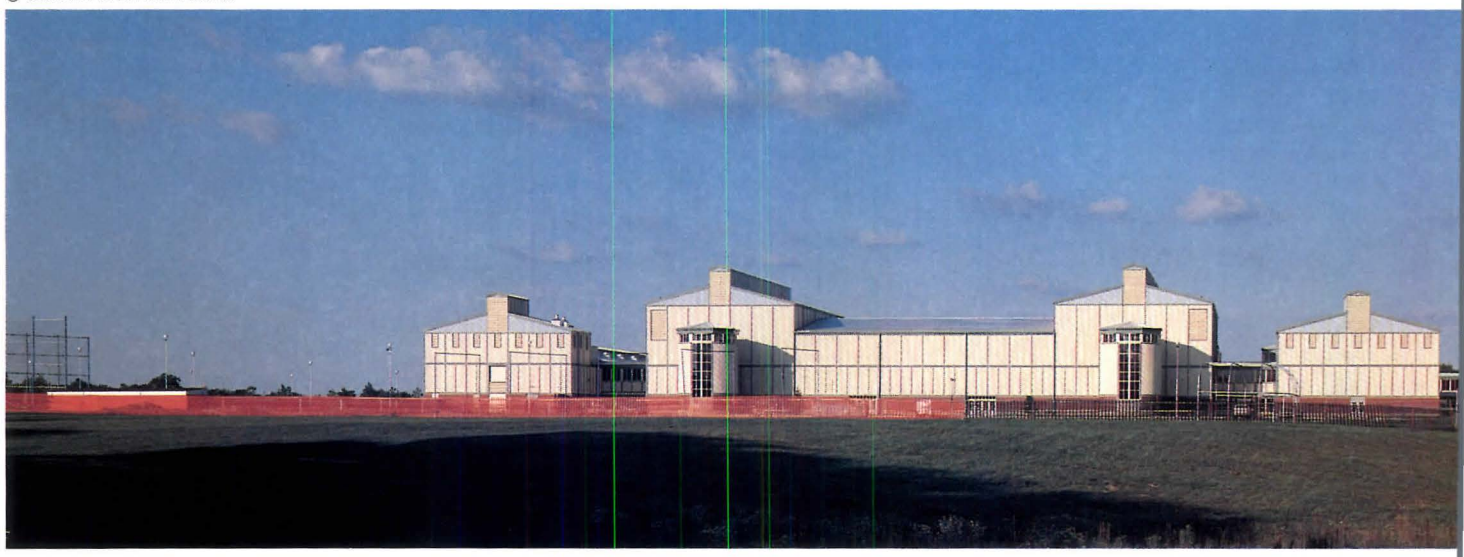
Computers and video may be the hottest topics among educators, but Graves warns that technology shouldn't be the tail wagging the proverbial dog. "We don't want to repeat the mistake we made with language labs," says Graves, "creating large spaces that aren't really needed." Rather than setting up computer labs, Graves recommends integrating the new technology within traditional classrooms.

With members of the Baby Boom generation now focusing on their roles as parents, schools have become a top national priority. Finally in the limelight, schools are assuming more assertive places in many communities, while responding to new technologies and expanding educational programs. **CLIFFORD A. PEARSON**



**A design proposed by HMFH Architects makes the most of its small site in upper Manhattan by stacking three levels of school facilities above a two-story daycare/community services center (above and left). A rooftop playground and a five-story atrium provide amenities often missing in other urban buildings.**





# PRAIRIE TECH

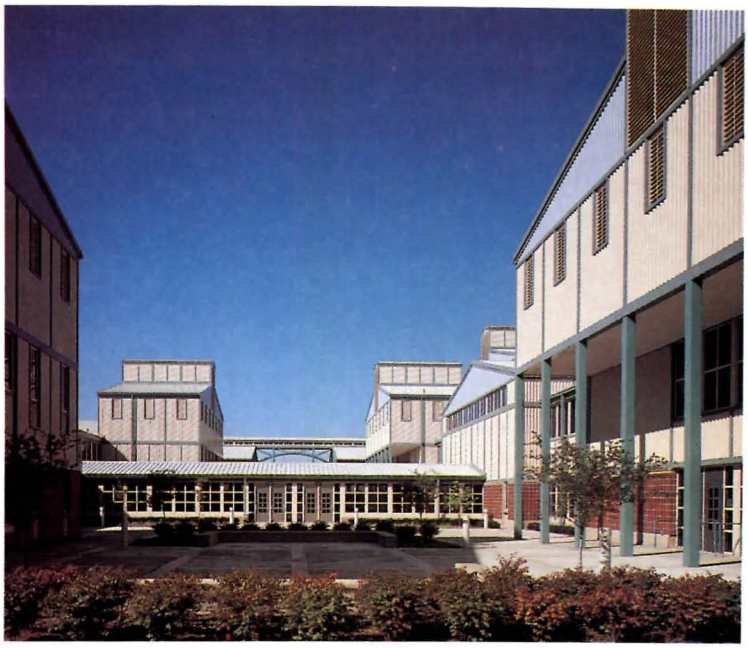
**Warsaw Community High School**
*Warsaw, Indiana*
*Perkins & Will, Architect*

The references to Midwestern farm buildings—such as the grain-elevator roofs and silolike staircases—clearly tie Warsaw High School to its rural landscape. But Perkins & Will's design for this 256,000-square-foot project is more than a simple essay in regional forms. While farm clusters tend to be ad hoc groups of individual structures, Warsaw High School is a deliberately symmetrical campus that somehow marries a formal plan with unpretentious agrarian imagery.

The latest in a 50-year tradition of innovative school designs, Warsaw High School represents a remarkable degree of continuity at Perkins & Will. Ever since it collaborated with Eliel Saarinen in designing the Crow Island School in Winnetka, Illinois, in 1940, the firm has retained its position as one of the most important forces in school architecture. In the past several years partners William Brubaker and Ralph Johnson have infused a new sensitivity to regional architecture into Perkins & Will's work, picking up on the New Mexican Territorial Style at Capital High School in Santa Fe [RECORD, Septem 1988, page 101] and other Southwes themes at Desert View Elementary Sc in Sunland Park, New Mexico [REC September 1988, pages 106-108]. Wit abandoning the firm's roots in Modern Brubaker and Johnson have adapted t designs to fit into local contexts.

Set on the windswept Indiana pra Warsaw High School turns its tallest flattest elevations to its surroundings thought of these surfaces as walls pro ing the school," says Johnson. Wi these "walls" lies a series of more th *dimensionally* defined structures—b ings that extend out to form covered w ways and step down to meet prote courtyards. A great circle of trees eve ally will further enclose the site, brin to mind the native-rock wall that enci the Desert View school.

Entry to the building is through a p ed-metal arch that clearly separates school from its surroundings. Beyond lies the project's main courtyard, a l scaped space that serves as the most



ınt gathering place for students dur- warm months. The two halves of the ol itself fall on either side of the court: rooms and media center to the south gymnasium and cafeteria to the north. nclosed ground-floor gallery connects wo wings and divides the court in two.

**here be light**

teaching staff made it clear it wanted ·al light in all classrooms," recalls / Crabb, the superintendent of the aw community schools. To bring the nto such a large facility, Perkins & supplemented the two halves of the courtyard with a series of rectangu- ght courts inserted in both wings. The tects also used clerestory windows on econd floor to add light to double- d classroom corridors. The most im- ive source of natural light, however, curving media center, whose three s of windows flood the center of the oom wing with sunshine.

jacent to the high school and connect- it by two enclosed walkways is a 60,000-square-foot building that once was the town's freshman high school. At the architects' suggestion, the school district agreed to recycle the building as a vocational center equipped with industrial technology labs (formerly known as "shops") and rooms for teaching business skills such as word processing.

Because the Warsaw authorities wanted the school to accommodate new technologies as they develop, each classroom is wired for computers and video. An electronic resources room in the media center supplies video programs to classrooms at the touch of a button, eliminating portable VCRs individually operated by teachers.

Here in basketball-crazy Indiana, a 5,000-seat gymnasium was considered a necessity. The gym, which can be separated into seven practice courts, serves as an important community facility and therefore has its own entrance off the main court and separate access stairs in silolike structures along its perimeter.

To keep costs down and maintain a certain rural simplicity, the architects em-

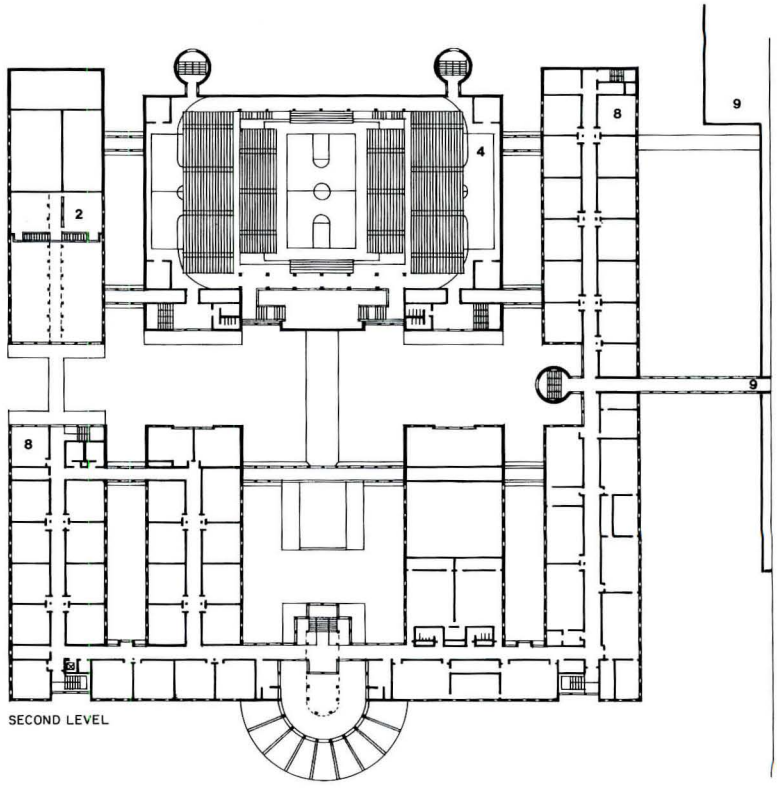
**Conceived as a protected campus set against the expanse of the Indiana prairie, the Warsaw Community High School turns inward, revolving around a central courtyard (top right). Stair towers and vernacular building profiles on the north elevation of the gymnasium wing (bottom opposite) allude to agrarian architecture of the region. The curving form of the media center/library (top opposite) is the school's most assertive exterior feature and helps bring natural light into the interiors.**

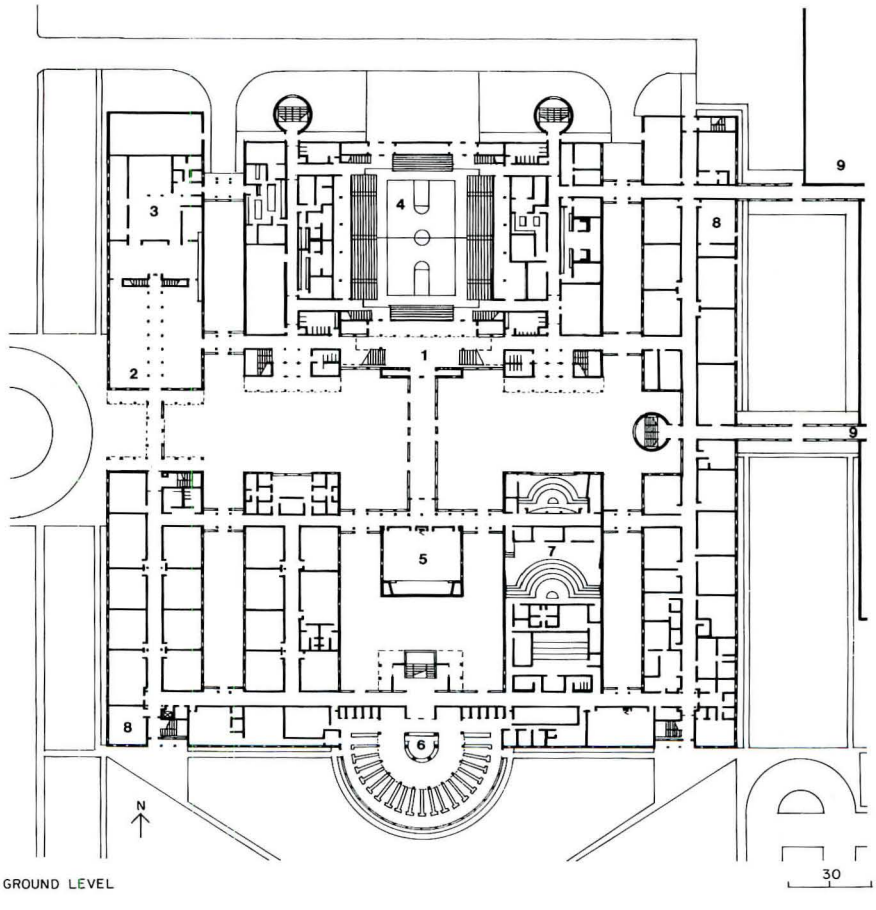
ployed a straightforward structural system: steel frame infilled with masonry on the lower portion of the building and metal panels above. A variable-volume hvac system with fan rooms tucked under standing-seam metal roofs cools the building.

Classrooms are arranged by department (English, math, sciences, and so on) with department offices located nearby. Instead of isolating special-education rooms in their own area (and stamping them with a certain stigma), administrators required that they be integrated with regular classrooms. The client also asked that administrative offices such as those for the principal and assistant principals be located throughout the school, decentralizing the traditional administration block.

While the architects thought of the school as "a walled city" with classrooms around the perimeter and a courtyard in the center, the one element that asserts its presence on the exterior of the complex is the library/media center. "We wanted the library to be the most important feature in the most important building in town," explains Brubaker. **C. A. P.**

*Warsaw Community High School*
*Warsaw, Indiana*
**Owner:** *Warsaw Community School District*
**Architect:** *The Odle, McGuire & Shook Corporation—R. Duane Odle, president; Larry W. Phelps, design principal; Luky N. Ilioaia, project architect*
**Design Architect:** *Perkins & Will—Ralph E. Johnson, design principal; C. William Brubaker, managing principal; James A. Toya, project manager; August Battaglia, project designer*
**Engineers:** *Lynch, Harrison and Brumleve (structural); Fulk and Gardner (mechanical/electrical)*
**Consultants:** *C. William Day (education)*
**General Contractor:** *Construction Control, Incorporated*

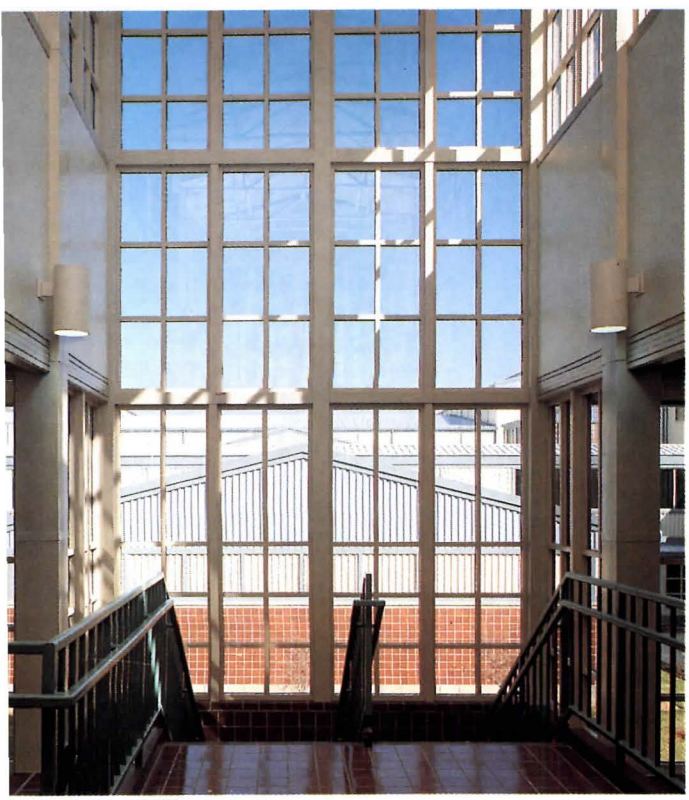



1. Commons
2. Dining
3. Kitchen
4. Gymnasium
5. Auditorium
6. Media center/library
7. Music
8. Classroom
9. Existing building

**Placement of the main staircase (1 and 3, opposite) just north of the media center reinforces the library's central role in the school. The library itself (4, opposite) is a three-story space with media and resource rooms to the east and west. Specifically asked not to design a typical cafeteria, the architects created a two-story dining area with oak trim and a mezzanine (2, opposite).**

2




4

Two-story classroom buildings look onto the main courtyard with the elevator tower and media center anchoring one corner. An angled entry canopy runs past the administration building and into the school grounds (bottom opposite).

© DAN FORER PH

# TROPICAL PROTOTYPE

**Jane S. Roberts Elementary School**
*Dade County, Florida*
*Hervin Romney, Architect*

With its pink and turquoise roofs, its striking elevator tower, and its occasionally shifted grid, the Jane S. Roberts Elementary School seems to be one of a kind. But if the Dade County, Florida, school system follows through with its original plans, the building will be a prototype for schools in the area, a playful kit-of-parts spawning variations on a tropical theme.

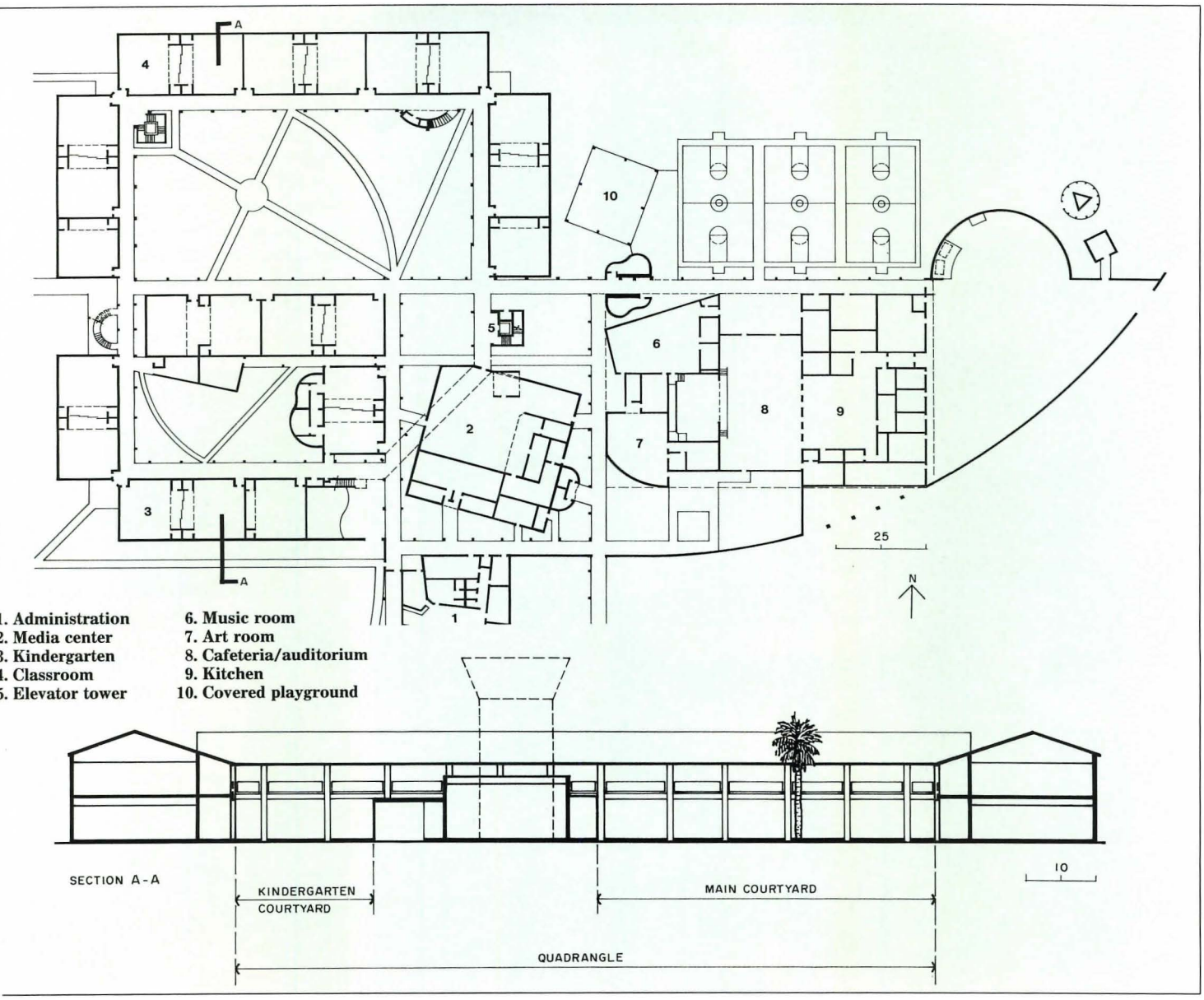
Designed by Hervin Romney, a cofounder of the firm Arquitectonica who set out on his own in 1985, the school combines inexpensive materials and simple construction with a refreshing sense of whimsy. Just as importantly, Romney kept the local climate in mind throughout the design process. As a result, most corridors and stairways are covered but not enclosed, and all classrooms look onto outdoor courtyards.

The plan of the 79,000-square-foot school is composed of four major elements—an administration block, a classroom quadrangle, a service wing, and an outdoor recreation area that fan out around an off-grid media center. ("Three solids and a void," says Romney.) Each element serves as a standard building block that can be adj ed to a particular site, Romney explains

Instead of looking onto parking lots streets, as many schools do, this sc turns inward with grassy courtyards a focus and a blue and yellow elevator to as its visual anchor. This sense of en sure is heightened by a curving concr block wall to the right of the school's entryways. The one-story administra building, which represents the most pu element of the project, is the only bloc sit outside the enclosure of the sc proper. The building houses the princip office, support-staff offices, and a te ers' lounge.

The service wing—which includes a eteria/auditorium, kitchen, music and rooms, and mechanical spaces—has ve ular access at its east end and pedest access on the west, where it approa the media center. Just south of the ca ria, Romney carved out a small court that can be used by students after lunc by parents after PTA meetings.

The media center, which features a




1. Administration
2. Media center
3. Kindergarten
4. Classroom
5. Elevator tower
6. Music room
7. Art room
8. Cafeteria/auditorium
9. Kitchen
10. Covered playground




**As on other projects, Romney carefully combined pastels with primary colors. In this project, he used pink and turquoise as signature colors on roofs, while reserving blue, yellow, and red for accent. A second-story bridge (left and below) slices through the media center and connects classrooms to the elevator tower.**

story space traversed by an upper-level bridge, includes a traditional library, a resource room, and a storytelling pit. Its skewed orientation, in relation to the rest of the project's grid, highlights its special role as both the symbolic and circulatory hub of the school.

While the classroom quadrangle can be thought of as one element, in fact it acts as two—a pair of two-story buildings wrapping around separate courtyards. The smaller of the two buildings houses the kindergarten, while the other serves the upper grades. According to Romney, the courtyards are key elements in his design, bringing light and air to all classrooms and breaking down the 870-pupil school into smaller units with which students can more comfortably identify.

To provide flexibility Romney paired classrooms so they can work as either two spaces or one. A movable blackboard wall hung from a dropped soffit (1 foot 8 inches lower than the 9-foot ceilings) slides on tracks to turn two 34-foot-square classrooms into one large room. The dropped soffit also provides space for hvac units.

Instead of squeezing work areas into each classroom, the architect grouped six to eight of them in faculty rooms scattered throughout the quadrangle. Such an arrangement encourages teachers to work together, says Romney, and provides them with much-needed retreats.

**On the money**

To keep the project within its $7.25-million budget, Romney used inexpensive materials such as corrugated metal, stucco, and concrete block, and simple structural techniques (concrete-block piers for vertical loads and tubular steel beams and precast concrete joists for spanning).

Although limited to rather simple materials, Romney infused them with energy. Angled and chevron roofs of corrugated metal, for example, enliven covered walkways, while curving outdoor stairs add a touch of dynamism to vertical circulation.

Working with these energetic forms is Romney's unusual palette of colors: pink and turquoise for roofs, and primary colors for accent surfaces. The combin of soft pastels with solid primaries s how works to hold the building's l composition together. At the same ti helps the school assert a distinctive ic ty, one that students can easily unders and appreciate. C.

*Jane S. Roberts Elementary School*
*Dade County, Florida*
**OWNER:** *Dade County Public School*
**ARCHITECT:** *Hervin Romney, Archite Hervin Romney, designer; Ani Zabla Nick Ranieri, Jeff Warmington, Mari Chael, design team; Louis Pedraza, G Neville, production; Silvia Lopez, pro manager*
**ENGINEERS:** *Riva Klein Partners (structural); Lagomasino Vital (mechanical/electrical); G. Van Mee (civil)*
**CONSULTANTS:** *Michael G. Asmar De (lighting)*
**LANDSCAPE ARCHITECT:** *O'Leary, Sh Cosio*
**CONTRACTOR:** *TGSV Construction*


**The media center includes a two-story library (above), as well as a resource room and a storytelling pit. The center, which serves as a fulcrum between the school's four quadrants, is placed at an angle to the rest of the project's grid. Romney emphasized the special role of the media center and its off-grid orientation by angling a second-story bridge through the space. In the service wing, Romney designed a cafeteria that doubles as an auditorium (left). Just south of this facility, he carved out a small courtyard that can be used by students after lunch or by parents after PTA meetings.**




# HEARING THE COMMUNITY

**Hope Elementary School**
*Hope, Indiana*
*Taft Architects*

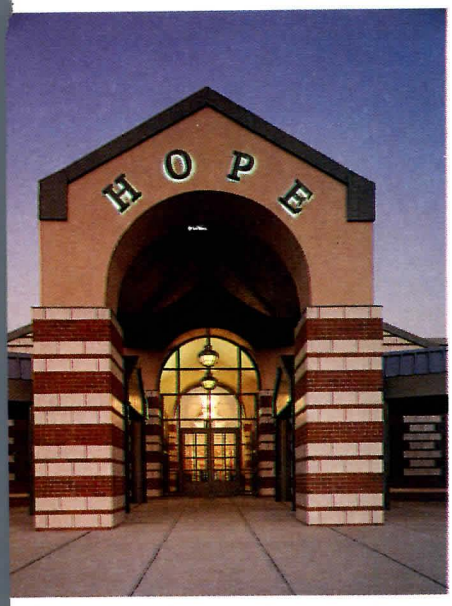
In a small town like Hope (population: 2,200), a new school brings out the concerned citizen in everyone. So when Taft Architects began designing Hope Elementary School, they spent a lot of time listening—to school administrators, teachers, parents, and students.

Administrators wanted a one-story structure that would be economical but at the same time eye-catching, says Glen Keller, the area's superintendent of schools. "Teachers wanted classrooms with lots of windows, lots of chalkboard space, and lots of storage," he adds. And everyone wanted a facility that would serve the community as a whole, a building in which they could all take pride. Finally, no one wanted a flat roof. (The last elementary school had a flat roof and it leaked.)

While most rural towns would probably have turned to a local architect to design a new school, Hope was able to take advantage of the Cummins Engine Foundation's standing offer to pay the architectural fees for public projects in Bartholomew County that use an architect from a list of outstanding firms. After interviewin nationally prominent firms, the s board selected Houston-based Taft, in for the firm's willingness to involv community in the design process.

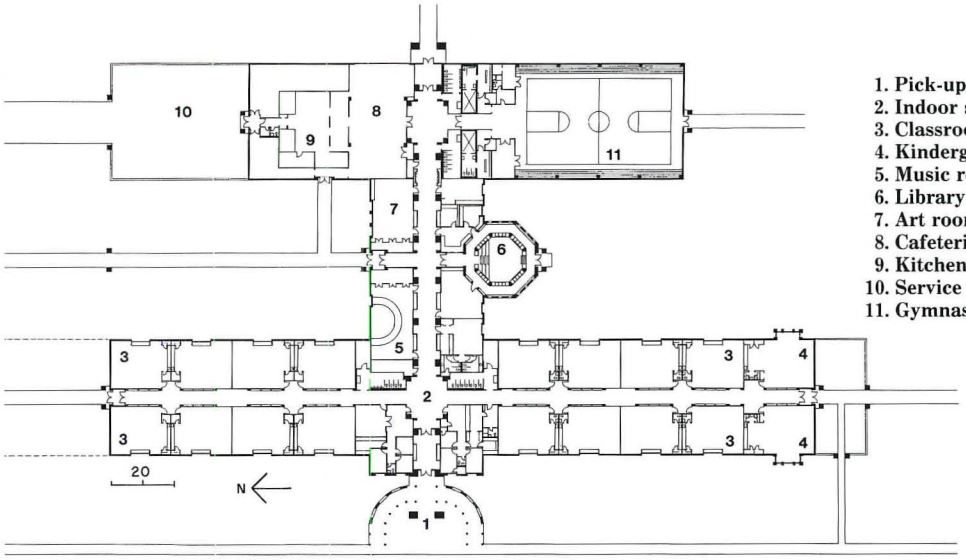
"The idea was to create an educat park, linking the elementary school adjacent high school and playing fi explains John Casbarian, one of the Taft partners involved in the projec ward this end Casbarian and his par Danny Samuels and Robert Timme s imposed a grid of trees and pathwa the existing fields and continued lines in the plan of their school. Onc new trees fill out, they also will help a courtyard between the two schools.

The key element in Taft's design indoor "main street" that serves a 60,000-square-foot school's major p space. Modeled after English arcades corridor features bay windows that like storefronts but actually accomm administrative offices, the art room music room, a math/reading room, a lounge. Two wings—*one for classr*

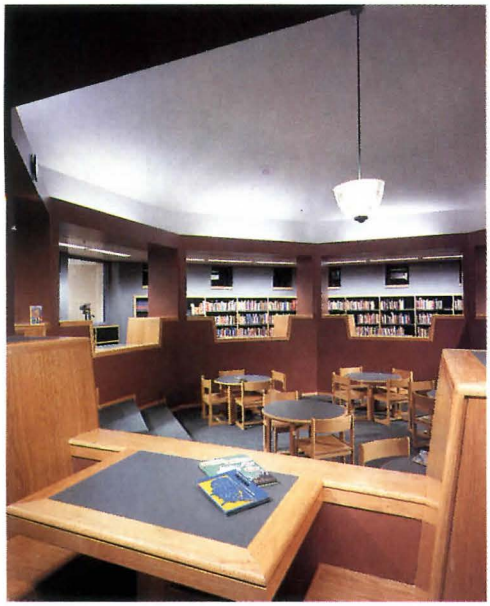


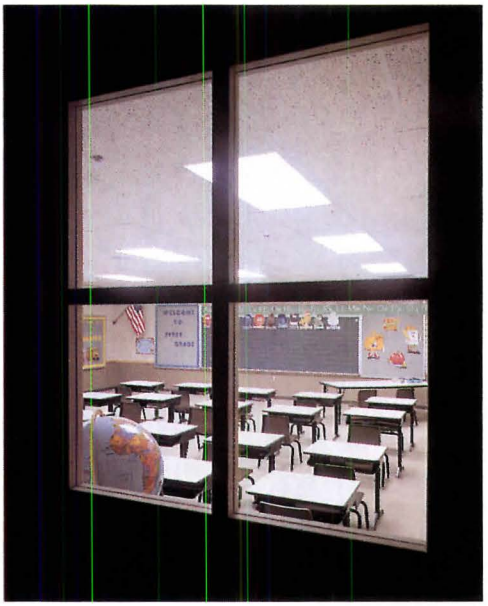

**Restricted to a $4.5-million construction budget ($83/sq ft), Taft Architects used a 60-foot-wide repetitive steel frame and inexpensive materials such as brick and concrete block. The architects tied the new elementary school to an existing high school and playing fields by superimposing a grid of pathways and trees on the property (site plan below). A major design feature is the school's indoor "main street," which is lined with brick-and-concrete arches and pyramid-topped pavilions.**

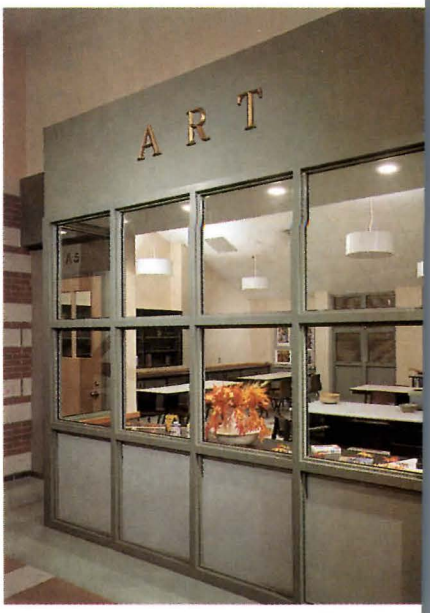
**The school's east-west indoor street intersects two north-south wings—one for classrooms and the other for gymnasium and cafeteria. The octagonal library (below left) sits halfway between the two wings. With bookshelves around the perimeter and most tables half-a-level below, the library makes effective use of its space. The multipaneled walls of facilities such as the art room (below right) and the music room (opposite) were modeled after arcaded English storefronts to provide maximum visibility.**




1. Pick-up/drop-off
2. Indoor street
3. Classroom
4. Kindergarten
5. Music room
6. Library
7. Art room
8. Cafeteria
9. Kitchen
10. Service yard
11. Gymnasium








and the other for shared facilities such as cafeteria, kitchen, and gymnasium—cross the corridor. To break the long indoor street into smaller sections, Taft designed the intersections as pavilions with pyramidal skylights and thick masonry piers.

Reflecting its role as the hub of the 400-student school, the library sits exactly halfway down the main corridor. The octagonal facility works on two levels—book shelves around the perimeter and reading tables six steps down in the middle.

To stay within a $4.5-million construction budget, Taft built the school with a simple steel frame and masonry walls, and set a fixed width of 60 feet. "We used durable, inexpensive materials and made them look rich," says Danny Samuels.

For the main entrance, the architects designed a grand portico with the project's emblematic brick-and-concrete courses. Aligned with the school's major axis, the entrance introduces the project's most important architectural features—the indoor street, the arches framing this street, and the pavilion form. Stretching from the entrance is a pair of metal-roofed canopies that provide a sheltered area for children waiting for their buses.

Throughout the design process, Taft kept a child's perspective in mind. The distinctive banding of brick and concrete, for example, was designed with one eye at a kid's level. Windows in classrooms also start low (2 feet 4 inches above the floor) and reach to 8 feet.

"But we weren't restricted to a child's scale," says Robert Timme. "We didn't want all of the spaces to feel small." Instead, Taft alternated large with small spaces, the ceremonial and institutional with the more intimate and residential.

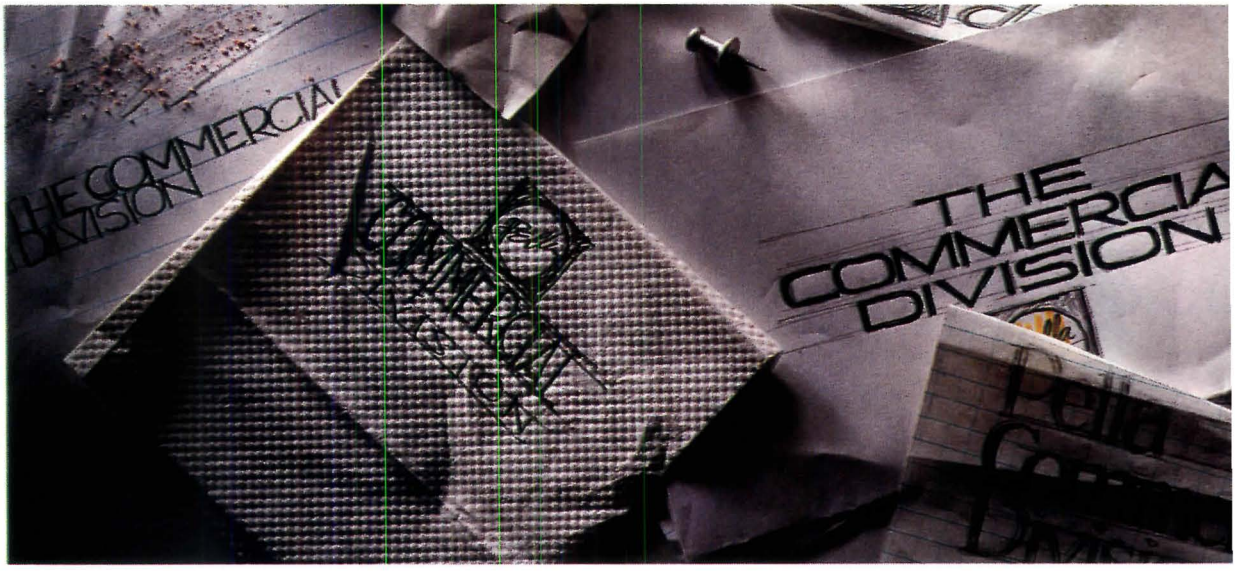
In the classroom wing, the architects broke down the long corridor into clusters of four rooms (two rooms on either side of the hallway), enabling teachers to work together, if they so desire.

"We saw the school as a microcosm of the town as a whole," says Casbarian. As a result, the architects kept in mind that adults, as well as children, would be using the building, and that community, as well as educational, activities would take there. Like a good children's book Hope Elementary School engages pa while at the same time educating chil

C.

*Hope Elementary School*
*Hope, Indiana*
**Owner:** *Flat Rock-Hawcreek School Corporation*
**Architect:** *Taft Architects—John J Casbarian, Danny Samuels, Robert Timme, partners; Larry A. Dailey, senior associate; Robert Bruckner, Hecht, Eric Morris, Mark Volpende support team*
**Associate Architect:** *James Archi & Engineers*
**Engineers:** *James Architects & Engineers (structural, mechanical/ electrical)*
**Consultants:** *Michael J. Underhill (programming)*
**Landscape Architect:** *SWA, Inc. (concept); Dan Cook (associate)*
**General Contractor:** *Repp & Mu*


MUSIC

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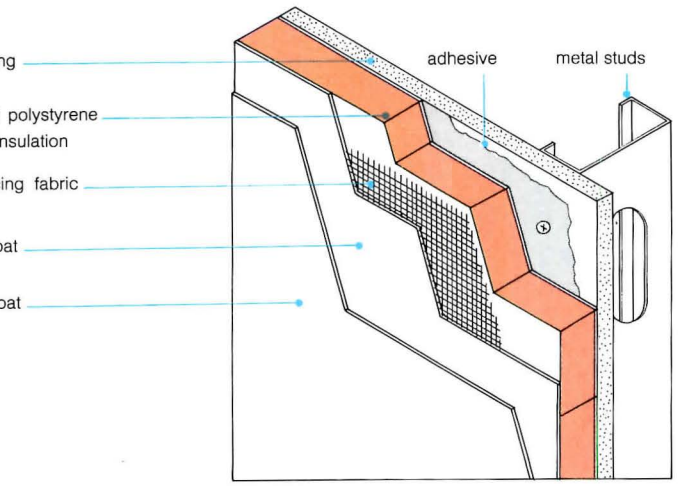
# TECHNOLOGY NEWS

## liant Heat Tests for EIFS




**ufacturers hope that testing will confirm mbustibility of cladding that incorporates foam plastics.**

e who favor exterior insula- and finish systems (EIFS) as ladding of choice for mid- tructures could have to be- hinking about alternative rials. Concerns about com- bility from radiant heat ave forced code-writing in- ions to take a closer look at se of EIF systems as clad- for buildings required by to be constructed of in- ustible materials. A new as been developed that the ndustry hopes will put fire- y issues to rest. One of the concerns of code officials e foam-plastic insulation that is a component of the ns. Though it is treated with fire-retardant chemicals, some analysts claim it will ignite under radiant heat generated from a fire in an adjacent building or other outside source [RECORD, July 1989, pages 124-127].

Overnight changes in the building codes are unlikely. Two of the major code-writing bodies rejected proposed changes, put forward last fall at their annual code development conferences, that would either have restricted use of the material to combustible construction classes or imposed testing requirements. But last June, Building Officials and Code Administrators International (BOCA) approved code changes that categorized EIFS materials as combustible unless testing shows otherwise. Limitations on EIFS use, including height restrictions, were also being considered by the two other code-writing bodies, the ICBO and the SBCCI. The industry's trade association, EIMA, claims the changes are promoted by masonry and concrete interests and could destroy its members.

The key to ending the controversy and to surmounting the new BOCA restrictions lies in definitive testing. "The industry was challenged to produce information," says Frederick Fisher, a fire-protection engineer with the Fire Research Laboratory at the University of California, Berkeley, who was hired by EIMA to develop the tests. "There is no nationally recognized test method that has been designed to evaluate the ignitibility of these materials exposed to radiant heat."

Fisher hopes his tests will mollify code officials, and will be adopted as a standard certifying the systems' incombustibility. The procedure uses radiant testing of full-scale mockups with laboratory verification. He anticipates that lab scale methods will prove sufficient to certify performance. His tests of 28 different systems should be concluded this month; the results will be submitted to model-code bodies, ASTM, and NFPA by year-end.

PETER D. SLATIN

## ucing Refrigerant Emissions

is more progress on the tion of chlorofluorocarbon emissions, which have mplicated in the depletion earth's protective ozone [RECORD, October 1989, 134-135]. Centrifugal chill- nufacturers such as Trane users to consider one of options for conserving its and converting to sys- hat use safer hydrochloro- carbons (HCFCs).

Improved maintenance, the first option, includes leak prevention—some 40 percent of CFC emissions occur through leaks—and leak purging, the removal of noncondensable air from the system.

The second option, converting existing CFC chillers to HCFC use is now a possibility, but it is a complex process that requires an engineered conversion.

The third option is to purchase new equipment. Electric chillers that have been rehabilitated to run on HCFC are said to cost about 70 percent of the cost of new equipment. A new or reworked chiller is called for when a current system has capacity too marginal to permit re-engineering. Equipment is available in several generational modes, so the designer must thoroughly analyze the possibilities before making up his mind. □

## Book Briefs

**Seismic and Wind Loads in Architectural Design,** 2nd Edition, by Stanley W. Crawley and Delbert B. Ward. Washington: American Institute of Architects, 1990, $63.50 ($53.50 for members). Revised to treat substantial changes in the seismic codes since the first edition's publication in 1987. To order: 800/242-4140.

**Performance of Buildings and Serviceability of Materials,** Gerald Davis, Francis T. Ventre, Eds. Philadelphia: ASTM Publications, 1990, $44 ($35.20 for members). Proposes standards for evaluating performance and offers a collection of papers for facilities managers and users. To order: 215/299-5585.

**New Stone Technology: Design and Construction for Exterior Wall Systems,** Barry Donaldson, Ed. Philadelphia: ASTM Publications, 1990, $34 ($27.20 for members). Greater use of thin stone has brought its share of technical complexities. The chapters include coverage of thin veneer stone, panel systems, and glass-fiber reinforced concrete systems. For information, 215/299-5585.

**Robert Maillart and the Art of Reinforced Concrete,** by David P. Billington. New York: The Architectural History Foundation, 1990, $60. Accompanied by handsome photographs and analytical drawings, the text cleanly describes the great bridge builder's search for structural refinement.

**Standard:** *TD-6, Standard Reference Symbols for Construction Documents,* offered by the Construction Specifications Institute, is intended to reduce the proliferation of graphic symbols to as few as 248, organized by the CSI numbering system. For information: 703/684-0300. □

# DETAILING THE DIFFICULT ROOF

## We designed a hard-to-protect structure and asked roofing manufacturers for proposals. Here is how eight responded.

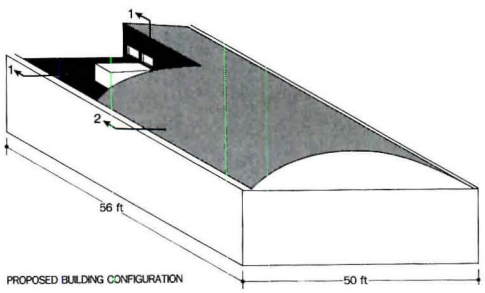
Designing a roof calls for a complex arrangement of several elements. What do you do when standard details don't apply? To tap into the expertise available at roofing companies, RECORD asked 20 manufacturers to come up with solutions for some atypical conditions. We designed a small but complicated structure, and asked each respondent to propose an appropriate product, draw details, and describe the selected system's advantages and disadvantages. In the following pages, we show parts of the eight replies we received.

We turned to two experienced hands to advise us on the design of the roof and look at the submissions. David Zaiser has considerable roofing and reroofing experience. He is an architect at Kehrt, Shatken, Sharon Architects, of Princeton, New Jersey. Carl G. Cash is a principal of Simpson Gumpertz & Heger, in Arlington, Massachusetts, a consulting engineering firm with wide experience in inspecting, testing, and specifying remedial work for roofs.

We had some preconceived notions about our roof. The structure has both a low-sloped barrel vault and a "flat" (1/4-in.-per-ft slope) area (details below). To be able to use the same product and installation on both would be an advantage. Color was also important, since the barrel roof could be seen from a distance.

Runoff from the sloping roof is conveyed to a scuppered gutter, which presented hard-to-detail links from roof to gutter, and gutter to parapet. The roof was described as capable of deflecting 1/2 in. under load. The point at which this surface meets a through-wall scupper required detailing a joint that can move when water accumulates.

Prior to submitting, one manufacturer, Stevens, asked us for more information (we had left some areas vague for the sake of simplicity): the UL Class of the roof, application of Factory Mutual data 1-28 (steel deck) or 1-29 (single-ply roof), the ANSI Ground Roughness Exposure, pressure and humidity considerations within the building, the nature of any chemicals v ed onto the roof, the warranty pe Zaiser called this "an excellent check of design considerations.



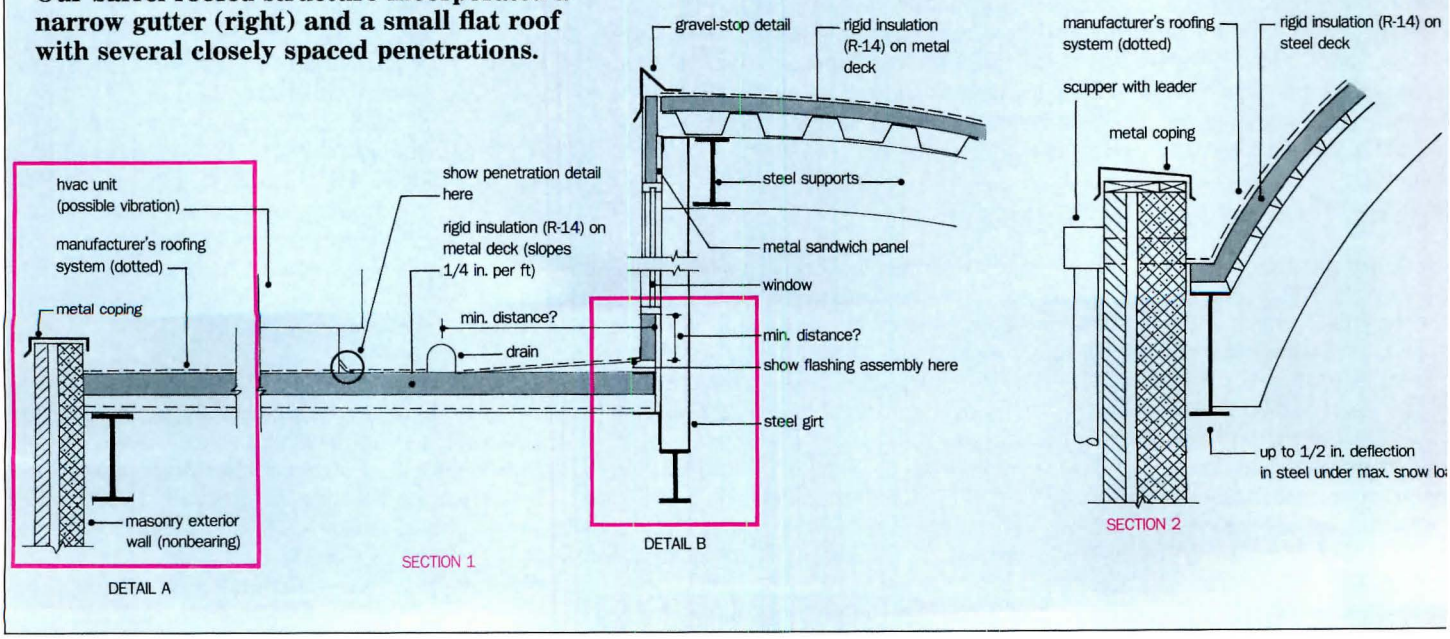

### How they responded

Most of the manufacturers tried to a the designs to their own typical det which, in some cases, called for redes ing the roof-gutter condition. Most res dents submitted CAD-generated drawi These are reproduced (rather than drawn as is our usual practice) so the r er can evaluate their completeness clarity. Some manufacturers gave u combination of computer drawings drafted or sketched drawings (the la *have* been redrawn). We have noted availability of computer details and the plications with which they are compa in the chart opposite.

*Sarnafil.* The company proposes a f adhered, 72-mil polyester-reinforced membrane for the flat roof. On the ba roof, a similar membrane, mechanicall tached, is recommended for ease of in lation. The system is said to be punct resistant and tolerant of ponding wa Seams are hot-air welded. Metal acce ries are PVC-coated for compatibility.

*Stevens.* Stevens offers two syst

**Our barrel-roofed structure incorporated a narrow gutter (right) and a small flat roof with several closely spaced penetrations.**



ed on its single-ply membrane of chlor-
phonated polyethylene (CSPE) synthetic
oer (trade-named Hypalon). Hi-Tuff in-
les the membrane and its related fas-
ers and adhesives; Hi-Tuff Plus in-
es a compatible insulation system and
eners, metal fascia and termination ac-
ories, and a longer warranty. The
te membrane reduces summer heat ab-
otion. The mechanically attached meth-
osts less than fully adhering the mem-
ne to the substrate. Designers may
ge the batten system unattractive. The
ns are hot-air welded, and the mem-
ne is fire resistant.

*nville.* A modified-bitumen SBS system
roposed. (For a review of the differ-
es between the two types of modified-
men systems, see RECORD, February
9, page 128.) Two base plies of fiber-
ss-reinforced asphaltic felts are fas-
ed over nailers on the barrel roof and
oped in with hot asphalt. A cap sheet is
n mopped in. The company offers two
rs of protective granule coatings. The
em on the flat roof is similar, but the
ers are deleted and a different cap
et offers fire-resistive qualities. Com-
ed to a single-ply, the smaller sheets of
modified bitumen are suited to the
's small area and high number of
etrations.

*lisle.* An EPDM synthetic-rubber mem-
ne is recommended, mechanically fas-
ed to the barrel roof and fully adhered
the flat roof. The adhered system is
ferred by Carlisle because it is less
plex to install on the small area of the
roof. The mechanically attached sys-
is less labor-intensive and meets Fac-
Mutual 1-90 wind-uplift requirements
he barrel roof (although the maximum
h of sheets for the FM-approved sys-
is 7 ft). The membrane is offered in
k only. Zaiser noted that a fully ad-
d system would have a cleaner
earance.

*ast.* An advantage of the two-ply SBS
ified-bitumen Paradiene 20/30 system
posed for the flat roof), says Siplast, is
the bottom fiberglass-reinforced ply
oe laid as a temporary waterproof bar-
Once work that might damage the
is completed (such as equipment in-
ation), the top layer is mopped into
e. With a fire-resistant cap sheet, the
meets UL Class A fire-resistance cri-
; FM approvals were pending at press
. The roof may be applied with either
asphalt or cold adhesive. For the bar-
aulted section, Siplast offers a foil-
l two-ply SBS with an "aluminum" ap-
ance, which reduces heat gain. The
sheet is mechanically fastened to the
deck through the insulation. The top
t is torch-applied.

*orp.* The company, which now incor-
es products of Syenergy Methods,
oses a fully adhered EPDM single-ply for both roof conditions. The company sees the system as the most suitable for a small roof (arguing that 10,000 sq ft is generally the economic minimum for mechanically fastened methods). Zaiser agreed with this assessment. The membrane's 300-percent elongation is seen as useful at points of movement and where vibration may be a factor, such as at mechanical units.

*Tamko.* A three-ply SBS modified-bitumen system was chosen. It comprises two plies of fiberglass-reinforced felts installed in hot asphalt covered by a layer of polyes-

| Roofing Manufacturer | | Features generic type | brand name | top layer | color | base layer | installation method | recommended insulation | CAD details | compatible with |
|---|---|---|---|---|---|---|---|---|---|---|
| TAMKO | flat and barrel roof | SBS modified bitumen | Awaplan Premium | Polyester reinforced bituminous | selection | 2 plies asphalt sheet | hot asphalt | 1-in. perlite 2-in. iso-cyanurate | Tam-CADD | AutoCAD |
| SIPLAST | flat roof | SBS modified bitumen | Paradiene 20/30 FR | Paradiene 30 FR | selection | 1-ply Paradiene 20 | hot asphalt | 1.8-in. iso-cyanurate | yes | AutoCAD |
| | barrel roof | SBS modified bitumen | Veral/Irex | fiberlass reinforced bituminous | aluminum foil clad | fiberlass reinforced bituminous | torch applied | 2-in. iso-cyanurate | | |
| MANVILLE | flat roof | SBS modified bitumen | Spec #3GID | DynaKap FR | selection | 2 ply GlasPly | hot asphalt | 1.3-in. phenolic .75-in perlite | no | |
| | barrel roof | SBS modified bitumen | Spec #3GID | DynaKap | | 2 ply GlasPly | hot asphalt | 1.3-in. phenolic .75-in perlite | | |
| ERACORP | flat and barrel roof | EPDM | Syenergy | 60 -mil sheet | black | na | fully adhered | 2-in. iso-cyanurate | yes | AutoCAD |
| CARLISLE | flat roof | EPDM | Sure-Seal | 45-mil EPDM | black | na | mechanically attached | 2-in. iso-cyanurate | yes | AutoCAD |
| | barrel roof | EPDM | Sure-Seal | 60-mil EPDM | black | na | fully adhered | 2-in. iso-cyanurate | | |
| STEVENS | flat and barrel roof | CSPE (Hypalon) | Hi-Tuff Plus | single ply | white | na | mechanically attached | 2-in. iso-cyanurate | CADalog | AutoCAD Intergraph |
| SARNAFIL | flat roof | polyester reinforced PVC | G410L | single ply | selection | na | fully adhered | 2-in. iso-cyanurate | yes | AutoCAD |
| | barrel roof | polyester reinforced PVC | S327 | single ply | selection | na | mechanically attached | 2-in. iso-cyanurate | | |
| COOLEY | flat and barrel roof | CPE/PVC/ Elvaloy | C3 | 40-mil sheet | 3 colors | na | mechanically attached | | | |

**The chart summarizes the characteristics of the roofs proposed by manufacturers for this project.**

ter-reinforced modified-asphalt roll roofing (the latter is applied with hot asphalt or by torch). The company claims that the system combines the redundancy of multiple plies (an advantage of built-up roofs) with the strength and elasticity of single-ply membranes. The cap sheet's granular surface is offered in several colors.

*Cooley.* The company's latest product, called C3, is a "tri-polymer alloy" of CPE, PVC, and Elvaloy, a DuPont material. It is a mechanically attached single-ply system, although it is shown fully adhered in some details. Splices are hot-air welded. Three colors are available.

## Recommendations

With the caveats noted, our consultants felt that all the systems offered straightforward, workable standard details. The lesson is that the roof should be designed to *avoid* hard-to-detail conditions. The responses show, Zaiser commented, that "no single manufacturer has all the answers." Some other factors that might influence a system decision:

*Fire resistance.* If a timed (say, UL-tested 1-hour) resistivity had been required, the number of insulation and roof membrane combinations that would comply is limited.

*Vapor barrier.* Insulation types and configurations are affected by provision of a vapor barrier. Several manufacturers noted that the National Roofing Contractors Association recommends that a vapor retarder be considered when the outside average January temperature is below 40 F and the expected interior winter relative humidity is 45 percent or more.

*Cost.* We didn't ask for costs, since there were too many variables to be useful. For example, the relatively small sheets of modified-bitumen systems have an advantage for the small, complex roof of our structure. On a large, unencumbered roof, elastomeric sheets that come in long, wide rolls may be less expensive.

*Maintenance:* Most systems offer a walkpad product to reduce damage from maintenance activities.

*Insulation:* Because insulation is now commonly placed on top of the roof deck, it can be critical to long-term membrane performance. Insulation must be properly supported by the deck and fastened to avoid blow-off, and it can't chemically react with any of the components of the membrane. Thus, specifying (or accepting) insulation not specifically approved by the membrane manufacturer is risky.

A final caution: Zaiser noted that manufacturers sometimes indicated insufficient edge-accessory fastening—a detail frequently overlooked by designers as well. Gravel stops and fascias must be attached, usually with wood nailers, "to structural elements—masonry, walls, metal roof deck." Sometimes the roof-deck edge is inadvertantly left loose because the corrugation doesn't fall on its support.

JAMES S. RUSSELL

# SECTION 1/Detail A

## Detail for a flat roof where it meets a parapet

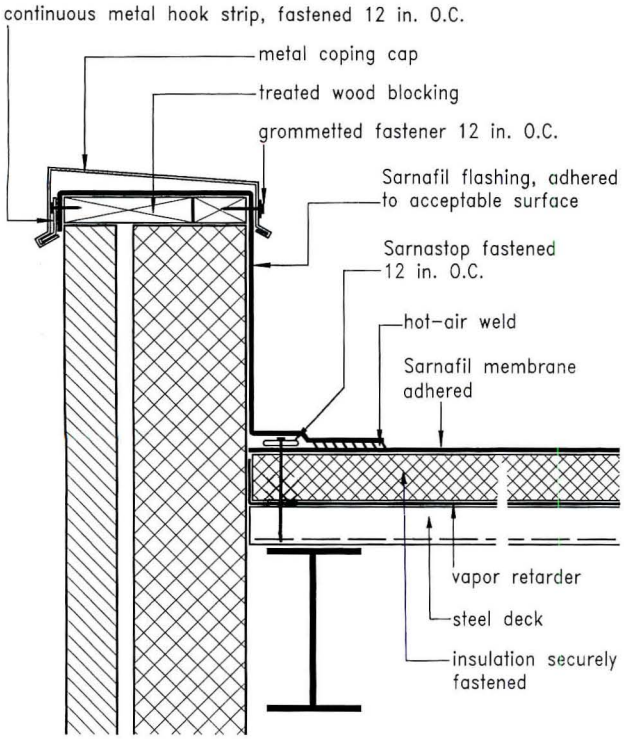
Detailing a parapet can be difficult because the roofing material meets flashing and coping, which may or may not be supplied by the manufacturer. In the case shown, the roof-wall joint may move because the roof is separately supported.

*1. Sarnafil.* The flashing is run up and over the parapet under the coping, which will shed any water that leaks through.

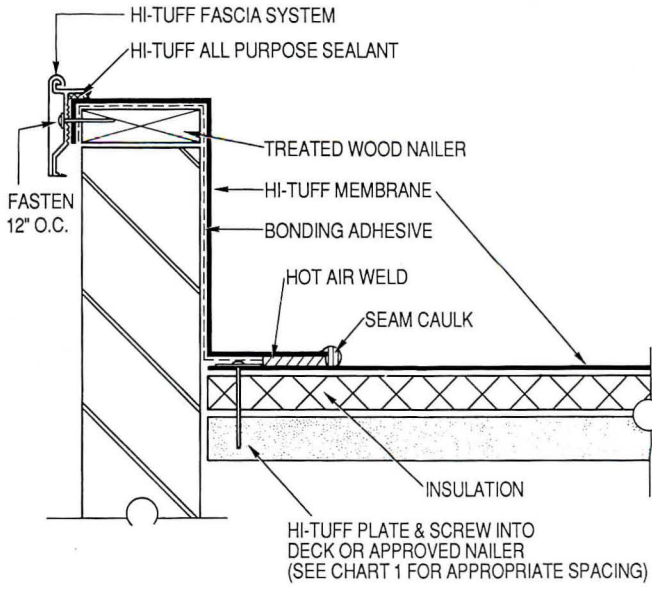
Carl Cash considered Sarnafil's de dence on the membrane's flexibility to up roof-to-wall movement (similar to lisle and Cooley) to be "unrealistic."

*2. Stevens.* The company supplied de with and without an expansion joint latter is shown). The exposed outer co of the membrane in this detail is subje puncture.

### 1. Sarnafil

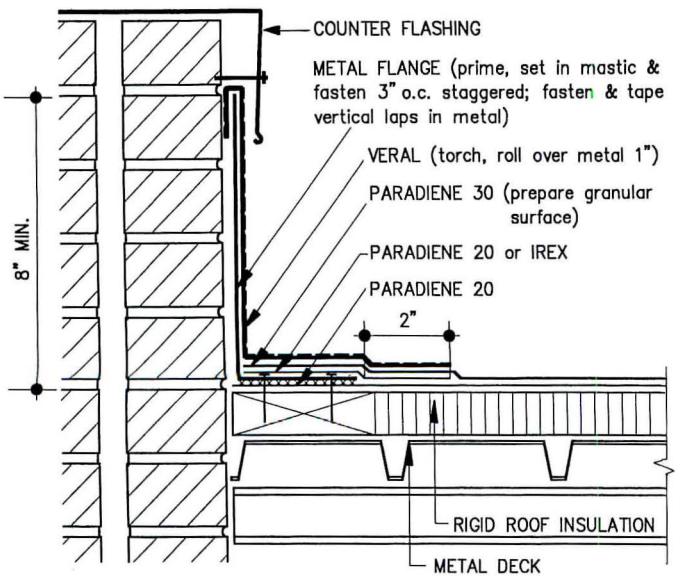



### 2. Stevens

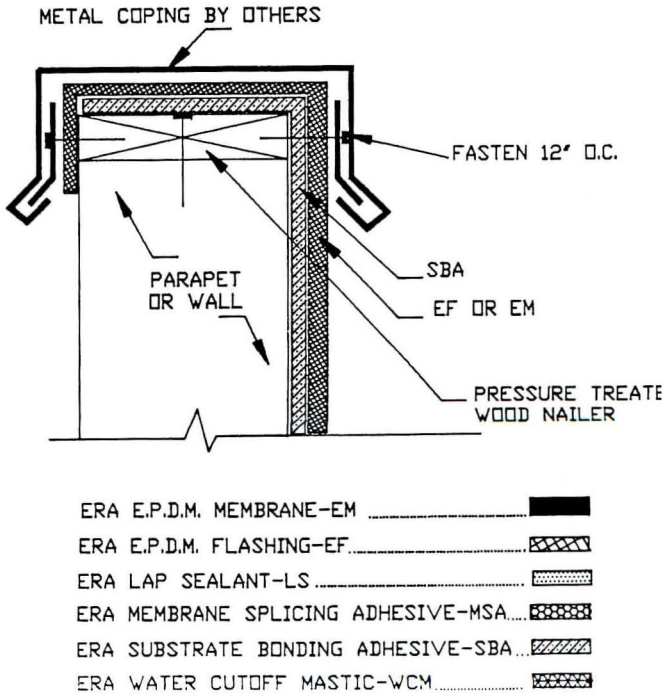



NOTES:
- Fascia fasteners-stainless steel screws provided with fascia system.
- If 6" or 8" fascia is used and bottom row of fasteners align with other than naile a suitable and approved fastener must be used.
- Nailer size-2x minimum.
- Not a suitable detail when top of wall drains to exterior of building or new meta will cause ponding.

### 5. Siplast




### 6. Eracorp



*anville.* The detail is the same as the proposed for the gutter at the barrel Zaiser comments: "The only proposal showed that the blocking at the ma- wall must be of the countersunk an- bolt variety."

*arlisle.* The roof-to-wall joint shown d depend on the membrane's high gation, but the company also supplies expansion-joint details. A variety of termination details (not shown) could be used at the coping.

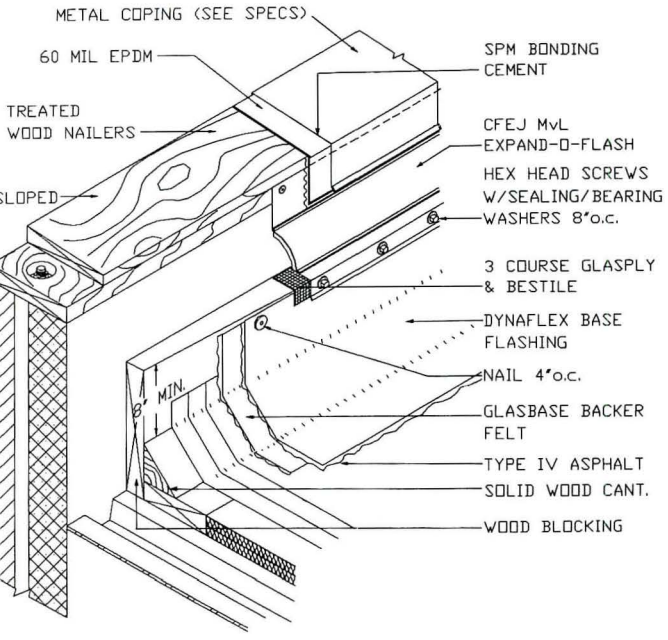
*5. Siplast.* A flashing strip is wrapped around a metal flange, which can move independently of the wall under a metal coping. The Veral sheet is shown here without a cant strip, normally used.

*6. Eracorp.* The detail shows EPDM flashing wrapped completely over the parapet under a coping.

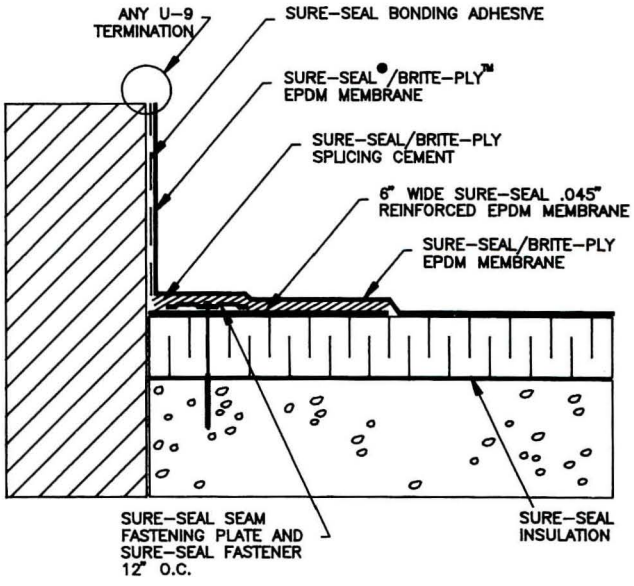
*7. Tamko.* The company drew a full expansion joint with a metal counterflashing over the turned-up roof edge.

*8. Cooley.* Cash comments: "Neither the type and thickness of insulation nor the distance between fasteners is specified, which is critical for wind resistance."

## Ianville



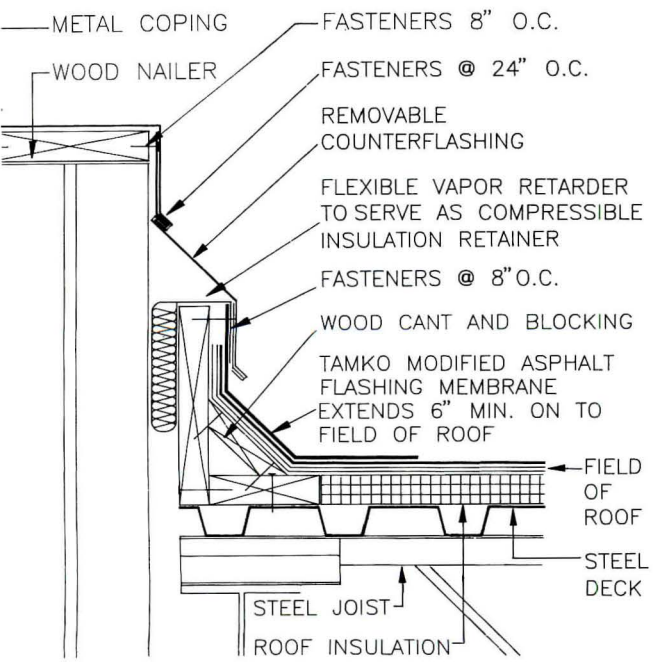

## 4. Carlisle



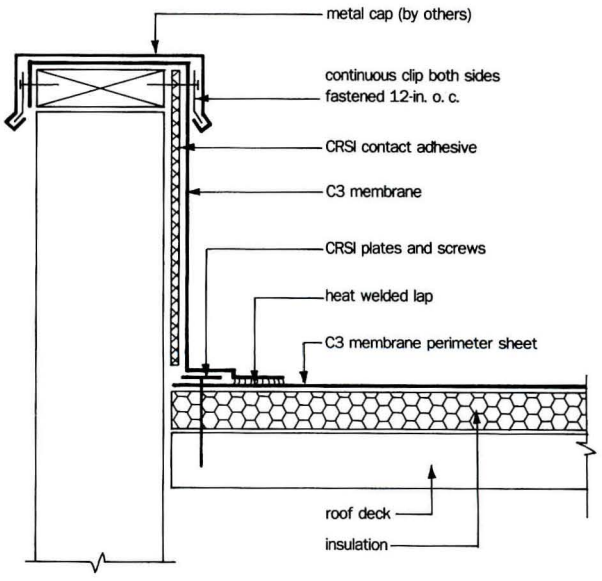

NOTES:

1. FOR CORNER APPLICATION, SEE DETAIL U-15-D
2. 6 INCH WIDE UNCURED ELASTOFORM FLASHING MUST BE CENTERED OVER FIELD SPLICE

## amko




## 8. Cooley




Notes:
1. face fastening requires nominal 2 by nailer thickness
2. nails must embed in nailers 1 1/2 in. min.

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# SECTION 2

## Detail of a gutter at the base of a sloping roof.

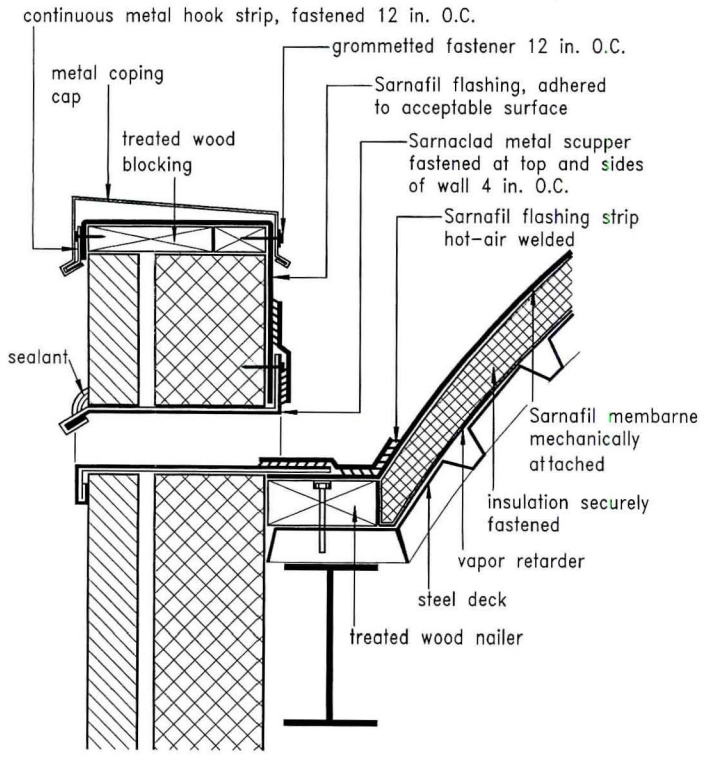
An internal gutter doesn't leave much room for flashing and requires maintenance. Some of the manufacturers suggested changes they felt were necessary to make our detail work.

*1. Sarnafil.* The flashing can be hot-air welded to the PVC-coated metal scupper. Zaiser would prefer coping fasteners that "don't make water-entry holes."

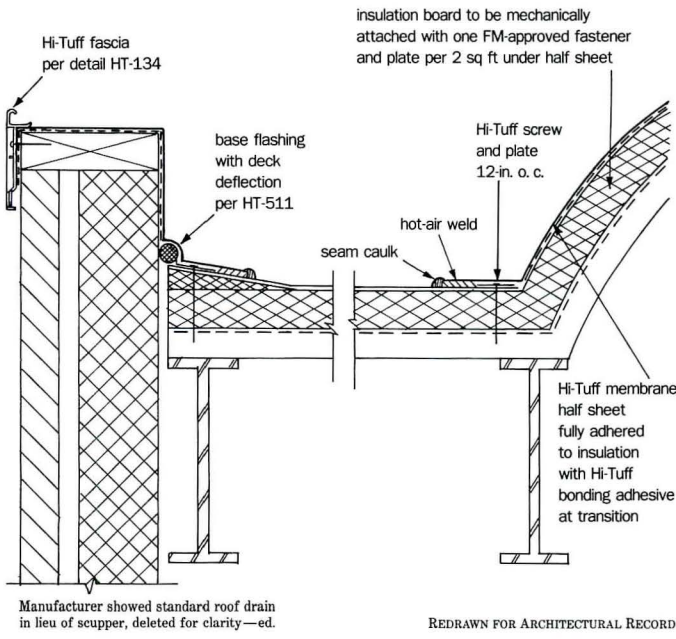
*2. Stevens.* The company proposed that t gutter be widened to at least 3 ft (echo by Carlisle, Eracorp, and Tamko) and t scupper replaced with a drain (not show The termination bar (a detail used by s eral manufacturers) shows "a misplac reliance on a horizontal sealant bead water tightness," says Cash.

*3. Manville.* Interior drains are reco

### 1. Sarnafil




### 2. Stevens




Manufacturer showed standard roof drain in lieu of scupper, deleted for clarity—ed.

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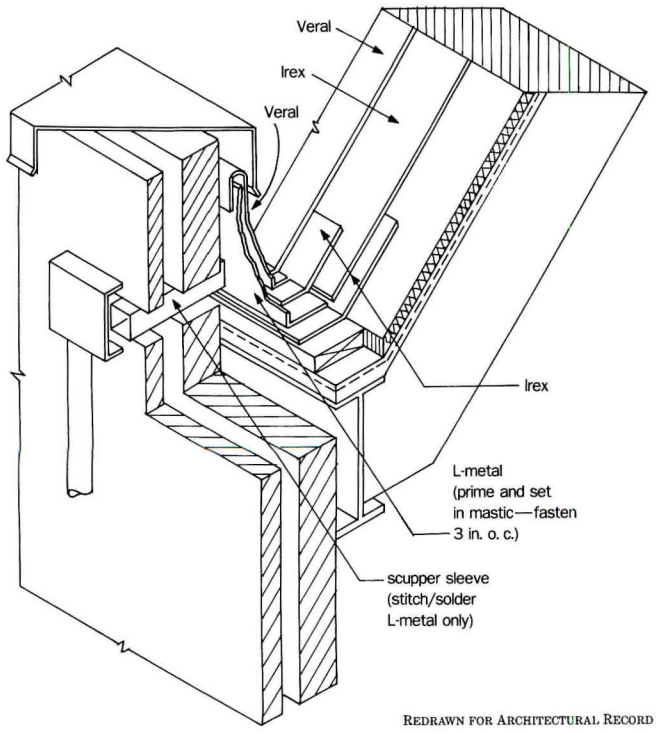
### 5. Siplast

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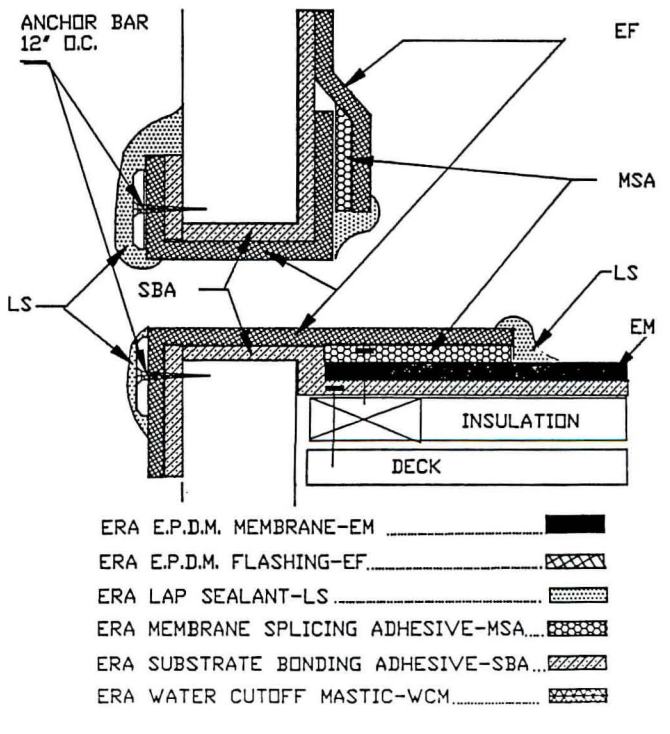
### 6. Eracorp



nded. A flexible bellows on the drain uld allow movement relative to fixed ing.

*Carlisle.* In the detail shown (one of two vided), an expansion joint takes up vement between wall and gutter. To mit drainage by a scupper across an ex- sion joint is "wrong," in Cash's view.

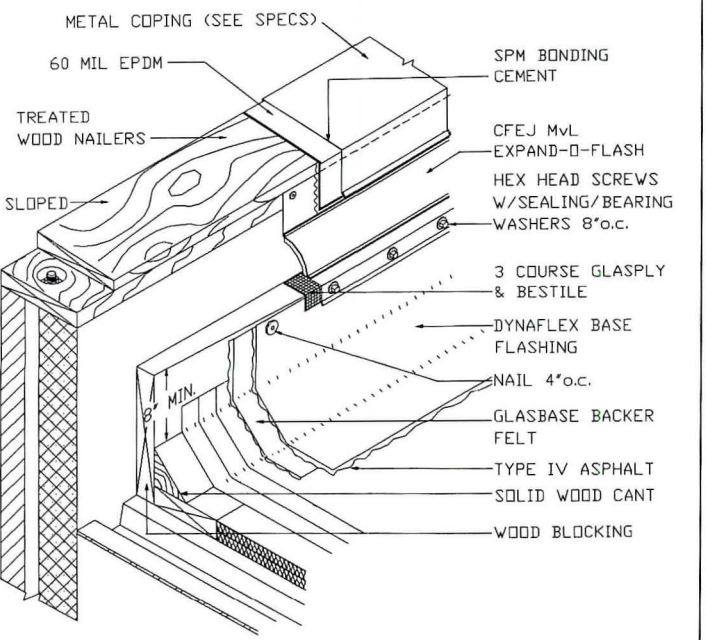
*Siplast.* A metal scupper assembly is fastened to the blocking supporting the gutter, which allows it to move independently of the wall. Zaiser noted that a moving joint at the scupper-downspout interface would be needed.

*6. Eracorp.* The company recommended drains rather than scuppers, but did provide a scupper detail of EPDM flashing. A conductor and downspout are not shown.

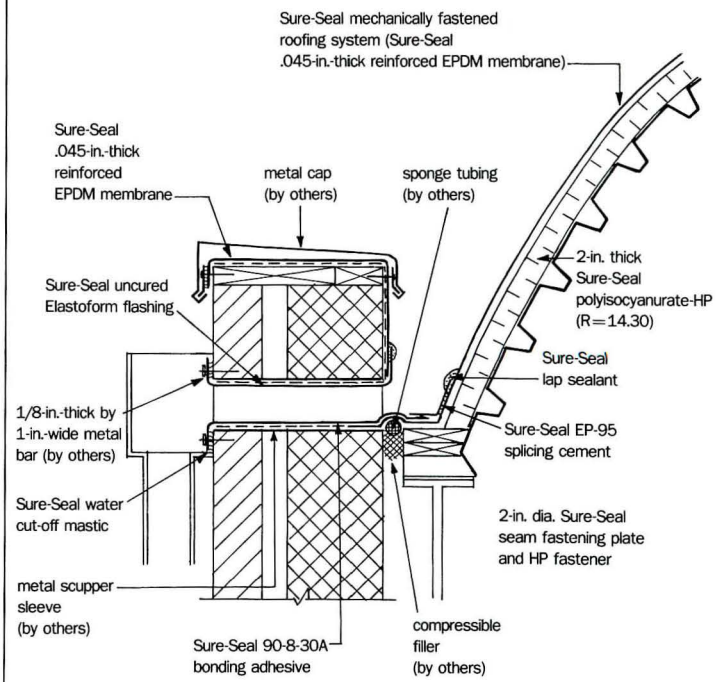
*7. Tamko.* To separate the gutter from the roof, the company shows an insulated, metal-counterflashed expansion joint. The scupper was deleted in favor of a drain.

*8. Cooley.* A membrane flashing sheet is extended up the parapet, where deflection is accommodated by a counterflashing. A seam at the bottom of the valley "is asking for trouble," warns Zaiser.

## Manville




## 4. Carlisle

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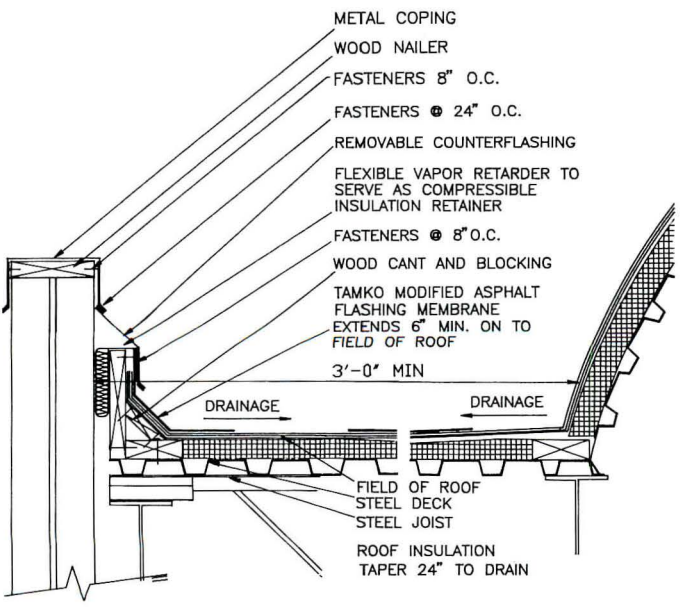
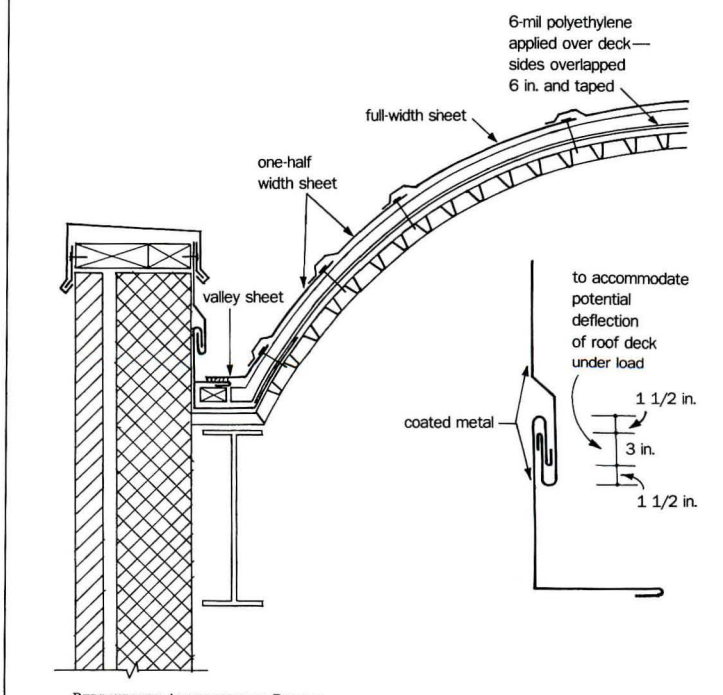
## Tamko




Manufacturer showed standard roof drain in lieu of scupper, deleted for clarity—ed.

## 8. Cooley

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# SECTION 1/Detail B

A flat roof with penetrations meets a wall with a low-set opening.

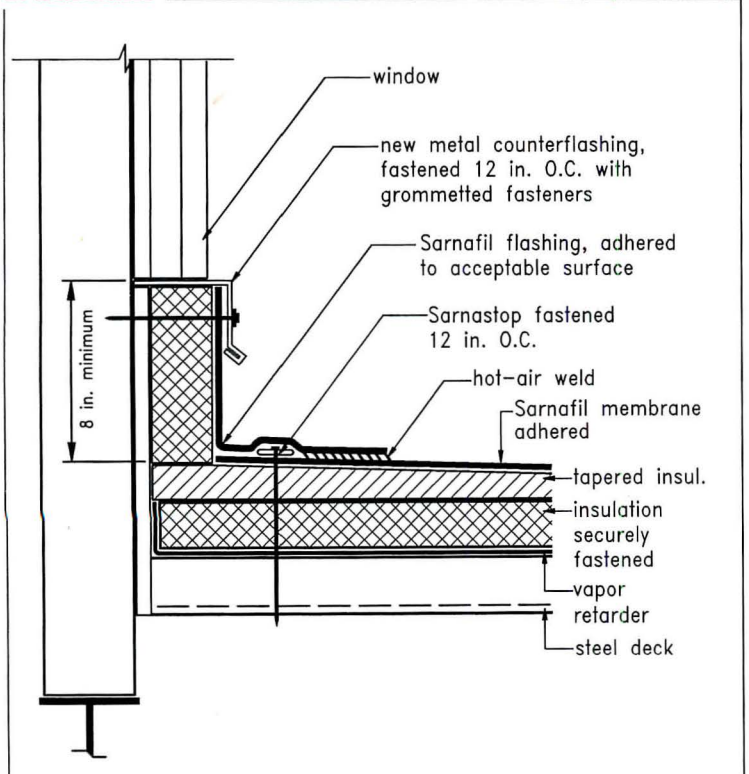
A roof-to-wall detail is fairly straightforward except near penetrations. We asked how close to the wall a drain could be located, and how low a penetration (such as a window) could be placed.

*1. Sarnafil.* The company used exposed fasteners to attach fully adhered flashing to the wall through a counterflashing. Sarnafil says there is no minimum horizontal distance from a wall to a drain.

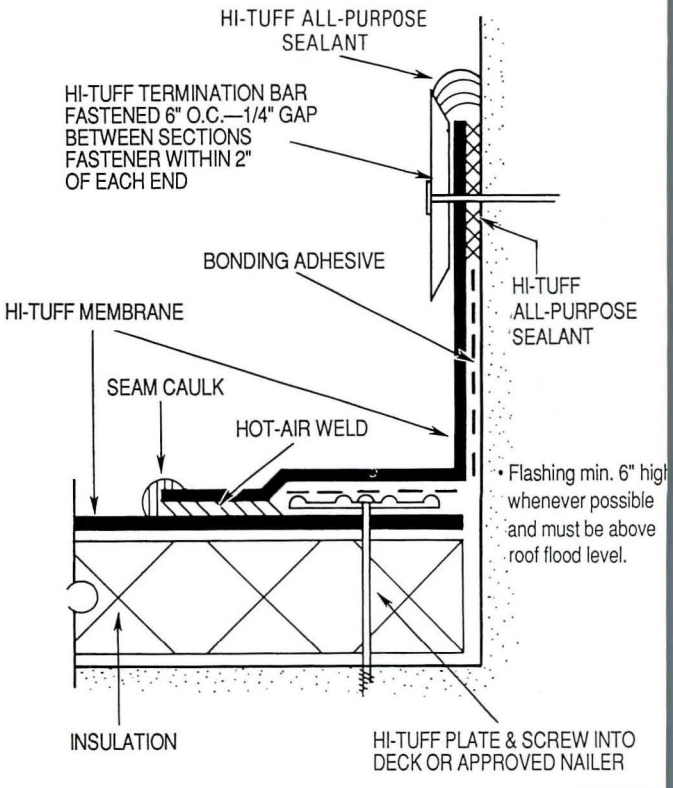
*2. Stevens.* The membrane flashing welded to the roof sheet and adhere the wall. Flashing height is indicate minimum 6 in., and drains should be pl at least 1.5 ft from the wall.

*3. Manville.* Through-wall flashing u a counterflashing is recommended at window opening. To fasten the roof e

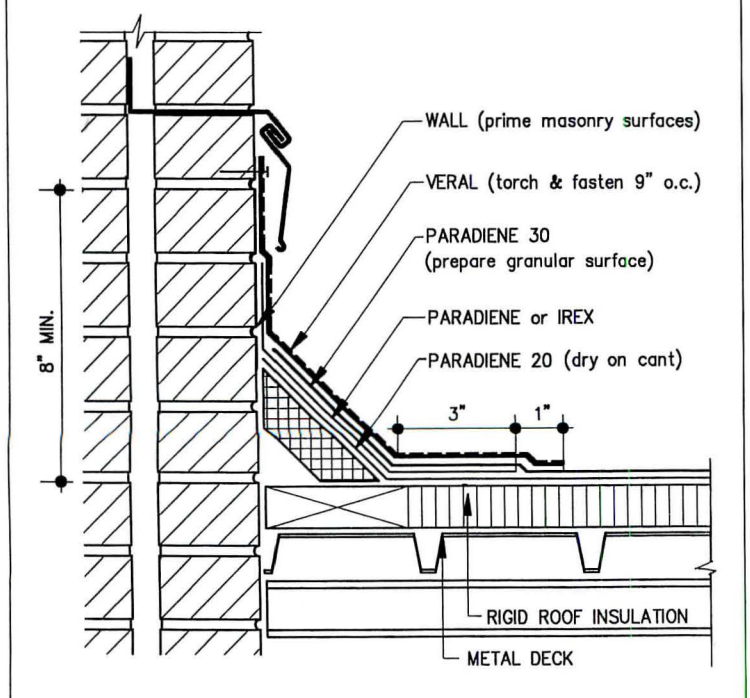
## 1. Sarnafil



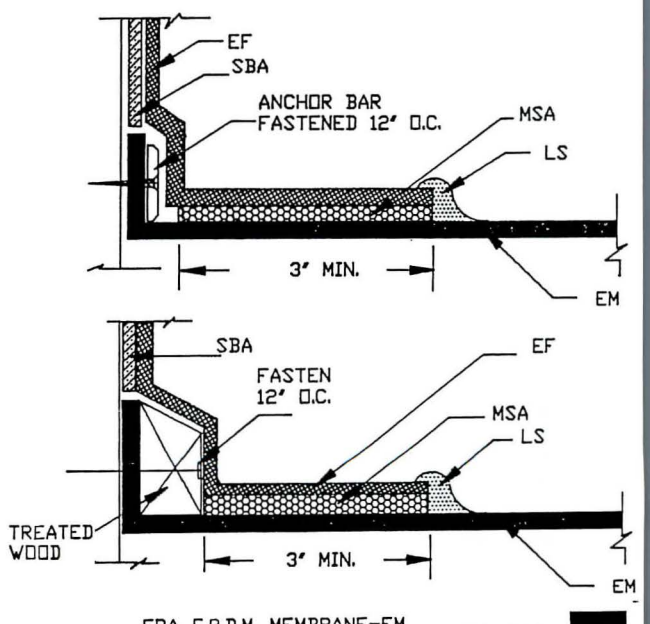

## 2. Stevens




## 5. Siplast




## 6. Eracorp



od nailer is either mounted as a sill to vindow or recessed into the wall.

*arlisle.* The detail shown indicates fas- ng insulation at intersections. The com- provided a roof-wall detail in which a strip of flashing is fastened *under* the brane, which is itself carried up the as the flashing.

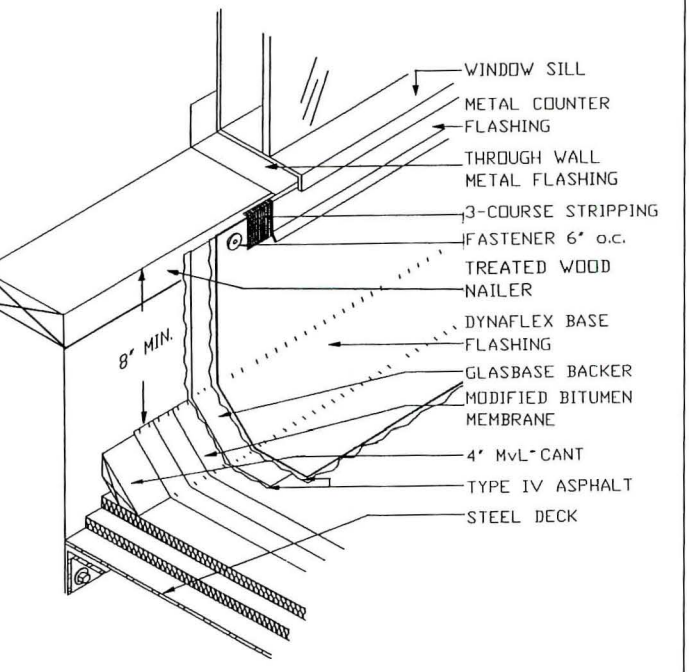
*plast.* The Veral cap sheet is fastened to the wall under two-piece counter-flashing.

*6. Eracorp.* The roof membrane is attached to the wall through an anchor bar or blocking. Flashing must be carried vertically at least 8 in. and "monitored" drains can be placed as close as 12 in. from the wall.

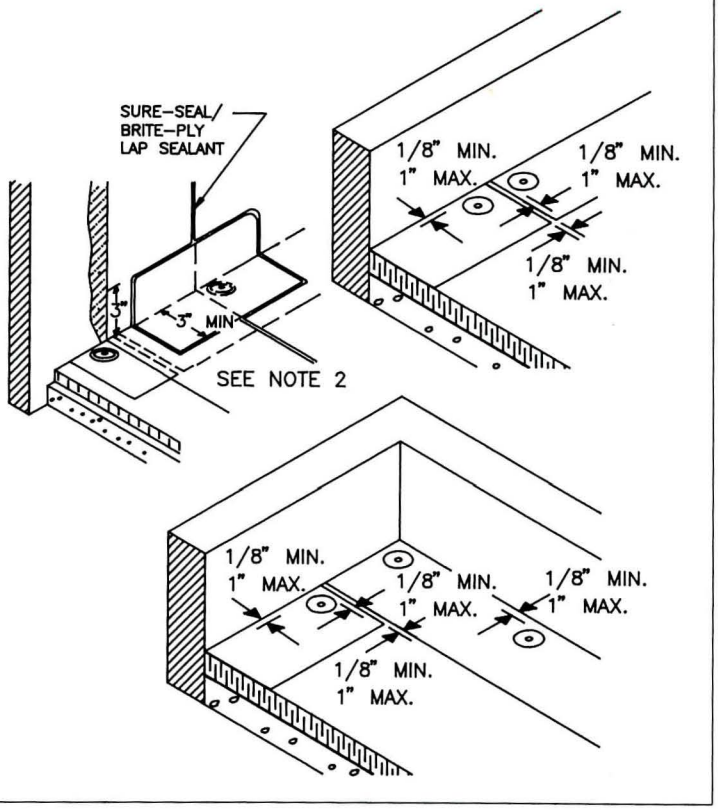
*7. Tamko.* The company shows the roof turned up at the wall and covered with two-ply flashing. Two-part metal counter-flashing, fixed under the window, offers additional protection.

*8. Cooley.* The metal sandwich panel was interpreted as corrugated siding in the detail, which is used as counterflashing over the adhered membrane. The siding would have to be removed for reroofing.

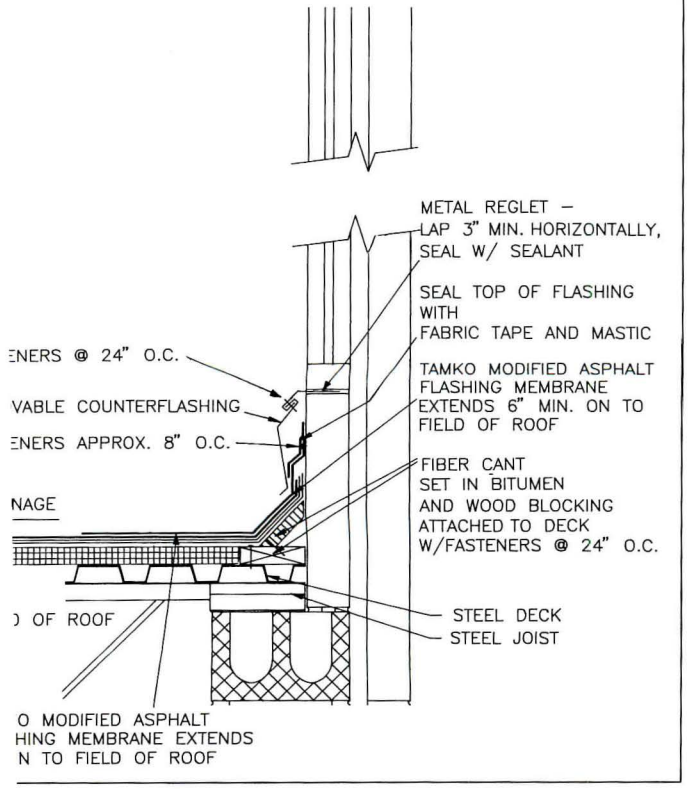
## lanville



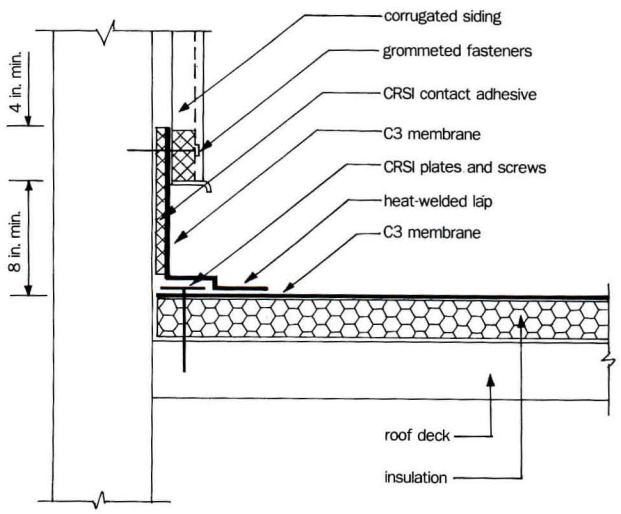

## 4. Carlisle




## amko




## 8. Cooley

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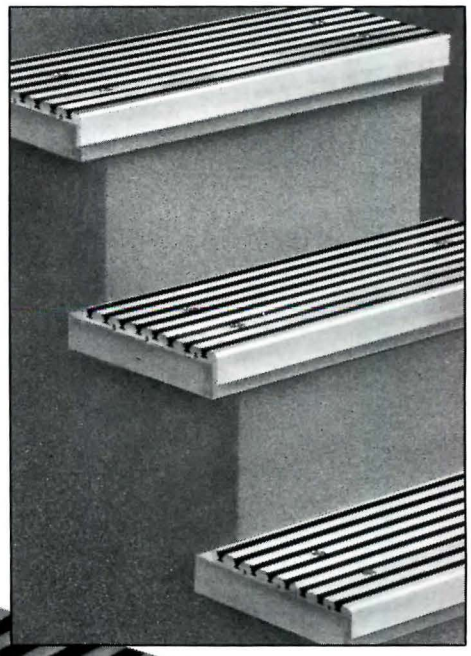

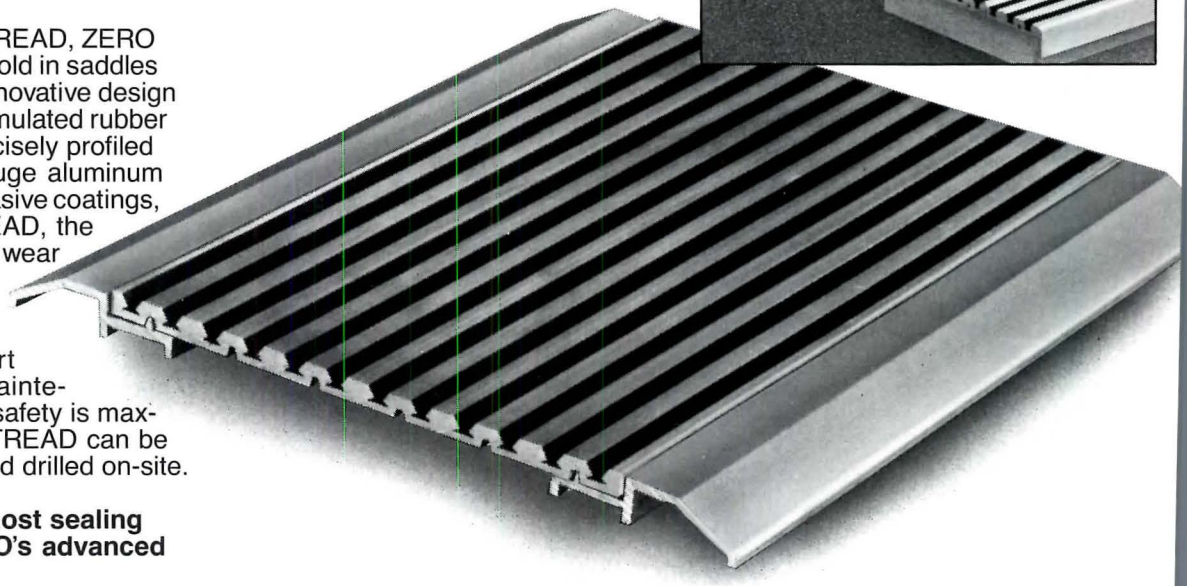

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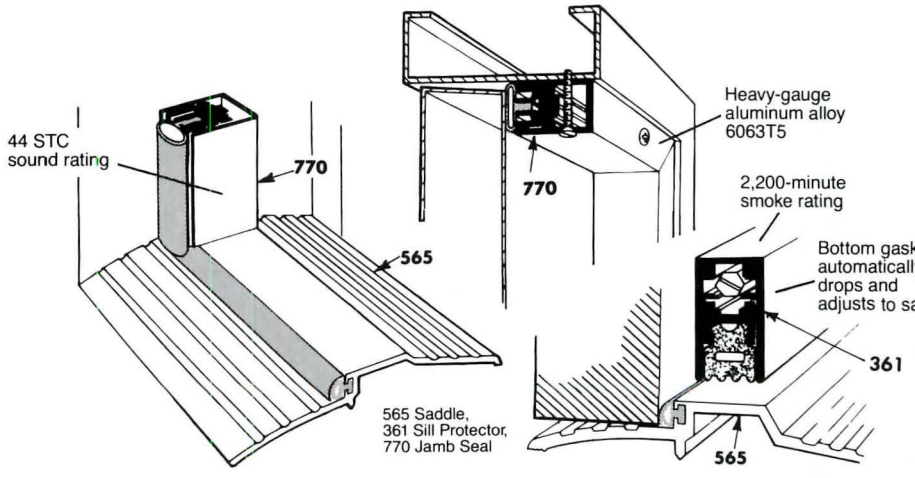


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5. office
6. residential

At LIGHTFAIR, you explore each subject in-depth. You progress through a logical sequence of information on these 6 subjects. At each course, you learn a different aspect of an application plus have your specific questions answered. You'll leave each course with an action plan for success.

*Don't miss the excitement of light at Chicago LIGHTFAIR.*

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# SPECIAL LIGHTFAIR EVENTS

Participate in 8 prestigious industry-related events taking place in conjunction with LIGHTFAIR.

**1. Product Showcase, Wednesday, March 6, 1991, 8:30-10 am** This is the ONE session that everyone demands — a look at outstanding products that have been introduced in the last year. Attending this overview, helps you better plan your time on the exhibit floor so you don't miss those products that could make a difference to you and your clients. A distinguished review committee has evaluated the submittals and new products will be announced in the following categories:

- Outdoor
- Commercial/Fluorescent
- Recessed Downlights
- Decorative Fixtures
- Industrial/Commercial
- Lamps/Ballasts
- Controls
- Custom Applications
- Lighting Design Software
- Other

Arrive early for this "standing room only" session. Cost: $25. At the Expocenter Exhibit Hall. See registration form on page 15 for details.

**2. National Association of Electrical Distributors Commercial/Industrial Lighting Conference, March 2 - 5, 1991** NAED holds its conference immediately preceding LIGHTFAIR. The event takes place in the Holiday Inn Mart Plaza. More than 250 electrical distributors, lighting manufacturers and their representatives attend this important technical event. For more information, call NAED direct at (203) 834-1908.

**3. Prestigious Keynote Address, Tuesday, March 5, 1991, 8:30 - 10 am** The Environmental Protection Agency's Robert Kwartin and Jerry Lawson will present the EPA's newest program, which directly will benefit your bottom line, "Green Lights: Environmental Protection at a Profit." Free to all registrants. See page 4 for details.

**4. Free Opening Night Reception, Tuesday, March 5, 1991, 5-7 pm** The Chicago Merchandise Mart and *Architectural Record/ RECORD LIGHTING* magazine are co-sponsoring a complimentary opening reception in the Expocenter Exhibit Hall. Network with peers and enjoy cocktails while previewing innovative new products displayed by leading lighting manufacturers.

**5. The Remodeling & Redecorating Professionals' Conference, March 5-6, 1991** This exciting FREE conference zeros in on the hottest area of interior design today: residential remodeling and decorating. See page 10 for complete details.

**6. CEU Course: "Lighting for Residential Environments," Wednesday, March 6, 1991, 10 am - 6 pm** This core level course will help you develop an understanding of the impact lighting can have on residential environments. The course is accredited by ASID for .6 CEU credits. Cost: $100. See page 8 for details.

**7. Annual IALD Awards Dinner, Wednesday, March 6, 1991, 7:30 - 9:30 pm** The International Association of Lighting Designers (IALD) will present its annual lighting design awards at a gala celebration in the Art Institute of Chicago's Stock Exchange Trading Room. The special evening includes a cocktail reception, awards banquet and a spectacular laser light show. The event is being co-sponsored by *Architectural Lighting* magazine. Tickets are $85/person and may be purchased today by marking the appropriate box on the registration form on page 15. The banquet is expected to be a sellout and seating is limited.

**8. Chicago Illumination Design Awards Luncheon, Thursday, March 7, 1991, 11:30 am - 1:30 pm** The Chicago Section of the IES presents its annual awards luncheon to publicly recognize professionalism and originality in the lighting design field. See the Gallery exhibition of award winners' projects on display in The Chicago Merchandise Mart. Cost: $25 For more information or to purchase tickets, call 1-800-677-MART.

## CHOOSE FROM SIX LIGHTFAIR SEMINAR TRACKS

Select the programs of interest to you. Mark your choices on the registration form.

*All seminar sessions are held on the l4th floor of the Holiday Inn Mart Plaza. The Keynote Address, all exhibits and the Product Showcase are on the 2nd Floor in the Expocenter exhibit area.*

## ENERGY AND ECONOMICS TRACK

**TUESDAY, MARCH 5,1991 8:30-10 AM**

**Keynote Address: "Green Lights - Environmental Protection at a Profit"**

During this opening address, you will learn how the Environmental Protection Agency's (EPA) "Green Lights" program can significantly:

- Decrease your company's energy costs
- Maintain high aesthetic quality of lighting
- Reduce further pollution to the environment

"Green Lights" is a pledge by major corporations to install improved energy-efficient lighting in all facilities in the next three years.

Dozens of corporations have made commitments in principle to join this program. If you are involved in the selection, purchase or use of lamps, lighting fixtures, ballasts and controls, you MUST attend this important opening address.

**SPEAKERS:** Robert Kwartin, director, Energy Efficient Lighting Program and Jerry Lawson, chief, Energy Productivity & Pollution Prevention, Environmental Protection Agency (EPA),Washington, D.C.

## 10:30 AM - NOON

**"Effective Packaging of Lighting Products: Learn How To Get What You Really Want"**

Learn how "packaging" has dramatically affected the lighting industry from the points of view of a designer, an electrical contractor, a manufacturer's rep and an electrical distributor. Hear how the "packaging" process is influencing the way projects are designed, specified, purchased, and constructed in this new business climate.

- How do you work within this system?
- How do you improve communications with the important players to avoid pitfalls?

**PANELISTS**: Randy Burkett, IES, IALD, president and design principal, Randy Burkett Lighting Design, St. Louis, Mo.; Larry Plunkett, NECA, AGC, P.E., president, Sachs Electric Company, St. Louis, Mo.; Richard Dunlop, IES, president, Chesapeake Lighting Associates Inc., Laurel,Md.; and Cal Bertram, marketing manager/lighting, Eesco-United, Minneapolis, MN. **Session leader:** Mark Roush, IES, Lighting Center Manager, Philips Lighting, Somerset, N.J.

## 3:30 - 5 PM

**"How Energy and the Economy Are Influencing Construction: Perspectives on Today's Environment and Forecasts for the Future"**

Attend this session and learn how the '90s economy will affect the construction industry. Learn how today's economic/ energy trends are affecting:

■ the make-up of design teams ■ design-build projects ■ design-build firms ■ quality and its survival ■ changes in design priorities. Specifically learn: ■ how to capitalize on the architect/engineer/designer's roles as energy managers ■ how to anticipate changes in these roles in the '90s ■ how to reduce costs.

**PANELISTS:** Steven Kerch, Chicago Tribune's real estate reporter and Robert Murray, managing economist, McGraw-Hill Information Services Co, New York. **Session leader:** Charles Linn, AIA, former editor of Architectural Lighting magazine.

## ENERGY IN DESIGN TRACK

**TUESDAY, MARCH 5, 1991**
**10:30 AM - NOON**

**"The Design of Energy Efficient Lighting: Lamps, Ballasts, Fixtures & Controls"**

Lighting energy issues are hot topics. Demand side management (DSM) and an emerging energy crisis make energy-efficient lighting necessary for new construction and remodeling.

Hear about California's Advanced Lighting Guidelines, the first independent technical and design guide concerning the latest in energy-efficient, high quality lighting products and design techniques. The Guidelines also include applications and specifications information for every day use by architects, designers, engineers and lighting specialists, regardless of the project's location. Learn how to use the Guidelines to achieve high quality, low energy lighting systems. The presentation will cover the Advanced Lighting Guidelines, including:

- Compact fluorescent lamps
- Full-size and U-bent fluorescent lamps
- Compact metal halide and white sodium lamps
- Conventional-shaped tungsten halogen lamps
- Energy-saving and electronic ballasts
- Energy-efficient luminaires
- Computer-aided lighting design
- Lighting design practice

**SPEAKER:** James R. Benya, PE, IALD, IES senior principal and chief executive officer, Luminae Souter Lighting Design, San Francisco

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Jerry Lawson


Robert Kwartin


Randy Burkett


Larry Plunkett


Richard Dunlop


Mark Roush


Robert Murray


James R. Benya

## -3:30 PM

**ow to Remain Competitive in the ce of New and Pending Energy gislation"**

tend and learn how lawmakers d designers are responding to e oil/environmental crisis of the )s. Hear an update on current d proposed landmark regula- ns including...

- CaliforniaTitle 24: Performance/application- based compliance
- Massachusetts: Component (lamps, ballasts, luminaire) regulation
- New York State Energy Code: Prescriptive Regulations and equipment efficiencies.
- Federal government/Department of Energy Standards
- Industry and professional society response to energy legislation

arn how new/pending legisla- n WILL affect your business d limit your design options. If u are involved in lighting at all, u must attend this seminar to rn exactly how you and your ents are going to be affected by w legislation.

**EAKER:** Helen Diemer, IALD, ), is an associate of the lighting sign firm David A. Mintz, Inc., New York and the current pres- nt of the International Associa- ı of Lighting Designers (IALD). . Diemer is well-versed on the ject of codes and standards, ing served for three years as irman of the IALD Energy nmittee and as a member of IES Energy Management nmittee. She was active in the elopment of ANSI/ASHRAE/IES ıdard 90 and has appeared sev- times before the Department nergy and the New York State Energy Office to deliver petitions on federal and state regulations.

## OUTDOOR TRACK

### WED., MARCH 6, 1991 10:30 AM -NOON

**"City Lights: A Better Approach to Our Urban Environment Featuring a Case Study of Battery Park"**

Learn the role of electric lights in the night-time environments of North American cities. Better understand how to:

- learn important distinctions between highway lighting and street lighting; and avoid the confusion between these two applications. Learn how they have caused our cities to suffer;
- maximize the inter-relationship of lighting poles and fixtures in the daytime and the quality of light at night.

Leave this session with a better approach to urban environments. Learn how to use fixtures appropriate to urban settings.

**SPEAKER:** Robert Prouse, IES, IALD, a partner at H. M. Brandston & Partners, New York. Prouse has managed such projects as the Street and Esplanade Lighting at Battery Park City, New York; the San Antonio Museum of Art; and the Denver Transitway Mall. He has taught lighting design at Pratt Institute, Columbia University and The Parsons School of Design.

## 3:30 - 5 PM

**"Practical Residential Landscape Lighting Can Be Alluring"**

Safety, security and enjoyment of the landscape are three important reasons to provide landscape lighting. Attend this session and hear about key issues such as:

- how to select the right lamp
- what techniques to use to create specific effects
- how to identify the important issues in developing a design approach based on geographic location and the impact of weather
- decide the appropriateness of the 120-volt vs. l2-volt systems in the project

**SPEAKER:** Janet Lennox Moyer, ASID, Jan Moyer Design, Berkeley, Calif. Ms. Moyer has more than 14 years in lighting design. Her prestigious projects include the lighting of Levi Plaza, The Detroit Civic Center, Greenville Commons and Skywalker Ranch.

## 6 - 7 PM

**"How to Create Drama in Light: Light Sculptures for Public Spaces and Visual Effects"**

Learn how you can use lighting to bring life to "Town Square America." Lighting for...

- plazas/piazzas
- fountains and monuments

If you are involved with public space design, you won't want to miss this session.

**SPEAKER:** John David Mooney, Chicago artist and sculptor. Mooney is known for his large-scale light sculptures built in the United States, Europe and Australia. Mooney's work includes "American's Sky Sculpture," a sculpture barge and programmed searchlight piece on the Chicago River in May 1990, incorporating multiple lighting forms and lasers; "Lightscape '89," the transformation of Chicago's IBM Building into a 52-story high light sculpture in August 1989; and "Starsteps," a rooftop sculpture at the corner of the Hollywood Freeway and Sunset Boulevard, now a landmark piece in Los Angeles.


Helen Diemer


Robert Prouse


Janet L. Moyer


John D. Mooney

## RETAIL LIGHTING TRACK

### WED., MARCH 6, 1991
### 10:30 AM - NOON

**"World View: A Comparison of Applications in Retail Lighting From the U.S. and Abroad"**
Hear what three world-famous experts have to say as they review trends in retail lighting over the last five years. Then look ahead at the new light sources that are affecting current and future retail designs. Learn how European and U.S. retail designers address...

- aesthetics
- glare control
- maintenance
- accent lighting
- color rendition
- budgeting
- life cycle vs. first costs

**PANELISTS:** Derek Phillips, FRIBA, FCIBSE, IALD, M. arch. MIT, B.arch., MCD L'pool, owner, Derek Phillips Associates Lighting Consultants, United Kingdom, and Roberto Pamio, Architect, Venice, Italy. **Session Leader:** David A. Mintz, IALD, IES, principal, David A. Mintz, Inc., New York.

Phillips was the first architect to become president of the Illuminating Engineering Society of Great Britain, now the Chartered Institute of Building Services Engineering (CIBSE). Pamio studied under Carlo Scarpa and other famous Italian architects, after receiving his architecture degree from the University of Venice. David A. Mintz, Inc., has lighted more than 40 million square feet of retail space. He is a founder of the IALD and has served on the board of directors of the U.S. Institute of Theater Technology.

### 3:30 - 5 PM

**"Fundamental Value-Added Lighting Techniques For Retailers"**
Good lighting offers a value-added benefit to help improve visibility, create atmosphere, reduce energy costs and increase sales. You will receive information on the "how to's" of retail lighting. You will learn ■ how to use visibility, ■ how to achieve a desired effect, and ■ how to use new technology in construction and renovation projects. This is a non-technical presentation with useful information for retail designers and owners.

**SPEAKER:** Stephan Graf, IES, IALD, owner and founder of Fantasee Lighting, a design firm specializing in the lighting needs of video, theater and stage shows, and IlluminArt, a firm specializing in architectural lighting design services, both in Ypsilanti, MI.

### 6 - 7 PM

**"How to Light a Retail Store to Sell Merchandise and Meet Budget"**
It takes cooperation, communication and teamwork to put the merchandise in the right light. Learn how the following issues can make or break a job...

- Budget: Learn what are reasonable budgets for purchasing, installing, and operating a lighting system.
- Maintenance: Learn how to use design to keep maintenance costs to a minimum.
- Specs: Learn who should write specifications, and how to allow for an "or equal" provision?
- Construction Phase: How to keep the project on schedule, including the completion of the punch list.

**PANELISTS:** Dan Evans, ISP, Vice President of Visual Merchandising, Hartmarx Specialty Stores, Inc., Chicago; Don Bona, ISP, Schafer Associates, Oakbrook Terrace, Ill.; and David Kintz, consultant, Chicago. **Session leader:** Connie Whiteley, IALD, IES, lighting consultant, Lighting By Design, Chicago.

## OFFICE TRACK

### THURSDAY, MARCH 7, 1991
### 8:30 - 10 AM

**"America's Office Lighting Future Can Be Found in Europe Today"**
Hear the latest in European office lighting standards and the product technologies that have been developed to meet those standards. Learn how these standards compare to new U.S. office lighting standards and product developments. Learn how these European trends will directly impact the future of office design and the corporate bottom-line.

**SPEAKERS:** Dr. Richard Schneppendahl, LITG, VDE, research and development director, Trilux, Arnsberg, Germany; Wolfgang Egger, IES, CIE, LTAG, vice president of marketing, Zumtobel, Lighting Inc. U.S.A. **Session leader:** Gary Steffy, IALD, president, Gary Steffy Lighting Design, Ann Arbor, Mich. Steffy is immediate-past president of IALD and author of the recently released book, *Architectural Lighting Design.*

### 10:30 AM - NOON

**"Office Lighting: Fundamentally Speaking"** Lighting is a critical part of office productivity. Learn how to establish the criteria and identify the major concerns in office lighting design...

- How to determine how much light is enough?
- When to use direct vs. indirect lighting?
- How to save energy without sacrificing performance?

Examine systems and trends in sources and fixtures for both new and retrofit installations. In addition, learn how energy legislation is affecting design and user performance.
*Sponsored by: Facilities Design & Management Magazine*

**SPEAKER:** Sandra M. Stashik, IES, PE, IALD, principal-in-charge of the Philadelphia office of Grenald Associates


Derek Phillip


David A Mint


Roberto Pam


Stephan Gr


Don Bona


Connie Whit


Gary Stef


Wolfgang E


Richar
Scheppen

## 3:30 PM

**w Guidelines for Lighting Offices taining VDTs: Practical Information olutions that Work"**

s practical/hands-on seminar teach you in understandable guage how to light an office taining VDTs. Review the new NA recommended practice delines and discuss their lications, looking at how off-shelf equipment/luminaires et or don't meet these guide-s. Learn to evaluate available ions, including both direct and irect solutions.

**AKER:** Mitchell B. Kohn, IES, D, Mitchell B. Kohn Architec-l Lighting Consultant, has ces in Highland Park, Ill. cializing in interior illumination ign for commercial, institu-al and industrial environments. nn is on the board of directors ALD. He is a member of the . National Committee of the mmission Internationale De clairge (CIE) and a member of IES, for which he serves as irman of its office lighting mittee and is a past president ne Chicago section.

## RESIDENTIAL TRACK

**EDNESDAY, MARCH 6, 1991**
**10 AM - 1 PM, 3 - 6 PM**

**l Course: Lighting for Residential onments"**

EU credit, core level, ASID edited.During this six-hour se, you will develop an under-ding of the impact lighting ave on residential environ-ts. Learn how to select lamps equipment for the techniques ired for a successful design.

ar the pro's and con's of us light sources, including efficiencies, color character-, appropriateness to different cations, and a comparison of features.

■ Learn specifics about **a)** selection of equipment types, what they do and how to evaluate thechoices; **b)** lighting specific interior spaces, such as kitchens, baths, living spaces and art; **c)** lighting exteriors for aesthetics and security.

**SPEAKER:** Carol Chaffee, IES, IALD, principal, Carol Chaffee Associates, Minneapolis, Minn. Prior to forming her own company, Carol Chaffee served as design principal with a Los Angeles firm specializing in lighting consultation for the performing arts. Ms. Chaffee serves on the editorial advisory board for *Architectural Lighting.*

## RESIDENTIAL TRACK

**THURSDAY, MARCH 7, 1991**
**8:30 - 10 AM**

**"Fundamentals of Residential Interior Lighting Design"**

Attend this session and learn how to combine lamps, luminaires and fixture location to **a)** reinforce the architecture, **b)** enhance the finished interiors and, most importantly, **c)** address the needs of the end-user.

Receive practical advice on how to handle specific lighting problems, including:

- 2 and 3 dimensional artwork
- interior plantings
- task areas
- spaces with high or sloped ceilings

**SPEAKER:** Connie Jensen, IALD, IES, founder, Lighting Professionals, Inc., Montvale, N.J. Ms. Jensen's dynamic yet practical approach makes this complex subject easy to absorb. Architects, interior designers, showroom personnel — in fact, anyone who works with light, will find this an especially rewarding presentation.

## 10:30 AM - NOON

**"Practical Applications of Colors: Real and Imaginary"**

At this seminar see demonstrations on: **a)** the important factors that relate the color properties of light sources to the colors of objects seen in the surrounding environment; **b)** critical parameters for choosing light source colors; and **c)** the interpretation of the common color criteria, such as the color rendering index. Discover the limitations of the common color criteria.

**SPEAKER:** Dr. Robert E. Levin, IES, senior scientist, GTE Sylvania's general engineering research and development group, Salem, MA. Dr. Levin was an associate professor at California State University at San Jose prior to joining GTE Sylvania. He has 60 publications and 36 patents in the lighting field.

## 2 - 3:30 PM

**"How To Choose A Dimming System That Is Right For the Home"**

Learn how to choose a dimming system that is right for your project and your client. Hear about the newest technological options available for residential dimming in the '90s including:

- wall box dimmers
- wall box presets
- integrated network systems
- small stand-alone systems

In addition, learn how to design and specify a complete dimming system, including...

■ circuits, zones, channels, presets, scenes and cues ■ system configuration ■ control station selection ■ what to look for, and look out for, in vendors

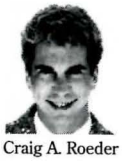
**SPEAKER:** Craig A. Roeder, IALD, IES, Craig A. Roeder Associates, Inc., Dallas. Prior to starting his own firm in 1979, Roeder worked as an assistant to Jim Nuckolls and Jeffrey Milham at Design Decisions in New York. His designs have been published in more than 50 different national publications.


Mitchell Kohn


Carol Chaffee


Connie Jensen


Robert E. Levin


Craig A. Roeder


Sandra Stashik

## VISIT THE CHICAGO MERCHANDISE MART...

While at LIGHTFAIR, walk across the pedestrian bridge connecting the Expocenter and The Mart to visit the world's largest design center. See the latest solutions to today's design challenges.
Be sure to visit . . .

- Contract Furnishings Floors 3, 8, 9, 10, 11
- Architectural/Building Products Floor 13
- Residential Furnishings Floors 6, 12, 13, 16-18

## THE REMODELING/REDECORATING PROFESSIONALS' CONFERENCE MARCH 5 - MARCH 6, 1991

Enrich your LIGHTFAIR experience with the Merchandise Mart sponsored program for residential, remodeling and decorating. This free conference brings all other aspects of design to light as it zeros in on the hottest area of interior design today:

**"The Designer/Client Relationship & Your Bottom Line."** Dr. Jill Gardner, clinical and consulting psychologist with a design business management/communications practice, offers expert insights on interpreting client needs — and how you can apply psychological principles to manage all your business relationships more smoothly and profitably.

**"Beyond INTERIOR VISIONS: Show House Influences on Real-World Rooms."** Chris Madden, author of the best selling book Interior Visions, looks at what show house rooms are really telling America about our living spaces, metaphoric and actual. Plus, a special preview of her upcoming new book on the special challenges of showhouse kitchens and baths.

**"Is Your Net Working?"** With design business so dependent on word-of-mouth referrals, it pays, literally, to make the most of all your contacts, both business and social. Ann Boe, award-winning presenter and widely published expert on networking, offers helpful guidance on how you can build your business with the help of colleagues, clients, subcontractors, everyone!

**"Breakthrough Solutions for Kitchens & Baths."** Nationally published designer Florence Perchuk, Chicago's own sought-after Michael deGulio, *Kitchen & Bath Design News* columnist and designer Mort Block, and product designer/consultant Don Arnold share their ideas for barrier-free, multi-generational, and other special kitchen and bath design challenges.

**"Barrier Free Design for the Kitchen and Bath."** Cynthia Liebrock, ASID, founder/principal of Easy Access Barrier Free Design Consultants, explores sensitive design solutions for people with different abilities. A special emphasis on the electrical, mechanical and acoustical needs for the kitchen and bath will be addressed.

**AND...**More than 50 exciting workshops, demonstrations, and new product introductions in over a million square feet of residential showrooms on floors 6, 12, 13, 16, 17 and 18 of The Mart!

Attendance is FREE; registration is REQUIRED. Call 1-800-677-MART for complete brochure, including showroom workshop details. Seating is limited — call today!

## ATTEND INDUSTRY-SPECIFIC BREAKOUT SESSIONS

## MARCH 5-7, 1991.

Several Merchandise Mart showrooms will feature in-depth breakout sessions. These programs take LIGHTFAIR topics to even greater detail. Talk directly to the experts and discuss possible lighting solutions.

**Seating is limited on a first-come, first-served basis. Breakout sessions are FREE to all LIGHTFAIR registrants.**

## TUESDAY, MARCH 5, 1991

### 12:30-1:30 PM

**"How To Achieve Maximum Results From Emergency Lighting in the Office Environment"**

Emergency lighting is a concern that most corporate and institutional end-users think about only in times of crisis or natural disaster.

Learn the latest developments in quality emergency lighting fixtures and how it integrates with both good design practice and engineering.

**PANELISTS:** Representatives from Beghelli, Bodine, Lightalarms and Yorklite Electronics Inc.
**Session Leader:** Charles Linn, AIA, former editor, *Architectural Lighting* magazine

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## WEDNESDAY, MARCH 6, 1991

### 12:30-1:30 PM

**"How To Light Fine Art in a Residential Environment"**

When properly lit, fine art can be the focal point of a room. Learn methods of illumination: wall washing, accenting, highlighting and framing projection.

**SPEAKER:** Gerry Zekowski, IES, Gerry Zekowski Lighting Consultants, Skokie, Ill.

### 12:30-1:30 PM

**"Lighting and the New Energy Consciousness"**

Energy codes in New York and Massachusetts differ from those in California and the Pacific Northwest. Learn how to cope with the rapidly changing codes and their effect on lighting energy in the U.S.

**SPEAKERS:** James Benya, senior principal and chief executive officer, Luminae Souter Lighting Design, San Francisco; Emma Price, president and chief financial officer, Edison Price Lighting, New York; and Peter Bleasby, manager, technical relations, Osram, Montgomery, N.Y.

## THURSDAY, MARCH 7, 1991

### 12:30-1:30 PM

**"Landscape Lighting: How to Effectively Light Outdoor Water Features"**

Lighting water presents challenges and opportunities. See successful applications and learn techniques, for the lighting of pools, hot tubs, waterfalls, fountains and streams.

**SPEAKER:** Janet Lennox Moyer, ASID, Jan Moyer Design, Berkeley, CA

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### SDAY, MARCH 5, 1991

| | | | | |
|---|---|---|---|---|
| ❑ | 8:30 - 10 am | Keynote: Green Lights | $25 _____ | (free with other registrations) |
| ❑ | 10:30 am - noon | Lighting Systems | $25 _____ | |
| ❑ | 2 - 3:30 pm | Legislation | $25 _____ | |
| ❑ | 10:30 am - noon | Packaging | $25 _____ | |
| ❑ | 3:30 - 5 pm | Economic Forecast | $25 _____ | |
| ❑ | **Tuesday Pass** | (Any Seminars) | **$60** _____ | |
| ❑ | **Firm Discount** | **(5 or more pre-registrations mailed together)** | **$50** _____ | per person |
| ❑ | Student Day Pass | | $25 _____ | |

### DNESDAY, MARCH 6,1991

| | | | | |
|---|---|---|---|---|
| ❑ | 8:30 - 10 am | Product Showcase | $25 _____ | |
| ❑ | 10:30 am - noon | Retail:Worldview | $25 _____ | |
| ❑ | 3:30 - 5 pm | Visual Merchandising | $25 _____ | |
| ❑ | 6 - 7 pm | Lighting Retail Stores | $25 _____ | |
| ❑ | 10:30 am - noon | Battery Park | $25 _____ | |
| ❑ | 3:30 - 5 pm | Landscape Lighting | $25 _____ | |
| ❑ | 6 - 7 pm | Light Sculpture | $25 _____ | |
| ❑ | **Wednesday Pass** | **(Does not include CEU)** | **$80** _____ | |
| ❑ | **Firm Discount** | | **$70** _____ | per person |
| ❑ | Student Day Pass | | $25 _____ | |
| ❑ | 10 am - 6 pm | CEU course | $100 _____ | |

### RSDAY, MARCH 7,1991

| | | | | |
|---|---|---|---|---|
| ❑ | 8:30 - 10 am | Office: Worldview | $25 _____ | |
| ❑ | 10:30 am - noon | Fundamental: Office | $25 _____ | |
| ❑ | 2 - 3:30 pm | VDTs | $25 _____ | |
| ❑ | 8:30 - 10 am | Fundamentals: Residential | $25 _____ | |
| ❑ | 10:30 am - noon | Color and Light | $25 _____ | |
| ❑ | 2 - 3:30 pm | Dimming Systems | $25 _____ | |
| ❑ | **Thursday Pass** | | **$60** _____ | |
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### Walkover/Driveover Buried Surface Luminaires

New from BEGA are these ground illuminators. Efficient low voltage tungsten halogen light sources. Internal optical system spreads light across a ground surface in one or four directions. Integral or remote transformers. High tensile strength die cast aluminum. Also available in this group of luminaires are indicator luminaires and floodlights/uplights. 4-color brochure available. 805/684-0533.

**Bega/FS**

Circle 30 on the Reader Service card.

### Electronic Light Capsules

These electronic light capsules offer 9,000 hours average rated life. They consume up to 75% less energy than conventional incandescent bulbs. No special ballists are required...simply screw-in and turn on. They start instantly and are ideal for overhead recessed cans, table lamps and wall fixtures. For uses such as : corridors, downlighting, floodlighting, indoor walkways, staircases and more. In hospitals, hotels, stores, offices and restaurants.

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### Wall-Mount Decora® Occupancy Sensor

Offers a 180-degree field of view that covers up to 2,700 sq. ft. Can be used with 120V or 277V lighting applications (incandescent or fluorescent) with no wiring modifications. Its elegant styling coordinates with Leviton's popular Decora line of wiring devices to complement any interior. The occupancy censor is UL Listed, CSA certified and meets California Title 24 Energy Code requirements.

**Leviton Mfg. Company**

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### The Aero

Winona Lighting announc an addition to its stand product line...the Metrop series of six wall sconces c brackets are available in p ished brass, bronze and st less steel. The Aero, in p ished brass, is distinguished its shallow lamp hous trimmed with 3 decorat "fins". The Aero is 8.5" w with a 7 3/4" projection. lamps in the series are qu halogen and 120 volt.

**Winona Lighting**

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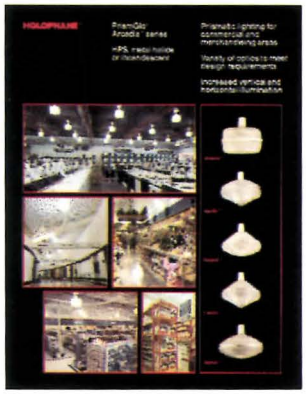


### Four Attractive Shapes Added to PrismGlo Line

Suited to a wide variety of commercial and retail applications, PrismGlo lighting systems feature state-of-the-art prismatic light control to create a highly efficient, quality oriented environment. The luminaires are available with three lighting distributions: 60% up, 40% down; 40% up, 60% down; and 50% up, 50% down. The fixtures may be used with 150 to 400W MH or HPS. UL Listed 1572 "Damp Location".

**Holophane Co., Inc.**

*Circle 34 on the Reader Service card.*

### Perimeter-45

For the effect of a lighted cove without the expense of building a cove, Perimeter-45 is the answer. Perimeter-45 is a sleek 4" x 6" architectural shape. Its unique reflector system distributes light evenly on the walls, eliminating socket shadows, and concentrates output for maximum efficiency. Plus, the corner system is designed to function aesthetically, while eliminating the need for field-measured corners.

**Litecontrol Corporation**

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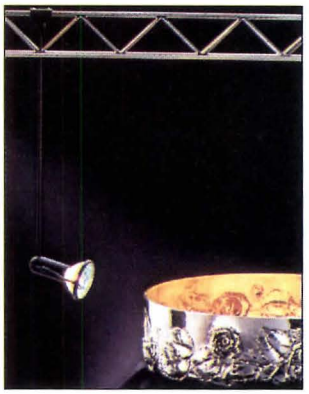

### Spotlighting Grid

Structurella lighting system consists of miniature extruded aluminum three-dimensional frames. Elegant Italian design combined with quality introduce a new dimension in low voltage lighting for window displays, boutiques, showrooms, galleries, restaurants, etc. UL listed as a complete system at 32A-12A. The maximum run from each electrical feed is approximately 20 ft. in each direction.

**Targetti Inc.**

Circle 36 on the Reader Service card.

### The Most Efficient Fan of Halogen Bulbs

The MASTERline collec from Philips Lighting Comp features low and line vol halogen lamps. The MA line square and round M and the MASTERline PA PAR 30 and PAR 38 l (above) offer added va energy savings and incre light output than exi halogen products.

**Philips Lighting Comp**

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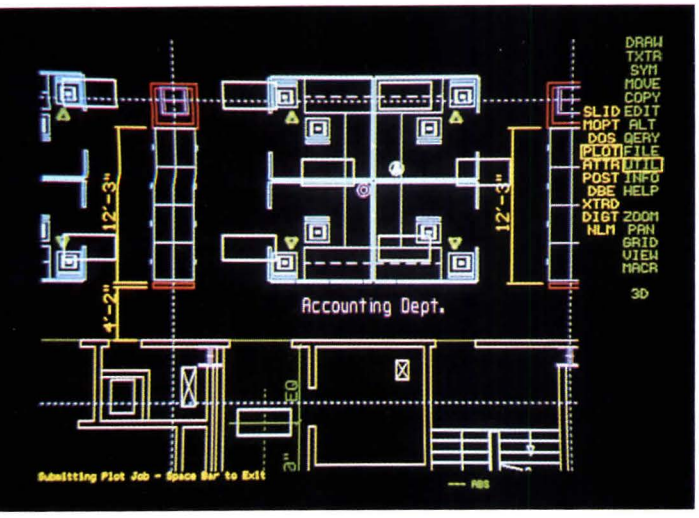
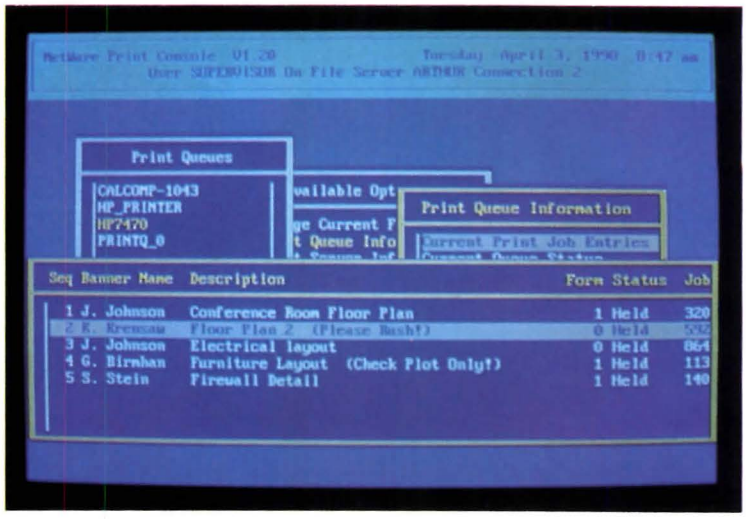
# CADVANCE 4.0: A GATEWAY TO DATABASE CAD

## Here's a clever way to extend the life of 286 machines by buying a 386 server and Novell Netware/386. By Steven S. Ross




**he standard Cadvance menu system is only two levels deep—easy to use with a mouse.**




**The Novell NetWare/386 interface; here, a queue for output is being set up.**

high-end, full-featured 3-D CAD package with built-in database. The vork version (Cadvance for Work-ips), especially when used with Novell Ware/386, is fast and function-packed. dvance has always been one of the est CAD packages, especially for on-en redraws. It now can use network urces to speed regenerations as well, to control printing, plotting, and file rity. This package is for systems d on MS-DOS or PC-DOS.

### IEW

*basics:* All the standard tools are : Support for expanded memory, sym-ibraries, parallel lines (and offsets for and arcs) for walls, automatic build-grids, 3-D editing (in perspective, axo-etric, oblique as well as isometric or ographic), walk-throughs, rendering, pplied fonts, wide range of dimen-ng options, 255 layers, macro-pro-ming language, and so forth.

dvance can read or write DXF files ding AutoCAD 10 "3-D" DXF) auto-ally, and output images in the stan-PCX format used by advanced word ssors and almost all desktop publish-ackages.

dvance is, at the moment, the high-CAD software package that makes est use of the new network tools built he most widely used DOS network software, Novell NetWare/386. It is also a powerful drawing and database tool in its own right.

Networks that work with MS-DOS or PC-DOS (such as Novell NetWare) do not allow more than one person to access a file at the same time. But Cadvance at least allows you to send a message to whomever is controlling the file—perhaps asking for release, or for an estimate of when the file will be ready. In fact, its electronic mail system can be invoked for any purpose, even during a drawing session.

Cadvance also makes good use of what Novell calls "NetWare Loadable Modules." Version 4.0 of Cadvance comes with two NLMs. One allows the file server to handle hidden-line removal. This can save quite a bit of money; the alternative is to use more powerful computers at each seat, or to sit and wait (sometimes a half hour for really huge drawings) for hidden lines to be identified and removed.

Underlying databases—for bills of materials, for example—can be queried from any terminal running Cadvance, even if the central file "server" computer holds the data, without moving the entire database to the terminal. The NLM that does this also provides the ability to use structured query language (SQL) for database searches. The SQL module is not full-featured, but more complex queries can be done outside Cadvance using the SQL built into dBase IV and other software that reads dBase files.

NLMs only work with NetWare/386, however. They will not work on older versions of Novell NetWare, or on other network software.

Likewise, Cadvance 4.0 supports new NetWare features such as naming a queue for printing. Earlier NetWare versions did not allow one user to print from another's printer unless that other user was at the file server itself. Now users can specify a printer or plotter anyplace on the network.

If a file is in use when a new user wants it, the new user can "wait" for the file — the new user's terminal simply keeps asking for it, and the network won't let anyone else ask for it. The user who is waiting will, however, lose control of any file he or she might have been editing, if another person is waiting for it. ISICAD says this is to prevent a daisy-chain of lockouts based on one user waiting for a file, another user waiting for the waiting user's file, etc.

Reference files—files a user can view, but not change during a session—are handled seamlessly. If the user has the right to see them, they are displayed. If one user is editing a file that another is using as a reference file, the new changes will not be displayed on the reference file until the person using the file as a reference requests an update (a screen regeneration). If the regen is called for as the newly up-

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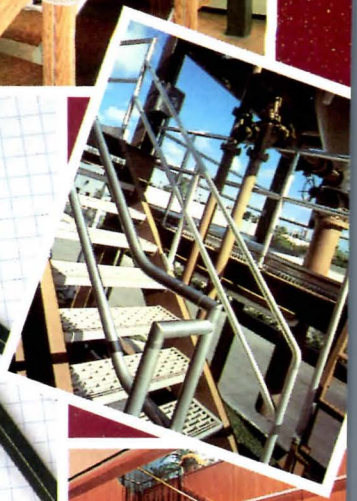

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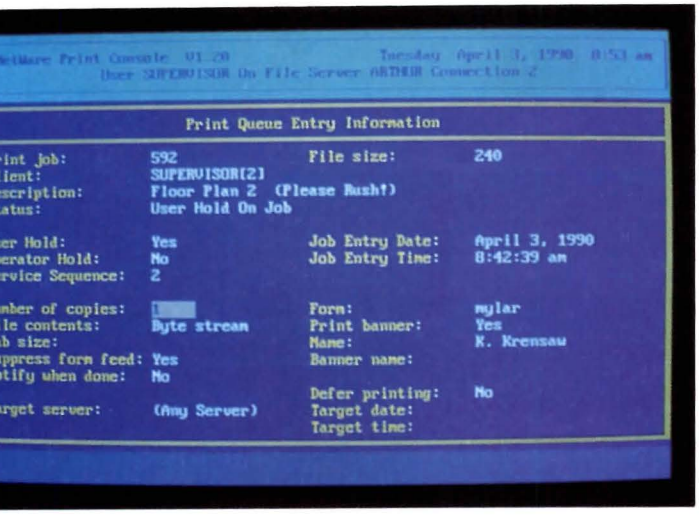
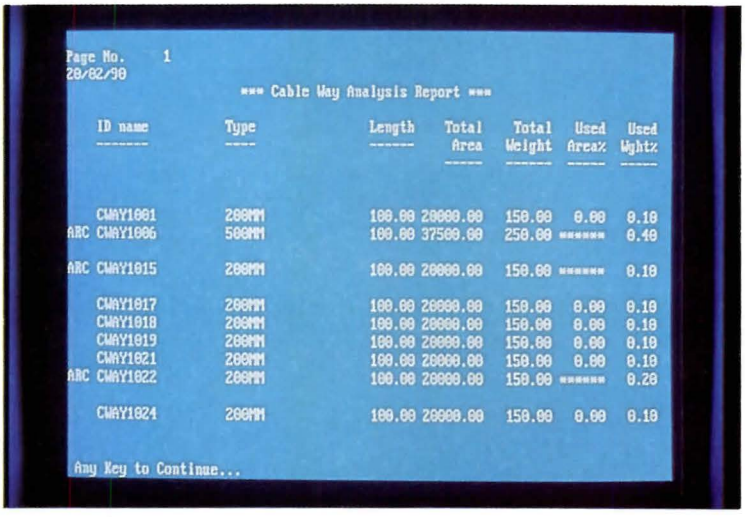



**ting up a print queue so that information is sent easily to a printer or plotter from within Cadvance.**




**The gateway to database access, for bills of materials, facilities management, and similar tasks.**

ed files is being saved, the save is sus-ded until the regen is complete.

s for database files, only individual re-ds, not entire databases, are locked en using NetWare, so multiple users access a single database without wor-g about others.

he copy protection has the potential to se harm, but we could not cause a mal-ction by misusing it. ISICAD used a secu- device attached to a parallel port on r computer. If your license allows working, only one device is necessary the entire network. But it cannot be at-ed to the file server itself; it must be ched to one of the terminals. If that inal is shut down, it can be restarted out destroying work being done on r terminals.

his software allows quite a bit of flexi-y for configuring networks. All files the program as well as the files you te when you make a drawing) can re-on the server. If they do, terminals do even need disk drives of their own. Or, e commonly, each terminal contains its copy of Cadvance, and the server con-; the drawing files.

e tested Cadvance by installing it on a ell NetWare/386 system that had most able disk space taken up by other vare. We were able to condense Cad-e quite a bit by setting up directories common files, and allowing each user ve a small subdirectory with separate NS files. Each copy of CAD.INS con-d specific information about each us-own terminal.

dvance drawing files can be quite in memory, mainly because they con-deleted and changed elements until ted." Saving automatically packs the out leaves unreferenced symbols and other odds and ends; use the FILE-command occasionally to assure files s small as possible. □

*e 300*

## Cadvance 4.0

*Equipment required:* While the stand-alone version will run on machines as old as the IBM XT and compatibles, the software's power is wasted on anything less than an IBM or compatible computer with 80386 or 80486 microprocessor as a server, and (at a minimum) an 80286 microprocessor for individual terminals. Supports most graphics accelerator boards, mice, digitizers, and plotters.

A coprocessor chip (an Intel 8087, 80287, 80387 or look-alike products from other vendors) is strongly recommended. Expanded memory (or at least the extra 64K available with Microsoft's HIMEM driver) is strongly recommended—and is usually mandatory when running on a network. Cadvance has been certified to run with Novell NetWare; the vendor says it runs on other networks as well.

*Vendor:* ISICAD, Inc., 1920 West Corporate Way, P.O. Box 61022, Anaheim, CA 92803-6122. 714-533-8910. Fax 714-533-8642. $3,295 for single-user license in stand-alone system; $3,495 for single user in a network. Each includes 90 days free telephone help line. Some representative network volume pricing: $12,000 for five users, $20,000 for 10, $40,000 for 25. Network licenses allow any number of stations to be equipped with Cadvance, but only the specified number can be run concurrently.

*Manuals:* Good. There's a detailed installation and tutorial, along with a comprehensive reference. Much of what you will need for network installation is included, but Novell NetWare is complex. Hands-on dealer help is strongly recommended to get things installed the first time.

*Ease-of-use:* Cadvance has long been one of the easier full-featured CAD packages to use. Version 4.0 is no exception. You can work well with a mouse, although some vendors of add-on products suggest a digitizing tablet for command input and you can configure a tablet for standard commands. Cadvance automatically writes a dBase III+ (or dBase IV) file; there's no extra conversion step needed at the database end. Error messages are cryptic and general—common with network-capable software that must run on many different network packages and configurations.

*Error-trapping:* This is particularly important on network software. A key issue is file-locking. That is, when one file is in use, you do not want someone else accessing it at the same time on a DOS-based network such as that provided by Novell. That's because each user of the file would make changes independent of the others. Only the last file saved would actually survive; other changes would be overwritten.

Cadvance handles these chores well. It locks drawing files, as all Novell-based software does. It also locks database files (as most do) and auxiliary files such as macros and add-on software (often left unprotected).

It is possible to install the security device backwards, on a serial port instead of a parallel port. If you do, Cadvance will not start up.

Cadvance 4.0 is rather stable on NetWare/386. If a user turns off his or her station before releasing a file, Cadvance senses this and frees up the file anyway. Even a simulated power failure (we pulled the plug) did not disturb things.

It is possible to load a DXF file while another drawing is already being edited. If you do, the two files will be (perhaps unintentionally) merged or overwritten.

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# GLAZED FIRE WALL

Life safety under active fire conditions depends on keeping people physically separate from flames, smoke, and extreme temperatures until all occupants can evacuate the building, or the fire is supressed. Fire-rated walls, doors, and windows are designed to do this, with their ratings—from 20 minutes to several hours—indicating how long this process of flee or fight may be expected to take.

Fire-rated glass was what you used in a fire-rated assembly, and for years it was a simple spec: wire glass, in a size permitted under the applicable code.

Architects and end-users have objected to the severe esthetic of wire glass, which is not even, properly speaking, fire resistant. During fire conditions, the glass itself quickly cracks. The wire serves only to hold the pieces in position in the frame, holding back the flames for its rated time. Nor is it a safety glass. In fact, not only will the broken glass present a danger, but the wire itself can act as a sharp fishnet.

These concerns have encouraged the development of substitutes for wire glass in some fire-rated applications. Windows and door-lights can use FireLite, a clear glass ceramic from Japan, which can be exposed safely to very high temperatures [RECORD December 1989, page 89].

Another condition—the fire wall—can be met by the Eich Fire Protection Glass System, which has been accepted under the more stringent criteria of UL 263. This test limits the temperature rise on the unexposed surface of the assembly to 250 degrees above ambient, and governs the designation of fire separation walls between use groups. It just so happens you can see—clearly—through it.

The German-made system incorporates Contraflam glass, which has a configuration that resembles an IG unit, with two panes of clear tempered safety glass on either side of a space filled with a colorless polymer gel. Heat generated by a fire will cause the gel to form a layer of highly heat-resistant crust, which consumes and dissipates a large amount of the fire's heat energy. This sacrificial process continues for the full extent of the rating, providing effective heat insulation from the fire while maintaining an intact barrier to the spread of smoke and flame.

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1

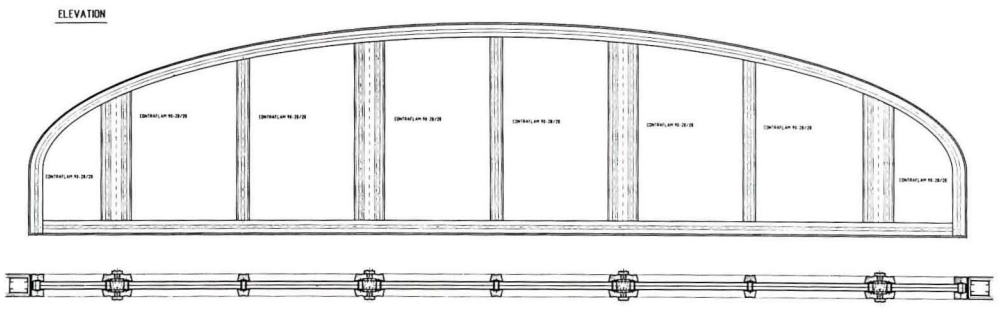
The fire-rated framing systems, made of metal or solid hardwood, maintain a relatively slim profile, given (in the 90-minute configuration) a glass thickness of 2 13/16 inches. While the installation may be very large (the new German Parliament building in Bonn will have a Chamber of Deputies surrounded with Eich fire-resistant glass walls up to 36 ft high), structural considerations normally impose a total nominal height limit of 12 ft. The modular framing is adjustable on 12-in. centers up to a maximum glass area of 4 by 7 ft. These individual lights can be erected in line to form a wall of any width. Eich Corporation, Los Angeles. *Circle 301*

**Light and view in an adaptive reuse**
The sensitive renovation of McKeen
morial Hall at Phillips Academy in Ar
ver, Massachusetts, by architect A
Schoenegge AIA incorporates sev
large areas of Eich/Contraflam glass.
design firm submitted just-completed
test data on the system to state Build
Code examiners, who approved it for
in applications calling for a 90-mi
firewall.

The long-vacant 35,000-sq-ft classr
building, originally designed by Hart
and Richardson in 1903, is one of three
toric buildings on the campus of the
mer Abbot Academy. Its major spac
Davis Hall, a grand coffered-ceiling a

An innovative glass design permits the use of large clear-vision panels in fire separation walls between use groups.

4

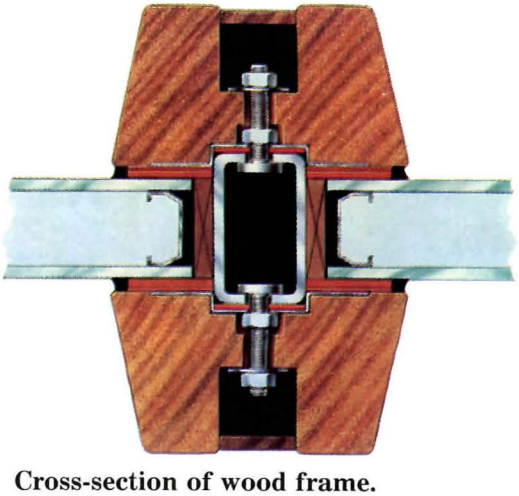



**Plan views show the proportions of frame surround to glass of the Eich wall in the office mezzanine space. Total width of the glazed area is 29 ft 6 in.**

m with a stage and fly galleries that l a fire hazard and inhibited the ol's program in their current state (be- view, 3). By removing the stage and ıg its wall 15 ft forward, space was d for a two-level office mezzanine (4). roscenium arch was reconstructed on ew wall, and glazed along the top to ı the theatrical character of the origi- :age. Eight wood-framed Eich units placed 36 inches above the new floor giving the occupants a view into the ɔished hall. A dramatic organ loft g page, 1, and above, 2) became part wo-level lobby space, and was glazed six panels in an assembly 11 ft wide nost 11 ft high. Both of these applications required a 90-minute rating. The fire-resistant glass on the mezzanine level is carried on a steel frame. The cross-section, right, details the framing components of the glass fire-wall, which can incorporate one or two Contraflam panels as required.

JOAN F. BLATTERMAN

*Renovation of McKeen Hall, Andover, Massachusetts*
OWNER: *Phillips Academy. Elaine B. Finbury, project manager.*
ARCHITECT: *Alan Schoenegge AIA—Alan Schoenegge, Thomas MacLeod, Jonathan Krueger, Franklin Liu, project team.*

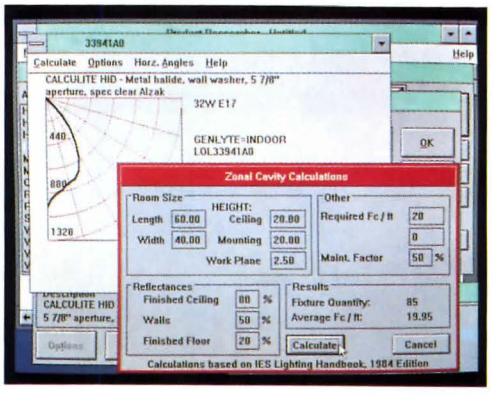


**Cross-section of wood frame.**

# CATALOG ON A DISK

## The Eclat CD ROM catalog offers quick access to voluminous amounts of manufacturers' literature, and a gateway to automated specifications.






fter more than four years of experimentation and accommodation to ging technology, Eclat is poised to re- its automated catalog system early 91. The catalog, supplied on a CD ROM ıl disk, offers access to various manurers' products, and a whole lot more. e it, though, you will need a CD ROM r (about $500) for an IBM-compatible ıter using an 80286 or newer microssor, and Microsoft Windows 3.0. A e, SuperVGA- or 8514/A-compatible monitor, 80386 computer, and 2 MB M are all strongly recommended.

access the CD ROM containing Eclat, ıse the firm's searching software, ct Researcher. It comes on the CD ıd installs on your fixed disk.

software works like most do with ws. You move the mouse to a menu the top of the screen and pull down enu. Clicking the mouse button se- ı menu choice. You get at products ng directly to the Catalog menu and ng the "Select Proprietary Product" on it if you know the product name, east the manufacturer.

Select the "Define Generic Product" option if you want to search the entire CD ROM disk for products that meet your criteria. If a product is made by a manufacturer that does not participate in Eclat, you may get the manufacturer's name, but no product description. You only have to define criteria that are specific to a given product—number of drawers in a filing cabinet, for instance. Typically, you use CSI-based specs.

On-screen graphics can include color and black-and-white photos, line art, and even dynamic graphics (for lighting patterns, for instance). In the photo top left, a designer navigates through the Moen catalog, selecting products and attributes by clicking on the screen with a mouse. Screen top right displays windowed specification, product data, and installation instructions from Owens-Corning Fiberglas. Unlike print catalogs, the computer provides interactive engineering information. Using zonal cavity calculations from Genlyte, for example, lower right, the system will instantly draw a photometric curve for a specified mounting angle, or calculate the required number of fixtures for particular room geometry and reflectances. Images can be printed out, and text can be saved to a file for pickup by your own word processor. Some graphic images can also be saved using the Windows clipboard, and pasted into other documents—bidding documents, for instance.

The process is fairly easy and intuitive, but not too neat. That's because the manufacturers have supplied data in formats that vary somewhat. Some are crude color images, and some are high-quality line art.

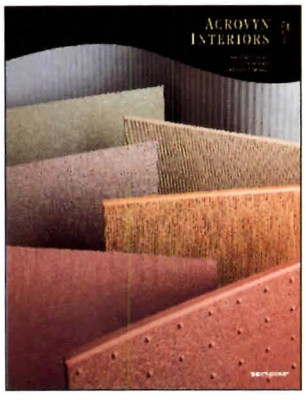
Windows 3.0 itself is intolerant of many of the expanded memory drivers that modern CAD packages depend upon. But the most advanced CAD packages, using the Phar Lap DOS extender or extended memory rather than expanded memory, will have no trouble coexisting with Windows.

Finally, there's an electronic gateway to the SuperSpec automated specification-writing system. Disks, updated quarterly, will be available to qualifying design offices without charge. Eclat, Pleasanton, Calif. *Circle 302*

STEVEN S. ROSS

# PRODUCT LITERATURE SHOWCASE

Here are some building products' catalogs, brochures and technical literature available in the architectural market today. To receive your copy of any of them, just fill out and return one of the special Reader Service Cards bound into this Product Literature Showcase.




### Acrovyn Interiors

The new line of high impact wall coverings and wall panels are both beautiful and durable. The entire system can be used in both renovation and new construction. Prelaminated wall panels, wall coverings, column covers, door and frame protection and feature moldings are available in an exceptional range of textures and colors. The C/S Group 800-233-8493, Fax: 717-546-5169.

**The C/S Group**

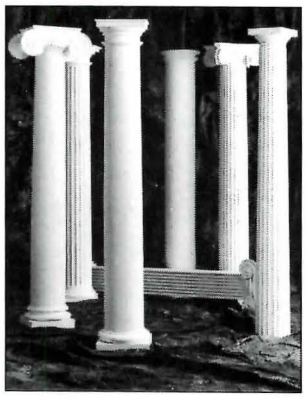
Circle 500 on the PRODUCT LITERATURE SHOWCASE inquiry card.


### Insulated Porcelain on Aluminum Window Panels

Mapes porcelainized aluminum panels are ideal for window retrofit, curtainwall and fascia applications. Porcelain on aluminum is warranteed for 25 years against crazing, cracking or fading. Panels are available in 1/4" and insulated up to 4". For more information and a free sample, please contact Mapes Industries, P.O. Box 80069, Lincoln, Nebraska 68501 - Phone - (800)-228-2391.

**Mapes Industries**

Circle 501 on the PRODUCT LITERATURE SHOWCASE inquiry card.

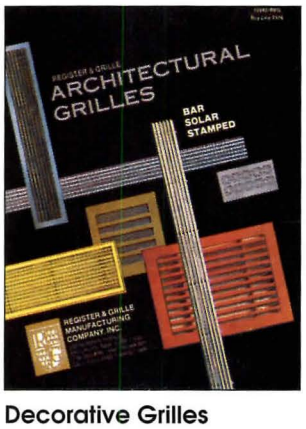


### Chadsworth Incorporated

Authentic Replication Columns follow the specs derived from the fifteenth century Renaissance master architect, Vignola. Architectural Stock Tuscan, Contemporary and Art Deco columns in pine, redwood and other wood species. Diameters-6"-36". Heights to 40'. CHADSWORTH - Expect the Best! Catalogs or information Box 53268, Dept. 9, Atlanta, GA 30355. Ph. 404-876-5410. Fax 404-876-4492.

**Chadsworth Incorporated**

Circle 502 on the PRODUCT LITERATURE SHOWCASE inquiry card.

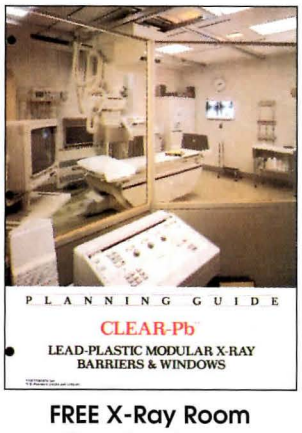



### Decorative Grilles

Unusual visual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects and interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your decor. 202 Norman Ave., Brooklyn, NY 11222. 800-521-4895 fax 718-349-2611.

**Register & Grille Mfg., Co.**

Circle 503 on the PRODUCT LITERATURE SHOWCASE inquiry card.

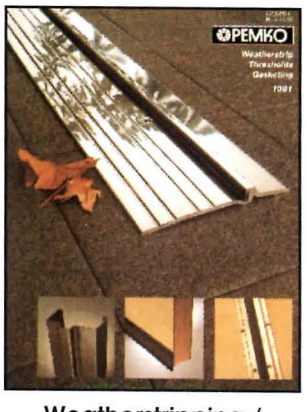



### FREE X-Ray Room Planning Guide

New guide illustrates userdesigned installations of CLEAR-Pb Lead-Plastic Modular Barriers and Windows in hospitals, radiation therapy centers. CLEAR-Pb is a transparent, lead-impregnated plastic sheet in lead equivalencies from 0.3 to 2.0 mm, over 200 stock sizes up to 6 x 8 ft. (larger on special order.) Nuclear Associates.

**Nuclear Associates**

Circle 504 on the PRODUCT LITERATURE SHOWCASE inquiry card.




### Weatherstripping / Thresholds

Pemko's all new full-line catalog exhibits our complete line of residential and commercial products, including thresholds, gasketing, astragals, automatic door bottoms. Pemko's many new products and finishes are shown, including white and brite-dip gold anodized product line, adjustable thresholds and spring-bolt astragals. Pemko (805) 642-2600, fax (805) 642-4109.

**Pemko**

Circle 505 on the PRODUCT LITERATURE SHOWCASE inquiry card.

# PRODUCT LITERATURE SHOWCASE


### AEasy

AEasy, management software for the busy design professional, reduces clerical time, virtually eliminates billing errors, helps you spot budget overruns early and dramatically improves your staff utilization. All using less of your valuable time. AEasy interfaces with Timberline's Medallion Payroll, Accounts Payable, General Ledger and custom report programs.

**Timberline Software Corp.**

Circle 506 on the PRODUCT LITERATURE SHOWCASE inquiry card.

### Natural Stone Fireplaces

Bring the romance of a fire and the breathtaking character of stone into your customers homes with unique fireplaces. An internal contraflow design from Finland, combined with nature's finest material for retaining heat: soapstone - provides a highly efficient, emissions-free fireplace. Call our new US sales office at 1-800-THE-FIRE (800-843-3473) to receive a free color brochure on TULIKIVI Fireplaces, Bakeovens, Cookstoves, Countertops, and the Dealer nearest you.

**Tulikivi Group**

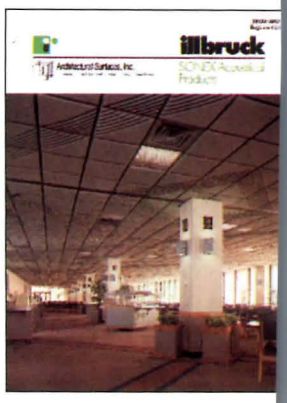
Circle 507 on the PRODUCT LITERATURE SHOWCASE inquiry card.


### Ways To Retrofit Shown In Brochure

Effective metal roof solutions to roof problems are featured in "RETROFIT—the permanent solution for roofs, walls and facades." Designed for the fast-growing building retrofit market, brochure shows how to eliminate leaky roofs, improve building energy efficiency, and enhance exterior appearance. Charts document cost-effectiveness of metal roof systems.

**Ceco Buildings Division**

Circle 508 on the PRODUCT LITERATURE SHOWCASE inquiry card.




### SONEX Acoustical Ceilings

SONEX Ceilings offer r
nowned acoustics plus th
ability to create hundreds
truly unique ceiling design
SONEX Ceilings are availab
in five tile patterns and
white, gray or beige colo
Each 24" x 24" tile fits in
standard ceiling grids ar
can easily be cut. Repr
sented by Architectural Su
faces, Inc., 123 Columb
Court North, Chaska, M
55318. (612) 448-5300.

**Architectural Surfaces I**

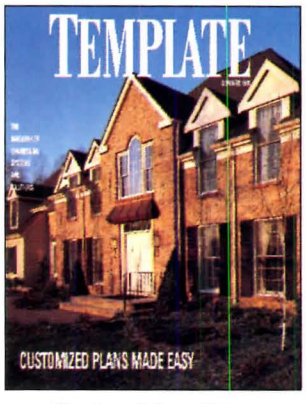
Circle 509 on the PRODUCT LITERAT
SHOWCASE inquiry card.


### Supra-Slate II Slate-of-the-Art

Supradur is pleased to announce Supra-Slate II, an asbestos-free replica of Supra-Slate an established slate substitute for roof applications for shopping centers, hotels, historic restorations and luxury housing. It provides "Class A" security & freeze-thaw protection. Manufactured with beveled edges. Available in Bangor Black, Pennsylvania Gray, Vermont Green, Rutland Red. It offers "storm-anchor-free" installation.

**Supradur Mfg. Corp.**

Circle 510 on the PRODUCT LITERATURE SHOWCASE inquiry card.

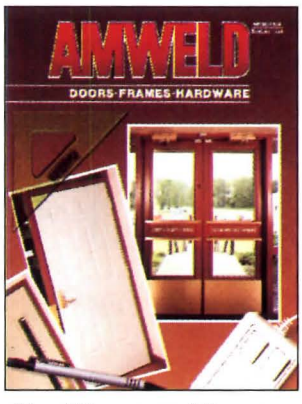



### Customizing Plans Made Easy

Free reprint describes a quick, easy way to customize construction plans using simple cut and tape techniques and an engineering copier. Beneficial reading for the custom builder. Xerox Corporation, 300 Main Street, Suite 4-102, East Rochester, NY 14445. Call 1-800-448-3400, Ext. 558 or circle reader service number.

**Xerox Corporation**

Circle 511 on the PRODUCT LITERATURE SHOWCASE inquiry card.

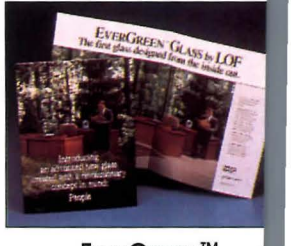



### Steel Doors and Frames Standard and Custom

For commercial and industrial use. 6 and 8 panel embossed doors, full glass entrance doors. UL-FM label. Security and bullet resisting doors. Sound doors with STC rating of 42 or 45. Polystyrene core. Custom doors and frames to meet your needs.

**Amweld**

Circle 512 on the PRODUCT LITERATURE SHOWCASE inquiry card.




### EverGreen™ Float Glass

Libbey-Owens-Fo
EverGreen™ Float Glass p
vides a soothing green
that blocks 78% of the
light, transmits 66% of
visible light, yet offers ne
20% less solar heat gain th
conventional green tin
glasses.

**Libbey-Owens-Ford**

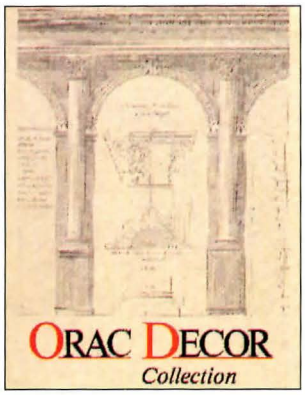
Circle 513 on the PRODUCT LITERA
SHOWCASE inquiry card.

### Artistic Sound Panels

ejtfus Business Environments offering a free catalog with ver 450 standard designs in soft dimensional fabric wall anels. These hand-upholered fiberglass panels are vailable in 50 colors. Other ustom applications include all art and corporate idenv. Luxurious fabric panels e now within most budgets.

**ejtfus Bus. Environments**

rcle 514 on the PRODUCT LITERATURE OWCASE inquiry card.

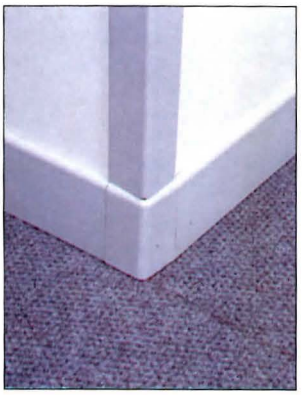



### Outwater Plastics

offers the Orac Decor Collection produced of high density polyurethane. Extremely durable, easy to work with, lightweight, simple to install. Architectural products such as cornice mouldings, panel mouldings, chair rail, wall lighting, ceiling medallions, niches, corbels, pilasters and columns. Excellent for new exterior/interior designs, commercial and residential. Free catalog available. Outwater Plastics, 4 Passaic St., Wood-Ridge, NJ 07075, 1-800-888-3315.

**Outwater Plastics**

Circle 515 on the PRODUCT LITERATURE SHOWCASE inquiry card.

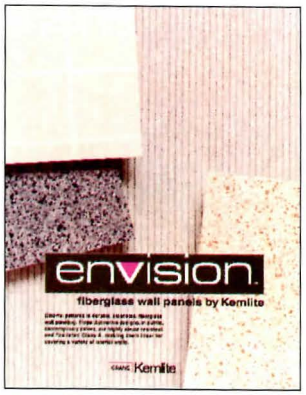


### New Vinyl Cove Base System

Protect against costly impact and abrasion damage at floor level. New vinyl cove base designed to complement Pawling's Pro-Tek™ wall and corner guards, handrails and wallcoverings to form a coordinated impact protection system. Rigid vinyl is flameresistant and low maintenance. Send for our new full color 32-page Pro-Tek Wall & Corner Guard catalog or call toll free 1-800-431-3456; NYS 1-800-942-2424.

**Pawling Corporation**

Circle 516 on the PRODUCT LITERATURE SHOWCASE inquiry card.

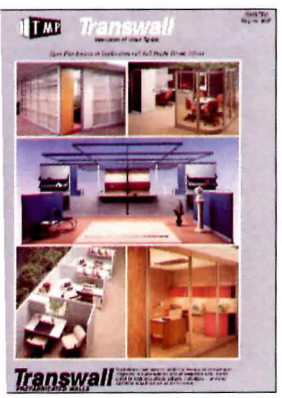



### Kemlite Introduces Colorful "Envision" Wall Panel

New type of smooth, matte finish fiberglass wall panel that has patterns imbedded into it. Available initially in a vertical ribbed look, square tile pattern and stone look. All come in a variety of colors and can be customized with your logo, pattern or design. Suitable for commercial offices, health care, schools and hotels. Moisture resistant, easy to clean, won't peel or chip. Class A fire rating. Contact Chris Farrell 800-435-0080.

**Kemlite Corporation**

Circle 517 on the PRODUCT LITERATURE SHOWCASE inquiry card.

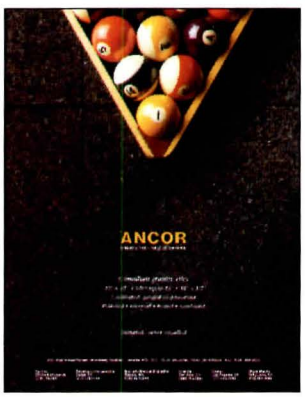



### pen & Private Offices Single Source

nswall combines these two sic wall requirements for day's high tech office with Soundivider® open plan tem and the full height rporate series. The two sysns offer complete interangeability of wall mount mponents, as well as comtibility in design and appearce. Modular furniture blends h panel mounted work surces. Electrical and electronic port is system integrated.

**nswall Corporation**

le 518 on the PRODUCT LITERATURE WCASE inquiry card.

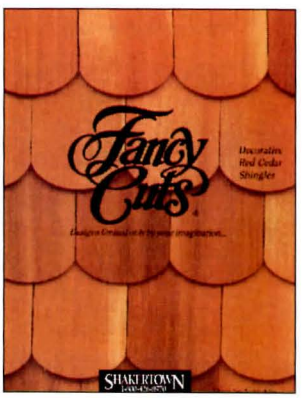



### Ancor Granite Tile

produces over a dozen granites in a variety of finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Polished and honed tiles are fully calibrated for economical thin-set installation. Ancor's honed finish tile is particularly suitable for high traffic commercial areas. Ancor Granite Tile, 435 Port Royal West, Montreal, Quebec H3L 2C3 Canada. Phone: (514) 385-9366, Fax: (514) 382-3533.

**Ancor Granite Tile Inc.**

Circle 519 on the PRODUCT LITERATURE SHOWCASE inquiry card.

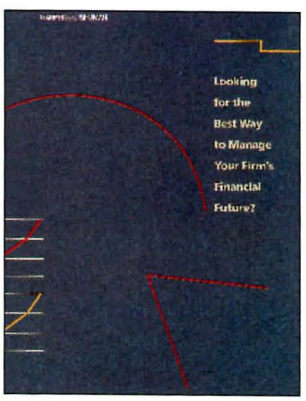



### Fancy Cuts Decorative Red Cedar Shingles

Nine precision cut patterns are available as individual shingles, or in eight foot panels with 5" or 7-1/2" exposures. This brochure shows many photos of product applications and design ideas. Shakertown Corporation, 1200 Kerron Street, Winlock, WA 98596. (800) 426-8970. (206) 785-3501 inside WA.

**Shakertown Corporation**

Circle 520 on the PRODUCT LITERATURE SHOWCASE inquiry card.



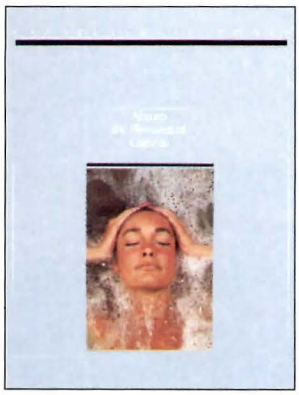

### CFMS (Computer-based Financial Management System)

Harper and Shuman develops, sells and supports financial management software specifically for architects. The only system of its kind sponsored by the AIA, MICRO/CFMS runs on PCs and CFMS runs on the DEC VAX. A modular approach lets you buy only what you need. Call today (617)-492-4410 or (415)-543-5886. Harper and Shuman, Inc.

**Harper & Shuman, Inc.**

Circle 521 on the PRODUCT LITERATURE SHOWCASE inquiry card.

# PRODUCT LITERATURE SHOWCASE

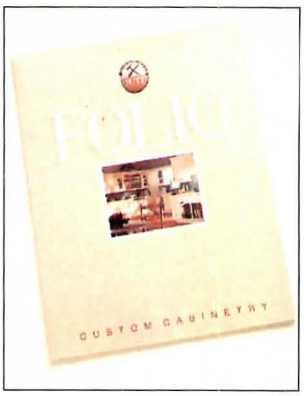


### Caldera Spas

Since 1976 Caldera has been manufacturing whirlpool baths in 11 different sizes in 25 DuPont Lucite XL acrylic. Each system includes 6 or 8 jets and a 1 hp self draining pump which is activated by an air switch at tub side. An installation platform is attached to each unit. All models are also available as a tub only. For more information contact Caldera at 1080 West Bradley Avenue, El Cajon, CA 92020, 1-800-669-1881, FAX 619-562-5120.

**Caldera Spas**

**Circle 522 on the PRODUCT LITERATURE SHOWCASE inquiry card.**

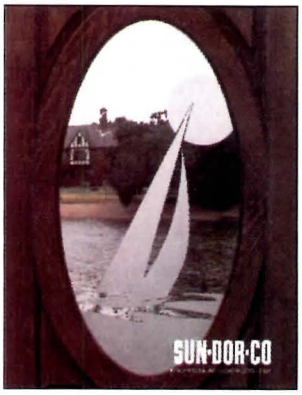



### Rutt's 70-page "Folio of Custom Cabinetry"

RUTT CUSTOM CABINETRY'S "Folio" demonstrates a wide selection of traditional, transitional, and contemporary styles, and the latest in custom design and decorating ideas for rooms throughout the home. Send request on company letterhead and also receive free our 270-page Specifications Guide. Enclose $7.00 - Rutt, Dept. AR, P.O. Box 129, Goodville, PA 17528.

**Rutt Custom Cabinetry**

**Circle 523 on the PRODUCT LITERATURE SHOWCASE inquiry card.**




### Etched Glass Doors

SUN-DOR-CO Etched Glass Art options complement the full line of SUN-DOR-CO wood doors. An extensive collection of Etched Glass Art options is shown in 8 pages, fully illustrated. A variety of door styles, standard sizes and odd sizes are available. SUN-DOR-CO, P.O. Box 13, Wichita, KS 67201. (800) 835-0190.

**Sun-Dor-Co**

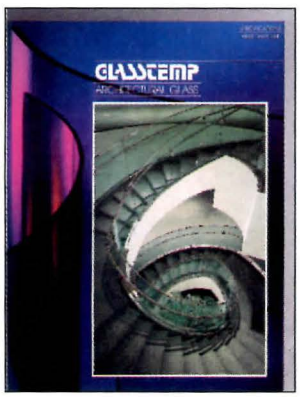
**Circle 524 on the PRODUCT LITERATURE SHOWCASE inquiry card.**


### The REPort...the monthly newsletter for building product sales reps and distributors

News briefs and reports, buil*ing products, law,* marketin management, selling tip news of companies ar people, employment listing new lines available, and sal leads on major constructio projects... everything the su cessful rep or distributor nee to know...from McGraw-H $69/year (12 issues). Call 2 512-3442.

**The Report**

**Circle 525 on the PRODUCT LITERAT SHOWCASE inquiry card.**




### Specifier's Guide For Bentemp™ Bent Tempered Glass

This Glasstemp brochure provides a ready reference on bent tempered architectural glass. Design information shows how you can now have the exciting look of curved glass with the strength and safety of fully tempered glass. Detailed specs describe use for building exteriors, handrails, elevators, partitions, bay windows, skylights & other applications. 1001 Foster Ave., Bensenville, IL 60106.

**Glasstemp, Inc.**

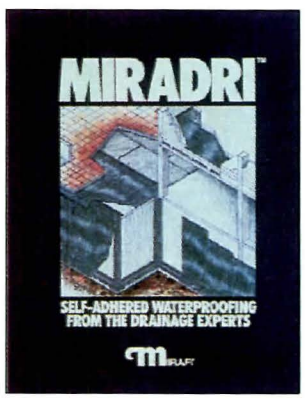
**Circle 526 on the *PRODUCT LITERATURE* SHOWCASE inquiry card.**


### FRT Wood for Interior and Exterior Uses

PYRO-GUARD third generation interior fire retardant lumber and plywood is tested for plywood roof sheathing, roof framing and other interior structural applications. EXTERIOR FIRE-X fire retardant treated lumber and plywood is used for exterior applications such as siding, decks, stairways, common entrances, scaffold plank and many other applications. Both products are UL-classified.

**Hoover Treated Wood Products**

**Circle 527 on the PRODUCT LITERATURE SHOWCASE inquiry card.**




### Miradri™-Self-Adhered Waterproofing System

Miradri is a self-adhered sheet membrane that provides excellent waterproofing protection for below grade foundation walls, slabs, parking decks, plaza decks, tunnels, etc. Miradri is marketed as a complete waterproofing system in conjunction with a primer for wall preparation, a liquid membrane for hard-to-reach areas, and a mastic to seal termination points.

**Mirafi Inc.**

**Circle 528 on the PRODUCT LITERATURE SHOWCASE inquiry card.**

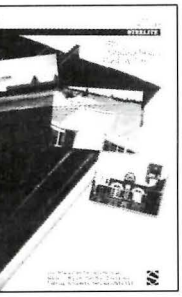
### Impressions Are Important!!!

Insure you make a pro sional one by carrying y blueprints in a THOMAS CA Each case is meticulo handcrafted and only finest materials are us Makes the carrying of y prints easy and conveni while it also prote them. Available in leather vinyl. Colors include gandy, Black *and Tan.* tom sizes available. Allo weeks for delivery. For pr or to order call us toll fre

**Thomas Cases**

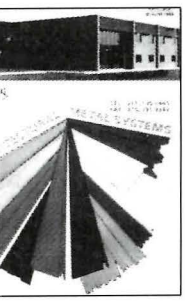
**For further *information* Call 1-800-544-7929.**

*For more information, circle item numbers on Reader Service Cards*

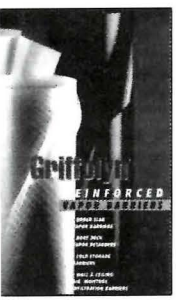


**Standing-seam roofing**
Architectural applications of the SRS mechanically seamed roof are featured in a four-page design catalog. The system resists long-term weathering, extreme wind uplift forces, and thermally induced movement. Steelite, Inc., Pittsburgh. *Circle 400*


**Commercial roofing products**
A 48-page specification manual contains general design recommendations for all Tamko built-up and SBS-modified products, including new fire-retardant systems. Flashing and construction details are shown for all roof systems. Tamko Asphalt Products, Inc., Joplin, Mo. *Circle 401*



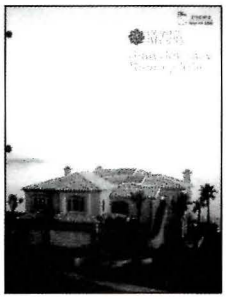
**Architectural metal systems**
Roof, ceiling, and wall components made of aluminum, copper, or steel shown in both stock and custom profiles. A 20-page catalog features a structural Arc-Metafor panel custom-curved to either concave or convex shapes. ATAS Aluminum Corp., Allentown, Pa. *Circle 402*



**Vapor barriers**
Reinforced with nylon cord to resist tears, Griffolyn polyethylene vapor barriers come in sizes up to 40 by 100 ft; custom sizes of up to 200 sq ft are available. Suggested for use under slabs and as a vapor retarder in roof-deck assemblies. Reef Industries, Houston. *Circle 403*

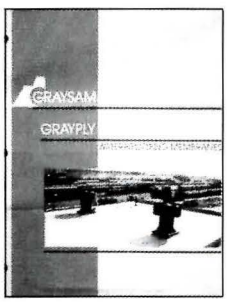

**Extruded-foam insulations**
The features and benefits of Amofoam, Amocor-PB6, and Amocor Plygood roof recovery boards are discussed. The rigid boards offer a number of installation and facing options, including an easy-to-handle fanfold. Amoco Foam Products Co., Atlanta. *Circle 404*

**Shake-look roof panels**
Lightweight, fire-resistant roofing made of steel formed in a mission tile or wood shake pattern is surfaced with a finish of colored stone granules. Panels interlock, and are installed with matching roof accessories. Gerard Roofing Technologies, Inc., Brea, Calif. *Circle 405*



**Glazed roof tiles**
Natural-clay tiles come in two barrel shapes, an interlocking Oriental style, and a shingle-look. Natural, flashed, and ceramic-glaze colors range from white through reds to silver and two shades of black. Maruhachi Ceramics of America, Inc., Corona, Calif. *Circle 406*

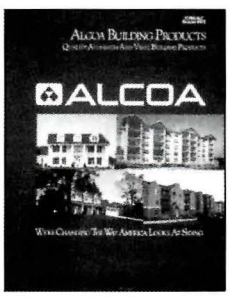

**Tapered insulation**
Brochure illustrates large roof projects, and explains how ENRGY 1 foam panels are compatible with virtually every type of roofing material and attachment method. High insulation value per inch. Facilitates slope-to-drain. NRG Barriers, Inc., Saco, Maine. *Circle 407*




**Self-adhesive membrane**
Flyer gives details on the Graysam roof, a fully adhered CPE-based membrane that is applied by removing the release paper and pressing the sheet onto the substrate. It remains flexible to -40F and has 15 percent elongation. Hyload, Inc., Pittsburgh. *Circle 408*


**Coal tar pitch**
A 12-page guide explains how the tight molecular structure of Black Armor coke-oven tar provides natural resistance to the effects of temperature, moisture, and corrosive elements. OSHA exposure standards included. Allied Signal, Inc., Morristown, N. J. *Circle 409*


**Sprayed-on roofing system**
A 32-page guide explains the installation and specification of a Dow Corning seamless roof for various site conditions. The system consists of sprayed-on polyurethane foam insulation covered with two coats of silicone rubber. Polycoat Systems, Inc., Hudson Falls, N. Y. *Circle 410*



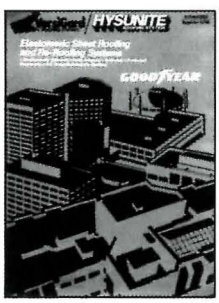

**Roofing and siding accessories**
Architectural catalog includes photos, performance data, details, and specifications for aluminum and vinyl siding, fascia, and soffits; rain-carrying systems; louver and raised-panel shutters; load-bearing columns; and trim. Alcoa Building Products, Sidney, Ohio. *Circle 411*

*For more information, circle item numbers on Reader Service Cards*


**Architectural sheet metal**
Innovative metal techniques include on-site roll-forming of continuous-length straight and curved standing-seam panels. A 40-page guide illustrates colors and applications ranging from sports stadiums to Victorian-era homes. Berridge Manufacturing Co., Houston. *Circle 412*

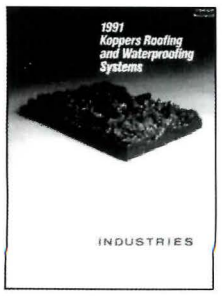

**Single-ply membrane systems**
Catalog explains design and installation requirements of all Rubbergard EPDM and CPE membranes. Charts list accepted insulations and attachments for each roof type, including the new Saturn System. 16 pages. Firestone Building Products Co., Carmel, Ind. *Circle 413*


**Roof edge**
Brochure explains how Anchor-Tite roof edging meets various single-ply conditions. Design has a corrosion-resistant aluminum anchor bar concealed by a continuous, snap-on cover. Guaranteed for winds of up to 95 mph. Metal-Era Roof Edge Systems, Waukesha, Wis. *Circle 414*

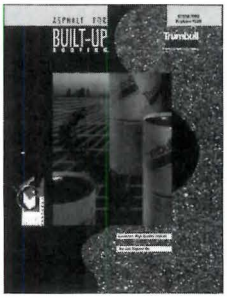



**Sheet roofing systems**
A 28-page catalog highlights VersiGard EPDM and Hysunite, a polyester-reinforced white Hypalon membrane. Test results are listed; diagrams demonstrate correct edge and flashing details. The Goodyear Tire & Rubber Co., Roofing Systems, Akron, Ohio. *Circle 415*

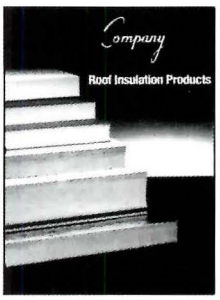

**Metal components**
Brochure introduces a line of metal panel systems for architectural, commercial, and industrial projects. Greater spans are possible with the heavier gauge metal used. Field-assembled insulated walls are featured. ECI Building Components, Inc., Stafford, Tex. *Circle 416*




**Built-up roofing systems**
Technical guide discusses design considerations for both coal tar and asphaltic materials. The water-resistant properties of coal tar bitumen permit its use on dead-level roofs; new formulations reduce fume evolution. 28 pages. Koppers Industries, Pittsburgh. *Circle 417*

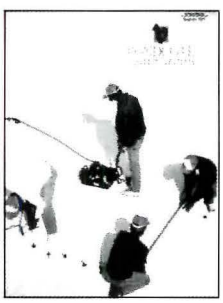



**Roofing asphalt**
Technical brochure highli
the performance characteri
of asphalts specifically fo
lated for dead level, flat, s
and special-steep roofing a
cations. Test data are li
Trumbull Division of Ow
Corning Fiberglas, To
Ohio. *Circle 418*

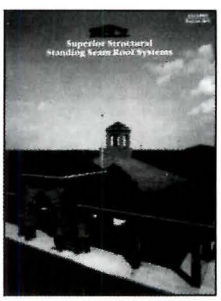



**Commercial board insulat**
Catalog discusses rigid pol
cyanurate panels, made
different facings to meet th
tachment, layout, and in
tion requirements of spe
roof systems. Stress-skin
els and nail-base insulation
included. Homasote Co., T
ton, N. J. *Circle 419*

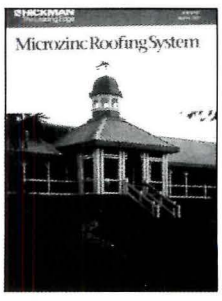

**Modified bitumen membra**
Capabilities brochure outlin
range of asphaltic roofing
waterproofing products i
porating either APP or
modifiers. Research and m
facturing facilities are
scribed. U. S. Intec, Inc.,
Arthur, Tex. *Circle 420*



**Hot-air-welded**
Installation and long-term
formance benefits of
based roofing membrane
covered. The material rem
thermoplastic when insta
and is said to be easy to ha
even at cold temperatu
Bond Cote Roofing Syst
West Point, Ga. *Circle 421*




**Structural metal roof syste**
Architectural brochure
lights the long-span potenti
snap-together Ultra-dek
field-seamed Double-Lok r
roofing systems. Diagr
show how the systems' ar
lating clip responds to the
movement. MBCI, Hou
*Circle 422*




**Weathering metal**
An architectural sheet
made of a zinc/copper/tita
alloy, Microzinc will weath
response to local conditions
uniform gray color that wi
bleed. Catalog describes s
ing-seam roofing and roo
cessories. W. P. Hickman
Asheville, N. C. *Circle 423*

*r your convenience in locating ilding materials and other products own in this month's feature articles, CORD has asked the architects to ntify the products specified.*

**ges 62-67**
Franklin Institute
ldes Brecher Qualls Cunningham, Architect
f limestone: Wollery Stone Co., Inc. Brick: Bel- Brick. Sandblasted anodized-aluminum exteri- plates: John W. McDougall Co. Paints on metal faces: Tnemec. Storefronts, windows, and rs: Hope's Architectural Products, Inc. Glass: G, Glass Group (Solex). Lead-coated copper fing: James Heilstand, Inc. EPDM membrane f: Manville. Skylights: Bohem; SuperSky West. **ges 64-67**—Atrium paving: Monile Terrazzo. cial lighting: custom by Klemm Reflector Co. ling: Leonard Kunkin Associates. Carpeting: astan-Bigelow. Rubber flooring: Freudenberg lding Systems, Inc. (Norament). Silk-screened celain-on-steel panels: AllianceWall. Folding e tables: Howe. Chairs: Flyline (Tuja). Illumi- ed signage: custom by architects, fabricated by nelius Architectural Products.

**es 68-71**
ry Research and Education Building
kins & Will, Architect
estone cladding: Tristate Cut Stone. Aluminum ain wall and windows: Marmet Corp. Glass: G Industries, Inc., Glass Group. Single-ply roof- Firestone Building Products. Terne-coated nless steel: Dessent Roofing Co. Entrances: Ar- te Architectural Products. Door hardware and devices: Corbin Hardware. Paints: Benjamin re & Co. Custom panels: Barsanti Woodwork. amic tile: Dal-Tile. Elevators: Westinghouse/ ndler.

**es 72-75**
mount Hotel
gh Space Architects
tom doors and woodwork: Progressive Mill- k. Paneling and cabinetry: Maville. Laminate faces: Formica Corp. Perimeter lighting: Light- , Inc. Furnishings in lobby: Arflex (Marco Zan- Antropus chairs); Ecart (Jean Michele Frank ); Maville (Philippe Starck tables and chairs on zanine; side chair and ottoman); Idee (Mark rson Lockhead aluminum lounge); Disenios oricos (Antoni Gaudi carved settee); Muebles as (Carlos Riart sofas). Custom-color paint: suede.

**es 76-83**
k of China Tower
Pei & Partners
de stone: Lanhelin French granite. Curtain Joseff Gartner. Glass: Spectrum Glass Prod- Penthouse solar screening: Tajima. Stainless- metalwork: Haukee; Josef Gartner. Eleva- Mitsubishi.

**es 84-87**
a Pines Health Center
rio Associates, Architect
: ECI Building Components. Exterior stains: npic Homecare. Composition flooring: Cross- Products Corp. (Dex-O-Tex). Entrance doors: om by architects, fabricated by Contemporary rican Furniture. Reception desk: custom by itects, fabricated by Laco Woodworking. Door ware: Schlage Lock. Customized pendants: Lighting.

**Pages 94-97**
Warsaw Community High School
The Odle McGuire & Shook Corp. and Perkins & Will, Associated Architect
Metal roof and siding: H. H. Robertson Co. Glass: Viracon, Inc. Aluminum-framed windows: Wausau Metal Corp. Entrance doors: Kawneer Co., Inc. Wood doors: Eggers. Door hardware: Corbin. Acoustical ceilings: Armstrong World Industries, Inc. Suspension grid: Chicago Metallic. Paints: Sherwin Williams. Wallcoverings: Genon. Carpeting: Lee's Commercial Carpets.

**Pages 97-100**
Jane S. Roberts Elementary School
Hervin Romney Architect, Inc.
Corrugated metal roofing, canopy, and windows: H. H. Robertson Co. Glass block: Pittsburgh Corning, Inc. (reflective Decora). Library pendant fixtures: SPI Lighting. Other lighting: Lithonia.

**Pages 101-104**
Hope Elementary School
Taft Architects
Ground-face CMU: Trenwyth Industries, Inc. Preformed metal roofing: ECI Building Components. Aluminum-framed windows: EFCO Corp. Glass: Guardian Industries. Exterior lighting: Bega/FS. Entrances: Kawneer Co., Inc. Hollow-metal doors: Fenestra. Wood doors: Weyerhaeuser Co. Locksets: Best Lock Co. Hinges: Hager. Closers: Rixon-Firemark, Inc. Exit devices: Von Duprin, Inc. Sprinklers: General Firematic. Vinyl wallcovering: Genon. Laminate surfaces: Wilsonart. Paints: Benjamin Moore & Co. Corridor lighting: Holophane. Resilient tile: Azrock Floor Products. Classroom desks: Irwin.

**uary 24**
Rudolph, in the "Shape of the City" ussion series at the 92nd Street YW/A, 1395 Lexington Ave., New York , at 8 p. m.; Charles Moore, on Febru-26; Allan Greenberg, on March 5; Paul berger, moderator. For information: 415-5455.

**ough February 9**
ef Hoffmann: Drawings and Objects Conception to Design," 281 sketches objects, Goldie Paley Gallery, Moore ege of Art & Design, 20th St. and the way, Philadelphia; participants in a ong symposium on Josef Hoffmann uary 26 will include David Gebhard, Graf, Michael Graves, others. For in-nation: 215/568-4515.

**uary 28-March 8**
men: A Culture of Builders," an exhib- photographs by Peggy Crawford of eni building forms; sponsored by the erican Architectural Foundation; at the ege of Architecture, University of Ari-, Tucson. For information: R. Brooks ery, 601/621-6751.

**uary 31**
e Skin of the Earth," symposium con-ed by London-based architect Raoul schoten; other evenings include Neal ari, February 7, and Patricia Phillips, ruary 14; sponsored by the Architec-l Dialogue Committee of the New City chapter of the AIA; New York ety for Ethical Culture, 2 West 64th 6:30 p. m.

**ruary 6-May 21**
e Grand Louvre: Entering a New Cen-," on the architecture of the Louvre, nized by the American Architectural ndation, at The Octagon, 1799 New Ave. N. W., Washington, D. C. For mation: Lynne Lewicki, 202/262-7467.

**uary 10-April 14**
nk Lloyd Wright: Preserving Archi-ral Heritage," an exhibit of over 70 rative pieces by Wright, including fur-e, art-glass windows, textiles, and ings; at the museum of the Pennsyl-Academy of the Fine Arts, Broad Cherry Streets, Philadelphia. For in-ation: 215/972-7642.

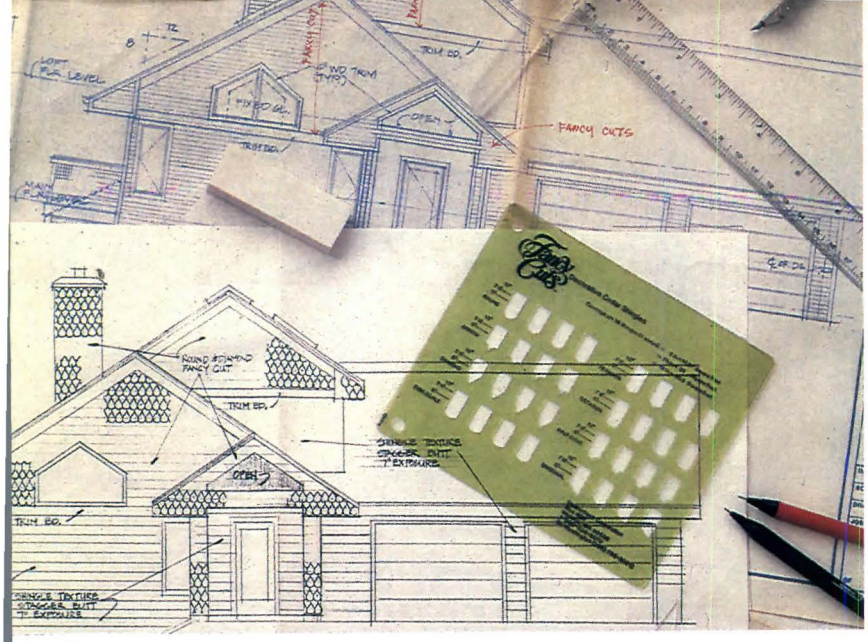
**uary 11-15**
cessful Construction Management niques and Procedures," a five-day e conducted by the College of Engi-ng, Department of Engineering Pro-nal Development, the University of nsin-Madison. For information: 800/376.

**uary 26-April 27**
gn 1935-1965: What Modern Was," 250 mass-produced and hand-crafted objects, a traveling exhibit orga-by the Montreal Museum of Decora-rts; opening at the IBM Gallery of e and Art, 590 Madison Ave., New City. For information: 212/745-3500.

**March 2**
"Social Reponsibility and the Design Professions," 9 a. m. to 5 p. m., a forum organized by the New York chapter of Architects, Designers and Planners for Social Responsibility; Susanna Torre, program coordinator; at the New School for Social Research, 66 Fifth Ave., New York City. For information: 212/334-8104.

**March 5-7**
"Lightfair," lighting show and conference sponsored by the Illuminating Engineering Society of North America and the International Association of Lighting Designers; preceded by National Association of Electrical Distributors' Commercial/Industrial Lighting Conference, March 2-5; both events to be held at the Merchandise Mart, Chicago. For information: Lynne Weller, 404/220-2115.

**Through March 31**
"Windows Through Time: American Windows from the 1630s to the 1930s," examining the evolution of American window design and technology and including 18 original windows; at the National Building Museum, Judiciary Square, Washington, D. C. For information: Donna Anderson, 202/272-3606.

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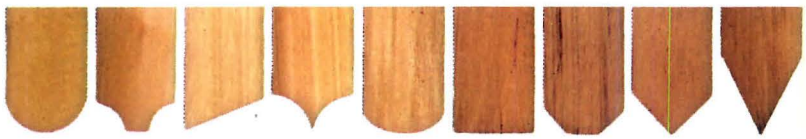

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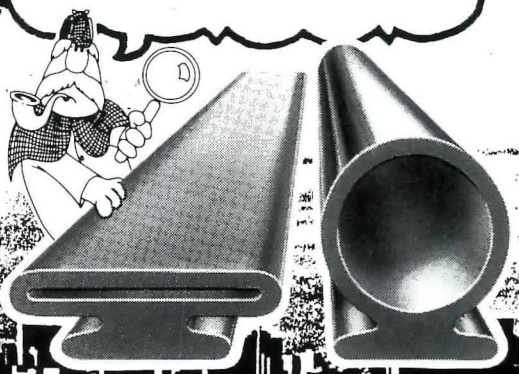

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