A CUT ABOVE.

Only Cirrus® Hardware Friendly ceilings match edge detailing around lights, HVAC fixtures and grilles. These made-to-order openings give you more control over the installation’s final look. They’re available in sizes from 3½" to 16". For more information, call 1 800 233-3823 and ask for Cirrus Hardware Friendly.
Bow string steel joists were the order of the day for the designers of Desertaire Elementary School. They wanted a multi-purpose room that was not only functional but architecturally interesting and attractive as well.

We filled the order for those joists. We’re the largest supplier of steel joists in the country and we provide more than a dozen nonstandard designs, the most in the industry.

That’s a lot. But then we’ve been making nonstandard joists for a long time. And the manufacturing expertise we’ve developed over the years, plus our large inventory of steel, enables us to make them quickly and economically.

And the earlier we get involved in the design stages the better for the project. Because our experienced engineers can assist the building’s designers, and bring the end product in at less cost and more quickly than could be done with traditional methods.

So when you’re designing your next project, think of Vulcraft nonstandard joists. They give you the opportunity to expand your design possibilities while retaining the advantages of steel joist construction. And those advantages are many.

Vulcraft joists are strong, yet lightweight and easy to erect. And they can be delivered to your site when you need them. In short, they meet all the requirements for a truly outstanding product.
CONTENTS

FEATURES

61 IN THIS ISSUE

62 ART FOR SCIENCE
GBQC's crisp new Futures Center for the Franklin Institute both complements and completes its venerable predecessor.

68 A CATHEDRAL OF LEARNING
Northwestern University's new medical-research tower, by Perkins & Will, merges seamlessly with its Collegiate Gothic academic setting.

72 REPEAT PERFORMANCE
Hotelier Ian Schrager hired an international cast of characters led by French designer Philippe Starck to remake New York City's Century Paramount Hotel.

76 SCALING NEW HEIGHTS
I. M. Pei & Partners' graceful triangulated tower for the Bank of China now dominates the skyline of Hong Kong. By Peter Blake

84 EXERCISING OPTIONS
Valerio Associates' health and recreation facility for Kimberly-Clark combines the opposing natures of a central Alabama forest and a paper-manufacturing plant.

BUILDING TYPES STUDY 687

91 SCHOOLS: MAKING THE GRADE
New technology and old-fashioned common sense characterize recent public-school architecture.

94 Prairie Tech: Warsaw Community High School, Warsaw, Indiana; Perkins & Will, Architects.

98 Tropical Prototype: Jane S. Roberts Elementary School, Dade County, Florida; Herv Romney Architect.

102 Hearing the Community: Hope Elementary School, Hope, Indiana; Taft Architects.

CENTENNIAL

12 Frank Lloyd Wright: On THE RECORD
Throughout his career, Wright used the pages of ARCHITECTURAL RECORD as a pulp to preach his gospel of Organic architecture.
BUILDING TECHNOLOGY

109 TECHNOLOGY NEWS

110 DETAILING THE DIFFICULT ROOF
Eight roofing manufacturers respond to a design for a hard-to-protect structure.

139 COMPUTER TECHNOLOGY
Cadance 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

144 NEW PRODUCTS
Glazed Fire Wall: An innovative glass design permits the application of large clear-vision panels in fire separation walls between use groups.

147 Catalog on a Disk: The Eclat CD ROM catalog offers quick access to voluminous amounts of manufacturers' literature, and a gateway to automated specifications.

PRACTICE

29 PRACTICE NEWS

37 Overseas Work: Where It Is and How to Win It. A RECORD roundtable calls on the experts to impart their experience working abroad.

47 A Stitch in Time: What to do when your financial statements look like these.
By Peter Piven

48 Construction Costs Under Pressure: The construction downturn has its silver lining as new construction becomes more affordable.

51 OBSERVATIONS
Hitting the Ceiling: Height Without Romance.
Critic Robert Campbell reconsiders the tall building and its place in American life and lore.

4 Letters
11 Editorial
21 Design News
155 Product Literature
157 Manufacturers' Sources

163 Calendar
168 Classified Advertising
170 Advertising Index
171 Reader Service Card

COVER: Bank of China Tower, Hong Kong; I. M. Pei & Partners, Architect
Photographer: ©John Nye
Their roof gives you more installers.
Ours gives you more roof.

Before you buy a roof, maybe you should see what you're buying. Take the built-up-roof in the bottom picture, for instance. Look at all those people installing it. Are you buying a roof, or renting a small army? Now, look at the Stevens contractors in the top picture. Rather small group, wouldn't you say? That's because they work with the Stevens Hi-Tuff® Roofing System. Which costs a bit more to buy, but is much less expensive to put down. So more of your money gets spent on the roof. And less on their labor. Add the life cycle energy costs and the Stevens roof is actually less than the built-up-roof. Because the Hi-Tuff® roof is white, so it saves on air conditioning. Plus, it's made from Hypalon® Which makes it naturally fire resistant. Chemical resistant. And strong, because hot air welded seams are the most reliable in the industry. So don't let the biggest part of your roofing investment walk off when the job's done.

Get a Stevens roof and keep it where it belongs. On the roof. To find out how, call today at (413) 586-8750 and ask for Dave Brown or Bruce Abbott.

*Hypalon is the registered trademark for DuPont's chlorosulfonated polyethylene (CSPE) synthetic rubber.
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 preceded 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 multidisciplinary 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 Stepper, 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 develop-ment 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 29]. 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 180-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 Postmodern 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.
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
Throughout his career, Wright used the pages of ARCHITECTURAL RECORD as a pulpit to preach his gospel of Organic architecture.

Wright's six "propositions" of 1908

1. 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

2. A building should contain as few rooms as will meet the 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 considered; comfort and utility may go hand in hand with beauty. In 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 reeents otherwise sequestered from it or screened within means of architectural contrivances.

3. An excessive love of detail ruined more fine things from the point of fine art or fine living than one human shortcoming—it is hopelessly vulgar. Too many houses, when not little stage settings or scene-ings, are mere notion stores, baza-junk-shops. Decoration is dangerous, less you understand it thoroughly are satisfied that it means something good in the scheme as a whole; if present, you are usually better off without it. Merely that it 'looks rich' justification for the use of ornaments.

4. Appliances or fixtures as such undesirable. Assimilate them to with all appendages into the detail of the structure.

5. Pictures deface walls often they decorate them. Pictures should be decorative and incorporated in the overall scheme as decoration.

6. The most truly satisfactory ornaments are those in which most of the furniture is built in as a part original scheme considering the whole as an integral unit. There should be as many kinds (styles) of house as there are kinds (styles) of people and as many different as there are different individuals. A man who has indig (and what man lacks it?) has a right to its expression in his environment.

III. —A building should appear to grow easily from the ground and be shaped to harmonize with its surroundings, if necessary there are kinds (styles) of people and as many different as there are different individuals. A man who has indig (and what man lacks it?) has a right to its expression in his environment.
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 dictum to be well understood or even read as architecture.

The sentiment for an American architecture first made itself felt in Chicago twenty years ago. Its earliest manifestation is in 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.

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, it is 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 adoring 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 architecturally 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...
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.
Wright addresses his apprentices in 1945 in the studio of Taliesin West in Scottsdale, Arizona.

Heyes and sheltering overhangs, low terraces and out-reach-valls sequestering private gardens.

Colours require the same conventionalizing process to them fit to live with that natural forms do; so go to the is and fields for colour schemes. Use the soft, warm, optic tones of earths and autumn leaves in preference to the mistic blues, purples, or cold greens and grays of the n counter; they are more wholesome and better adapted in bases to good decoration.

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

A house that has character stands a good chance of ing more valuable as it grows older while a house in ravelling mode, whatever that mode may be, is soon out shion, stale and unbarable. . . .ldings like people must be sincere, must be true hen withal as gracious as may be . . . . all, integrity. The ma is the normal tool of our tion, give it work that do well—nothing is of it importance. To do this e to formulate new ini al ideas, sadly needed.

nature: ri, Nature furnished terials for architectural out of which the archi forms as we know today have been developed, although our prac-ct has been for best part to turn from eking inspiration in books and adhering slavishly to dead ae, her wealth of suggestion is inexhaustible: her riches re 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 or 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 truvis fail as they must always fail. March 1908.

atic architecture: 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 al form that go to determine character as he can study the trees? Where can that sense of inevitability istic of a work of art be quickened as it may be by verse 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 be imagined anywhere else nor for any other purpose er than where and for what they were built. May 1952.

s and elevation:

We 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 projec tion 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 forged 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: aim, purpose, materials, method, character, style. The plan? The prophetic soul of the building . . . . January 1928.

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 sensuality that were a long time ago sensuous ornament. We will do well to distrust this unwelcome 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—it's 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.

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 1929.

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. Inheriting virtue will triumph here, too, in course of time. So much we know! August 1927.

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

The rock-legs of a stone-quadry are a story and a long one. There is suggestion in the strata and character in the formations. 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 materials. Man loves his association with it, likes to lay his hands on his hand, sympathetic to his touch and eyes. Wood is universally beautiful to Man. May 1927.

But the essential difference between stone and concrete is still unconsidered. And that essential difference is the plasticity of the material itself as auisished from natural stone, which has none at all. I should say that in this plasticity of concrete lies its esthetic value. As an artificial stone, concrete is great, certainly no independent, esthetic value. As a plastic material—eventually becoming like in character—there lives in it a great esthetic property, as yet inadequately expressed. August 1928.

On the Renaissance:
The "re-birth" of architecture. Unless a matter wrong and died too soon there could be no occasion for "re-birth." But according to architects, architecture has never been in this matter of getting itself completely re-born for several centuries until one might say it never properly born, and now thoroughly dead repeated "re-birth." As a matter of fact, architecture never needed to be born again . . . . February 1929.

On Michelangelo and St. Peter's
Let the architect cling, always, to the normal figure for his scale and he cannot go far wrong. Michelangelo did in St. Peter's in Rome. St. Peter's may be disappointing as a great building, but until the eye deliberately catches a human figure purposes of comparison does one realize the building is vast. All the details are likewise big. The sense of grandeur it might have if the masses were qualified by details kept to a scale—this effect of grandeur—is lost in the deification of the human figure. A strange error for an architect 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 cliché fruitful [contributions] made by Organic architecture in dimensions now appeared as a two-dimensional affair. Artament was scraped off. A high box would be contrasted long low box, or square boxes were placed together any tall boxes. Or on came the nude box cut open, or space the air on posts without pants. But always, nevertheless, 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 nothing and "much ado about nothing . . . ." Thus Modern-architecture Organic-architecture deprived of a soul. . . . Any "inter style" would probably be a cultural calamity fit for Fascism intolerable to democracy. May 1952.
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.
### DESIGN NEWS

**Hawaii Clubhouse from Wright Designs**

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 terrace 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

A succession of freestanding as wraps around 1501 M, a speculative office building designed by George Hartman-Cox. Although the office building is rising on the many 1960s office in Washington, D. C.’s SoHo district, the colonnades—and was inspired by late 19th-century cast-iron facades of New York SoHo, a landmarked historic district, the colonnades are in one piece and acid-proof. To own costs on the $80-milion, 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 entry for the art students of Washington’s Studio School, which will occupy two floors.

### don Confab Hits

**Tourist Pollution**

“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 Masuk, 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 “moderneist buildings,” too, need to be addressed.”

Jacob Rothschild, citing the meticulously restored Phoenix Room in Spencer House (a WPF project), wished the Fund “many many Phoenixes in the future.”

**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.
While The Others Can't Take The Heat
Our Cabinets Won't Yield Under Fire.

Our new Fire-FX™ extinguisher cabinets. * The first and only recessed fire-rated cabinets that won't violate fire-barrier wall safety.

J.L. Industries
Fire-FX. Your best protection under fire.
4450 W. 78th Street Circle
Bloomington, MN 55435

See the 1991 Sweet's File Catalog 10520/J.L.I. or call your authorized J.L. distributor or J.L. Industries at (612) 835-6850. J.L. Fax: (612) 835-2218.

*Patent pending

Circle 8 on inquiry card
Museum-Mad Frankfurt

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 Peichl designed 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

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.

TRACY METZ

Design News

Robert Orlemann

Joshua White
We Set The Standards That They Follow.

We were first to define workgroup CADD standards. With reference files, network support, and distributed database integration.

No wonder *PC Magazine* says MicroStation is "a powerful package that is pointing the way to the future multiuser CADD."

Now we're setting the pace again. With an unrivaled graphical user interface, true associative dimensioning, integrated high-quality rendering, sophisticated surfacing (NURBS), and much more. Now that's leading the competition!

Call 800-345-4856 for more information.

Circle 9 on inquiry card.

*MicroStation*

Everywhere you need it.

---

*Intergraph* is a registered trademark and *Everywhere You Look* is a trademark of Intergraph Corporation; trademark of Bentley Systems Inc. Intergraph affiliates. Other brands and product names are traded under respective owners.
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 1998. 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.

---

**Competition Endar**

Pont Flooring Systems is calling entries through Feb. 15 for its ninth annual An-Design Award. The competition is open to interior designers and architects in the U.S. and Canada, and includes categories: large and small hospitality, health care, stores, and store plans. For more information: 212/614-800/448-9835.

---

**The (Very) Well-Dressed Table**

The well-dressed table is a tasteful spendthrift's prize, having sailed down the y go again. The current Powell offering of architect-designed objects for the market is the $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.

---

**Swid and Addie Powell**

Swid and Addie Powell and their architects to solicit most mineral-encrusted objects when designing their spaces, and store plans are being held to select an architect for a new Museum of Science and Industry in Scotland, to be built in Edinburgh. Application materials and information: Kate Comfort, Royal Incorporation of Architects in Scotland, 15 Rutland Square, Edinburgh, EH1 2BE. Deadline for first-stage (anonymous) submissions is April 15.
Carlisle... Top Performance for Top Performers.

Top performers in the world market rely on the top performer in single-ply roofing... Carlisle. Besides supplying fully integrated roofing systems of top quality, you, the specifier, receive unparalleled design assistance. Carlisle conducts informative regional Design Conferences, delivers quick responses to your design and technical inquiries, and carries out the industry's most demanding inspections. Factor in the Carlisle warranty and all this adds up to peace of mind for you and your top performers.


Carlisle has a roofing system to meet your every design need in black or white, reinforced or non-reinforced, EPDM or CSPE plus support services.

Find out why top performers have chosen Carlisle for over 80,000 warranted roofing projects. Call toll-free, 800-233-0551; in PA, 800-932-4626; in Canada, 416-564-5557.

Carlisle SynTec Systems
Division of Carlisle Corporation
P.O. Box 7000 • Carlisle, PA 17013-0925
Circle 10 on inquiry card
Angeles: Recent Urban Design

Los Angeles has finally come to with its dual heritage: the open spaces of its boulevards and the themed communities bred by the film industry, and adopted by shopping and residential developers. The contrast is yielding a new generation of strips and enclosed environments that ignore the renaissance of grid planning characterized most cities in S.

Hollywood Boulevard at Urban Design Plan, put together by the Community Reinvestment Agency of Los Angeles, is an attempt to revive the strip of them all, by doing "the district" of the lays of Hollywood.

Rezoning scheme taking shape around the Chinese Theater and the Walk of Stars seeks to bring the once vital—though alas somewhat seedy—experience back. The rezoning, says John Kaliski, an architect of the CRA, "is the so-called City Plan, proposed in 1984, which creates a grid of multi-use neighborhood centers." The plan proposes a massive linear park, one store wide, that will connect three neighborhoods.

Through the design guidelines govern Density transfers and set aside space for public outdoor spaces. The design: a street of one store wide, with all the signs, restaurants, and at-grade level transfer to development together with parking.

In their designs for the 5-million-square-foot Los Angeles Center [Record, November 1990, page 15], Johnson Pain and Pereira proposed a system of linear parks with small, vest-pocket open spaces radiating 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, Pain 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 Maury Thomas, known for his sponsorship of high-quality architecture and for its responsiveness to community pressures, acquired the property. The developer engaged a team led by Elizabeth Platzer-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 Platzer-Zyberk had pioneered in Seaside, Florida, the team created a grid of multifamily buildings based on the hybred 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.

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 a 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.

AARON BETSKY

ARCHITECTURAL RECORD JANUARY 1991: 27
A unique look of fine designer linens and wools, with unparalleled modular flexibility. For a detailed brochure write
The Celotex Corporation, Attention: Cashmere, Box 31602,
Tampa, FL 33631. FAX: 1-813-873-4103.
ling the ycatters

One of copycat buildings is

illy the...
What Glazing Material Bends Like Paneling, Works Like Wood, Weighs as Little as Cardboard, Insulates Like Sealed Insulating Glass, Weathers Like Acrylic and is Unbreakable, Fire Retardant, and Costs Half as Much as Glass?

Polygal® Polycarbonate Structured Sheet...

... the high-performance glazing alternative for skylights, atria, canopies, sunrooms, pool enclosures and more. Extruded in a variety of colors and thicknesses to meet any design need.

See our new Sweets catalog section 8840.
POLYGAL, Inc.
P.O. Box 1567, Janesville, WI 53547 (608) 757-1313

Circle 12 on inquiry card
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.


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 as 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
Let's face it: Nobody goes to architectural school because they want to write specs. They do it because they want to design.

And even the best professional spec writer will admit that too much of the process is mechanical and uninteresting.

Fortunately, now there's SPECSystem. A CD-ROM-based, interactive system that can help you write specs more quickly, easily and accurately than you've ever imagined possible. A system that can save time, money and lots of headaches. And let architects and spec writers spend their time thinking, instead of typing.

Introducing SPECSystem.
The First Spec-Writing System
That Speaks Your Language.

Other "systems" are basically nothing more than master text. You have to go through them paragraph by paragraph, page by page, and edit them manually.

SPECSystem, on the other hand, is an interactive, "knowledge-based" system. It asks you questions. You answer. It asks more questions, based on your answers, and so on until you've told SPECSystem what it needs to know about your project.

Then SPECSystem creates the specifications, tailored to your project. You produce a comprehensive, customized document without ever having to see the master text.

SPECSystem's Always Up To Date:
So Your Specs Are Never Out To Lunch.

Each month, SPECSystem subscribes receive an update, incorporating the latest data in any section where changes are necessary. So the specifications you write won't contain outdated information that could cause legal problems down the road.

SPECSystem also provides you with a complete audit trail of decisions made for each spec generated, as well as custom coordination notes for each section. There are short form options for frequently-used sections. And easy-to-use, context-sensitive tutorials guide you through the whole process.

To find out more about how SPECSystem can make your spec writing a lot easier and a lot more accurate — and to get a free demonstration package — call 1-800-942-SPEC (7732).

Circle 13 on inquiry card

SPECSystem ™

Circle 13 on inquiry card
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.

Some time, the large U. S. architectural firms have begun work abroad in the natural course of expanding markets. Smaller firms have been doing work abroad—usually because the principals had the right conception, rather than aggressive betting strategies. The big firms saw an opportunity to out the perennial up-and-down swings in the volume of buildings they design. But, it has become the rate step in geographic specification.

that many firms, large and small, are having serious trouble finding work; interest in foreign markets has risen again. This matches the general attitude of our times in the U. S.—people in all fields have come to realize that the country is not alone, but a part of a global economy. One question the adventurous firms asked when they went abroad? Did their principals match their expectations? Did they avoid the pitfalls and what they learn if they fell in? Where and how did they know to find work? These were just some of the questions RD wanted to answer when it invited architectural registrars of large and small firms seasoned in overseas work from the country (plus one expert on geographic specification) to come to New York for all. They were:

Fred Koetter
Partner; Koetter, Kim & Associates

L. Bradford Perkins
Principal; Perkins Geddis Eastman

Robert Sobel
President; Emery Roth & Sons

Charles Thomsen
President; 4D/International

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

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.

APRCHITECTURAL RECORD JANUARY 1991 • 37
If You Have A Design Problem, We Have An Angle.

Creative design need no longer be dictated by manufacturers' extrusion specifications. With our exclusive hinged and flexible mullions, YKK offers a versatility never before available. Curves and angles are a functional part of design. Available in a full range of anodized finishes, YKK hinged and flexible mullions offer a new degree of freedom and a full range of design and color options. For specific details as to how YKK can give you more angles for solving your design problems, contact your YKK representative or call (404) 344-2981.

Hinged mullion
- Adjusts up to 15° to permit curved and S-shaped configurations.
- U.S. Patent 4934115

Flexible mullion
- Expandable from 93° to 170° (YES series) and from 90° to 160° (YFL series), flexible mullions establish a new standard of versatility.

YKK ARCHITECTURAL PRODUCTS
Storefront Systems For Innovative Designs
5610 Gwaltney Drive
Atlanta, GA 30336
(404) 344-2981

Circle 17 on inquiry card
wing what you are wanted for—in fulfilling a craving for technology and modernization, will adopt all kinds of new technology," said Chan. "And new technology often brings with it new architects. They understand it better. After becoming experts, we found that we were going to be experts in systems, or if you're dealing with building expenses, you make offices more productive. Our guys are in a tough environment. We have some technology, we have experience with a particular building type, we have the same education. 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 personali ties 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?"

PRACTICE

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, 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 Thom- sen. "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.

Will the State of Our Profession Help Us Abroad?

We live and practice in a world of consistency," said RECORD editor Stephen Liment in opening the meeting. "It's a pride of specialization [by some firms]." A different firms feel they can handle all tasks with the help of the new practice aids.

"There's change in other ways. Overhead expenses are up enormously and operating income tends to be level sliding downward. The workplace is anging for architects and for junior acting people. There is a trend to downsizing toward leaner firms—to more out of less.

New management tools are very sophisticated. New software comes on the market almost daily. It is supposed to keep managing offices easier—and ring branch offices, running them, possibly closing them.

"But, how do you train those who are make of these new kinds of systems? We are told that computerization, especially 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, specialist 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 personali ties 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?"
TISCHLER WINDOWS AND DOORS. UNCOMMON. UNCOMPROMISING.

TISCHLER UND SOHN
Made in Germany since 1888.
67 Holly Hill Lane  Greenwich, CT 06830 USA
Telephone 203/622-8486  Telefax 203/622-8558
Circle 18 on inquiry card
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.”

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

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.
Bilco automatic fire vents offer performance you can count on, the reliable performance it takes to prevent small fires from becoming major disasters. Their automatic venting action exhausts the smoke and super-heated gases through the roof. This reduces the danger of “flash-over”, an extremely hazardous condition which allows fires to spread quickly over large areas. Fire venting assists in maintaining good interior visibility, allowing firefighters to locate the seat of the fire.

Bilco’s DFV Series Automatic Fire Vents

Bilco’s DFV series automatic fire vents are U.L. Listed and FM Approved. All DFV vents feature steel or aluminum construction, insulated covers and curbs, an EPDM weatherseal gasket (secured to the covers with high-strength adhesive), heavy duty hardware, the exclusive Thermolatch® hold/release mechanism and an attractive, low-profile exterior design. DFV fire vents are available with a variety of options such as smoke detector activation, motorized operation, special finishes, custom base flanges for metal roof installations, burglar bars, exterior lock boxes and many more.

The Sileo Company, P.O. Box 1203, New Haven, CT 06505
Tel. (203) 934-6363 • Fax (203) 933-8478

Circle 19 on inquiry card
s always less than tax on services. But

t to bring in American

Vhat brought us overseas were con­

hina in one instance.


“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 Balen,
“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

ce 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

cies already established in the European
community, regardless of ownership, will
be treated the same,” revealed Fallon.

“Hence the flurry to get a subsidiary es­
sablished 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

roduce 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 Repub­
lice 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
credited 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
ture 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 commission.
A STITCH IN TIME

What to do when your financial statements look like these.

By Peter Piven

<table>
<thead>
<tr>
<th></th>
<th>Smith &amp; Jones</th>
<th>1988</th>
<th>Smith &amp; Jones</th>
<th>1989</th>
<th>Smith &amp; Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td></td>
<td>12%</td>
<td>6%</td>
<td>(Percent of net revenues)</td>
<td>6%</td>
</tr>
<tr>
<td>Payroll utilization</td>
<td></td>
<td>Direct project salaries divided by all salaries</td>
<td>57%</td>
<td>(Percent of net revenues)</td>
<td>(24%)</td>
</tr>
<tr>
<td>Overhead ratio</td>
<td></td>
<td>Total indirect expenses divided by direct salaries</td>
<td>1.8</td>
<td>(Percent of net revenues)</td>
<td>2.3</td>
</tr>
<tr>
<td>Earned multiple</td>
<td></td>
<td>Net revenues divided by direct salaries</td>
<td>3.0</td>
<td>(Percent of net revenues)</td>
<td>2.7</td>
</tr>
<tr>
<td>Current ratio</td>
<td></td>
<td>Short-term assets divided by short-term liabilities</td>
<td>1.5</td>
<td>(Percent of net revenues)</td>
<td>1.1</td>
</tr>
<tr>
<td>Accounts receivable divided by accounts payable</td>
<td>1.7</td>
<td>1.3</td>
<td>.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity divided by revenue</td>
<td>.27</td>
<td>.20</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

A common belief is that the profession 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.

the ball starts rolling...g 1987, Smith & Jones' revenues substantially and its profit (before indistributions, and taxes) was 12 percent net revenues. Its overhead was exceed the profession-wide mean and its overhead ratio was 64 percent. It added to produce increased work and bor- money to finance growth; its interest expense was 1 percent of its revenue. Its strong. Its clients included some of as's largest developers and it began corporate and institutional work.

... 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 manufacturers are cutting their profit margins a lot closer. So where as 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.

As usually lately, labor is the cause of the rises that occur. All materials held steady or declined. The biggest loss Structural steel was down 2 percent and concrete was off 3/4 percent.

What of the future? How volume (which consti-
tutes more than half of all construction) declined a further 20 percent in the third quarter, expected to stabilize in but nonresidential construc-
tion is expected to decline another percent [RECORD, November 1990, pages 33-43]. We well see costs come down; they did in last quarter of before they go up again.

A good number of cities are already exhibiting this trend—including Baltimore, Birmingham, Kansas City, Los Angeles, Minneapolis, Philadelphia, Pittsburgh, and St. Louis.

CHARLES K.

Data supplied by Dodge Cost Sys Marshall & Swift

HISTORICAL BUILDING COSTS INDEXES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>2086.0</td>
<td>2078.0</td>
<td>2080.0</td>
<td>2086.0</td>
<td>2064.7</td>
<td>2044.7</td>
<td>2048.7</td>
<td>2051.8</td>
<td>2061.0</td>
<td>2090.0</td>
<td>2097.3</td>
</tr>
<tr>
<td>Baltimore</td>
<td>1445.6</td>
<td>1544.9</td>
<td>1589.5</td>
<td>1689.7</td>
<td>1708.7</td>
<td>1748.8</td>
<td>1735.2</td>
<td>1792.2</td>
<td>1849.1</td>
<td>1896.8</td>
<td>2074.0</td>
</tr>
<tr>
<td>Birmingham</td>
<td>1467.1</td>
<td>1469.9</td>
<td>1469.1</td>
<td>1525.7</td>
<td>1564.7</td>
<td>1560.7</td>
<td>1597.4</td>
<td>1612.9</td>
<td>1620.5</td>
<td>1618.0</td>
<td>1967.1</td>
</tr>
<tr>
<td>Boston</td>
<td>1283.7</td>
<td>1312.5</td>
<td>1299.2</td>
<td>1269.9</td>
<td>1194.0</td>
<td>1172.0</td>
<td>1173.6</td>
<td>1188.0</td>
<td>1181.6</td>
<td>1191.7</td>
<td>1611.3</td>
</tr>
<tr>
<td>Chicago</td>
<td>1322.6</td>
<td>1344.7</td>
<td>1245.8</td>
<td>1249.5</td>
<td>1247.6</td>
<td>1238.0</td>
<td>1209.9</td>
<td>1214.1</td>
<td>1268.0</td>
<td>1266.7</td>
<td>1599.4</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>1385.2</td>
<td>1350.4</td>
<td>1302.6</td>
<td>1493.0</td>
<td>1484.5</td>
<td>1486.6</td>
<td>1499.4</td>
<td>1510.9</td>
<td>1528.8</td>
<td>1566.7</td>
<td>1818.6</td>
</tr>
<tr>
<td>Cleveland</td>
<td>1388.2</td>
<td>1405.9</td>
<td>1511.4</td>
<td>1478.9</td>
<td>1496.0</td>
<td>1471.4</td>
<td>1462.7</td>
<td>1414.5</td>
<td>1518.7</td>
<td>1558.7</td>
<td>1828.1</td>
</tr>
<tr>
<td>Dallas</td>
<td>1481.9</td>
<td>1706.6</td>
<td>1654.3</td>
<td>1592.9</td>
<td>1580.0</td>
<td>1883.8</td>
<td>1791.0</td>
<td>1847.2</td>
<td>1927.2</td>
<td>1977.0</td>
<td>2112.3</td>
</tr>
<tr>
<td>Denver</td>
<td>1497.4</td>
<td>1622.2</td>
<td>1679.1</td>
<td>1800.1</td>
<td>1834.3</td>
<td>1821.8</td>
<td>1753.8</td>
<td>1727.2</td>
<td>1752.3</td>
<td>1725.9</td>
<td>1676.2</td>
</tr>
<tr>
<td>Detroit</td>
<td>1447.4</td>
<td>1380.3</td>
<td>1383.0</td>
<td>1372.1</td>
<td>1397.9</td>
<td>1392.6</td>
<td>1366.6</td>
<td>1368.3</td>
<td>1374.4</td>
<td>1375.1</td>
<td>1787.5</td>
</tr>
<tr>
<td>Kansas City</td>
<td>1282.2</td>
<td>1320.4</td>
<td>1381.8</td>
<td>1407.5</td>
<td>1447.1</td>
<td>1472.5</td>
<td>1484.7</td>
<td>1498.2</td>
<td>1506.6</td>
<td>1518.8</td>
<td>1934.6</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1397.5</td>
<td>1474.3</td>
<td>1508.3</td>
<td>1522.9</td>
<td>1556.1</td>
<td>1571.0</td>
<td>1609.7</td>
<td>1675.1</td>
<td>1785.4</td>
<td>1813.7</td>
<td>2208.3</td>
</tr>
<tr>
<td>Miami</td>
<td>1286.9</td>
<td>1369.1</td>
<td>1392.1</td>
<td>1467.6</td>
<td>1522.2</td>
<td>1546.0</td>
<td>1566.2</td>
<td>1592.2</td>
<td>1625.1</td>
<td>1641.3</td>
<td>1858.5</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>1237.7</td>
<td>1422.6</td>
<td>1576.8</td>
<td>1624.6</td>
<td>1640.4</td>
<td>1601.0</td>
<td>1674.0</td>
<td>1677.9</td>
<td>1699.6</td>
<td>1729.0</td>
<td>2012.8</td>
</tr>
<tr>
<td>New Orleans</td>
<td>1590.7</td>
<td>1572.7</td>
<td>1631.9</td>
<td>1650.5</td>
<td>1691.4</td>
<td>1782.5</td>
<td>1789.2</td>
<td>1809.6</td>
<td>1707.3</td>
<td>1855.0</td>
<td>2107.9</td>
</tr>
<tr>
<td>New York</td>
<td>1319.4</td>
<td>1419.2</td>
<td>1491.8</td>
<td>1672.5</td>
<td>1747.2</td>
<td>1806.7</td>
<td>1809.9</td>
<td>1909.0</td>
<td>2066.3</td>
<td>2167.2</td>
<td>2184.8</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>1293.9</td>
<td>1660.7</td>
<td>1769.4</td>
<td>1691.9</td>
<td>1922.1</td>
<td>1967.9</td>
<td>1992.7</td>
<td>2035.4</td>
<td>2171.4</td>
<td>2244.3</td>
<td>2290.7</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>1341.7</td>
<td>1485.2</td>
<td>1479.5</td>
<td>1497.2</td>
<td>1376.1</td>
<td>1611.0</td>
<td>1685.8</td>
<td>1736.7</td>
<td>1703.0</td>
<td>1721.1</td>
<td>1717.9</td>
</tr>
<tr>
<td>St. Louis</td>
<td>1289.0</td>
<td>1397.2</td>
<td>1451.2</td>
<td>1504.9</td>
<td>1625.5</td>
<td>1641.8</td>
<td>1667.4</td>
<td>1653.5</td>
<td>1706.7</td>
<td>1701.1</td>
<td>1759.9</td>
</tr>
<tr>
<td>San Francisco</td>
<td>1644.8</td>
<td>1778.4</td>
<td>1810.1</td>
<td>1820.5</td>
<td>1872.3</td>
<td>1837.4</td>
<td>1865.0</td>
<td>1908.7</td>
<td>1993.0</td>
<td>2012.5</td>
<td></td>
</tr>
</tbody>
</table>

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 by the index for a second period (100) 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 period divided by 200.0 = 75% or they are 22% lower in the second period.

1977 average for each city = 1000.
HITTING THE CEILING: HEIGHT WITHOUT ROMANCE

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

ight caps for buildings are all the rage today. Yet I'm old enough to remember a time when tall buildings were a major thrill. A coming-of-age ritual for me and my siblings was a trip to New York City. We would go at night to the top of the RCA Building and take in the unbelievable million lights of the great city.

Towers were as wonderful then, to a kid from the provinces, as Disneyland is to kids today. Yet it's impossible to imagine any red-blooded American city back in, say, the 1890s being as wonderful to a kid as Disneyland is today.

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.
Building on a Grand Tradition

WILEY

HEATING, COOLING, LIGHTING:
Design Methods for Architects
Norbert Lechner

This unique book collects in one source all the information designers need when creating the schematic design for a building's environmental systems. Providing a qualitative outlook, general theory, concepts and rules of thumb, the book shows architects how to have a major effect on the energy efficiency of buildings. Numerous graphs, photographs and sketches enhance the text.

644 pp. (1990) 1-62887-3 $59.95

HUMAN RESOURCE MANAGEMENT:
A Guide Book for Design Firms
Mark C. Zweig

This practical, how-to book describes the fundamental aspects of human resource management for architects, landscape architects, interior designers and other design professionals. Contains a logical sequence of chapters ranging from the hiring process, orientation and career development to performance appraisals, compensation and law.

350 pp. (March 1991) 1-633740-7 $49.95

FURNITURE: MODERN AND POSTMODERN,
2nd Edition
John Pile

Reflecting the recent resurgence in popularity of modern and postmodern furniture design, this book presents an integrated, up-to-date overview of the history, aesthetics, and techniques involved in the design and production of contemporary furniture. This revised edition focuses on new furniture products, the rise of new architecture and design firms and the future of the industry. Extensively illustrated.

312 pp. (1990) 1-85438-7 $49.95

BUILDING CONSTRUCTION INSPECTION:
A Guide for Architects
Jay Bannister

This practical guidebook to site inspection for architects and other building professionals reflects the author's 27 years of personal experience. Includes a series of detailed "memory jogger" checklists to help the reader review the various stages of on-site construction. Over 100 illustrations, drawings and photographs.

425 pp. (April 1991) 1-53004-2 $45.95

UNDERSTANDING INFRASTRUCTURE:
A Guide for Architects and Planners
George Rainer

This unique work introduces architects and planners to the essential principles and concerns in every infrastructure area, including sewers, storm drainage, solid and hazardous waste disposal, bridges, streets, rail and waterfront. Each chapter is broken down into seven sub-areas: system description, components and current status, unique problems, solution including retrofit and innovation, applicable government regulations, legal aspects and costs.

278 pp. (1990) 1-50546-3 $39.95

NEW CONSTRUCTION FOR OLDER BUILDINGS:
A Design Sourcebook for Architects and Preservationists
Peter H. Smeallie & Peter H. Smith

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 1980s—are employed to illustrate innovative and imaginative approaches and solutions to a host of contextual situations.

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

Wiley Architecture Books are Available at these Fine Stores

NORTHEAST
McGraw-Hill Bookstore
1241 Avenue of the Americas
New York, N.Y. 10020

McGraw-Hill Bookstore
117 South 17th Street
Philadelphia, PA 19103

Architectural Bookshop
50 Broad Street
Boston, MA 02110

Southwestern Book and Supply Co.
1400 Massachusetts Avenue
Cambridge, MA 02238

Tatebeck Bookellers
647 Chandler Street
Worcester, MA 01602

University Bookstore
Ball State University
Muncie, IN 47306

University Bookstore
University of Cincinnati
Cincinnati, OH 45201

Architectural Center Bookstore
47 South Pennsylvania Street
Indianapolis, IN 46204

SOUTHEAST
San Diego Technical Books
8280 Vickers Street, Suite B
San Diego, CA 92111

OPAMP Technical Books
1031 North Sycamore Avenue
Hollywood, CA 90038

Brown Bookshop
1517 San Jacinto
Houston, TX 77002

SOUTHEAST
Bookstop
803 South University Drive
Plantation, FL 33324

Madison Book & Computers
8006-13 Madison Pike
Madison, Al 35758

MIDWEST
Keeley's & Burtos' Book Shop
29 South Walsh Avenue
Chicago, IL 60603

Prairie Avenue Bookshop
711 South Dearborn
Chicago, IL 60604

Wiley Architectural Bookshop
1817 Fourth Street
Berkeley, CA 94710

Wiley Architectural Bookshop
7177 S. Western Ave
Los Angeles, CA 90045

MID- ATLANTIC
Reiter's Scientific & Professional Books
2013 K Street N.W.
Washington, D.C. 20006

NORTHWEST
Building Bookstore
1817 Fourth Street
Berkeley, CA 94710

Building Tech Bookstore, Inc.
7177 S. Western Ave
Los Angeles, CA 90045

Wiley Architectural Bookshop
711 South Dearborn
Chicago, IL 60604

Wiley Architectural Bookshop
1817 Fourth Street
Berkeley, CA 94710

Wiley Architectural Bookshop
7177 S. Western Ave
Los Angeles, CA 90045

Wiley Architectural Bookshop
711 South Dearborn
Chicago, IL 60604

Wiley Architectural Bookshop
1817 Fourth Street
Berkeley, CA 94710

Wiley Architectural Bookshop
7177 S. Western Ave
Los Angeles, CA 90045

Wiley Architectural Bookshop
711 South Dearborn
Chicago, IL 60604
OBSERVATIONS

The tall building, as architectural program, has become something less than a thrill. As the local paper critic in Boston, I found I couldn’t get up the energy to review the skyscraper. The Way of Kitsch, 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.
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.

Max Bond


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


Another large-format book, this publication displays 50 recently restored drawings and studies by Palladio that now reside in the City Museum of Vicenza. The drawings are mostly idealized reconstructions of ancient buildings and a few of Palladio's own projects. Historical notes on each drawing will please scholars, while the drawings themselves speak directly to architects.

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 display 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.
From grand hotels to offices to restaurants, most any building can accommodate Sunbrella acrylic canvas or Sunbrella Firesist® canvas. Sunbrella Firesist® meets the specifications of the National Fire Protection Association and the California Fire Marshal’s test.

Both fabrics are ideally suited for customized graphics, backlit or not. And indoors or out, our fabrics are perfect for everything from awnings to canopies to privacy screens to cabana covers, and we always have a design to suit. Sunbrella is available in 90 handsome solids, stripes and patterns—more than any other acrylic—and Sunbrella Firesist is available in 23 styles.
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.
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.

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 future-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

© DURBIN SAYLOR PHOTOS, EXCEPT AS NOTED
Art for Science

Though wholly different in style, the Franklin Institute's crisp new Futures 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
7. Omni Cafe
8. Ticketing
9. Bookstore
10. Futures Center exhibits
11. Science Park overlook
12. Amphitheater
13. Omniverse lobby
14. Projection room
15. Omniverse entrance
16. Omniverse Theater
17. Omniverse exit balcony
Playfulness that makes Center's shell live with a host of geometric forms dancing in the pyramid-cylinder of the universe Theater is also present in the atrium, where purity yields to such edgy materials as red glass and brightly colored metal. The pivot of space is a 50-foot-high column crowned by a light above a perforated-sculpture known as "Bucket." Around it is a sweeping red ramp (opposite left), the center's key circulation element, which connects all surrounding spaces save the level exhibit galleries, which are linked by an independent internal ramp.
is the academic witticism of a transparent full-story corner "showcase" and garden overlook that follows the true compass, canted 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 cafe (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-events as mime performances and science demonstration well as the museum shop and cafe—and to matchless opportunities for people-watching.

Margaret G.

Futures Center
The Franklin Institute
Philadelphia, Pennsylvania
OWNER: The Franklin Institute
ARCHITECT: Geddes Brecher Qualls Cunningham—Warren Cunningham, principal-in-charge; Michael Kihn, Robert Geddes, design principals; Charles Capaldi, James Ro project architects; Thomas Buck, Adrienne Carruth, Maitland Jones, Daniel Russoniello, Kevin Scholl, Eric Sternfels, Brian Wait, Charles Bernan, Nadia Breed, A Clark, Cecelia Denegre, Alejandro Firri, Margaret Kampine, Charles Kelley, Gina Weckel, project team
ENGINEERS: Geddes Brecher Qualls Cunningham—E. F Brecher, principal; Thomas Normile, Arun Parikh, project engineers (structural); Jaros, Baum & Bolles (mechanical, electrical); Hammel Green & Abrahamson, Architect (Omniverse Theater); W. Michael Sullivan (theater); Pu + Noppe + Associates (theater acoustics); Jerry Kugle Associates (lighting); Romano/Gatland (food service); Milsom & Wilke (audio-visual and acoustics)
CONSTRUCTION MANAGEMENT: Barclay White, Inc.
A Cathedral of Learning
A successful marriage of art and technology, Northwestern University’s new medical-research tower merges seamlessly with its Collegiate Gothic academic setting.

Whether 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 to the academic quadrangle, the George W. Iwina S. Tarry Research and Education Building is deeply engaged in a dialogue with its surroundings. Architects & Will chose to clad the 15-story, steel-concrete facility in a cloak of limestone that harmonizes with existing Gothic buildings, erected mainly in the 1880s and that make up Northwestern Universtity’s downtown medical-school campus.

And being merely a handsome exercise in urban contextualism, however, the building also addresses a difficult agenda: to provide 280,000 square feet of flexible laboratory and teaching space, state-of-the-art mechanical systems, and being merely a handsome exercise in urban contextualism, however, the building also addresses a difficult agenda: to provide 280,000 square feet of flexible laboratory and teaching space, state-of-the-art mechanical systems, and convenient connections to existing academic departments in older buildings. Per & Will has responded with a clear design that wears its garb with assurance.

Laboratories designed after Louis Kahn’s Richards Medical Research Building at the University of Pennsylvania have measure up to the clarity that Kahn brought to bear on his design. On the other hand, Kahn has been faulted for subdividing the served lab space into tiny cells, an arrangement that makes it difficult to expand an experiment and discourages informal faculty interaction. Reverting to these problems at the Salk Institute, Kahn used gigantic trussed integral floors to carry the mechanical systems and eliminate all subdivisions.

Like the older Northwestern buildings, the connecting departments an interstitial scheme impossible. Up each new lab floor with the exception of the 12-foot floor-to-floor construction, needed most of the room needed for vertical ductwork, and forced the integration of several vertical chases at the building’s core. Modular laboratories are designed around these mechanical shafts. Upper floors house teaching labs provided for classes of up to 180 students; research laboratories accommodate research labs. Individual labs are as small as 124 square feet, they are easily expandable to the requirements of research.

Limestone piers, tall window frames, and faculty offices ringing the labs, are easily expandable to the requirements of research. A spire-like expressed elevator core that steps down the street all accentuate the building’s verticality. Likewise the spire-
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).
exhaust stacks, which echo similar on the adjacent Ward Building.

Tarry Building’s ground-floor lobby acts the various neighboring buildings gives the entire quadrangle a much­ed front door. Atop the lobby, a half-vault presents a rakish profile street. Inside, finely chiseled stone and wood paneling create an ing neo-Gothic contrast with the roof es, which reach up toward clerestory ows. Although a similar half-vault at building’s crown at present houses gi­c exhaust fans, a faculty club is ed for part of this loftlike space.

wo-story-high belt of clean-air supply rs is hidden midway up the building p limestone and aluminum curtain­detailing. Breaking the building into vertical zones fed from the middle the supply chases smaller, and al­an entirely open educational labora­in the basement.

limestone blocks and painted alumi­extrusions of the building’s skin are hung by stainless-steel clips from a oting grid of galvanized-steel an­—a system that has become the stan­for today’s tall buildings. The ex­inary number of ledges and tations entailed in the neo-Gothic de­g, however, will surely test the high­sealants and weep channels that l between Windy City weather outside the carefully controlled environment.

ANDERS NEREIM

George W. and Edwina S. Tarry Arch and Education Building Northwestern University

ARCHITECT AND ENGINEER: Perkins & —Ralph E. Johnson, design prin­cipal; John E. Nunemaker, ing principal; James Tworek, act manager; Elizabeth Patakis, act designer; Robert Goldwa­r technical coordinator; John tsos, structural engineer; nori Kanazawa, mechanical/­rical engineer

OR DESIGNER: Perkins & Will— Frankel, design principal; Mark int, project designer; Anita Ambri, hic designer

STRUCTION MANAGER: Schal­iates

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.
er long-running hit? He is leaving nothing to chance: plotting his next venture on New York's Upper East Side, Schrager has temporarily moved into Paramount to make sure 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 manager
INTERIOR DESIGNER: Philippe Starck
ARCHITECTS: Haigh Space Architects (façade, lobby, mezzanine)—Paul Haigh, principal; Barbra Haigh, associate
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. (façade, lobby, mezzanine)—John Adir, Richard Dantes, project managers; Robert Werthamer, field supervisor; Morgans Hotel Group (guest rooms)—Nat Cusumano, project manager; Mark Robinson, assistant

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.
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
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...
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 the tower rises, the first quadrant falls away, about one-fourth of the way up. The next quadrant disappears halfway up the building, and the third quadrant drops about three-fourths of the way up. The top floors of the tower are thus only one quadrant in area—a slender stalk that tapers in a triangular tip containing the sky lounge. The form of the tower is thus defined by the verticals, horizontals, and diagonals of the structural frame, and by huge triangular pieces of reflective glass that make up the building’s skin. The facade is clad in bright, anodized aluminum. The tapering silhouette of the building is not unlike that of a tall stalk of bamboo, though its reflective facets of glass and metal pick up light and shade the way a crystal might. Five principal columns hold this 70-story stalk—one on each of the four corners and a central column that extends from the top of the tower down to the 25th floor, where its loads are transmitted diagonally to the corners.

Bamboo symbolism as architectural inspiration

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

Pei recalls the early stages of the building’s design. “I asked my son, Sandi, to cut out four triangular wooden sticks of different lengths, and we started to play with them, realizing that the building should taper as it went up.” Pei slotted the ends of the triangular sticks, and assembled them in towers. He recalls a Chinese proverb that uses the tapered bamboo stalk as a symbol: its sectional trunk, propelled higher and higher by each growth, is a metaphor for taking meaningful steps in a quest for strength and excellence.

So this was how the formal architectural concept was developed. But it was New York City structural engineer Les Robertson who translated the concept into reality. “Les is a theoretician and a very practical engineer,” Pei says. “He knows how to make advanced theories work for him.” Pei and Robertson a good deal of the credit for coming up with the critical joint at which the vertical, horizontal, and diagonal members of the steel frame come together. This joint is not a welded connection, nor is it all-steel; it is, in effect, a block of reinforced concrete that envelopes 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, as his conception.” The superframe—a kind of three-dimensional space truss—was surprisingly economical: Pei and Robertson estimate that the Bank of China tower used on percent as much steel as a conventional skyscraper frame of this size would normally have used—and this despite the fact that Hong Kong is located in a typhoon zone that calls for exceptional wind bracing.

Given that Pei's tower is located just two blocks east of Norman Foster's highly publicized Hong Kong and Shanghai Bank Headquarters, comparisons between the two structures are inevitable. The Foster building—a super-high-tech extravaganza—is, in reality, a fairly conventional structure with a central atrium and a brilliant display of structural and mechanical inards on its north and south facades. For his part, Pei's building seems to use its dramatic structure as a foil for the banks that it contains.
Plans of the tower at four different levels show typical layouts for the Bank of China's use (low-rise for tenants, low-mid-rise, and high-mid-rise, and high-rise). A square atrium brings 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 of pure structure, function, form, and urban symbolism. Nothing could be added to it and nothing could be subtracted without doing damage to the whole. (What is more, the per-square-foot cost of Pei's building is only one-sixth the cost of the Hong Kong and Shanghai Bank.)

The office building as art

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

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

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

Still, perhaps this handsome new building will teach us a lesson or two about grace, civility, and integrity. It won't be the first time that architecture has played such a role.

Bank of China Tower
Hong Kong
OWNER: Bank of China/Hong Kong
ARCHITECT: I. M. Pei & Partners—I. M. Pei, partner/design
Eason Leonard, partner/administration; Michael Flynn, partner/curtainwall; Kellogg Wong, associate partner/administration; Abe Sheiden, associate partner/products
Bernard Rice, senior associate/design; Robert Heintges, curtainwall; L. C. Pei, stonework and public spaces; Calo Tsa, water gardens; Senen Vina-de-Leon, cores; William Cunningham, job captain; Tom Woo, resident job captain
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); Vina Ponte (planning); Levet and Bailey (quantity surveymen)
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.

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 pushing the entrance to the meeting room, exercise facility, and diagnostic clinic in a courtyard behind a skeletal colonnade, principal Joseph Valerio buffered the health center from the industrial 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 dictated a straightforward approach to construction: a succession of hipped-roof pavilions with clerestories and repetitive structural bays. Anything fussy or pristine here would have seemed out of place. For formal precedents, Valerio looked to such unadorned sources as an Early Christian entrance atrium and a Sardinian multistaged wood belfry. The architect rationalizes his borrowing of seemingly alien historic form by observing that AIA culture’s “total absence of history and tradition affords the architect] perfect freedom.” If the result seems an odd combination — what does an Early Christian atrium have to do with a health center in an Alabama pine forest? — it is a contrast...
A cabulary of sloping elements appears just inside the center's entrance colonnade (above and 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 structure made possible in part by hidden tension rings at each hip. The wood portion of the structure is then counteracted over a concrete peristyle that separates the running track from the weight room. Poured resin floors, simple finishes, and inexpensive aluminum lighting fixtures help 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, Randi Matthes, David Jennerjahn, project designers; Brad P. Gregory Randall, Daniel Ikeda, project team

**Engineers:** A. Epstein and Sons, Inc. (structural, mechanical, electrical); EWI Engineering Associates (consulting)

**Consultant:** Nancy Willert (interiors)

**General Contractor:** Universal Construction Company
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 900 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 construction now involves renovating and expanding existing schools. In 1970, 73 percent of the money spent on education building was for new facilities, with 21 percent going for additions and 6 percent for alterations. By 1989 new construction accounted for just 52 percent of the money spent, while additions had jumped to 27 percent and alterations had grown to 18 percent. Part of the reason for this change was increased activity in the Northeast and Midwest, where older stock of schools existed.

The rapid growth of the school-age population over the last decade has put great pressure on cities such as New York to expand facilities quickly as possible. Until recently, New York standard response was to erect pre-engineered metal annexes in school yards. When the was finally forced by a watchdog agency to develop a less dreary solution, it turned to architect Weintraub & Di Domenico.

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

Instead of trying to disguise the humble construction technology, the architects worked it to create a variety of whimsical pediments, and columns that give each building its own identity. "We didn't want to fudge it," plains di Domenico. "We didn't want to just use a brick veneer on a metal shed. So we took a palette of materials that's typical of this type and shook it up."

The minischools are 60 feet wide with 21 20-foot classrooms loaded on either side of a corridor. Each one costs about $2 million and about six months to build.

While the so-called Baby Boomlet and the migration of Americans to the Sunbelt spurred much recent school construction, a major factor has been the expanding role of the nation's largest states and local districts have begun ambitious school-building programs. California, for example, has projected it will need 900 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.

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.
Newly complex function of schools. Simply schools are bigger today because more place there. Increasingly seen as commun-resources, schools must now accommodate it classes, community meetings, senior-citigroups, and year-round athletic events. At the same time, parents are demanding more special labs, special-education programs, and dra-arts spaces. Not long ago, an elementary-school library was a room with books; today it is media center with computers and elaborate audio and video equipment, as well as books.

According to Perkins & Will's Brubaker, media centers, dining halls, and courtyards offer opportunities to create "great spaces" that can serve as important meeting places for students and teachers and help establish strong identities for schools.

**Dols are getting bigger**

udy by American School and University azine of 110 new schools nationwide showed the typical elementary school today is 72 gross square feet and has 655 students. Her words, the average elementary school is 153,000 square feet for 967 students, 6 square feet per pupil. Twenty years ago, Abramson, the figure was 120 square feet. As increasingly complex education pressures are forcing schools to grow bigger in space of square-footage, judicial decisions and state mandates in many states are requiring students per classroom. In Texas, for example, the state legislature now limits all classrooms to no more than 22 students.

ny educators also advocate fewer students per school, especially in urban areas with social needs. "There's a lot of evidence to show children do better in smaller schools," says Abramson. Last year the Architectural League of New York and the Public Education Association of Austin, Texas, organized an ex-of designs for smaller schools.

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.
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, September 1988, page 101] and other Southwestern themes at Desert View Elementary School in Sunland Park, New Mexico [RECORD, September 1988, pages 106-108].

With abandoning the firm's roots in Modernism Brubaker and Johnson have adapted designs to fit into local contexts.

Set on the windswept Indiana prairie, Warsaw High School turns its tallest flattest elevations to its surroundings, a thought of these surfaces as walls surrounding the school," says Johnson. With these "walls" lies a series of more thoughtfully dimensionally defined structures—buildings that extend out to form covered ways and step down to meet prototypical courtyards. A great circle of trees eventually will further enclose the site, bringing to mind the native-rock wall that encircles the Desert View School.

Entry to the building is through a pedimented metal arch that clearly separates school from its surroundings. Beyond lies the project's main courtyard, a landscaped space that serves as the most...
The Warsaw Community High School, 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-
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. Toyia, 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

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).
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 co-founder 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 adjusted to a particular site, Romney explains.

Instead of looking onto parking lots and streets, as many schools do, this school turns inward with grassy courtyards as its focus and a blue and yellow elevator tower as its visual anchor. This sense of enclosure is heightened by a curving concrete block wall to the right of the school’s entryways. The one-story administration building, which represents the most public element of the project, is the only block outside the enclosure of the school proper. The building houses the principal’s office, support-staff offices, and a teachers’ lounge.

The service wing—which includes a cafeteria/auditorium, kitchen, music and art rooms, and mechanical spaces—has vehicular access at its east end and pedestrian access on the west, where it approaches the media center. Just south of the cafeteria, Romney carved out a small court that can be used by students after lunch 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
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 combination of soft pastels with solid primaries show works to hold the building’s composition together. At the same time, it helps the school assert a distinctive identity, one that students can easily understand and appreciate.

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.
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.
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 interviewing nationally prominent firms, the board selected Houston-based Taft, in for the firm's willingness to involve community in the design process.

"The idea was to create an educational park, linking the elementary school adjacent high school and playing field," explains John Casbarian, one of the Taft partners involved in the project. Ward this end Casbarian and his partners Danny Samuels and Robert Timmes imposed a grid of trees and pathways over the existing fields and continued the lines in the plan of their school. Once new trees fill out, they also will help frame a courtyard between the two schools.

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

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—bookshelves 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 p

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

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
These days any window company can think up a name, design a fancy logo and announce to the world that they have a commercial division.

UNLIKE OUR COMPETITOR THAN THIS TO CREATE OUR

But present them with a complex commercial project, and you suddenly discover it’s all smoke and mirrors.

Bring that same project to Pella®, however, and you quickly realize there’s something real behind the name and logo. A highly-tuned organization with 25 years’ experience serving the commercial market.

You discover that Pella offers an array of commercial products that are unsurpassed. Products that very often exceed industry standards in strength and performance. Pella also has the largest and most sophisticated testing facilities in the window industry.

Support teams made up, not of glorified salesmen, but local architects.
Manufacturers hope that testing will confirm combustibility of cladding that incorporates foam plastics.

Using Refrigerant Emissions

is more progress on the tion of chlorofluorocarbon emissions, which have implicated in the depletion of the earth’s protective ozone layer. [Architectural Record, October 1989, 134-135]. Centrifugal chillers, manufactured by companies such as Trane and York, are an option for conserving this valuable resource. Improved design and efficiency, however, is key to reducing the environmental impact.

Book Briefs


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 245, organized by the CSI numbering system. For information: 703/684-0300.
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 used onto the roof, the warranty period. Zaiser called this “an excellent check of design considerations.”

How they responded
Most of the manufacturers tried to adapt the designs to their own typical details which, in some cases, called for redesigning the roof-gutter condition. Most respondents submitted CAD-generated drawings. These are reproduced (rather than drawn as is our usual practice) so the reader can evaluate their completeness and clarity. Some manufacturers gave us a combination of computer drawings and drafted or sketched drawings (the latter have been redrawn). We have noted the availability of computer details and applications with which they are compatible in the chart opposite.

Sarnafil. The company proposes a 100-mil adhered, 72-mil polyester-reinforced membrane for the flat roof. On the barrel roof, a similar membrane, mechanically attached, is recommended for ease of installation. The system is said to be puncture resistant and tolerant of ponding water. Seams are hot-air welded. Metal accessories are PVC-coated for compatibility. Stevens. Stevens offers two syst
In its single-ply membrane of chlorinated polyethylene (CSPE) synthetic rubber (trade-named Hypalon). Hi-Tuff Plus overlies the membrane and its related fasteners and adhesives; Hi-Tuff Plus integrates a compatible insulation system and top felts, metal fascias and termination accessories, and a longer warranty. The combination of the top membrane reduces summer heat absorption. The mechanically attached methods, less than fully adhering the mem- ne to the substrate. Designers may choose between the two types of modified-bitumen systems, see RECORD, February 9, page 128. Two base plies of fiberglass-reinforced asphalt felts are fastened over nails on the barrel roof and sealed in with hot asphalt. A cap sheet is mopped in. The company offers two rs of protective granule coatings. The ert on the flat roof is similar, but the cap is deleted and a different cap at offers fire-resistive qualities. Com- to a single-ply, the smaller sheets of modified bitumen are suited to the small area and high number of strata.

The chart summarizes the characteristics of the roofs proposed by manufacturers for this project.
SECTION 1/Detail A

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 dependence on the membrane’s flexibility to stop roof-to-wall movement (similar to Edsile and Cooley) to be “unrealistic.”

2. Stevens. The company supplied detailed and without an expansion joint (latter is shown). The exposed outer core of the membrane in this detail is subject to puncture.

5. Siplast

6. Eracorp
Ianville. 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-
ty wall must be of the countersunk an-
boi variety."
Carlisle. The roof-to-wall joint shown
ld depend on the membrane's high
ation, but the company also supplies
expansion-joint details. A variety of ter-
mation details (not shown) could be used at
the coping.
5. Siplast. A flashing strip is wrapped
around a metal flange, which can move in-
dependently of the wall under a metal cop-
ing. The Veral sheet is shown here without
a cant strip, normally used.
6. Ercorp. The detail shows EPDM flash-
ing wrapped completely over the parapet
under a coping.
7. Tamko. The company drew a full expan-
sion 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."
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 the gutter be widened to at least 3 ft (echoed by Carlisle, Eracorp, and Tamko) and the scupper replaced with a drain (not shown). The termination bar (a detail used by several manufacturers) shows “a misplaced reliance on a horizontal sealant bead for water tightness,” says Cash.

3. Manville. Interior drains are reco...
A flexible bellows on the drain could allow movement relative to fixed joints. **Carlisle.** In the detail shown (one of two provided), an expansion joint takes up movement between wall and gutter. To permit drainage by a scupper across an expansion joint is "wrong," in Cash's view. **Stiplast.** 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. **Evacorp.** 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**

- Metal Coping (see specs)
- 60 Mil EPDM
- Treated Wood Nailer
- Slope

**Tamko**

- Metal Coping
- Wood Nailer
- Fasteners 3/4" O.C.
- Fasteners 1/2" O.C.
- Removable Counterflashing
- Flexible Vapor Retarder to Serve as Compressible Insulation Retainer
- Fasteners 3/4" O.C.
- Wood Cant and Blocking
- Tamko Modified Asphalt Flashing Membrane Extends 6" Min. On To Field of Roof

**Carlisle**

- Sure-Seal .045-in. thick reinforced EPDM membrane
- Metal cap (by others)
- Sponge tubing (by others)
- Metal scupper sleeve (by others)
- Sure-Seal 90.8-30A bonding adhesive
- Compressible filler (by others)

**Cooley**

- 6 mil polyethylene applied over deck—sides overlapped 6 in. and taped
- Half-width sheet
- Valley sheet

---

Manufacturer showed standard roof drain in lieu of scupper, deleted for clarity—ed.
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 adhered to the wall. Flashing height is indicated minimum 6 in., and drains should be placed at least 1.5 ft from the wall.

3. Manville. Through-wall flashing with a counterflashing is recommended at window opening. To fasten the roof e
...nailer is either mounted as a sill to window or recessed into the wall. Carlisle. The detail shown indicates-facing insulation at intersections. The company provided a roof-wall detail in which a strip of flashing is fastened under the membrane, which is itself carried up the wall as the flashing.iplast. The Vera! 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.

---

**Manville**

**amko**

**4. Carlisle**

**8. Cooley**
From TRACTION TREAD saddles and nosings, to sound, smoke and air sealing systems, there is nothing better than ZERO.

With TRACTION TREAD, ZERO reaches a new threshold in saddles and nosings. Their innovative design features specially formulated rubber inserts fitted into precisely profiled grooves in heavy-gauge aluminum or bronze. Unlike abrasive coatings, with TRACTION TREAD, the metal and rubber will wear evenly to provide continuous traction. Plus, without grooves, water and dirt can't accumulate. Maintenance is minimized, safety is maximized. TRACTION TREAD can be easily cut, shaped and drilled on-site.

Slam the door on most sealing problems with ZERO's advanced technology.

Smoke, fire, noise, light, temperature and air-loss problems need never challenge you again. All the information you need for complete head and jamb protection, automatic door-bottom assemblies, and handicap access systems, is included in our 28-page catalog. You'll find scaled, detailed drawings to make specifying fast and accurate. Virtually everything in our product line can be customized to specifications. Design ZERO products into your plans.

Write or call for product information, engineering assistance and our catalog.

ZERO INTERNATIONAL, INC.
415 Concord Avenue, Bronx, NY 10455-4898
1-800-635-5335
In NYC, call 212-585-3230
FAX 212-292-2243
TELEX 239777 ZERO UR

When nothing else is good enough for long enough.
The only industry-sponsored lighting trade show and conference presenting lighting solutions for architects, facility managers, lighting designers and specifiers.

March 5 - 7, 1991
Expocenter at
The Merchandise Mart
in Chicago, Illinois

Presented by:
Illuminating Engineering Society of North America (IESNA) and the International Association of Lighting Designers (IALD)
WHAT IS LIGHTFAIR?

- LIGHTFAIR is the newest in lighting products.
- LIGHTFAIR is the latest in lighting technology.
- LIGHTFAIR is the best in lighting education.

And, LIGHTFAIR is the only lighting trade show and conference sponsored and presented by the Illuminating Engineering Society of North America (IESNA) and the International Association of Lighting Designers (IALD).

Members of every professional discipline that touches the lighting industry comprise the LIGHTFAIR Conference and Exhibitor Advisory Committees. These important groups represent your voice to the lighting industry and work together to develop LIGHTFAIR’s world-class educational conference and high-quality product exposition.

Members of these advisory committees include:

CONFERENCE ADVISORY COMMITTEE

- Randy Burkett, IALD, Randy Burkett Lighting Design, St. Louis, MO
- Mark Bushala, IFMA, Golub & Co., Chicago, IL
- Carol Chaffee, IALD, MIES, Carol Chaffee Associates, Minneapolis, MN
- Robert Colomij, ASLA, Land Design Collaborative, Evanston, IL
- Arnold Farber, NAED, National Association of Electrical Distributors, Norwalk, CT
- Mitchell Kohn, IES, IALD, Chairman, Mitchell B. Kohn Architectural Lighting Consultant, Highland Park, IL
- Betty Jo Purvis, ASID, PPM Design Associates, Chicago, IL
- Mark Roush, MIES, Philips Lighting, Somerset, NJ
- Linda Searl, AIA, Searl & Associates, Chicago, IL
- Sandra Stashik, IALD, MIES, Grenald & Associates, Narberth, PA
- Connie Whiteley, IALD, MIES, Lighting By Design, Inc, Chicago, IL
- Bill Whitmore, MIES, Valmont Electric, Weston, MA

Who should attend LIGHTFAIR?

If you are an:
- architect
- electrical engineer
- landscape architect
- interior designer
- lighting designer
- corporate facility manager
- contractor
- electrical distributor
- developer
- building owner/operator

and want to discover the best in lighting solutions, then you can’t afford to miss Chicago LIGHTFAIR, the most important lighting event of 1991.

WHY LIGHTFAIR?

The industry’s most comprehensive conference program LIGHTFAIR concentrates on 6 important lighting applications:

1. energy and economics
2. energy in design
3. outdoor
4. retail
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.

USE YOUR CREDIT CARD AND REGISTER NOW BY CALLING (301) 662-9386
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.
**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?

**SPEAKER:** 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

---

**USE YOUR CREDIT CARD AND CALL (301) 662-9386 TO REGISTER TODAY.**
How to Remain Competitive in the Face of New and Pending Legislation

attend and learn how lawmakers and designers are responding to the oil/environmental crisis of the '80s. Hear an update on current and proposed landmark regulations including:

- California Title 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

 узна how new/pending legislation will affect your business and limit your design options. If you are involved in lighting at all, you must attend this seminar to 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: Helen Diemer, IALD, is an associate of the lighting design firm David A. Mintz, Inc., New York and the current president of the International Association of Lighting Designers (IALD).

Diemer is well-versed on the jects and standards, and served for three years as Chair of the IALD Energy Committee and as a member of IES Energy Management Committee. She was active in the development of ANSI/ASHRAE/IES Standard 90 and has appeared several times before the Department of Energy 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 nighttime 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. 12-volt systems in the project

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.

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 programed 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.

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. 12-volt systems in the project

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.

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 programed 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.
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


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 “equal” provision.
- Construction Phase: How to keep the project on schedule, including the completion of the punch list.


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.


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
- 3:30 PM

New Guidelines for Lighting Offices

A practical/hands-on seminar will teach you in understandable language how to light an office

Speaker: Mitchell B. Kohn, IES, 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 reinforce the architecture, enhance the finished interiors and, most importantly, 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:

- the important factors that relate the color properties of light sources to the colors of objects seen in the surrounding environment;
- critical parameters for choosing light source colors; and
- 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.
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

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
A.L.P. Lighting & Ceiling Products, Inc.
6333 Gross Point Rd.
Niles, IL 60648
Booth 643, 742
(312) 401-0050

Amsco Group
P.O. Box 12119
Jersey City, NJ 07305
Booth 419
(201) 434-0722

Advance Transformer Co.
10275 W. Higgins Rd.
Rosemont, IL 60018
Booth 342
(708) 390-5000

Alco Lighting, Inc.
11500 Melrose
Franklin Park, IL 60131
Booth 653, 655
(708) 451-0700

Aluminum Can Anodizing Corporation
501 East Lake Street
Streamwood, IL 60107
Booth 309, 408
(708) 837-4000

American Fluorescent Corporation
3821 Hawthorne Court
Waukegan, IL 60079
Booth 1156, 1158
(708) 249-6070

American Louver Company
7700 N. Austin Ave.
Skokie, IL 60077
Booth 619
(800) 823-8060

Appleton Lamplighters, Division of Ariès Fabrication Corp.
P.O. Box 1434
Appleton, WI 54913

Architectural Lighting
1515 Broadway, 32nd Floor
New York, NY 10036
Booth 303, 305, 402, 404
(212) 889-1300

Architectural Lighting
4170 Ashford-Dunwoody Rd., Suite 520
Atlanta, GA 30319
Booth 909, 911
(404) 525-0838

Architectural Record
1470 Ashford-Dunwoody Rd., Suite 520
Atlanta, GA 30319
Booth 909, 911
(404) 525-0838

Artistic Lighting USA
P.O. Box 370375
Miami, FL 33137
Booth 1113
(305) 531-7978

Ardea Lighting, Inc.
8239 Shirley Ave.
Northridge, CA 91324
Booth 1039
(818) 885-5882

Bega
P.O. Box 50442
San Francisco, CA 94115
Booth 987
(415) 684-0533

Beghelli Inc.
1221-2 St. John's Industrial Pkwy.
South Jacksonville, FL 32216
Booth 219, 217, 318, 316
(904) 646-4416

Bodine Company
236 Mt. Pleasant Rd.
Collierville, TN 38017-2752
Booth 547, 549
(901) 853-7211

Boyd Lighting Company
56 Twelfth St.
San Francisco, CA 94103-1293
Booth 917, 919
(415) 431-4300

Boyd Lighting Company's new designs are crafted from brass, bronze, steel or fauxstone in contemporary and traditional styles complementing contract and residential interiors.

Browniee Lighting
3911-K No. Orange Blossom Trail
Orlando, FL 32804
Booth 543
(407) 297-8777

Decorative luminaires using energy saving compact and HPS lamps.

Building Operating Management
2100 W. Florist Ave.
P.O. Box 684
Milwaukee, WI 53201
Booth 854
(414) 228-7701

Booths 409, 411, 413

Building and facilities management magazine for existing buildings of all types: commercial, government, industrial, medical, institutional, and educational.

Buildings
19 W. 44th St.
New York, NY 10036
Booth 1037
(212) 921-1069

BUILDINGS Magazine targets the larger owner firms, with facilities/engineering people in the commercial and institutional building market.

C.E.W. Lighting, Inc.
4337 Beltwood Parkway South
Dallas, TX 75244
Booth 449, 548
(214) 960-1993

Full range of HID, retrofit and halogen lamps.

C.W. Cole & Co., Inc.
2560 N. Rosemead Blvd.
South El Monte, CA 91733
Booth 757, 759
(213) 283-6888

Manufacturer of custom and specialty commercial lighting products.

Capitol Lighting, Division of Thomas Industries
6430 E. Slauson Ave.
Los Angeles, CA 90040
Booth 908
(213) 723-1800

Recessed incandescent, fluorescent, low voltage and HID fixtures available.

Carlen, a division of Lamson & Sessions Co.
25701 Science Park Dr.
Cleveland, OH 44122
Booth 510, 512
(216) 831-4000

A wide variety of consumer lighting products including the new Big Switch (TM)

Coast Light Systems
2200 S. Anne St.
Santa Ana, CA 92704
Booth 443
(714) 549-0765

Contemporary tubular and linear fluorescent lighting systems for direct, indirect or combined applications.

Colortran Environmental Lighting
1015 Chestnut St.
Burbank, CA 91506
Booth 109
(818) 843-1420

Dimming and control special lighting equipment.

Consulting-Specifying Engineer
Cahners Publishing Co.
1530 E. Touhy Ave.
Des Plaines, IL 60018
Booth 514
(708) 835-8800

Magazine for electrical/mechanical engineers responsible for building design and specifications including indoor/outdoor lighting systems.

Coe-Tech Lighting Conservation Technology, Ltd.
130 N. Waukegan Rd.
Deerfield, IL 60015
Booth 744, 746
(847) 945-0323

Low voltage and line voltage track lighting for commercial and residential accent and task lighting applications.

Cooper Lighting
400 Buse Rd.
Elk Grove Village, IL 60007
Booth 242, 244, 246
(708) 956-8400

Residential, commercial and industrial lighting products that include incandescent, fluorescent and HID sources.

CSL Lighting Manufacturing, Inc.
P.O. Box 801930
Santa Clara, CA 95058
Booth 1143, 1242
(905) 257-4155

Low voltage halogen lighting fixtures for commercial and residential environments.

Designer Specifier North American Publishing
322 Eighth Ave., 18th Floor
New York, NY 10001
Booth 949
(212) 697-7330

A do-it-yourself publication for interior designers, architects, specifiers and facility managers, covering the full range of the interior design market.

Designlab Chicago
806 N. Peoria St.
Chicago, IL 60622-5438
Booth 1032, 1034
(312) 738-2565

Architectural, theatrical and display lighting and control systems.
Light & Lowering Systems Inc.
2650 W. Balmoral
Chicago, IL 60625
Booth 456, 458
(312) 271-2800
Manufacturers of outdoor area lighting equipment and lowering devices

Lightalarms Electronics Corp.
1170 Atlantic Ave.
Baltimore, MD 21218
Booth 756, 758
(516) 370-1000
Emergency lighting equipment including exit signs, fluorescent, exit inverters, central DC systems and AC standby power systems

Lighting Dimensions
135 Fifth Ave.
New York, NY 10010
Booth 708
(212) 677-5997
An industry publication for lighting designers, consultants, specifiers and buyers working in the design, development and specification of architectural, commercial, industrial and entertainment lighting

Lighting Sciences Inc.
7800 E. Evans Rd.
Scottsdale, AZ 85260
Booth 514
(602) 998-0853
Independent research and development offering technical resources to the lighting industry

Light fixler Division/Genlyte
100 Lighting Way
Secaucus, NJ 07094
Booth 951
(201) 392-3884
Industry's most diverse variety of specialty and stock lighting products including downlights, track lighting, surface, decorative and controls

Linear Lighting Corp.
31-30 Hunters Point Ave.
Long Island City, NY 11101
Booth 750, 752, 754
(718) 381-7552
Extruded and steel linear fluorescent; wall wash systems; low voltage INC and halogen accent lighting

Litecontrol Corporation
100 Hawks Ave.
 Blvd. Box 100
Hanson, MA 02341
Booth 1245, 1245
(617) 294-0100
Linear fluorescent architectural lighting systems for institutional and commercial use; high performance systems including perimeter, pendant and recessed in many architectural shapes and colors

LiteTouch, Inc
3783 South 500 West # 7
Salt Lake City, UT 84115
Booth 856, 856
(801) 288-8888
LiteTouch 2000 is an innovative, microprocessor based lighting control system capable of switching and dimming various load types.

LiteTronics International
5317 W. 123rd
Alsip, IL 60803
Booth 1008, 1010
(708) 371-4955
Complete line of Halogen PAR Reflector and 20,000 hour incandescent lamps

LMT
PO. Box 209046, MB 116
San Diego, CA 92128
Booth 957, 939
(619) 271-1747
Light Measuring instruments, Conio-photometers and Photometers

Luxtronics
1980 S. Roberts
Muskegon, MI 49442
Booth 615, 617
(616) 722-1631
Anodized and finished aluminum for reflectors and louvers in 15 specifications. Processed in coil form - offered in custom cut and slit sheet and new 50 sheet Light Pack

LSI Industries
10,000 Alliance Rd.
Cincinnati, OH 45242
Booth 957, 959, 1056, 1058
(513) 793-3200
Outdoor and indoor commercial and industrial lighting and landscape lighting by LSI Lighting Systems, Abolite Lighting and Greenlee Landscape Lighting

Lucax Industries, Inc.
Chesnut Ave. & 4th St.
Altona, PA 16601
Booth 411, 413
(814) 944-2357
Commercial and industrial fluorescent lighting, HID wallpacks, exit signs

Lumenyte International Corp.
356 Lear Ave.
Costa Mesa, CA 92626
Booth 345, 347
(714) 556-0655
Large diameter monofilament optical fibers

Lumiare Design & Manufacturing
3120 Via Collins, Suite 101
Westlake Village, CA 91362
Booth 902
(818) 991-2211
Manufacturer of quality landscape and specialty lighting fixtures

Lutron Electronics Co., Inc.
7200 Suter Rd.
Cooperburg, CA 90506-1299
Booth 143, 145
(213) 293-3800
Wallbox lighting controls and architectural lighting control systems for both commercial and residential applications

Metalloy, Inc.
207 Greenwich Ave.
Stamford, CT 06902
Booth 1043
(203) 234-7115
Anodized aluminum in coil and sheets supplied to the lighting industries

Miroflect
40 Bayview Ave.
Inwood, NY 11684
Booth 602, 604, 606, 608
(516) 371-1111
Low-voltage HID (HQI, white sun, compact quad fluorescent and low voltage)

Mid-West Chandelier Company
100 Funsten Rd.
Kansas City, KS 66115
Booth 649, 651
(913) 281-1100
A full range of commercial and industrial fluorescent lighting fixtures

Milinota Corporation
100 Williams Dr.
Ramsey, NJ 07446
Booth 849
(201) 818-5228
Light and color measuring instruments

Modular International Inc.
105 26th St.
Pittsburgh, PA 15224
(412) 391-9100
Low voltage lighting plug-in system

Neo-Ray Lighting Products
337 Johnson Ave.
Brooklyn, NY 11237
Booth 220, 222
(718) 458-7000
Contract commercial fluorescent lighting fixtures of extruded aluminum and formed steel for indirect, direct/ indirect and perimeter wall wash

N L Corporation
14901 Broadway
Maple Heights, OH 44137
Booth 597, 599
(216) 662-2080
We manufacture track, recessed, architectural incandescent, channel, church, fluorescent, but our advantage is custom

Noral Lighting Inc.
PO. Box 56032
Cleveland, OH 44136
Booth 645, 647
(216) 273-7155
Cord-aluminum lanterns and decorative poles

Norbert Becker Lighting Manufacturing Co., Inc.
1703 Valley Road
Ocean, NJ 07712
Booth 944 - 952
(908) 493-2906
Specialty linear incandescent and fluorescent lighting products and miniatures low voltage lighting

Novitas, Inc.
1657 Euclid St.
Santa Monica, CA 90404
Booth 851, 853
(213) 452-7808
Light-O-Matic turns lights off automatically when the last person leaves the room

Omega, Division of Thomas Industries
6430 E. Slauson Ave.
Los Angeles, CA 90040
Booth 908
(213) 729-1800
Recessed incandescent, fluorescent, low voltage and HID fixtures as well as track lighting products

Oxman Corporation
110 Bracken Road
Montgomery, NY 12549
Booth 1013
(914) 457-4040
DULUX (R) series, 7-8 lamps and electronic ballasts, HQI (R) metal halide lamps and POWERTRONIC ballast

Panasonic Lighting Products Group
One Panasonic Way A-4
Secaucus, NJ 07094
Booth 1007, 1009, 1106, 1107
(201) 392-6257
Energy saving lighting products

Paramount Industries, Inc.
304 N. Howard St.
Croswell, MI 48422
Booth 429, 558
(517) 679-2551
Clean room, hazardous location, custom HID and fluorescent

Parks Industries, Inc.
2246 Lindsay Way
Glenola, CA 91740
Booth 644, 646
(714) 599-1204
Energy efficient lighting systems

Phillips Lighting Company
200 Franklin Square Dr.
Somerset, NJ 08875
Booth 743
(201) 563-3000
A complete line of lamps for all lighting applications

Pioneer Electronics Technology, Inc.
1800 West Holt Ave.
Pomona, CA 91768
Booth 1145
(714) 623-2271
Garden speaker with lighting for interior and exterior use

Power Controls
1067 Bandera Rd.
San Antonio, TX 78228
Booth 706
(210) 438-9511
Dimmers and fan speed controls and accessories
Since 1909, 911 Booth 710, 712
(914) 691-6622
Commercial and residential lighting: energy saving lighting systems; compact fluorescent, halogen, HID tubular lighting systems; decorative, exterior and HID fixtures.

Starfire Lighting, Inc.
317 St. Pauls Ave.
Jersey City, NJ 07306
Booth 710, 712
(908) 443-8823
Since 1975 has pioneered the development and application of decorative and linear lighting products. Their extensive family of luminaires includes: Xenolon, Techtron, Starbrite, Starbrite and Lucent.

Brond Electric Controls
2975 S. 300 W.
Salt Lake City, UT 84115
Booth 705, 707
(801) 487-6111
Manufacturers of electrical lighting controls for quartz, incandescent and fluorescent lighting sources.

Sun Valley Lighting
7900 Clybourn Ave.
Sun Valley, CA 91352
Booth 357, 359
(818) 767-3031
Finely crafted, durable cast aluminum traditional ornamental, classic and contemporary lighting fixtures and poles with matching arms, wall sconces and bollards.

Systems Lighting Products
Box 190
Portland, TN 37148
Booth 1048
(901) 221-7913
Office task and ambient lighting for all furniture systems, factory task lighting for workbench systems, portable task lights, portable power sources.

Tech Lighting
2542 N. Elston
Chicago, IL 60647
Booth 547
(312) 486-6464
Contemporary low voltage lighting for residential and commercial applications.

Siltron Illumination, Inc.
PO. Box 280
Rancho Cucamonga, CA 91730
Booth 1139
(714) 941-3550
Emergency lighting, exit signs, designer line sources, power line conditioners and central inverter systems.

SPI Lighting Inc.
PO. Box 633
Mequon, WI 53092
Booth 147, 149
(414) 242-1420
Commercial and industrial indirect lighting products.

Staff Lighting Corp.
PO. Box 1030
Highland, NY 12528-1020
Booth 555
(914) 691-6622
Commercial and residential lighting: energy saving lighting systems; compact fluorescent, halogen, HID tubular lighting systems; decorative, exterior and HID fixtures.

Traxx-Lezno
100 Hawks Ave.
PO. Box 1060
Hanson, MA 02341
Booth 903
(617) 294-0100
Recessed fluorescent architectural downlight fixtures for commercial and institutional use. High performance fixtures include a variety of trims and post anacondred reflectors utilizing PL and Quad lamp sources. Mirror low voltage fluorescent fixtures.

Trojan, Inc.
PO. Box 850
Mt. Sterling, KY 40353
Booth 1249
(606) 498-0526
Coated and uncoated fluorescent and incandescent lamps.

Ushio America Inc.
20101 S. Vermont Ave.
Torrance, CA 90502
Booth 1036, 1038
(213) 329-1960
Manufacturer of halogen light sources.

Velmont Electric, Inc.
1430 E. Fairchild
Danville, IL 61832
Booth 507, 509
(217) 446-4600
Manufacturer of ballasts for HID and fluorescent applications including electronic energy saving and the new loadless energy saving ballasts.

Vantage Controls
4415 South 500 West
Salt Lake City, UT 84123
Booth 806
(801) 266-2165
Manufacturer of low-voltage, microprocessor based lighting control systems, engineered for custom residential and commercial applications.

Valtron Lighting International, Inc.
23000 Aurora Rd.
Solon, OH 44139
Booth 255
(216) 348-8310
Full line of innovative metal halide lamps.

W.A.T. Inc.
11425 Anaheim Dr.
Dallas, TX 75229
Booth 345
(214) 243-1231
Specialty decorative-accent lighting products for indoor/outdoor applications.

Waldmann Lighting Co.
9 West Century Dr.
Wheeling, IL 60090
Booth 415
(800) 634-0007
Office, machine and inspection task lighting.

The Wall Stopper
296 Brokaw Road
Santa Clara, CA 95050
Booth 648
(408) 988-5331
Complete line of ultrasonic and passive infrared occupancy sensors.

Winona Lighting
3760 W. Fourth St.
Winona, MN 55987
Booth 606, 611
(800) 329-5291
Decorative chandeliers and wall sconces, standard and custom.

Xenotech Inc.
11229 Vineland Ave.
Sun Valley, CA 91352
Booth 942, 943
(818) 767-0365
Xenon Brightlights (R) - high intensity collimated searchlights 1000 to 7000 watts.

Yorklite Electronics, Inc.
3161 State Rd.
Bensalem, PA 19020
Booth 211, 213
(215) 244-4021
Specification grade emergency lighting, exit and inverter systems.

Zelco Industries, Inc.
630 South Columbus Ave.
Mount Vernon, NY 10550
Booth 312, 314
(914) 693-6230
Innovative lighting for home and office.

Zumbello Lighting Inc.
141 Lanza Ave.
Garfield, NJ 07026
Booth 943
(201) 340-8900
Architectural lighting systems; recessed, surface and suspended mounted direct and indirect luminaires.

I Store Image
Barfield Rd.
Ga, GA 30282
h . . . 256-9800
Publication for retail design

Ison Transformer Company
1 Thornton Rd.
Island, IL 60046
h 808
388-2315
Sta for fluorescent and HID lighted transformers for low volt age.

and Haas Company
Endeavour Mall West
Lelford, PA 19105
h 556
592-3000
LX (R) plastic resin for high pressure applications.

Ilfic Lighting Products
Adie Rd. and Heights, MO 63043
h 518
597-2408
num and plastic parabolic low and baffles.

Shiel an Patrick Dr.
ry, NC 28144
h 709
33-2100
ectors of the original shutter- mps, as well as safety coated plastic coated fluorescent, recent and high intensity dislamps.
2 EASY WAYS FOR YOU AND YOUR COLLEAGUES TO REGISTER

1. BY PHONE:
Call us now at (301) 662-9386 for more information on LIGHTFAIR registration.

2. BY MAIL:
Mail completed registration form (one per attendee - please duplicate the form for multiple attendees) to:
LIGHTFAIR
P.O. Box 4088
Frederick, Md. 21701-4088
Conference preregistration deadline:

TEAM ATTENDANCE AND COMPANY/FIRM DISCOUNTS

Register a team of your colleagues. Take advantage of substantial discounts by pre-registering 5 or more members of your company/firm. Save your company money and share the latest in lighting education and technology. See the registration form on page 15 for details. Or call (301) 662-9386 to reserve a block of seats for you and your colleagues.

SAVE ON AIRFARE WITH TRAVEL DISCOUNTS

Eastern and United Airlines are the official air carriers for LIGHTFAIR.
■ Save 55 percent on regular coach airfare or five percent off lowest published fare, when restrictions are met, on Eastern.
■ Save 40 percent on regular coach airfare or five percent off lowest published fare, when restrictions are met, on United.

Make your travel plans TODAY to receive the lowest fares. Discount airfares are offered exclusively by calling Destination, Inc., toll-free at 1-(800)-241-6405 outside Georgia and 1-(800)-282-0456 inside Georgia. Representatives are available Monday through Friday, 9 am to 5 pm Eastern standard time. Ask for "LIGHTFAIR discounts."

SAVE ON ROOM COSTS WITH REDUCED HOTEL RATES

Three hotels within walking distance of LIGHTFAIR offer reduced rates for attendees on both single and double rooms. Note: When contacting hotels, ask for "Chicago LIGHTFAIR Conference rates."

1. HOLIDAY INN MART PLAZA is the official LIGHTFAIR conference headquarters. Conveniently located atop the Expocenter.
Special rates: Single / $110 Double / $120
Call the hotel directly at (312) 836-5000 or 1-(800)-HOLIDAY to make your reservations.

2. THE HOTEL NIKKO, located four blocks east of The Mart.
Special rates: Single / $165 Double / $175
To reserve rooms, call the hotel directly at (312) 744-1900 or toll-free at 1-(800)-645-5687.

3. THE EXECUTIVE HOUSE, located five blocks east of The Mart.
Special rates: Single / $90 Double / $110
Call toll-free at 1-(800)-621-4005 to make reservations.

Cut-off date for discounted rates is Monday, Feb. 11, 1991.

AUDIO CASSETTE TAPES

LIGHTFAIR seminars will be taped and may be purchased on-site or immediately following the conference. To order, please write, call or fax:
Conference Recording Service, Inc.
1308 Gilmer St.
Berkeley, Calif. 94706
Attn: Chicago LIGHTFAIR
1-(800)-345-2010
Fax: (415) 527-8404
**REGISTRATION FORM**

**EXPOCENTER AT THE MERCHANDISE MART**
Chicago, Illinois  March 5-7, 1991

Pre-Registration Deadline - Feb. 18: After this date, bring this form on-site.

Check all appropriate boxes - Note: Attendees who register for any session or CEU receive FREE entrance to exhibits, Green Lights, Breakout Sessions and opening night reception.

**DATE, MARCH 5, 1991**
- 8:30 -10 am Keynote: Green Lights
- 10:30 am - noon Lighting Systems
- 2 - 3:30 pm Legislation
- 10:30 am - noon Packaging
- 3:30 - 5 pm Economic Forecast
- **Tuesday Pass**
  - (5 or more pre-registrations mailed together)
- **Firm Discount**
  - $60
  - per person
- **Firm Discount**
  - $25 (free with other registrations)

**TUESDAY, MARCH 5, 1991**
- 8:30 - 10 am Product Showcase
- 10:30 am - noon Retail/World View
- 3:30 - 5 pm Visual Merchandising
- 6 - 7 pm Lighting Retail Stores
- 10:30 am - noon Battery Park
- 3:30 - 5 pm Landscape Lighting
- 6 - 7 pm Light Sculpture
- **Wednesday Pass**
  - (Does not include CEU)
- **Firm Discount**
  - $80
  - per person
- **Firm Discount**
  - $100

**TUESDAY, MARCH 6, 1991**
- 8:30 - 10 am Office: Worldview
- 10:30 am - noon Fundamental: Office
- 2 - 3:30 pm VDTs
- 8:30 - 10 am Fundamental: Residential
- 10:30 am - noon Color and Light
- 2 - 3:30 pm Dimming Systems
- **Thursday Pass**
- **Firm Discount**
  - $50
- **Firm Discount**
  - $100

**SUNDAY, MARCH 7, 1991**
- 8:30 - 10 am Office: Worldview
- 10:30 am - noon Fundamental: Office
- 2 - 3:30 pm VDTs
- 8:30 - 10 am Fundamental: Residential
- 10:30 am - noon Color and Light
- 2 - 3:30 pm Dimming Systems
- **Thursday Pass**
- **Firm Discount**
  - $50
- **Firm Discount**
  - $100

**TotalAmount Due**

Return this form in its entirety with payment to:

**Attn: LIGHTFAIR**
P.O. Box 4088
Fredrick, Maryland 21701-4088

or call (301)-662-9386 and register TODAY
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 ballasts 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.

Panasonic
Circle 31 on the Reader Service card.

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
Circle 32 on the Reader Service card.

The Aero
Winona Lighting announce an addition to its stand product line...the Metro series of six wall sconces or light fixtures available in finished brass, bronze and stainless steel. The Aero, in polished brass, is distinguished by its shallow lamp housing trimmed with 3 decorative “flats”. The Aero is 8.5” wide with a 3 3/4” projection. Lamps in the series are qualfication halogen and 120 volt.

Winona Lighting
Circle 33 on the Reader Service card.

Four Attractive Shapes
Added to PrismGlo Line
Sulted 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 recess system is designed to function aesthetically, while eliminating the need for field-measured corners.

Litecontrol Corporation
Circle 35 on the Reader Service card.

Spotlighting Grid
Structurally lighting system consists of miniature extruded aluminum three-dimensional frames. Elegant Italian design combined with quality introduces 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 called from Philips Halogen Corp. features low and line volt halogen lamps. The MASTERline square and round MASTERline PAR 30 and PAR 38 IC (above) offer added voltage savings and increased light output than existing halogen products.

Philips Lighting Comp.
Circle 37 on the Reader Service card.
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

high-end, full-featured 3-D CAD package with built-in database. The work version (Cadvance for Workps) is fast and function-packed. Cadvance has always been one of the most CAD packages, especially for on-line redrawing. It now can use network resources to speed redrawing and control printing, plotting, and file security. This package is for systems running MS-DOS or PC-DOS.

BOSICS: All the standard tools are integrated. Support for expanded memory, symmetrical parallel line (and offset) for walls, automatic build-grids, 3-D editing (in perspective, axonometric, oblique as well as isometric or graphic), walk-throughs, rendering, applied fonts, wide range of dimension options, 255 layers, macro-programming language, and so forth. Cadvance reads or writes DXF files (including AutoCAD 10 “3-D” DXF) automatically, and output images in the standard PCX format used by advanced word processors and almost all desktop publishing packages.

Cadvance is the moment, the high-end full-featured 3-D CAD 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 anywhere 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-
Since 1910, Julius Blum & Co. has provided ornamental metal components of high quality to the architectural trades. Today, Julius Blum & Co. is the industry's most complete source for architectural metals. Our latest publication, Catalog 15, describes our full line of architectural metal components:

**UB Glass Rail** — Metal railing components for use with 1/2" and 1/4" tempered glass.

**Connectorail** — Non-welded pipe railing system in aluminum, bronze and stainless steel.

**Colorail** — Extruded plastic handrail in 12 stock colors and 10 stock shapes.

**Carlstadt Railing Systems** — Versatile post and rail systems in aluminum, bronze, stainless steel, and acrylic/wood.

**Traditional Railings** — Handrail, trellises, fittings, and decorative ornaments in aluminum, bronze, steel, and stainless steel.

**Elevator Cab Components** — Elevator sills, handrail and brackets suitable for vertical mounting in elevator cabs.

**Handrail Brackets** — Wall, post and vertical mounting brackets for all handrail types.

**Expansion Joints, Thresholds and Mouldings**.

**Tubing, Bars & Shapes in Bronze, Aluminum, Steel and Stainless Steel**.

Catalog 15 also includes a complete Engineering Data section to assist in the proper structural design of various handrail systems.

Contact Julius Blum & Co. for your copy of Catalog 15.
Setting 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.

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: iscAD, 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.
HOW MUCH MARVIN WINDOW IS ENOUGH?

Somewhere between the two extremes shown here, there's a Marvin window that's just right for your next project.
One that combines the right size with the right style. One that combines precisely the right features. Maybe even a one-of-a-kind Marvin window you design yourself.
You see, at Marvin, we make windows to order. We don't build and warehouse a few popular shapes and sizes. We don't limit our line to a few standard feature packages. And, because we make windows to order, your size or style is never out of stock.
By making windows to order, we extend our line to the limits of your imagination. We give you more sizes, more styles, more features and more options. You decide how simple or extravagant to be. You tell us what features to build in.
You also get Marvin's made-to-order craftsmanship and quality. Every time. Dollar for dollar, feature for feature, nobody offers a wider or more complete line of windows. Nobody ever will.
How much Marvin window is enough? As much as it takes to convince you that made-to-order makes other manufacturing methods obsolete.
For more information call 1-800-346-5128 (in MN, 1-800-552-1167; in Canada, 1-800-263-6161) or write, Marvin Windows, Warroad, MN 56763.
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 suppressed. 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.

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 memorial Hall at Phillips Academy in Andover, Massachusetts, by architect Schoenegge AIA incorporates several large areas of Eich/Contraflam glass. The design firm submitted just-completed test data on the system to state Building Code examiners, who approved it for applications calling for a 90-min firewall.

The long-vacant 35,000-sq-ft classroom building, originally designed by Hart and Richardson in 1903, is one of three historic buildings on the campus of the former Abbot Academy. Its major space, 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.

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.

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.
Long after everything else has gone to ruins, it's worth noting that the entrance still makes a monumental impression.

Kawneer has a complete line of aluminum entrance systems, each a timeless classic in its own right.

Kawneer
The designer's element.
NEW PRODUCTS

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 evolving technology, Eclat is poised to re­ its automated catalog system early this year. The catalog, supplied on a CD ROM disk, offers access to various manu­ rers’ products, and a whole lot more. To use it, though, you will need a CD ROM disk (about $500) for an IBM-compatible computer using an 80286 or newer micro­ ssor, and Microsoft Windows 3.0. A SuperVGA- or 8514-A-compatible monitor, 80386 computer, and 2 MB of memory are all strongly recommended.

access the CD ROM containing Eclat, use the firm’s searching software, ct Researcher. It comes on the CD and installs on your fixed disk.

The software works like most do with windows. You move the mouse to a menu the top of the screen and pull down a menu choice. Clicking the mouse button selects a menu choice. You get at products directly to the Catalog menu and ng the “Select Proprietary Product” on it if you know the product name, fast 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 Gen­ lyte, 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
MUSSON

DISC-O-TILE™ Safety rubber flooring and

DISC-O-TRED™ Safety stair treads

Musson Flame- retardant Flooring & Treads meet ASTM-E84 Flame Spread Rating of 25 or less.


meets ASTM-E84 flame spread rating of 25 or less

Write For Free Brochure & Samples:

MUSSON RUBBER CO.
P.O. Box 7038 • Akron, Ohio 44306 • 216/773-7851

Circle 42 on inquiry card

Grate Designs for Great Designers

Every designer and planner knows a quality tree grate must be more than a thing of beauty. It must also be defect-free to handle weather and wear. Versatile to accommodate an endless variety of proposed design configurations. And changes! Expandable when required, to allow trees to grow after installation. Our quality tree grates are all these things...and more! Write for the full story and FREE tree grate catalog.

NEENAH FOUNDRY COMPANY
Box 729, Neenah, WI 54957
If you can't wait, call 414/728-7000
Quality castings produced entirely in the U.S.A.

Circle 43 on inquiry card

148 • ARCHITECTURAL RECORD JANUARY 1991

Attractive solutions to a tough problem

SPECTRA-Glaze® II units are tough as well as good looking. That's why they are ideal for high traffic areas such as subway, bus and train stations. Because of the unique formulation and patented process, the sealed, smooth surface is practically wear resistant and can't be permanently marred or gouged. Even the most persistent grime and graffiti can be easily removed or damage to the factory applied glass.

Choose from a rainbow of 80 standard colors and countless custom hues. For more details about this unique finish for your next building project, call Burns & Russell toll free: 1-800-613-3188 (in Maryland 1-301-333-3720.

SPECTRA-Glaze
CUSTOM PRE-GLAZED CONCRETE MASONRY

The Burns & Russell Co., Box 6003, Baltimore, MD 21251 FAX: 301-837-9498 TELE.
©1990, all rights reserved, and *Reg. U.S. Pat. Off. Canada and other countries by The Burns and

Circle 44 on inquiry card
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. Pre-laminated 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.

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. 800-821-4895 Fax 718-349-2611.

Register & Grille Mfg., Co.
Circle 503 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 warranted 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 please contact Chadsworth Incorporated, 4005 N. May Ave., Oklahoma City, OK 73118. Fax: 405-441-1451.

Chadsworth Incorporated
Circle 502 on the PRODUCT LITERATURE SHOWCASE inquiry card.

FREE X-Ray Room Planning Guide
New guide illustrates user-designed installations of CLEAR-Pb Lead-Plastic Modular Barriers and Windows in hospitals, radiation therapy centers. CLEAR-Pb is a transparent, lead-impregnated 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.
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 Medalion Payroll, Accounts Payable, General Ledger and custom report programs.

Timberline Software Corp.
Circle 506 on the PRODUCT LITERATURE 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.

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, Bakeoens, 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.

Supra-Slate II

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.

Sonex Acoustical Ceilings

SONEX Ceilings offer renowned acoustics plus the ability to create hundreds truly unique ceiling designs. SONEX Ceilings are available in five tile patterns and white, gray or beige color. Each 24” x 24” tile fits in standard ceiling grids and can easily be cut. Represented by Architectural Surfaces, Inc., 123 Columbia Court North, Chaska, MN 55318, (612) 448-5300.

Architectural Surfaces I
Circle 509 on the PRODUCT LITERATURE SHOWCASE inquiry card.

Evergreen™ Float Glass

Libbey-Owens-Ford

EverGreen™ Float Glass provides a soothing green that blocks 78% of the light, transmits 66% of visible light, yet offers nearly 20% less solar heat gain than conventional green tint glasses.

Libbey-Owens-Ford
Circle 513 on the PRODUCT LITERATURE SHOWCASE inquiry card.
Artistic Sound Panels
rejfus Bus. Environments

rejfus Business Environments offering a free catalog with over 450 standard designs in soft dimensional fabric wall panels. These hand-upholstered fiberglass panels are available in 50 colors. Other custom applications include all art and corporate identity. Luxurious fabric panels are now within most budgets.

Outwater Plastics

Outwater Plastics offers the Orac Decor Collection produced of high density polyurethane. Extremely durable, easy to work with, light-weight, simple to install. Architectural products such as cornice moldings, panel moldings, 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.

Ancor Granite Tile

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 Kerion Street, Winlock, WA 98596, (800) 426-8970. (206) 785-3501 inside WA.

Shakertown Corporation

Circle 520 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, healthcare, 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.

CFMS (Computer-based Financial Management System)

Harper and Shuman develop, 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.
Caldera Spas
Since 1976 Caldera has been manufacturing whirlpool baths in 11 different sizes in 25 DuPont Lucite XLacryl. 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.

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.

Specifier's Guide For Bentemp™
Bent Tempered Glass
This Glassstem brochure provides a ready reference on bent tempered architectural glass. Design information show 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.

FRF 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.

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.

Impressions Are Important!!!
Insure you make a professional one by carrying your blueprints in a THOMASCASE. Each case is meticulously handcrafted and only finest materials are used. Makes the carrying of your prints easy and convenient while it also protects them. Available in plain or vinyl. Colors include lemon, black and tan. Custom sizes available. Allow 3 weeks for delivery. For price or to order call us toll free.

The REPrt...the monthly newsletter for building product sales reps and distributors
News briefs and reports, building products, laws, market management, selling tips, news of companies and people, employment listing, new lines available, and sales leads on major construction projects...everything the successful rep or distributor needs to know...from McGraw-Hill/Pent/Year. Call 212-512-3442.

Thomas Cases
For further information call 1-800-544-7929.

Calidera Spas
Circle 522 on the PRODUCT LITERATURE SHOWCASE Inquiry card.

Rutt Custom Cabinetry
Circle 523 on the PRODUCT LITERATURE SHOWCASE Inquiry card.

Sun-Dor-Co
Circle 524 on the PRODUCT LITERATURE SHOWCASE Inquiry card.

Impressions Are Important!!!
Circle 525 on the PRODUCT LITERATURE SHOWCASE Inquiry card.

Thomas Cases
Circle 526 on the PRODUCT LITERATURE SHOWCASE Inquiry card.

Calidera Spas
Circle 527 on the PRODUCT LITERATURE SHOWCASE Inquiry card.
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 Amofosam, 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
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. Bertridge 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, Waukecha, 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 highlights the performance characteristics of asphalts specifically formulated for dead level, flat, steep, and special-steep roofing applications. Test data are listed. Trumbull Division of Owens-Corning Fiberglas, Toledo, Ohio. Circle 418

Commercial board insulation
Catalog discusses rigid polycyanurate panels, made in different facings to meet attachment, layout, and installation requirements of special roof systems. Stress-skin panels and nail-base insulations included. Homasote Co., Trenton, N. J. Circle 419

Modified bitumen membrane
Capabilities brochure outlines range of asphaltic roofing waterproofing products incorporating either APP or SBS modifiers. Research and manufacturing facilities are described. U. S. Intec, Inc., Arthur, Tex. Circle 420

Hot-air-welded
Installation and long-term performance benefits of N-butyl acrylate-based roofing membrane covered. The material remains thermoplastic when instilled and is said to be easy to handle even at cold temperatures. Bond Cote Roofing Systems, West Point, Ga. Circle 421

Structural metal roof systems
Architectural brochure highlights the long-span potential of snap-together Ultra-dek field-seamed Double-Lok roofing systems. Diagrams show how the systems' attaching clip responds to the movement. MBCI, Houston. Circle 422

Weathering metal
An architectural sheet made of a zinc/copper/tin alloy, Microzinc will weather in response to local conditions to yield a uniform gray color that will not bleed. Catalog describes standing-seam roofing and accessories. W. P. Hickman & Co., Asheville, N. C. Circle 423
Pages 62-67
Franklin Institute
Idles Brecher Qualls Cunningham, Architect
Limestone: Wollery Stone Co., Inc. Brick: Bel-
Brick. Sandblasted anodized-aluminum exter-
ior: John W. McDougall Co. Paints on metal
faces: Tnemec. Storefronts, windows, and
doors: Hope's Architectural Products, Inc. Glass:
F. Glass Group (Solex). Lead-coated copper
cladding: James Heilstand, Inc. EPDM membrane
for: Manville. Skylights: Bohem; SuperSky West.
Resins: Hope's Architectural Products.

Pages 64-67—Atrium paving: Monile Terrazzo.
Exceptional lighting: custom by Klemm Reflector Co.
Chairs: Leonard Kunkin Associates. Carpeting:
Rasch-Bigelow. Rubber flooring: Freudenberg
Industries, Inc. Furnishings in lobby: Arflex (Marco
Partners). Steel, glass, and wood: Zanini; (Antoni
Gaudi) carved settee; Muebles S.A. (Carlos
Joseff Gartner). Glass: Spectrum Glass
Inc.; ECI (Antropus chairs); Ecart (Jean
Michele Frank)

Pages 66-71
Research and Education Building
Critics & Will, Architect
Limestone cladding: Tristate Cut Stone. Aluminum
stain wall and windows: Marmet Corp. Glass:
Industries, Inc., Glass Group. Single-ply roof-
Firestone Building Products. Terne-coated
steel: Dessent Roofing Co. Entrances: Ar-
te Architectural Products. Door hardware and
devices: Corbin Hardware. Paints: Benjamin
& Co. Custom panels: Barsanti Woodwork.

Pages 72-75
Mount Hotel
High Space Architects
Curtain doors and woodwork: Progressive Mill-
work. Paneling and cabinetry: Maville. Laminate
faces: Formica Corp. Perimeter lighting: Light-
Art, Inc. Furnishings in lobby: Artflex (Marco Zan-
Antropus chairs); Ecart (Jean Michele Frank)
; Maville (Philippe Starck tables and chairs on
zinc; side chair and ottoman); Idea (Mark
son Lockhead aluminum lounge); Disenos
orios (Antoni Gaudi carved settee); Muelles
(Carlo Riegst sofas). Custom-color paint: suede.

Pages 76-83
China Tower
Poi & Partners
Ode stone: Lanbelin French granite. Curtain
Wall: Joseff Gartner. Glass: Spectrum Glass Prod-
Penthouse solar screening: Tajima. Stain-
s-metalwork: Hauke; Joseff Gartner. Eleva-
Mitsubishi.

Pages 84-87
a Pines Health Center
Cross Associates, Architects
: ECI Building Components. Exterior stains:
ײַ 100 & Three. Homecare. Reception flooring: Cross-
Products Corp. (Dex-O-Tex). Entrance doors:
by architects, fabricated by Contemporary
ican Furniture. Reception desk: custom by
beauties, fabricated by Laco Woodworking. Door
ware: Schlage Lock. Customized pendant:
Lighting.

Pages 94-97
Warsaw Community High School
The Odl McGuire & Shoek 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. Carpet-
ing: 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 Cor-
ning, Inc. (reflective Decora). Library pendant fix-
tures: SPI Lighting. Other lighting: Lithonia.

Pages 101-104
Hope Elementary School
Text Architects
Ground-face CMU: Trenwyrh Industries, Inc. Pre-
formed metal roofing: ECI Building Components.
Aluminum-framed windows: EFCCO Corp. Glass:
Guardian Industries. Exterior lighting: Bega/FS.
Entrances: Kawneer Co., Inc. Hollow-metal doors:
Fenestra. Wood doors: Weyerhaeuser Co. Lock-
sets: Best Lock Co. Hinges: Hager. Closers: Rixon-
Firemark, Inc. Exit devices: Von Duprin, Inc.
Sprinklers: General Firematic. Vinyl wallcovering:
Genon. Lamine surfaces: Wilsonart. Paints: Ben-
Resilient tiles: Azrock Floor Products. Classroom
desks: Irwin.

The Weatherend Story.

Imagine a time long ago and a place not so far away an estate in Maine...
January 24
Jill Rudolph, in the “Shape of the City” discussion series at the 92nd Street YW/MA, 1395 Lexington Ave., New York, at 8 p.m.; Charles Moore, on February 26; Allan Greenberg, on March 5; Paul Dberger, moderator. For information: 415-5455.

February 9
Hoffmann: Drawings and Objects in Conception to Design,” 281 sketches and objects, Goldie Paley Gallery, Moore College of Art & Design, 20th St. and the kway, Philadelphia; participants in a long symposium on Josef Hoffmann, moderated by David Gebhard, 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 Electricians’ 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.

CALENDAR

ARCHITECTURAL RECORD JANUARY 1991 • 163
MAKE YOUR PROJECTS MORE PROFITABLE — EFFORTLESSLY!
Love those decorative cedar shingles but hate to draw them? Save valuable time with our Fancy Cuts Template. Each template shows exposures for both interior and exterior applications along with square footage achieved per 96-piece carton based on exposure.
Call now: 1-800-426-8970 for your free template and design kit to make your next project more profitable.
SHAKERTOWN FANCY CUTS®
Send for a free design kit. Shakertown, Box 400 PA-FC-10-87, Winlock, WA 98596 or call 1-800-426-8970.

Flexmat® Interlocking Floor Matting

IT'S A SNAP!
POLYPROPELENE AND RUBBER MATTING IDEAL FOR FLOORING:
• Machine Shops
• Rooftops
• Electrical Areas
• Wet Areas
• Laboratories
CALL FOR FREE SAMPLE!
National Toll Free: 800-237-3820
McNICHOLS CO.
FAX: 813-289-7884 Telex: 52706
Cleveland • Chicago • Dallas • Atlanta • Newark • Boston • Tampa

When They Close This Roof, How Do They CLOSE THE GAPS?
...with Deucedly Clever Inflatable Seals From SEAL MASTER

FIND US IN SWEET'S DIRECTORY #07920/SEA
TORONTO, ONTARIO
SEAL MASTER CORPORATION
368 MARTINEL DRIVE • KENT, OH 44240-4369 US (216) 673-8410 • FAX (216) 673-8242
INFLATABLE SEALS AND OTHER CUSTOM RUBBER PRODUCTS

Circle 53 on inquiry card
Circle 54 on inquiry card
Circle 52 on inquiry card