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Cover
Fay Schroeder had a problem. She needed a quality office system for the loan operations area at First Commerce Corporation’s lead bank in New Orleans. But aesthetics were going head to head with economics. “We needed a comfortable and productive working environment,” she says. “We certainly wanted it to look nice. But since it’s a back office area, we didn’t want to spend a lot of dollars on it.”

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Circle No. 374 on Reader Service Card
A look into some 50-year-old issues of *Pencil Points*—P/A’s predecessor—reveals a profession absorbed with two familiar concerns: the merits of Modern design vs. historicism and the provision of low-income housing.

THE advent of 1989 set me to wondering about how the world of architecture looked in early 1939, just before the outbreak of a war that would interrupt and redirect architecture, along with just about everything else. Turning to the early 1939 issues of *Pencil Points*—P/A’s name before World War II—I found a remarkably familiar situation: a profession torn between Modernism and traditional styles and much concerned about low-income housing.

On the style front, the January 1939 *Pencil Points* presents a critical report on the Bauhaus exhibition then at New York’s Museum of Modern Art, written by the eminent Talbot Hamlin. Much like our reviewer of MOMA’s recent Deconstructivist show (P/A, Aug. 1988, p. 25), Hamlin admires much of the design shown, but has little good to say about the exhibit. In the same issue, editor Kenneth Reid publishes excerpts from a book on art and craft in Post-Bauhaus Germany. While disclaiming any sympathy with the Hitler government, Reid shows some doorways, stained glass windows, and such in a Classical-Vernacular-Modern style that the state was encouraging. Reviewed 50 years later, these works look charmingly non-doctrinaire, much like, say, Eliel Saarinen’s work at Cranbrook.

The “Threshing Floor” pages of *Pencil Points* in those days published the unedited opinions of readers, one of whom soon writes to congratulate the editors for revealing that “all is not stagnant in Germany,” as émigrés portrayed it, and hopes that they will “recollect this letter in a few years, when Bauhausism and its related conceits have been packed away for the moths.”

In America, the reigning design attitude shown in these 1939 issues is, if not Post-Bauhaus, then Non-Bauhaus. It shows a similar kind of accommodation of Modernism to Classicism by adopting familiar forms and compositional strategies—the very approach that was the subject of the recent New York exhibition *Everyday Masterpieces* and its catalog (Jan. issue, p. 24). The great fairs of 1939, in New York and San Francisco, which earned many pages in those issues, present this kind of a comfortable, crowd-pleasing stylistic mix.

While the architects of 1939 were trying to sort out their stylistic allegiances, a whole other controversy revolved around publicly subsidized housing. After six years of New Deal policies, a considerable amount of public housing had been produced. One type of reaction from the ranks of the architects is revealed in a “Threshing Floor” letter of July 1938: A New York architect complains bitterly about a hypothetical Iskowitz family (“This is just a name I made up, but I think it sounds nicer than John Q. Public”), who pay less for an ample new apartment than he does for his smaller old one, while his taxes go toward their subsidy. *Pencil Points* invites responses to this letter, and in the January 1939 issue we find one from a Philadelphia architect who himself lives in a subsidized project; he portrays public housing as throwing down a challenge to private builders and predicts that it will encourage them to stop marketing “sham gables” and “robin’s egg blue baths” and start producing affordable housing; if the earlier writer is so worried about his taxes benefiting the Iskowitzes, what about the money that goes for “battleships that will become obsolete in a few years”? Comparable arguments are bound to be much heard in 1989.

More calmly assessing the housing question from the point of view of professional practice, Talbot Hamlin begins a 17-page survey of accomplishments with the headline “Housing Is Architecture.” Citing the lament of a “well-known elder” architect that architecture had fallen to the state of designing “mere apartment houses and housing developments, and those of the cheapest type,” Hamlin asks what more inspiring subject there could be than “an entire designed community.” While his article emphasizes large apartment developments, both public projects and moderately priced private ones, he also points out virtues in some isolated buildings, as well. He too believes that no-nonsense public housing can shame the private sector into scrapping its “stylistic tricks,” although he accuses the FHA, which was making inexpensive loans to private builders, of encouraging “pseudo-colonial.”

While all of Hamlin’s housing examples are more practical than inspired, none are cursed with the vast scale and anonymity of postwar projects, and all of the units published could command substantial prices on today’s market. It is not mere nostalgia to wish that we could address our housing crisis of today with units as good as these.

Ideas such as Modernism and social consciousness seem to vary in cycles that are somewhat independent of circumstances. Our political and economic situation today has little in common with that of 1939. Yet these two issues, which seemed settled for eternity in the 1950s, have become areas of broad disagreement that will continue in 1989.

John Morris Oke

Progressive Architecture 2:89 9
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Views

Rarefied Houses
Nothing better illustrates the conceptual bind that architects put themselves in than contrasting two attitudes evidenced in your December issue. (One so typically well written, presented and considered that its delights are self-evident.)

Tom Fisher's editorial decrees a professional attitude moving "toward a more rarefied position." Jim Murphy in his introduction states that "Few of the houses in this issue are what the public would call 'homey.'" Oh those shallow, unenlightened people... It is so fitting that this attitudinal psychophrenia is in an issue on homes. Houses are inherently idiosyncratic and personal, but are they more successful when they reflect the occupant's character or the architect's? I think Mr. Fisher and Mr. Murphy cogently tipped their hands.

Duo Dickinson
Architect
Madison, Conn.

[Interesting points, but bear in mind that the occupants of most of the houses in this issue were no more interested in conventional homesiness than were their architects. We met these owners, and they wanted the environments they got.—Editors]

Editorial Resonance
Contrary to the apocalyptic fears of the post-structuralist argument, I remain convinced—as I believe you do—that "right" exists. It may not be accessible, it may be repressed, it may be unobtainable, but it exists. I take this position because, on occasion, in life and in architecture a thing feels so right (true?) that it cannot be doubted.

Your editorial in December's issue has this quality. It is wonderfully and painfully accurate. It resonates... great job.

Don Prowler
Architect
Philadelphia

SkyLight Research Clients
The clients for the SkyLight Handbook and AAMASKY1 Software (January issue, p. 125) were inadvertently omitted from the credits. They were: SkyLight and Space Enclosures Committee, American Architectural Manufacturers Association, Des Plaines, Illinois, and Office of Building and Community Systems, Building Systems Division, U.S. Department of Energy, Washington, D.C.

Competition flashbacks
In the January issue, references to previous P/A articles on two competition-winning schemes were inaccurate. For the West Hollywood Civic Center (Jan. issue, p. 107) the earlier article was in P/A, Dec. 1987, p. 25; for the Carnegie Mellon master plan (Jan. issue, p. 113), the earlier article was in P/A, Aug. 1987, p. 25.

Publication Source Correction
An incorrect Zip code was shown in the address for the publishing arm of the Harvard Graduate School of Design. The correct address is: Office of Special Programs, Graduate School of Design, Harvard University, 48 Quincy Street, Cambridge, MA 02138.

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This reader poll reveals a profession at odds with its own educators and split in some ways over what architectural education should ideally be.

Education helps define a profession. Through it, professionals gain the specialized knowledge and skills that justify their monopoly of certain practices through licensing. But what if a profession and its professional schools are at odds over what should be taught and how? What responsibilities exist between the two? What should their relationship be? This reader poll raises, and partly answers, those questions.

The Respondents (Fig. 1, 2, 3)
Over 1500 readers responded to this poll. Three-quarters of them work in architectural firms and 10 percent are either faculty or students. About half (52 percent) work as designers and half (48 percent) do not. Also, about half of the respondents (53 percent) have undergraduate degrees and just over one third (35 percent) have graduate degrees.

Rating Education (Fig. 4)
At first glance, the poll seems to show a profession satisfied with its education. A majority of those who responded (53 percent) rated their own education as superior and most of the remainder (38 percent) considered theirs adequate. There were only slight differences among readers: Those who attended graduate architecture schools were somewhat more satisfied than those with undergraduate degrees, while those who went to design-oriented schools and work as designers gave their education the highest marks.

But that satisfaction did not extend very far, certainly not to our readers’ evaluation of architectural education today. Only 9 percent rated it as superior, while 60 percent rated it as adequate, and 31 percent as unsatisfactory. Here, the age of the respondent made a difference. Those who graduated in the 1980s or who will graduate in the 1990s were more likely to consider today’s education adequate than graduates from the 1950s or before.

Educational Emphasis (Fig. 5)
Such a negative response from older architects is telling, for the poll reveals a marked change in architectural education in the last two decades. A quarter of those readers who graduated in the 1950s or before attended schools that emphasized practice and technology, compared with only 9 percent of 1980s graduates. Likewise, only 39 percent of the oldest graduates had a design-oriented education versus 60 percent of the newest. “It would appear,” say Morrison & Morrison, consultants for this poll, “that the education system of today has decreased the emphasis on practice and technology skills, concentrating more heavily on design principles.”

Education and Practice (Fig. 6)
Does that shift in emphasis better equip students for the profession? It appears not: 81 percent of those who responded to the poll concur that architecture schools do not adequately prepare students for practice. Agreement on this point was widespread, with 81 percent of those employed in firms, 75 percent of faculty and students, 77 percent of the designers in firms, and 85 percent of non-designers rating it a problem.

“That their education did not prepare them for practice,” state the Morrisons, “may be the largest complaint of practitioners who believe their education was less than satisfactory, with over 90 percent of them agreeing with the statement.” Yet even among those who considered their education superior, 72 percent did not feel adequately prepared for the work world.

If the schools do not ready students for practice, they also give students unrealistic expectations of the profession, according to 76 percent of our readers. That percentage, too, cut across differences of age, education, and employment, with the one exception being those readers
who rated their own education unsatisfactory: 90 percent agreed that the schools create unrealistic expectations.

Three quarters of our readers also did not think success in school is a good way of predicting one's success in practice. Those who graduated in the 1970s were especially skeptical of academic success; 82 percent thought that it had little bearing on one's later fortunes. Conversely, educators and students were more lenient, with 33 percent (versus 23 percent of those who work in architectural firms) finding some relation between success in school and in practice.

Readers were more positive when it came to rating the effect the reputation of a school can have on one's career. Almost 62 percent agreed, to some extent, that reputation can make a big difference; slightly over 38 percent disagreed. Here too, educators and students gave more weight to academic reputation. Over 68 percent thought that it makes a big difference in one's career, compared to 60 percent of those currently in practice.

If reputation is important, what are the best architecture schools? Many schools received at least some votes, but the top ten, in listed order, were: Harvard, Yale, Berkeley, Cal Poly, MIT, Cincinnati, Cornell, Columbia, Pratt, and Princeton.

Nearly 40 percent of our readers did not respond to the question, however. Also, because "no one school received the majority vote," say the Morrison, "we suspect that many architects may have nominated their own alma mater for this honor." Except for the schools that rated highest, "this data may more closely reflect the percent of graduates from each school who read P/A than anything else."

Schools' Shortcomings (Fig. 7)

When asked about specific shortcomings, 95 percent of our readers found their own education lacking in some respect. The most common complaint, listed by 74 percent, was insufficient instruction in management and business practices. Those less likely to agree with that were educators and students (65 percent) and recent graduates (69 percent); those most likely to agree were those readers who graduated in the 1960s (87 percent), many of whom are presumably managing staff and running businesses.

Other shortcomings recognized by a sizable number of readers included: an insufficient connection made between design studio and other courses (cited by 48 percent of our readers), too little emphasis on communication skills (cited by 41 percent), insufficient instruction in technical matters (39 percent), and too little opportunity to study other disciplines (39 percent). While some of these complaints reflect a desire to have more focused, practice-related instruction, others represent an urge to broaden architectural education to encompass other fields, such as communications.

Wanted to probe this connection between architectural education and the liberal arts further, we asked our readers whether they thought having a liberal arts degree made one a better professional. A full 60 percent said yes: 40 percent, no. While 68 percent of those with graduate architectural degrees (some of whom undoubtedly have liberal arts degrees) agreed with that statement, a surprising 55 percent of undergraduate degree holders (most of whom probably lack a liberal arts degree) also agreed. Experience, too, seemed to affect our readers' view of liberal education: 70 percent of those who graduated in 1950 or before agreed that a liberal arts degree helps, compared with 58 percent of those who graduated in the 1980s.

Packaging Education (Fig. 8)

To what extent should architectural education change to address such shortcomings? Although a majority of readers recognized the benefits of a liberal arts degree, an even larger majority (68 percent) did not think that architecture is best taught at the graduate level. The only group in favor of graduate education, at 52 percent, were those readers already holding graduate degrees.

The responses to two other questions, however, show support for fundamental changes in the way architectural education is commonly conducted. A majority of readers (68 percent) agreed that co-op or work-study programs better prepare students for practice than conventional degree programs. Support for work-study was greatest among those with undergraduate degrees (74 percent) and among students currently enrolled in school (79 percent).

Among all readers, 79 percent also agreed that continuing education courses should be given a higher priority in the schools. The need for continuing education seems especially acute among non-designers; 81 percent favored it as opposed to 77 percent of the designers.

One trend that a majority of our readers might oppose is the increasing number of full-time architectural educators. When asked if practicing professionals make the best studio critics, 65 percent agreed.

There was a split opinion

---

[Diagram and graph images are not transcribed as full text.]
P/A Reader Poll
Internship & Registration

Please tear out, fill in, and mail promptly. Results will be published in the June 1989 P/A.

INTERNSHIP

1. How well do you feel internship prepares today's young professionals for the following areas of practice? Circle your answers according to the following scale:

<table>
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<th>Poorly Prepared</th>
<th>Well Prepared</th>
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A. Project programming/scheduling
B. Site/environmental analysis
C. Schematic design/design development
D. Office procedures
E. Client contact
F. Building cost analysis
G. Construction document preparation
H. Specifications/materials research
I. Bidding/contract negotiation
J. Construction observation
K. Professional ethics

2. Which of the above areas of practice do you feel are most important for interns to participate in? Write in the letter of the three most important areas.

3. How often would you say that interns actually participate in these important areas of practice? Place letters from question 2 on appropriate line.

Almost always (A) Occasionally (O) Most of the time (M) Rarely (R)

4. How well do you feel today's interns are prepared for practice compared to your own experiences? Circle one number.

Not as Well Prepared: 1 · 2 · 3 · 4 · 5 · 6 Better Prepared

5. Many firms take undue advantage of interns, offering low pay for long hours.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

6. Graduates of work-study or co-op programs perform better as interns than graduates of conventional degree programs.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

7. Proof of experience as an intern in varied aspects of practice should be required for licensing.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

8. The Intern Development Program (IDP) as administered by the National Council of Architectural Registration Boards has improved the quality of internship.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

REGISTRATION

For the following questions, indicate the degree to which you agree with the statement.

10. A professional degree should be a prerequisite for licensing.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

11. Graduates of four-year non-professional programs (BA in architecture or equivalent) should be able to qualify for licensing if they acquire prescribed credits.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

12. Continuing education should be required of all licensed professionals.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

13. Architectural schools adequately prepare students for the licensing exam.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

14. The licensing exam is a reliable test of professional abilities.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

15. The design portion of the licensing exam is a good test of design skills.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

16. Registration "cram courses" improve one's exam performance.

☐ Agree Strongly
☐ Agree Somewhat
☐ Disagree Somewhat
☐ Disagree Strongly

For each of the following questions, please check one answer.

17. Your Degree:

☐ B. Arch.
☐ M. Arch.
☐ Neither

18. Licensing Exam:

☐ Have not taken license exam
☐ Have taken exam, but need to repeat some portion
☐ Passed by repeating some portion
☐ Passed without repeating any portion

19. Have you participated in NCARB's Intern Development Program (IDP)? Check all that apply.

☐ As an intern
☐ As a professional supervising interns
☐ Have not participated in IDP

20. Number of Years in Profession:

☐ Under 3
☐ 4-10
☐ 11-20
☐ Over 20

21. Role in Firm:

☐ Owner/Principal
☐ Project Manager Or Equivalent
☐ Architect/Draftsman
☐ Other

22. Type of Firm:

☐ Architectural or A/E Firm
☐ Other
Be sure your opinions are counted in this nationwide profile. Fill out and mail this form before March 1.
over whether there are too many graduates coming out of the schools, leading to overcrowding and increasing competitive pressures. Half of our readers agreed that there are too many graduates, the other half disagreed. The Morrisons note, however, "that these sentiments were not strongly held...63 percent could only agree or disagree somewhat," which suggests that a changing economic climate could affect that sentiment one way or the other.

Advice on Curriculum (Fig. 9)
The profession is strongly divided over some aspects of the architectural curriculum and evenly split over others. One area in which there is considerable agreement involves the offering of business and management courses: 60 percent of our readers think that such courses should be required and 39 percent think that they should be offered but taken at a student's own discretion. Only 1 percent did not think they should be part of an architectural education. Those readers who most supported the requiring of business and management courses were non-designers (63 percent), professionals whose own education was practice-oriented (64 percent), and those who graduated in 1950 or before (70 percent). Educators and students (53 percent) were least in favor of it.

Considerable agreement also arose over the question of whether research should play a larger role in architectural education. Here, 72 percent agreed and 28 percent disagreed. The most support for this came from educators and students (78 percent) and from professionals whose own education was practice-oriented (81 percent); the least although still sizable support came from designers in firms (70 percent) and from the graduates of design-oriented schools (69 percent).

The question that received the most agreement (84 percent) addresses a problem that many schools seem to have difficulty achieving: the integration of other coursework into design studio. Here too, age makes a difference. Those least in favor of it (at 76 percent) were students currently enrolled in architecture programs.

One question over which our readers were not at all in agreement asked whether schools should focus on the teaching of design or practice-related information: 48 percent favor a design focus; 52 percent, a practice focus. Those who rated their own education superior were twice as likely as those dissatisfied with their education to advocate that the schools focus on design. The emphasis of their own school also affected readers' response: 69 percent of those from design-oriented schools supported a design focus, while 71 percent of those from practice-oriented schools supported a practice focus. Those with graduate degrees favored a design focus more than undergraduate degree holders (60 versus 43 percent) and educators and students favored design more than professionals in practice (57 versus 49 percent).

Another curricular issue over which our readers were split 50/50 is whether the emphasis in school should be on individual or collaborative effort. The only group not evenly divided was those whose education emphasized practice; 61 percent favored collaboration.

The Profession and the Schools
This poll seems to carry some conflicting messages. "While most architects," note the Morrisons, "seem to fault the educational system for failing to prepare students adequately for practice, many of these same professionals believe at least to some degree that the primary function of architecture school is to provide design training."

The dilemma facing educators is how to accommodate a profession that values design education, yet wants more technical and practice-related instruction and more exposure to other disciplines. To that end, it is significant that, of all the questions, the one that received the most agreement favored the integration of other coursework (and presumably other disciplines) into the studio system, even at the expense of design time. The message seems to be that, while design studio is important, it has become too dominant, crowding out other educational opportunities. The fact that half of those responding to this poll do not have a design role in firms raises further questions about the shift in recent decades toward a stronger design emphasis in the schools.

The issue of educational balance has become critically important as the architecture schools are now virtually the only route open to those who want to become architects. If the schools are going to accept the benefits of that position, then they must also accept the responsibility for ensuring that the profession's educational needs are being met both in school and afterward. And if, as this poll seems to indicate, the schools are not meeting that responsibility, then the profession must demand it. Its very survival is at stake.

Thomas Fisher
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Gehry Awarded Disney Hall

Last December, as a result of a limited competition, Frank O. Gehry & Associates was awarded the commission to design Walt Disney Concert Hall in Los Angeles. The other contenders were James Stirling Michael Wilford, Hans Hollein, and Gottfried Böhm.

For many years, the Los Angeles Philharmonic has needed a new concert hall, and it had conducted studies on where it should be located. In May 1987, the question was settled with a $50-million donation from Lillian Disney, in memory of her late husband Walt. Along with the money came the choice of a site across First Street from the Music Center, directly behind its existing concert hall, the Dorothy Chandler Pavilion.

The program contained very specific goals. The building was to have an accessible, parklike atmosphere, which would attract people day and night. It was to

A letter from Poland describes the changes in design and practice under glasnost. See Perspectives, page 33.

Soviet Changes at Georgian Biennale

Within the enthusiasm of "pereestroika," the Union of Architects of Georgia organized and held the first Biennale of Architecture in the Soviet Union last November in Tbilisi. The event included exhibitions and lectures by foreigners, awards competitions in categories ranging from design to photography, public forums, and plenty of friendship over fine Georgian wine.

On the whole, the architecture that was exhibited from the

(continued on page 24)

Arts Center, Tbilisi, USSR, by V. Davitain, seen at Soviet Biennale.

Another Try for Graves and Whitney

Michael Graves has unveiled his third design for an addition to Marcel Breuer's Whitney Museum, responding again to widespread criticism of his two earlier proposals (PA, Sept. 1985, p. 25, April 1987, p. 29).

Graves's first design of 1985, a collage of Post-Modern forms that

(continued on page 22)

Michael Graves's third expansion proposal for Marcel Breuer's Whitney Museum.

Esherick Wins AIA Gold Medal

San Francisco architect Joseph Esherick, FAIA, has been awarded the Gold Medal of the American Institute of Architects, the institute's highest honor. Esherick was cited for his contributions to design, education, and practice.

In over 50 years of practice, Esherick has enriched and extended the Bay Region tradition exemplified by the previous gold medalists from the area, Ber-

(continued on page 27)
Carpet (continued from page 23)
architects and artists (see New Products, p. 151).
Roy Lichtenstein, David Hockney, Gerhard Richter, Sol LeWitt, Sam Francis, Arata Isozaki, Norman Foster, Hans-Ulrich Bitsch, Oswald Mathias Ungers, Matteo Thun, and Michael Graves all participated.
Dr. Peter Littman, Vorwerk's president and an avid art collector, began working on the collection two years ago in an attempt to make floors "more dramatic." Littman invited his favorite artists and architects to create designs for mass-produced, affordable carpet.
The new line, "Fascination '91," is available exclusively through Furniture of the 20th Century, New York.

Jessica Elin

Walt Disney Concert Hall runners-up:
Gottfried Böhman (above) ...•

Hans Hollein ...

and James Stirling.

Michael Wilford.

Gehry (continued from page 21)
create a strong connection with the existing Music Center and become a cultural focal point linking the Music Center with the Museum of Contemporary Art and the proposed Dance Gallery, all on Grand Avenue. The program included a 2500-seat concert hall, a major foyer, a chamber music hall, a music library, and support facilities.

Gehry's scheme was the most responsive to the program and to Los Angeles. He created a dynamic group of buildings surrounding an outdoor plaza, linked by a bridge to the Music Center. The centerpiece of the composition is the concert hall and its foyer, a grand conservatory containing a variety of California flora. The hall is flower-shaped, its ceiling radiating up and out like a series of petals. The Grand Avenue and First Street edges of the site are embellished with a dome-topped restaurant and bookstore, which anchors a bridge crossing the street from the Music Center.

In contrast with the openness of Gehry's scheme, Gottfried Böhman proposed an inward-looking, symmetrical monument featuring a domed concert hall covered in glass and steel. Stirling Wilford prepared a densely packed group of buildings focused on a stepped, circular concert hall. Neither this nor Böhman's scheme created a strong architectural link with the Music Center. Hans Hollein's scheme, almost an homage to Gehry, was a complex collection of building forms, visually weaving together the colors, materials, and rhythms of MoCA and the Music Center. An almost symmetrical composition, it proposed a bridge to the balcony level of the Dorothy Chandler Pavilion.

Ground-breaking will take place sometime this year, with completion in 1991.

Barbara Goldstein

Home Builders on Homelessness

As they themselves stated again and again, rarely have the advocates of housing for the homeless received so significant an invitation as that issued by the Home Builders Institute, educational arm of the National Association of Home Builders, to address their conference on the subject in Washington last fall. Representatives from religious, private, and governmental bodies urged their audience—50 percent of whom were builders—to get involved. A video produced for the occasion reinforced the message.

But conference attendees were given more than mere words and images. Over 35 groups assembled in a resource center provided further concrete information on programs and projects, and HBI is now operating a Homelessness Information Exchange as a clearinghouse of relevant data. For more information on the video or the network on Homelessness or the network on Homelessness, contact Eldean Green, HB1, 15th St. & M Streets, Washington, D.C. 20005.

Darah Alice D. Boles

Darah Alice D. Boles

Disappointment at La Défense

Now nearing completion on the outskirts of Paris, "Tête Défense" is proof that impressionistic sketches of an architectural idea can take on a vastly different appearance when built. Danish architect Johann Otto von Spreckelsen, now deceased, won the competition to design an international communications complex with his ethereal vision of a glass cube, void at its center, that would at once terminate and extend an axis that runs from the Louvre through the Arc de Triomphe to La Défense.

As built, however, the design is considerably more earthbound. Its glass skin stretches across an all-too-visible concrete grid, and "le toit," the top cord of the cube, bears no resemblance to Spreckelsen's gravity-defying design. The built reality has too much in common with commonplace French office buildings—an unintended reflection of the Tête's sad come-down from Carrefour de la Communication to spec office space.

A second of the grands projets, the Opéra at La Bastille, could become the latest victim of Parisian art politics. Following the dismissal of artistic director Daniel Barenboim by the President of the Opéra Board, artists from conductor Zubin Mehta to soprano Jessye Norman have threatened not to perform there, and its 1990 opening season now appears in jeopardy.

Darah Alice D. Boles

Soviet (continued from page 21)
USSR is still based on a modern formalism of expressive concrete most evident in mass-produced housing. A new wave of permissiveness, however, has resulted in a movement to protect the old cities through preservation of historical monuments and the design of sensitive infill structures. Unlike the self-conscious historicism or preservation by gentrification in the West, these architects build simply and directly to preserve the city using regional typology.

Other architects in the USSR have been able to build excellent contemporary structures despite governmental limitations. One example is Vakhtang Davitaia, whose work was exhibited at the Biennale. Davitaia's recent cultural center in Tbilisi reflects the traditional local pattern of open-court three-story communal houses.

The most revealing moment of the biennale was a three-hour round table discussion on the final day. At this session the architects outlined a series of political and professional goals: increase the power of architects to make independent decisions; conduct sociological studies of the massive satellite cities for rural immigrants; allow architects to propose new alternative designs for purpose of discussion; introduce elementary school courses on the environment; study the possibility of private ownership of apartments; and continue the development of private or "co-operative" architectural offices.

Glenn Weiss

The author is an independent curator of architecture.
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SMART ARCHITECTS CHOOSE HOMASOTE.
Esherick (continued from page 21)

nard Maybeck and William W. Wurster. Like Maybeck and Wurster, Esherick is known for the houses he designed, beginning in 1939, that complemented their settings, whether on urban hillsides in San Francisco, spreading flatlands in the Sacramento River delta, or the Central Valley. A consummate example of this site-specific design is a complex of shingled houses with sod-covered, wind-deflecting shed roofs built in 1963 at the Sea Ranch.

Born in Philadelphia in 1914, Esherick was schooled, albeit, he says, with some protest, in the academic Beaux-Arts tradition expounded by Paul Cret at the University of Pennsylvania. He was deeply influenced by his experience working in the wood shop of his uncle, Wharton Esherick, a well-known Philadelphia furniture designer. The experience left Esherick with an abiding belief in design as an inductive process and a mistrust of over-arching concepts, particularly those related to style.

The memory of a California vacation brought Esherick to San Francisco in 1938, not for career opportunities, which seemed to him equally strong in Philadelphia, but because he considered the city less tradition-bound socially. He worked for San Francisco architect Gardner Dailey until entering the Navy to serve in World War II.

After the war, Esherick returned to San Francisco and opened his own office in 1946. In 1952, he joined the UC Berkeley Department of Architecture, which he chaired from 1977 to 1981. As an educator, Esherick was concerned both with fostering a free-wheeling, exploratory attitude in his studios and with establishing a program in building science so that basic ideas about building construction were made part of the curriculum.

In the late 1950s, his firm's mainly residential practice diversified with important commercial and institutional commissions. Among the firm's better known work are Wurster Hall, UC Berkeley's architecture building (1965), The Cannery retail development at Fisherman's Wharf (1968), and the Monterey Bay Aquarium (1986). In 1972, the firm became Esherick Homsey Dodge & Davis, and in 1986 EHDD received the AIA's Firm of the Year Award.

Sally Woodbridge

Isamu Noguchi
Dies at 84

Isamu Noguchi, the celebrated sculptor and designer of sculpture gardens, died of heart failure in New York on December 30 at the age of 84.

Noguchi, whose works have become integral parts of Modern buildings and urban plazas, was born in Los Angeles, but spent a great part of his childhood in his father's native Japan. As a young man, he worked as an assistant to Constantin Brancusi, who was to have an influence on his work. His early work included stage designs for Martha Graham and others.

Noguchi's most celebrated works are large, simple shapes rendered in elegantly treated materials. Among the best known are his "Red Cube" of 1968 in lower Manhattan and his sunken sculpture garden at the Beinecke Library at Yale.

In 1985 Noguchi opened the Isamu Noguchi Garden Museum in Queens, New York, which displays over 200 of his works.
Seattle Suburb

Seattle residents are fond of thumbing their collective nose at the bedroom community of Bellevue across Lake Washington and its reputation as a wet-weather Marin County, replete with hot tubs, New Age boutiques, and BMWs. But Bellevue may have the last laugh: While Seattle has failed so far to develop an urban counterpart to its splendid natural surroundings, Bellevue, as evidenced by a successful new downtown park, is transforming its humdrum strip-development environment into a cohesive community.

Unlike Seattle's new Westlake Mall, a tiny wedge of a park among high-rises, Bellevue's park is a boldly conceived, 17.5-acre project combining a highly sophisticated formal design with exceptional flexibility. The Bellevue park, at the edge of the city's downtown business district, was designed by Beckley/Myers/Flad Inc. of Milwaukee, Wisconsin, winners of a 1985 design competition (P/A, Feb. 1985, p. 83). The park's first $1.8 million, seven-acre phase was finished in 1987. A bond measure passed last October provides $3 million to complete the second phase. Credit for the park's development goes to a combination of public/private cooperation. In 1984 Bellevue purchased the park site for $14 million. Once the plan was selected, the bath was handed to a private corporation, which collected money for the first phase from local businesses. The impetus from the first phase's success then led to the successful October bond measure.

The Beckley/Myers design is essentially a large grassy circle defined by a tree-lined canal. Within the circle are the foundations of an early school preserved as places to sit or for children to play. Included in phase one is a belvedere and urnlike fountain that provides a focal point for the design.

Phase two, scheduled for start in 1989, will improve park access, finish the belvedere, and complete the west half of the circle, which will include a small lake. A yet-unscheduled Phase 3 may incorporate a small amphitheater and complete the circle.

Many of the 67 proposals submitted to a jury headed by Vincent Scully proposed tanged assemblages of arcades and plantings for the site. The architects of the winning design looked to New York's Central Park and Versailles for antecedents, deriving from Olmsted's notion that the new park should not dictate one or several uses but allow for many, and from Versailles the idea that a strongly imposed sense of order can make a large space coherent.

But the park is not without flaws. The park's key east edge—which faces the downtown area—is bordered by strip development that will be difficult to remove. And the park's distance from Bellevue's business core is problematic; it may be too far from the action to attract noon-time brown-baggers, leaving it popular for weekend events, largely unused the rest of the time.

In pushing ahead with the park, though, Bellevue has staked out its position on urban life. The city sought—and now has—a refuge that promises to add richly to the downtown environment. Douglas Gantenbein

The author, a free-lance architectural writer, is a resident of Bellevue.

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Who says imagination doesn't grow on trees
Perestroika Poland

Architect Noel Moffett and PIA correspondent Monica Pidgeon, both of London, recently visited Poland as guests of the Association of Polish Architects (SARP). They traveled by coach to 12 cities and towns and inspected many contemporary buildings and innumerable examples of Poland's fine architectural heritage. SARP, with headquarters in Warsaw, has a strong regional structure, with each region's center located in an important historic building—the Architects House—which is in fact a club and hotel for architects and their guests.

Strangely and—in a Communist country—rather paradoxically, the current architectural energies in Poland seem to be concentrated on the design of new churches. This is partly because the Catholic Church has been traditionally very strong in Poland and partly because, since World War II, the most powerful critic of Government policy has been the Church. The Church's role is social as well as religious, and most church buildings are in fact social centers—with school classrooms, libraries, meeting rooms, and sports facilities. Two thousand churches have been built in the last five years, and 2000 more are planned.

The design quality of these churches varies a lot. The best churches are fine, bold architectural statements; but many shout too loudly, with enormous crosses dominating the skyline, out of scale with their neighbors—as if the architects want their buildings to declare that, without any shadow of doubt, the Church reigns supreme in Poland.

Among the best designed churches is one by the architect Stanislaw Niemczyk in Nova Tichy near Katovice, with a magnificent, dominant roof dropping down almost to the ground and surmounted by four crosses (2). Inside, the roof, with its brilliant paintings by artist Jerzy Novosielki, soars up to a lantern over the central altar (1).

Near Warsaw, two churches (continued on page 34)
Poland (continued from page 33)

are worth mentioning: one recently completed by the architect Krzysztof Chiwalibog at Legionowo, with exposed steel roof trusses that sweep up to the highest point over the altar, itself dominated by a high, stained-glass window (3); the other, still under construction in Ursinow, by the architect Maryk Budzynski, with an impressive lofty interior and a huge window in the form of a cross over the entrance.

Down south, at Bienczyce near Cracow, a theatrically designed church by the architect W. Pietrzyk provides evidence of parish devotion vis-à-vis the difficulty of finding materials in Poland today. The pebbles that coat much of the outer skin were all collected by local children from the mountains and brought to the site in baskets (4).

These churches are all Roman Catholic; but there are also quite a number of Russian Orthodox. A dramatic example at Hajnowka near Białystok has a wildly curving roof and onion-domed towers (5). The designers were I. Bitas, A. Grygorovicz, and T. Dabrowski.

The residential areas of cities and towns are dominated by huge slabs of flats, built from large factory-made components. The factories were erected during the post-war Stalinist era (when Social Realism dominated architecture) to provide urgently needed housing for Polish families. For economic reasons, components are still being turned out in large numbers, and architects are obliged to use them. Many of the develop-

ments, therefore, have an unacceptable, inhuman scale, but the landscaping around and between the blocks is often very good, as in a housing estate in Warsaw by Budzynski.

Because of the almost complete absence of private gardens, public parks play an unusually important role in people's lives; the parks of Warsaw, Cracow, Katowice, and Łódź are among the finest, each with a lake or canal and with modern sculpture of a high order. When Cracow's medieval walls were demolished, for example, the area occupied by wall and moat was imaginatively planned as a public park, which surrounds downtown.

The "rynek" (market square) also has an exceptionally important role to play; it is very popular—nearly always full of people obviously enjoying its urban quality—usually traffic-free and architecturally interesting. Cracow's "rynek" is one of the finest urban spaces in the world.

A few of Poland's contemporary architects, such as Jakub Wujek, have concentrated on the problem of using factory-made components to create a more human environment; his huge housing scheme now under construction in Łódź goes some way toward achieving this. Painted symbols distinguish one block from another.

However, the best housing is (continued on page 36)
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Poland (continued from page 34)

being designed by a younger generation of architects for the recently formed and now rapidly growing cooperative movement. Some of the co-ops are State-owned and some are private; but all of them are sponsoring low-rise, courtyard-type layouts—in complete contrast to the ubiquitous high-rise blocks. Polish families are at last being given a choice. Actually, Oscar Hansen had shown the way as early as the 1960s in his fine, sensitively designed housing in Lublin, with its excellent detailing, amusing service buildings, and good landscaping. Even the housing provided for their workers by the 19th-Century Poznanski coal barons of Katowice pointed in the right direction, with parallel three-story brick blocks and spacious inner gardens separated by streets but linked at ground level by thoroughfares and at upper level by covered bridges.

In one of Poland’s Post-Modern prefabricated housing schemes at Nova Tichy, Stanislaw Niemczyk has successfully used imaginatively detailed blocks of varying heights in a rich mélange of courtyards.

The do-it-yourself movement has also started to grow, although it is still rather unsteady on its feet. Andrzej Owczarek has worked closely with local people in designing several pioneering blocks in a big housing project in Lodz.

Architects are struggling hard to find a solution to one of Poland’s biggest problems—the destruction of the conventional in situ building industry. This happened when craftsmen of all kinds moved into the component factories. They must now learn all over again to lay bricks, mix mortar, and fix timber rafters. The situation is exacerbated by a chronic shortage of building materials. These problems have been overcome by Stanislaw Niemczyk (7) and also by Renata and Jacek Heyda in housing schemes in Nova Tichy. Their overall layout, detailing, and use of materials are all excellent. But the shortage of money and material in Poland results in buildings taking many years to complete.

Conservation has also played an important role in Poland’s post-war recovery, and many fine old buildings have been lovingly restored to their former glory. In response to Hitler’s determination to destroy Polish culture, the central area of Warsaw was almost completely razed systematically, street by street, by the German army and the Luftwaffe. One of the first post-war acts of the citizens was to rebuild the Royal Palace exactly as it had been, as well as the central market square (9), using the pre-war measured drawings of architecture students from the Warsaw Polytechnic, with most of the buildings in the square adapted to new uses.

Restoration and reuse are also being done in other cities (8), the adaptation often executed with skill and sensitivity. Actually the best achievement of the Social Realists was a plan for the rebuilding of Warsaw, which respected the medieval character of the “old town” and laid down a broad, spacious, gridiron street pattern, sprinkled liberally with trees, with a huge park running... (continued on page 38)
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Poland (continued from page 36)
parallel to the river Vistula and with one of the main boulevards passing underneath the rebuilt old town, sitting defiantly on its hill and now largely pedestrian.

Many Polish architects—particularly in the south—have a healthy respect for the regional vernacular architecture in their country. This is especially noticeable in the southern Tatra mountain region where at present there seems to be a minor building boom. New houses (10), blocks of flats, and hostels follow the old style, with a concrete or stone basement, an upper structure of local timber, a steeply sloping roof, and several large balconies.

Chocholow, a new village now under construction (11) has an impressive architectural unity and a strong sculptural form just because the old vernacular has been followed—almost copied—and the same local materials have been used.

One cannot leave the subject of Poland without mentioning its sculptors’ talent for making strong, emotive statements in public places. In the center of Katowice, next to a colossal sports stadium, stands an equally colossal monument by Zemfa to commemorate three Silesian uprisings (13). Equally impressive monuments mark the entrances to the carefully preserved sites of the Auschwitz and Madjanek (12) Nazi camps.

To sum up: The liberalization policies of Gorbachev will probably affect life in Poland. But Poland has had its own “glasnost” since 1956 and the birth of Solidarity in 1980. Architects seem determined to take advantage of this new freedom, and it is encouraging to witness the relatively rapid development of the co-op movement, of self-build or private initiatives. The long-term future is uncertain.

For the present, Poland remains economically a poor country but culturally a very rich one. The State is in firm control of almost everything, and the Catholic Church is increasingly the strongest critic of Government policy. Many Polish architects are trying hard to raise the standard of design and to give Poles an environment more sensitively adapted to modern life.

Noel Moffett and Monica Pidgeon
Noel Moffett is a British architect and critic, and Monica Pidgeon is P/A's British correspondent.
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According to the Design-Build team of OPUS Corporation and Hammel Green and Abrahamson, there were “special problems” building St. Therese, an enhanced retirement facility in Hopkins, MN. For one, there was concern about putting a 228-unit project in a suburban neighborhood. “We wanted to do it in a sympathetic fashion,” said project architect Duane Johnson of HGA.

Other considerations were a tight budget and what Larry Everson of OPUS described as an “incredibly demanding” 15-month schedule.

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Hopkins, Minnesota
Architect: Duane Johnson
Hammel Green and Abrahamson
Minneapolis, Minnesota
Design-Build Contractor: OPUS Corporation
Larry Everson, AIA
Minnetonka, Minnesota
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"Okay, let's sue."

**Law: Liability Roundtable**

There has been an explosive increase in the amount of legal actions involving architects and in the cost of insurance. P/A gathered a panel of experts to discuss this problem: Elliott Gleason from Design Professionals Insurance Company; C. Jaye Berger, an attorney in New York; Lev Zellin, an investigative engineer with Zellin Argo Structural Investigators; Jay Frankel and Kenneth Lazaruk, attorneys with the New York firm of Shay & Gould; and Martin Raab, senior managing partner of Haines, Lundberg & Waehler, architects. The following are excerpts from that discussion.

P/A: What do you see as some of the main forces driving the increase in liability among architects and designers?

Gleason: I would mention first the deep-pocket syndrome in which lawyers go after those who are perceived to have the financial resources. Second, I would mention the litigation mania. The former chief justice of the United States Supreme Court Warren Burger said that our society has a virtual mania for believing that the best way—or the only way—to resolve a conflict is in a courtroom. Design professionals are no longer being let off the hook.

I also think the quality problems within structural engineering have hurt you. Where structural engineers have been unable to respond financially to damages, architects also have been targeted for recovery. But architects and designers have not been without shortcomings, not so much as technicians, but as business people. Many fail to mitigate their exposure to liability and exposure to claims.

Berger: I would underline the point about business practices. When professionals miss appointments with clients, don’t show up for meetings, and don’t return phone calls—all of those things are just laying the

(continued on page 50)

**Products:**

**Made in Canada**

The construction industry is becoming part of an international marketplace. To stimulate the flow of building materials, ideas, and capital across borders, barriers to free trade are being dismantled around the world. In Western Europe, all tariffs and barriers to Common Market trade will be eliminated by 1992. Closer to home, the recently ratified Free Trade Agreement (FTA) will eliminate, over the next decade, virtually all tariffs between the U.S. and Canada and will liberalize regulation of cross-border investments. This will affect the availability, distribution, and competitiveness of building materials and services on both sides of the 49th Parallel.

The FTA will provide the U.S. construction industry with greater access to a dynamic and growing building market. Canada has a population of about 10 percent of that in the U.S., but a construction industry that is 17 percent of ours. This greater per capita expenditure on construction probably stems from two factors. First, Canada’s population is distributed over a greater area and has a lower density, requiring a greater commitment of funds to the construction of highways and other services to link its population. Second, the northern climate of Canada typically requires more substantial, weather-resistant buildings.

Because most of Canada’s population lives within 200 miles of the U.S. border, Canadian cities are often closer to major U.S. cities than they are to other Canadian population centers. Toronto, for example, is closer to both Detroit and Cleveland than it is to Montreal. This should make the distribution of building products move more in a north-south than in the east-west direction of current Canadian commerce. Also, many of the building-product manufacturers who currently maintain separate companies on both

(continued on page 55)

**Practice Points**

Design and construction industry professionals are now buying computer hardware first and selecting software packages second, report A/E/C Systems trade show principals George S. Borkovich and Michael R. Hough. The trend reversal reflects buyers’ confidence that a number of the appropriate CADD and other programs will be available in today’s market.

A $41 million settlement has been reached resolving the claims filed after last year’s L’Ambiance Plaza collapse in Bridgeport, Conn. The two-judge panel attributed responsibility for the disaster to more than 20 separate parties but avoided placing blame on any specific group.

Computerized testing for professional registration is now being offered nationally to architects signing up for state registration exams. The computer randomly selects questions for each applicant and scrambles the order in which they appear. For more information contact the National Council of Architectural Registration Boards.

This year’s federal budget appropriates $700,000 for an industrialized housing research program in an attempt to help U.S. industry keep pace with foreign competition. The University of Oregon in Eugene and the Florida Solar Energy Center at Cape Canaveral will jointly administer and operate the program.

Hotels are now being refurbished every five to seven years, the shortest life cycle ever, according to a report in the A/E Marketing Journal. Renovations of all sorts, they add, may be one of the strongest markets for design professionals this year and into the 1990s.
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groundwork for a lawsuit. Once
there's a breakdown in com­
munication, that's when people
go to their lawyers and say,
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Zetlin: There is a reason for the
increase in liability. It's very sim­
ple: We have many more prob­
lems in construction than we
had ever had before. We have a much
larger gap between what we
show on the drawings and the
real structure. The lack of com­

communication is, rather, a break­
down of responsibilities and in­
terfaces among disciplines.
Because of the liability situation,
each discipline now is trying to
get into a shell. One of the
biggest problems, by the way, is
that more and more we pass
responsibility of design to con­
tactors, which is dangerous.
When you look at failures, you
will find that somewhere the
contractor was asked to design.
And finally, there is quality
control. Because the construc­
tion field changes at such a rapid
rate, our profession does not
have quality control guidelines.
One way to achieve that is
through peer review, which
should not be just reviewing the
final design, but rather review­
ing the concept and working
forward.

Lazaruk: You have to talk about
liability in terms of exposure.
You as a design professional
may have done everything cor­
rectly and accurately, but you
can still get hit with a million
dollars worth of claims if you
are sued. It's a function of not
agreeing what is a reasonable
exposure: what the public,
owners, and contractors under­
stand your responsibilities to be.
There is a great misunderstand­
ing about what coordinated
drawings or coordinated field
work is. Another thing increas­
ing is the perception of
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P/A: The history of the AIA
contracts has been one of relieving
architects of more and more
responsibilities. Is that a good
trend or bad?

Raab: It's a horrible trend. We're
perfectionists giving up more
and more of our responsibilities
to others: the construction man­
ger, the preparer of shop draw­
ings, and the like.

We have created a set of expecta­tions in our clients that differs
radically from what we want to
put in our contract. What we
face is, in most cases, a tech­
nical problem, but a manage­
ment problem. Many of us have
backed away from managing
clients and their expectations.
I think we have an inherent
problem—which is the problem the
AIA is having with the American
Society of Civil Engineers—in
determining what is a reason­
sable standard of performance. The
standard of performance in ar­
chitecture, I think, can be far
more variable than in structural
engineering. In trying to estab­
lish an absolute standard of per­
formance, the two organizations
are starting to go head-to-head,
because many of us have to prac­
tice different standards of per­
formance depending on what
our contractual relations are.

Lazaruk: You as a design profes­

(continued from page 49)
(continued on page 52)
An exhibition highlighting significant Italian technological and artistic achievements in marble from 4000 B.C. to 2000 A.D., created by architect Angelo Mangiarotti is now at the California Museum of Science and Industry, Harbor Freeway & Exposition Boulevard.

Special Technical Seminars and Cultural Forums are presented in conjunction with this exhibition. For information and reservations, telephone the Italian Trade Commission at (213) 286-9963 or (213) 879-0950.
Law (continued from page 50)

Comment from the Audience: There's something fundamentally wrong with the relationship of architect, engineer, and contractor in this country, where we produce a highly complex product that involves a lot of proprietary systems and that carries a one-year guarantee, and yet where the contractors walk away and leave the liability to the design profession and the owners.

Comment from the Audience: Where the contractor has access to the client and he has an opportunity to lobby his viewpoint, the client's first reaction is, "You made a mistake, the contractor is right." But it's really a matter that we haven't, as a profession, taught the public that there are two sides to a story and that they shouldn't jump to conclusions.

P/A: What about tort reform? What is it and will it happen?

Berger: There's been a lot of talk about reforms that limit the ability to bring lawsuits many years after the event. But no sooner do states try to enact such reforms than the courts strike them down as unconstitutional.

There doesn't look as if there's going to be any major reform any time soon.

Question from Audience: Are there any statistics that exist for cases that do come to trial?

Gleason: Roughly one out of ten cases comes from admitted, clear, conspicuous design error. Another two out of ten come from some expert saying there's clear design error but where the other side does not agree. That's what I call a theoretical design error. But the other 70 percent stem from business practices: all of the various things that you do other than technical design, of which had contract administration is a big part.

On the question of tort reform, there is some hope out there. California, for one, has had for eight years now a certificate-of-merit law, requiring that the pleading against the design professional be "certified by a design professional practicing in the same discipline," which says that the attorney has consulted with an architect or engineer and has been given, for lack of a better word, assurances of a probable cause to file and maintain the action.

Hawaii has had for the last five years the Design Professional Conciliation Panel. While of limited value initially, it has been added to with a Certificate of Merit statute. Colorado has a Certificate of Merit statute also. Oregon has just recently passed legislation that has improved greatly the liability exposure law. And Kansas and Oklahoma have both been insulating design professionals from plaintiffs' personal injuries claims from job-site injuries.

Comment from the Audience: One of the things that could be done is to set a limit on the amount that you can litigate for: say 2, 3, or 4 percent of the cost of construction. Simply set it aside and say when the owner signs the contract that this percentage is something that you can anticipate as extra cost coming from various sources.

Frankel: The Port Authority in New York has a cut-off of 5 percent in its contracts with design professionals. Should costs exceed 5 percent, they take a look at whether or not there was design error, or some form of malpractice in the performance of the contractual obligation. We believe that that is a suitable clause. We've developed a clause that we call the "over and under clause." During negotiations, the owner and the design professional can determine what that cost overrun percentage shall be: 5, 2, 10 percent, depending upon the complexity of the project. If the cost of additional work caused by design is above the agreed-upon percentage, then the parties sit down and talk. We ask for talks, for dialogue, alternative dispute resolutions, anything that will avoid litigation, whether we're the owner or we're the design team. We find that it works more often than not. It's a small way of educating the owner that he or she can't find perfection from you.

Raab: Another, very serious problem in the profession is that, over the last 15 or 20 years, there has been a dramatic increase in the demand for service. There are environmental issues, energy, more complicated codes and issues, zoning ordinances and what have you. The architect has thrown off things that he probably should control and has picked up things he has not received compensation for. The percentage of the total cost of construction that architects take in as fees has gone down slightly over the last 15 or 20 years. So (continued on page 54)
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Law (continued from page 52),
the work has expanded, the fees, as a proportion of the cost of construction, have shrunk, and
the standard of quality has gone up. With the problem of defects you have the problem of a litigious environment and you have a profession that's in a very serious difficulty.
P/A: How do design professionals protect themselves from the increasing threat of litigation?
Lazaruk: They have to think about risk management. Every project has to be analyzed from the beginning as to who you are dealing with, what is involved in that project, and what risk you are taking. There are situations in the course of many projects where the owner asks you to do things that are exposing you to lawsuits, such as sending out an incomplete set of plans. You have to properly document that you objected and that you explained to the owner the inherent risks. You have to establish quality control, and review procedures of drawings to protect yourself against contractor claims later on. And some projects may have to be turned down if an owner is known to be litigious or if a project has risks.
P/A: If a firm is insured, does that make it a target of more suits?
Gleason: Yes and no. If you are the only one in a case who has either personal assets or insurance to cover damages, your adversary will work hard to develop a case of malfeasance against your work. But it is still a good practice to protect your firm with insurance. The policy limits also have a way of capping your exposure. I can't think of one case in ten years where we have paid more than the policy limits; insurance helps control exposure as well as protect you.
P/A: Would insurance rates be lower if, say, the AIA had its own insurance company?
Berger: The comments that I hear over and over again about captive insurance companies are: one, people think their premium is going to be lower, but it probably isn't; and two, a lot of these captive insurance companies don't have the expertise in managing claims. Even if you pay a lower premium up front, will that company be there in seven years to cover the claim?
P/A: Do you see the tight market for insurance continuing?
Gleason: No, the cost of the product is going to stabilize and, in some disciplines, has already stabilized. We will not go back to the underwriting attitude of the early 1980s which led to a terrible loss ratio starting in 1983 and 1984, and becoming very dramatic in 1985. Competitive pricing is good, but reckless pricing is going to take us into an uncontrol- lable soft market cycle that is going to put us back, in 1992, to where we were four years ago.
P/A: To what extent has the legal profession actually caused this litigious climate?
Raab: It is the major problem in third party suits because they're handled in a different way than the major claims. The major claims are our fault in the sense that they are a result of our services, not a result of a deficiency in maintenance over ten years. It's the third party suit that you should worry about.
Gleason: If you were to look upon the judicial system in our country as a business, you'd probably agree that it's the most poorly run business in the country. Judges are not good managers. It's not the legal community that is the source of our problems, but the system in which they practice their profession. There is a need for improvements in the system. There are alternatives out there and they're a very forceful element in the world of litigation today, such as mediation, mini-trials, and arbitration. The truth comes out quicker with less ritual. If you owe, you get to that point a lot quicker and save a lot of money on the allocated-claim ledger.
Question from audience: What advice do you have for the young people who look to this profession as a glorious future? You all make it sound as if it's a no-win situation.
Raab: Go to law school . . .
Gleason: I don't think young people should give up architecture as a career because of liability. You can make a profit at it, and the risks of liability can be managed and lessened with good business practices. People didn't quit manufacturing products in this country 15 years ago; they just tried to do it better when the liability bloodbath hit.
Raab: The reality though is that more and more work is being done by fewer firms. Join a large firm is one answer to your question. The other is to go bare. The problem for a starting prac-
solution ever dispute and look to come down in the next 15 years. I do think it will get age, you sleep well but can’t afford to eat.

Gleason: I do think it will get better. I do think there will be tort reform over the next 20 years. I do believe that people will quit going to the courts to solve every dispute and look to mediation and various forms of negotiation, and I do believe the price of coverage will ultimately come down in the next 15 years not because of reckless cash flow underwriting by the insurance industry, but because alternative dispute resolution will start to pay dividends in the form of lowered legal expenses. There are, however, strong interest groups, such as the American Trial Lawyers Association, trying to prevent these reforms from happening.

Zetlin: I don’t see the situation like that. There’s a reason why there are lawsuits. A small firm has a much better chance than a large firm of not getting involved in a suit by establishing quality control procedures and by looking ahead to what contractors will do. A large firm cannot do that; it is a big machine that follows a certain routine. Design professionals have to start being more paranoid. We must think that the impossible will happen. If you, as a young firm, start thinking that way, you will instinctively review what you’re doing and look ahead to potential problems. You will avoid litigation and will also feel more confident.

Products (continued from page 49)

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Solving the problem.

Street & Lundgren, an Aberdeen, Washington architectural firm, was hired to design a fire station for a nearby town. The project was completed, there was a grand opening celebration, and Street & Lundgren received the "keys to the city."

Almost six years later, the town filed a suit against Street & Lundgren. There was water leakage into the fire house and some hairline cracking of exterior masonry. The town was afraid the building might not be structurally sound.

Roy Lundgren called Dale Currie, DPIC's regional claims manager in San Francisco, and described the situation. The leakage appeared to be due to the town's failure to waterproof the structure on a regular basis. The cracking was almost certainly cosmetic, due to expansion during freezing.

Dale believed the problem was solvable.

He made two trips to Washington during the next few months; first, to meet with the town and hear its grievances and second, to conduct a roundtable discussion to mediate the dispute. It was a delicate situation. The town's building inspector was convinced the structure had serious problems. Street & Lundgren and the project's structural engineer were confident the building had been well-designed.

Dale managed to keep the dialogue open. Ultimately, the town hired a consulting structural engineer to assess the situation. This engineer's opinion fully supported Street & Lundgren, and convinced the town its fire station was structurally sound. Now, all that was left to be done was help the town resolve the existing problems. In the conciliatory environment established by Dale, Street & Lundgren provided maintenance guidelines for the fire station as well as advice on how to repair the cracked masonry.

Dale continued to work with the town's attorney. A year and a half after the initial action, the town agreed to a dismissal with prejudice, meaning it was satisfied no further litigation was necessary.

Richard Dale Currie is an assistant vice president and manager of DPIC's regional claims office in San Francisco. He is a graduate of the University of California at Berkeley and the John F. Kennedy University School of Law and a member of the California bar. He has over a dozen years of experience in construction-related claims management.

Claims happen. It's what you do when they happen that shows the stuff you're made of.
"I liked Dale Currie immediately for his grasp of the situation, his concern about our welfare, his willingness to come up promptly and talk the situation over.

Dale was very skillful in seeking a solution to the city’s doubts about the building—a difficult job based on the evidence that had been presented by their home-grown people, whom they know and trust. He showed a willingness to understand their problems, and to come to a resolution that satisfied them. He showed his concern for them in a way that made them very comfortable. And they responded very positively to him.

The idea of the roundtable was his. And he mediated and orchestrated it. He suggested what we should do to allay the fears of the city and we did it. And everything worked.

In essence, what Dale Currie and DPIC did was put out a fire before it really got started.

And you realize, from a business standpoint, all this cost us was our time.”

Roy Lundgren is a principal in the firm of Street, Lundgren & Foster, a 39-year-old architectural firm based in Aberdeen, Washington. He is a past director of the Southwest Washington chapter of the AIA and former building code commissioner for the city of Aberdeen. We value our relationship with his firm and thank him for his generosity in talking about an important subject for design professionals.
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Rising on the motley skyline of downtown Tampa, Florida, the NCNB banking headquarters by Harry Wolf, with Odell Associates, is a sheer cylinder governed by a rigorous proportional order.

A view of NCNB over the Victorian turrets of Tampa University.
WHEN architect Harry Wolf talks about the NCNB project, he soon starts doing little sketches showing geometric and proportional relationships. At the macro scale, he sketches a tower whose height is five times its 78-foot radius; then he shows how this 78-foot dimension reoccurs in the framing of the two cubes that form the adjoining banking wall. This key dimension is a multiple of the 13-foot module that is both the floor-to-floor height and the basis of a horizontal grid extending over the entire site of the complex.

As Wolf moves on to the details, he shows how the 13-foot dimension lends itself to the ratios of the Fibonacci series (1, 2, 3, 5, 8, 13...). With a few strokes, he delineates a modular "plaid"—based on dividing the 13 feet into segments of 1, 5, 2, and 5 feet—which underlies much of the design. This plaid controls the design of the banking hall, where structural members are spaced 13 feet apart in all three dimensions and the spaces between these one-foot-thick elements are consistently divided in a 5-2-5 pattern.

In laying out the dimensions of the tower, Wolf has to adapt a different strategy: Here he divides the circular perimeter into 60 modules, each 8 feet wide, then subdivides these into 5-foot windows and 3-foot piers; vertically, he divides the window openings into two 3-foot rectangles per floor, above and below a 2-foot sill member. (These dimensions at the exterior face of the wall differ from those of the actual deep-set windows; see section, page 62).

Geometry to Building Fabric
When Wolf and his associates transformed these geometrical diagrams into actual construction, it was done in a fine palette of materials, made possible by a client willing to invest in construction. The tower walls are made up of thick precast units, clad in a cream-colored French limestone. Near the ground—on the three-story base of the tower and between the painted steel framing members of the adjoining banking hall—the architects have used a Texas shell limestone, which is similar in color and reflective qualities, but has a fossil pattern that adds welcome texture in the strong Florida light. (Similar stone has been quarried and widely used in Florida, so the material has a regional quality.)

The stone-clad precast walls of the tower temper the subtropical sun with their downward slanting sills and heads, which extend almost two feet outside the lightly tinted glass. On the banking hall, the east wall is largely solid, with two-foot-square windows on the street front—which are quite pleasing at the back of the otherwise open mezzanine offices. The large circles cut into the west walls recall the geometry of the tower, and though their glass area is large, they are shaded from direct sun by the tower. The main source of light in this hall is the glazing to south and north, which continues right
The tower lobby (photos, lower right) will include a terraced public restaurant around its western half; rings in the limestone floor are marked to illustrate compass points, hours in the day, etc. The second-floor offices have a square mezzanine within a circle of cylindrical columns. Elegantly restrained interior systems in all NCNB spaces, by Associated Space Design, echo the geometries and details of the building. The steel space frames that support the public banking pavilion (facing page) are exposed on the interior and filled in, as needed, with glazing, skylights, and sun baffles; the 1-3-2-5 division of the typical 13-ft bays (the 1 ft being the column width) forms a pervasive plaid pattern within which all elements, including handrails and air grilles, are laid out.

that served only this garage and the city's museum of art, on the riverfront to the north. When it was pointed out to the NCNB Chairman that the land was not for sale, he asked the developer to obtain the property anyway.

In the deal that ensued, the bank purchased only the land directly under its buildings and agreed to replace the existing parking garage—and meet its own parking needs besides—with a two-level garage extending north to include what had been the city street. On the 3½ acres above and around this new garage, the bank was to build a public park, which would then be maintained by its owner, the city. When local business leaders objected that the site had never been offered for development, the city replied that nobody else had ever asked.

There have been objections to the scheme on urban design grounds: that the eight-foot elevation of the gardens over the garage blocks the view from street to river and that the museum of art is no longer on any public street. Wolf counters that the river is too low to be visible across a street-level park on this site and that the museum now has a pedestrian approach at the park level where its main entrance always was, plus convenient parking and service access through the garage.

A Downtown Oasis
The interaction of Wolf’s geometries with landscape architect Dan Kiley’s exceptional skills has produced a garden where bands of stone and precast interweave with water troughs and greenery in a way that suggests the gardens of Islamic Spain. Wolf likes to see these—and some of the traceries of light and shade that develop in the banking hall—as links between present-day Tampa and its Hispanic heritage, which has been reinforced by successive migrations from the Caribbean.

Except for its workable amphitheater, the park has no gathering places, or spaces open enough for tossing a Frisbee, and calls for more meticulous maintenance than city parks departments typically provide, but it is a charming place for a brown-bag lunch or a siesta.

Harry Wolf, having finished this largest of many fine buildings designed by his office—which was originally in Charlotte, then in New York—has now disbanded his firm and joined Ellerbe Becket as a principal in their Los Angeles office. With this work behind him, it should be interesting to see what Wolf accomplishes with the recently-assembled-by-merger, 800-person Ellerbe Becket firm.

John Morris Dixon
In the adjoining public garden, patterns of limestone paving reiterate the 13-ft modules—divided 1-5-2-5—that appear in the banking hall; rows of palms alternate with crepe myrtle (seen severely pruned, except below right). Tiers of an amphitheater (facing page, bottom left) face the river. A pavilion at the northeast corner of garden (facing page, bottom right) affords elevator access to the garage.

Project: NCNB Plaza, NCNB National Bank, Tampa, Fla.
Client: NCNB Tower Associates (limited partnership of NCNB National Bank and Faison Associates), Charlotte, N.C.
Site: 4.5 acres along Hillsborough River in the downtown core.
Program: 500,000-sq-ft office tower to house NCNB Florida Headquarters; 40,000-sq-ft banking hall adjoining tower; 280,000-sq-ft garage topped by ½-acre public park.
Structural system: for tower, 100-ton pile foundation, post-tensioned radial beams, conventional concrete slabs and columns; for banking pavilion, three-dimensional, moment-resisting steel frame on concrete shear wall base; for plaza, upturned concrete beams on concrete columns.
Major materials: limestone, marble, precast concrete, tinted and clear glass, aluminum mullions and grilles, steel columns and beam covers (see Building Materials, p. 153).
Mechanical system: centrifugal condensers supplying chilled water to air handlers on individual floors; perimeter plenum-air heating.
General contractor: Pace Construction Corp.
Costs: $107 million, including land, and all costs except furnishings.
Photos: Cervin Robinson, except as noted.
Frank O. Gehry & Associates and Schwartz/Silver Architects bring an idiosyncratic sense of form and material to an old Boston building.

The Newbury Street facade (facing page) features a metal-clad canopy over the entrance and a glass-covered canopy over the sidewalk, which continues along the Massachusetts Avenue side of the building. The large struts that support the canopies spring from the pilasters of the Arthur Bowditch-designed building and visually reinforce its column grid. The struts also recall those that support the projecting, metal-clad cornice, which shelters a new penthouse floor. Lighted at night, the upper struts and soffit make the building stand out on the Boston skyline and emphasize its position as a kind of gateway to the city from the west. Where the cornice breaks and the elevator equipment housing extends above the roof (left), Claes Oldenburg will hang a teabag sculpture, a reference to, among other things, Boston's Tea Party. The metal-clad penthouse wall is pulled back from the battlemented façades of the original building and punctured by large, mullioned windows. Their mullion pattern recalls the grid of the aluminum replacement windows.

THE Tower Records building, formally known as 360 Newbury Street, hit the Boston press months before it hit the streets. In this city of uptight buildings, Frank Gehry's signature was welcomed by some critics as a needed flourish, dreaded by others as an unruly insertion, but appreciated by advocates and doubters alike for introducing the city to a more idiosyncratic architecture.

Considering that Gehry was renovating an early 20th-Century warehouse rather than building anew, the worry that his redesign would inject too much mix in a neighborhood that demands match might seem excessive. After all, the eight-story, 117,000-square-foot structure was already in place.

Nonetheless, some concern was merited: Not only were Gehry and his ad hoc artistry still not much in favor in these parts, but the building had a conspicuous location at the terminus to the Back Bay's prime boutique street, visible from much of the neighborhood, and dominating the view as one enters the city on the Mass Pike (See photo, page 5). Ironically, the original structure by architect Arthur Bowditch was already something of an interloper from the day it opened. Even in 1918, it stood aloof, out of joint with both the intimate stables-turned-shops on Newbury Street and the larger scale commercial frontage of Massachusetts Avenue.

Gehry's remake deliberately and boldly accents the anomaly. It is idiosyncratic and offbeat. But, if the made-over building remains an aberration, the architect has brought a more positive meaning to these words. In the months since it opened, 360 Newbury has added a striking and controversial presence in a city marked by banal Post-Modern designs.

The Los Angeles architect did not have an easy time making his first Boston statement. Called in to complete a project partially defined by architect Graham Gund and forced to contend with half a dozen clients—from the city transit people who use the structure as a subway entrance to the Back Bay Architectural Commission concerned with the context of the historic district around it—Gehry's firm found Boston "one of the most restricted places in the world to build," says Robert Hale, principal in charge. Boston's Schwartz/Silver Architects shared in the arduous procedure of design and redesign and of securing the necessary okays along the way.

(continued on page 71)
For all the givens of the building—the location and definition of the lobby, elevator core, and windows were already fixed—Gehry has made this concrete box his own: He has produced a compelling if scarcely contextual object. By adding the projecting top, prominent base, and new façades, Gehry has transformed the once nondescript structure into a robust original. Although the architects liken the struts that project from the roof to the Back Bay’s traditional cornices, this cantilevered crown is anything but old-fashioned. The most distinct and discussed element of the remake, the stiff angular brackets that support the roof of the new penthouse are far more heavy and brooding. A sculptural parody of a projecting cornice, they are paralleled and emphasized by a mock awning at the second floor.

At once industrial in their metallic-gray cladding and unconventional in their thrusting forms, the treelike struts are pure Gehry. With nighttime illumination calling attention to their imagery, the projections have become a hot topic hereabouts as Bostonians debate the “scaffolding” shape. Is the building finished or still on the way, permanent or impermanent? Do these seemingly unfinished forms...
Both the forms and materials in the lobby (right and facing page) show Gehry’s sure hand at countering our expectations. The skewed reception desk looks like a minimalist sculpture; the birchwood paneling and brass reglets look out of scale in the tall, narrow space; the blue granite flooring looks artificially colored; and the yellow onyx ceiling looks both solid and translucent.

Project: 360 Newbury Street, Boston, Mass.
Architects: Frank O. Gehry & Associates, Santa Monica, California (Frank Gehry, principal/design; Robert Hale, principal/management; Tom Buresh, project designer; Sharon Williams, project architect; Edwin Chan, Berthold Penkhuys, Peter Becker, Carroll Stockard, project team; Susan Nardulli, Kevin Daly, Young Kim, models).

The lobby uses materials to better effect: Again it is an enriched palette, in this case dark birchwood wall panels, brass rails and fittings, blue granite flooring, and yellow onyx used in the elevator cabs and as the lobby ceiling, backlighted to show the opalescence of the stone. No one stinted on cost here. A new sidewalk, now being installed, will act as a frontispiece to the building. And, still to come, sculptor Claes Oldenburg’s teabag will hang from the balcony notch as a nod to the Tea Party tradition.

This juxtaposition of the past and the pop is typical of the building. If the rich and solid materials here are un-Gehry-esque, the presence of a design by this apostle of impermanence in America’s most permanent city is equally un-Boston. Collaboration or jolt, the meeting of the two ends of the continent may have produced a tough building that is too uncompromising, but it is surely one to please more forward-looking Bostonians for standing in its own time and place without bowing to the false and all-too-familiar god of nostalgia.

Jane Holtz Kay
The author is architecture critic at The Nation and author of the book Lost Boston.
It’s boom time in the convention business, and cities from Seattle to Miami are now expanding old centers or building new ones.

SEATTLE opened eight months ago; Miami opens this month; and San Diego opens this fall. The convention centers in these three cities and ten others shown here are but a fragment of the booming convention center business. “I can’t think of a major city that’s not building a center, expanding one, or considering it,” says Andrew McLean of Thomas Ventulett Stainback & Associates, Atlanta.

Statistics bear out his assertion. According to the Trade Show Bureau, the number of convention center facilities grew 37 percent from 1980 to 1987, with an average annual growth in exhibition space of 3.3 million square feet. The number of big shows needing 10,000 square feet or more grew from 273 in 1986 to 3289 in 1988. The average number of new exhibitors compounds annually at a rate of 7 percent, totaling 1 million in 1988. And the boom shows no signs of abating. “With an annual square footage growth factor of 8.4 percent, the space needs of the trade show industry will increase over the next decade by a factor of almost 110 percent,” reports Robert Black, publisher of Tradeshow Week.

Why the growth? Aggressive city governments, hungry for spin-off tourist spending, have played a major role in their willingness to build and operate a center even at a loss. But the real boom is business-driven. According to Tony Calanca, Vice President of Operations for Cahners Expositions, the nation’s largest trade show organizer, a sales contact at a trade show costs 40 to 45 percent less than a sales call. Moreover, changes in the tax laws in 1986 now permit selling at trade shows. Thus, while associations still sponsor 87 percent of all shows, the business is increasingly dominated by profit-making organizations, such as Cahners.

For some architects, the boom has turned a once-in-a-lifetime job into repeat commissions. Thomas Ventulett Stainback has convention centers on the boards now in Miami (page 81), Philadelphia (page 81), Mobile, Alabama, and Fort Lauderdale. The firm is also at work on the second expansion of their own Georgia World Congress in Atlanta. I.M. Pei & Partners of New York, architects of the Jacob Javits Center (page 77), is now completing the expansion of the Los Angeles Convention Center (page 78) with Gruen Associates. Loschky, Marquardt & Nesholm of Seattle is involved in the design of convention centers in Denver, Des Moines, Minneapolis (page 76), and San Diego (page 78). Perez Associates of New Orleans is expanding its own design for the center in that city (page 81). Moreover, although four or five architectural firms dominate nationwide, most cities see to it that a

The chart relates design issues for convention centers to the featured projects. It can be used to identify examples of a given design element or arrangement, such as stacked halls, or to identify those features of a given center which are considered exemplary.
The Washington State Convention and Trade Center in Seattle, which opened last June, is notable not only for its unusual site atop a freeway, but for the public components of its program, which include street-level retail and a galleria/concourse that was designed to be open round the clock, providing access to downtown for residents of an adjacent neighborhood. The $108 million, 1.44-million-sq-ft facility, designed by TRA, Seattle, with associated architects HNTB, Seattle (Skilling Ward Magnusson Berkshire, structural engineers; Danadjieva & Koenig Associates, Tiburon, Calif., associated designers; Pietro Belluschi, Seattle, design consultant), bridges across nine lanes of Interstate 5, three lower express lanes, and two city streets. Its 102,000 sq ft of exhibition space can be divided into three halls, which are clad in precast concrete. Phase two, now under construction, will add 45,000 sq ft, primarily in meeting rooms. When phase three—100,000 sq ft—is finished, the site will be completely built out.

When it opens this month, the expansion of the Miami Beach Convention Center, designed by Thompson, Ventulett, Stainback & Associates of Atlanta, with associate architects Borrelli, Frankel, Blitstein, Miami, will double the size of the facility for a total of one million sq ft. At 500,000 sq ft, the expanded exhibit hall is claimed to be the largest single space for exhibition in the U.S. (It can also be split in four.) The project was phased to permit continuous use of the original building, which is now undergoing renovation for completion by 1990. (Total project cost is $71 million.) The use of pastel-colored stucco, glass block, tropical foliage, water features, and sunscreens in both addition and renovation will tie the center to the adjacent Deco district and enforce the sense of a single building, thereby avoiding the stigma attached to an "old" wing. Meeting rooms to east and west are connected by a crossover with views of all four halls, while services are concentrated to the north and south.
With the completion in 1986 of the annex designed by a joint venture of architects Skidmore, Owings & Merrill and engineers Lester B. Knight & Associates, both of Chicago, McCormick Place became the world’s largest complex for nonpermanent exhibits. Although its stacked halls, the product of a tight site, are not considered ideal by exhibitors, the 1.6-million-sq-ft, $195 million annex is nevertheless a distinguished addition, with its cable-suspended roof truss system—whose pylons double as mechanical ducts—and gray aluminum skin. Inside, the use of Y columns in the 375,000-sq-ft lower hall cut the span from 60 to 30 feet, thereby saving steel.

MINNEAPOLIS

Designed by a joint venture of Setter, Leach & Lindstrom, The Leonard Parker Associates—both of Minneapolis—and Loschky, Marquardt & Nesholm, Seattle, the new Minneapolis Convention Center replaces an older facility on its downtown site one block from Nicollet Mall. Its plan, designed with an eye to expansion, is composed of three repetitive increments, each with an exhibition hall sandwiched between arrival, registration, and meeting rooms facing the city and service and loading docks along the freeway. Each hall is capped by a structural steel dome, 210 ft in diameter. Circular rotundas mark the entrances to the $103 million, 800,000-sq-ft facility, whose first phase opens in May with completion due in April 1991.
NEW YORK

Although its grand hall and concourse are structural tours de force, much of the actual business at the Jacob K. Javits Convention Center in New York, which opened in 1986, is conducted underground in airless meeting rooms along a four-block-long spine. The 1.6-million-sq-ft center, designed by I.M. Pei & Partners and associated architects Lewis, Turner Partnership, both of New York and completed for $300 million, is one of the nation’s largest, with 720,000 sq ft of exhibition space, 418,000 sq ft of it in one hall alone. But it is faulted by exhibitors and visitors alike for nondesign factors such as transportation to its isolated site on the edge of Manhattan and difficult unions.

HOUSTON

The 1.16-million-sq-ft first phase of the George R. Brown Convention Center, which opened in September 1987 at a cost of $104.9 million (P/A, Jan. 1989, p. 29), fills six blocks at the edge of downtown, surrounded by surface parking for 3000 cars. As designed by Bernard Johnson; Golemon & Rolfe Assoc.; John S. Chase; Molina & Assoc.; Haywood Jordan McCowan; Moseley Assoc.; 3D/International, all of Houston, circulation is concentrated behind the front façade and given a high-tech finish. Four exhibit halls—two stacked—total 470,500 sq ft. Second-floor meeting rooms total 45,000 sq ft. A 31,500-sq-ft ballroom—the largest in Texas—and a 36,000-seat tiered theater occupy the third floor.
LOS ANGELES

This $247 million addition, which goes into construction next month for completion in 1992, will increase the size of the Los Angeles Convention Center from 1.5 to 4 million sq ft and upgrade its image. I.M. Pei & Partners, New York, and Gruen Associates, Los Angeles, propose to span Pico Boulevard with a 240-foot-wide pedestrian “bridge” linking the addition to the existing center. The bridge is lined with special-event facilities, meeting rooms organized in three clusters, and a restaurant. Two new halls, totaling 350,000 sq ft, will be located on the same level as the existing halls (one level above grade) atop two parking levels, one of which could be converted in the future to exhibit space. Truck docks and a new connecting street will be added at the rear of the addition. Two four-story glazed lobbies, visible from the nearby freeway, identify street-level entrances. Lighted at night, these shape a new gateway to downtown.

SAN DIEGO

The 1.705 million-sq-ft San Diego Convention Center, which opens this fall, was designed for a tight waterfront site by joint venture partners Arthur Erickson Architects, Los Angeles; Loschky, Marquardt & Nesholm, Seattle; and Deems, Lewis, McKinley, San Diego. Their design distinguishes “active” uses of arrival, reception, and circulation concourses, which face the city, from more “passive” functions such as 100,000 sq ft of meeting rooms, lounges, and landscaped terraces, which face the harbor atop 28 loading docks. Parking for 2000 cars is located below grade to permit the location of 200,000 sq ft of exhibit space at ground level. An additional 100,000 sq ft of outdoor exhibition space is sheltered beneath a large rooftop tent. One bridge connects the $130 million center, which is constructed of cast-in-place concrete and long-span steel, to the harbor, and a second bridge, as yet unbuilt, will connect to a future park across the street.
PORTLAND, OREGON

Located across the river from downtown in the hopes of attracting future development to the area, the 512,000-sq-ft Oregon Convention Center utilizes an unusual binodal plan. The solution, designed by the Zimmer Gunsul Frasca Partnership, Portland, in association with DMJM, Los Angeles, was dictated both by the oblong, warped site and by the need to avoid favoring one street over another. Visitors will enter two 31-foot-high lobbies and either ascend half a level to the 25,000-sq-ft ballroom or descend half a level to registration, exhibition, and meeting rooms. The halls, totaling 150,000 sq ft, can be divided into a maximum of five equal modules. A steel truss system spans the column-free space. Trucks gain direct access onto the floor from loading docks at the site’s southwestern edge. Skylighted masts above the prefunction areas bring natural light into the center of the building. Construction of the $85 million precast concrete and brick structure is under way, with a fall 1990 opening planned.

SAN JOSE

This 1.1-million-sq-ft, $99 million center, designed by Mitchell/Giurgola Architects, Philadelphia, with consulting architects Daniel Mann Johnson Mendenhall, San Francisco, and The Steinberg Group, San Jose, and due to open in June, occupies a tight midblock site behind San Jose’s public library. The design positions two floors of a 1200-car parking garage one-half level above and one-half below grade, providing direct access from there to a public arcade and nearby buildings. Above, three halls totaling 140,000 sq ft are separated from meeting rooms by a circulation spine. The halls are completely column-free; structural piers, set 30 feet on center, that support the halls’ bow trusses are located in adjacent service spines. Ramps from 11 loading docks provide direct truck access to the convention floor. A screen wall façade designed by Lin Utzon marks the main entry. The circulation spine will be extended to link hotels, planned for the site’s northern corners, to the facility.
**TAMPA**

The proposed 832,000-sq-ft, $71 million Tampa Convention Center, located on a spectacular harbor site and due to open fall 1990, spans a major traffic artery that could not be rerouted. Consequently, architects Hellmuth, Obata & Kassabaum, Tampa, with associate architects Ranon & Partners, Tampa, placed the 200,000-sq-ft exhibition hall one level above grade. The main entrance on the waterfront is accessible by car or boat, and visitors ascend directly from there to the convention hall level. Street-level meeting rooms are separated from service functions by the existing roadway.

**PHILADELPHIA**

The $200 million, 1.3 million-sq-ft Philadelphia Convention Center, designed by Thompson, Ventulett, Stainback Associates, Atlanta, and associate architects Vitetta Group, Philadelphia (Kelly Maiello and Livingston Rosenwinkel, both of Philadelphia, consulting architects), and scheduled for completion in 1991, will place 310,000 sq ft of exhibition space, 90,000 sq ft of meeting rooms, a 33,000-sq-ft ballroom, and support facilities on a three-block site east of City Hall. The historic Reading Terminal Headhouse will serve as the facility’s main entrance, while the grand 1893 train shed behind it, which is the only surviving single-span arched train shed in the country, will house prefunction uses, the ballroom, and meeting rooms. The exhibit hall, which can be divided in three, is elevated over a major street, as are its truck docks. Adjacent blocks are programmed for hotel and office uses, and the convention center itself includes street-level retail.
The original 1984 design for the New Orleans Convention Center by Perez Associates, New Orleans, made allowance for future expansion. A short five years later, Perez, Billes/Manning Architects, New Orleans, have completed their design for an 899,335-sq-ft expansion, to open in spring 1991. Adjacent to the historic warehouse district, the $86 million project will double the size of the existing center by adding 300,000 sq ft of contiguous, subdivisible exhibition space to the current grade-level halls. The new halls are constructed of exposed structural steel with 82,500 sq ft of column-free space. A 40,000-sq-ft ballroom and 75,000 sq ft of new meeting rooms will be spread out over two upper levels. New prefunction and lobby spaces will also be added, along with new truck docks. An unusual roof design channels rainfall directly into the historic warehouse district, while the new exhibition space reuses existing, roof-level columns. The new prefunction space between the halls provides for future expansion. A 40,000-sq-ft ballroom and 75,000 sq ft of new meeting rooms will be spread out over two upper levels. New prefunction and lobby spaces will also be added, along with new truck docks. An unusual roof design channels rainfall directly into the historic warehouse district, while the new exhibition space reuses existing, roof-level columns.
Suprematist Spike

The tower marking the center of Itäkeskus, a new town outside of Helsinki, is as slim as the architects could make it, a response to the project program calling for a visual landmark (facing page). The slim tower is a glass-enclosed stair, two exterior ventilation ducts, a signage tower, and alternating bands of windows and tile-clad spandrels. Inspired by Constructivist architecture, the architects acknowledge their debt to Wright’s Price Tower.

The contained energy implicit in the plan is released in the scheme’s elevational development. The ducts shoot free above the offices and feed back horizontally into the protruding service core. The stair tower soars up some 60 feet beyond the top floor, an airy spiral replacing the more solid dogleg stair below and giving access to services and reinforcing the building’s effectiveness as a visual landmark. Balustrade railings, duct cages, cleaning gantry tracks, and an open steel frame, which describes the volume of the topmost balcony, read clearly against the sky in constantly shifting relationships as one moves around the building.

Ideally, the architects would have liked the tower to be taller and even thinner—a genuine spike—but the economies of floor planning and fire regulations effectively determined the overall size. The strong vertical articulation of the services and stairs compensates by exaggerating the building’s apparent height, and the materials and colors—green and white ceramic tiles, blue-green and gray-green painted steel—give an impression of delicacy and lightness as the tower strides upward and dissolves into the sky.

When lighted up at night—and night in Finland, of course, means much of the day during the long winter—the tower becomes an illuminated sign (Volomerki), which the architects used as the identifying motif for their competition entry. The illuminated strip of the stair tower and the glowing horizontal line of the shopping center create a great cross of light, an abstract emblem of modernity and a marker of place that the Suprematists would surely have loved. Elementalist in its composition, the tower clearly belongs to that line of lyrical Constructivism that crystallized in Russia in the 1920s.

This Constructivist-inspired language—which also reflects the influence of De Stijl—has been developed by Erkki Kairamo and Timo Vormala in a series of industrial, commercial, and housing projects that form a consistent counterpart to the better known and more eclectic work of Kristian Gullichsen, such as his Lewerentz-inspired church at Malmi and the widely allusive Kauniaisen parish center (P/A, Feb. 1986, pp. 88–92). But while the Itäkeskus tower recalls in spirit projects such as the Vesnin brothers’ Pravda Building of 1924, Wright’s Price Tower at Bartlesville, Oklahoma, was a more direct formal inspiration—a source the architects readily acknowledge. The facing and rotational geometry of the plan, abstract banding of the elevations, and articulation of the profile all seem to owe something to the Wright exemplar.

The tower’s imagery may recall the heroic Modernism of the 1920s, but its mode of construction—slip-formed cast-in-place concrete structure and factory-made claddings—is clearly of our time. It is an emphatic demonstration of the continuing possibility of using contemporary technology expressively to make formally compelling architecture without recourse to the technological exhibitionism of much “High Tech,” let alone the superficial stylistic eclecticism of all too many essays in the Post-Modern mode. Richard Weston

The author teaches at the Leicester School of Architecture in Leicester, England.
The Itäkeskus commercial center (above) is marked by this tower, which stands next to a block of shops and a welfare center (site plan, left) and which is connected by a bridge over a highway and subway line to an enclosed shopping mall, designed by the same firm. The plans of the tower (left) indicate how the elements pulled away from the core to the outside edge of the building seem to rotate around its center. The four-story welfare building (facing page) recalls not Constructivist work, but the thin walls and glazed corner stairs of the Bauhaus.

**Project:** Itäkeskus commercial center, Itäkeskus, Finland.
**Architects:** Gullichsen Kairamo Vormala, Architects (Erkki Kairamo, Heikki Makinen, Timo Vormala, Aulikki Jylhä).
**Client:** Haka Construction Cooperative.
**Site:** commercial center in a new town outside of Helsinki.
**Program:** office tower, shops, restaurant, and welfare office.
**Structural system:** cast concrete on piles.
**Major materials:** glass, tile cladding, chrome-plated ducts, steel signage tower.
**Mechanical system:** district heating system. Variable-air-volume central air-conditioning system.
**Consultants:** Magnus Malmb erg, structural; Risto Uuskoski, mechanical; Joel Majurinen Ltd., electrical.
**General contractor:** Haka Construction Cooperative.
**Costs:** not available.
**Photos:** Simo Rista
P/A Portfolio
Three Buildings

Diverse projects from three different parts of the country represent sound architectural solutions, carefully attuned to their surroundings.
3401 Walnut Street

Designed by Geddes Brecher Qualls Cunningham, Architects, this office and retail building (above) represents a departure for their client, the University of Pennsylvania. It is an urban building that opens out to the street, and it is a commercial building that the university developed.

This departure was a long time in coming. The site was cleared in 1973, but the owners of the adjacent brownstones blocked its development until 1985, when a consent decree was signed that included limitations on shadows cast by the building.

That set up the central design problem: How to minimize the building's impact on its backyard neighbors yet maximize its presence on the street and as a gateway to the campus. GBQC gave the building presence by pushing it to the edge of the site. At the building's corner, they placed a vertical circulation core (facing page, lower right) whose fragmented composition of planes and cylinders, banded in brick, marks the entrance.

A four-story wing along the south side of the site is broken midway by another banded, cylindrical entry tower and modulated by alternating groups of punched window openings and two-story glass planes. This wing, which contains a large and very popular food court on the ground floor, steps back toward the block's center. An outdoor dining terrace (facing page, far left) faces a pedestrian and service drive. The other wing has a more monumental street façade with base, columns, and entablature.

The building shows how well Modern architecture can respond to an urban setting. It defines space, enlivens the street, and respects adjacent structures without mimicking their style. As with the best urban buildings, it is quiet and refined. Thomas Fisher

Project: 3401 Walnut Street, Philadelphia.
Architects: Geddes Brecher Qualls Cunningham (Ronald Kobelin, Michael Kahn, Edward Ford, Daniel Bussinello, Brian Wait, Charles Capaldl, Thomas Normile, Patricia Kucher, Gina Weckel, Quinn deMenna).
Client: University of Pennsylvania.
Site: urban site at edge of campus.
Program: retail and offices.
Structural system: concrete.
Major materials: see p. 153.
Consultants: Hanna/Olin, landscape; Vinokur/Pace, mechanical; Architectural Specifications, specifications; David Slavic, food court.
Contractor: Daniel J. Keating Co.
Costs: $18,309,000 ($106/sf).
Photos: Hedrich-Blessing.
Svelte and restrained, these townhouses on Chicago's Near North Side exemplify the Modern yet contextual approach of architects Nagle Hartray & Associates. Here the streamlined forms and simply luxurious materials of Early Modernism are applied with an attention to small-scaled detail that places the houses firmly in the 1980s.

Façades of tawny brick encase the fronts along Schiller Street (top photos), in a block where an eclectic line of houses links the not quite rejuvenated Old Town area with busy LaSalle Street, on the site's eastern edge. Curved and gridded bays face the street, and smaller bays of glass block enclose spiral stairs to the rear. A sheer wall pierced by glass block fronts the traffic—and captures the sun—along LaSalle.

The gridded glazing of the streetfront bays extends around only about 60 percent of their curves. Occupants cannot see into their neighbors' living rooms or master bedrooms, but they do get a nice sense of belonging to a larger urban group. The offset glazing also tilts the outlook of the complex toward the east, toward the denser Near North residential area and the urban core.

Subtle detailing distinguishes the exterior: a rusticated base, soldier courses of brick, bull-nosed limestone copings and sills. Regrettably, pipe rail fences and metal entry gates intended by the architects were not installed; the $650,000 houses sold so quickly that the developer did not add them.

The interiors (photos, right) are as direct as the exteriors, with comparable attention to small-scale detail. Natural light from a central well plays on white walls, pipe railings, and oak floors. Materials and finishes are simple but sensuous: granite counter tops, travertine flooring in the entrance halls, marble surfaces in the bathrooms. The large adaptable spaces—with their 10-foot ceilings—are ideal for the young professionals, some with children, who live here; the oversized kitchens are good for entertaining. These accommodations are appropriate for owners making a long-term commitment to the city. Lisa Goff

The author is Associate Editor of Crain's Chicago Business.
Project: Schiller Street Residences, Chicago.
Client: Ronald Ysla.
Site: vacant lots in the Old Town district; 106 ft frontage on Schiller St., 90 ft deep.
Program: Five townhouses, 3500 sq ft each, including garages.
Structural system: brick and block walls with wood frame and truss joist spans.
Major materials: brick, limestone, glass block, gypsum board walls, hardwood floors, granite counters (see Building Materials, p. 153).
Mechanical system: forced air, warm and cold.
General contractor: James A. Blackmore Construction.
Costs: about $80 per sq ft.
Photos: HNK Architectural Photography.
South Pasadena, California, architect Michael Burch was asked by Jonathan Martin Inc., a women's clothing producer, to renovate and expand an existing 65,000-square-foot industrial building in downtown Los Angeles (this page, bottom right) for its manufacturing, shipping, and office facilities. The existing brick building contains manufacturing, warehouse, and office space (facing page, bottom); the addition houses loading, shipping, and warehouse areas, as well as the circulation and services for both buildings.

Burch wanted the addition to appear as a set of individual forms that played off the mass of the existing building. The new building is clad in stripes of alternating plain and split-face concrete block in two shades of gray. And the entrance and triple-height lobby are contained in a piano-curved volume (right), clad in stucco and punctuated by tiny glass block "windows," that has a distinctly Corbusian lineage. Burch intended the curved side to be the "soft" public side of this volume. Its more industrial looking "hard" side (large photo), with its blue-glazed concrete "towers" (that denote the locations of stairs and elevators) relates it to the new building. The resulting assemblage of forms lends a good deal of style to the buildings' less-than-friendly surroundings, while their tough materials are appropriate to the other industrial buildings in the neighborhood. The existing brick building looks particularly "contextual," since its first- and second-floor street-side windows have been sealed with welded steel plates to foil burglars.

The interiors were done on a budget that could charitably be called slim; the marble floors in the lobby and office reception areas are the only concessions to luxury. But the architect's resourcefulness in creating a lively play of form, texture, and color did not go unnoticed; the project won a Citation in the AIA's Los Angeles Chapter 1988 Design Awards program. The jury called the project "a simple but memorable renovation," and admired the "clarity and boldness of the parts and the way in which they are interrelated." Pilar Viladas
Project: Jonathan Martin Inc., Los Angeles.
Client: Harkham Industries.
Site: 55,000 sq ft, including an existing 65,000-sq-ft, three-story loft building.
Program: addition of 20,000 sq ft and renovation of existing building for a clothing company.
Structural system (addition): slab on grade; precast upper floors on block walls and precast columns and beams; wood roof on open-web joists.
Major materials (addition): concrete block; stucco; gypsum board; vinyl tile; carpet (see Building Materials, p. 153).
Mechanical system: electric heat pumps with fan coil units; electric package A/C units; gas heaters for warehouse.
Consultants: William McKerracher (new), Vahdani & Associates (existing), structural; Downey Heating & Air Conditioning, mechanical; Amelect, electrical.
General contractor: Hoffman Construction.
Costs: $3,500,000.
Photos: Stanley Klimek, except as noted.
A panel of experts covers the latest developments in daylighting, below-grade construction, utility incentives, HVAC, and radiant barriers.

DESPITE the fact that per capita consumption of energy in America remains twice that of industrialized nations such as West Germany, energy conservation in this country is alive and well, and apparently on the upswing. Admittedly, researchers have faced declining financial support during the 1980s. But the incentives to conserve existing energy resources and develop new ones seem to be increasing as the energy agenda shifts from strictly economic concerns to more global environmental ones.

In light of atmospheric problems closely linked to electricity generation and manufacturing processes, some predict the magnitude of changes soon facing business will dwarf the conservation efforts of the 1970s. Already the use of chlorofluorocarbons, which deplete the ozone level when released, is being cut back gradually under EPA supervision. A 95 percent reduction in production of CFCs is sought within the next 14 years. Alarm over the much-debated warming of the earth, known as the greenhouse effect, also has spurred the search for replacements to fossil fuels.

The AIA recently acknowledged the continued importance of energy when its directors voted to resume, after three years of inactivity, the institute’s role in energy matters. By creating the AIA Energy and Environmental Quality Task Group, an advisory board that will focus on both energy conservation and indoor air quality, the AIA has taken a critically important step, says task group member Steven Winter, a Newport Beach, California, energy consultant. Revisions now pending to ANSI/ASHRAE/IES energy standards signal a change in current practice while placing more stringent guidelines on commercial lighting design. Some researchers argue, too, that only now, 15 years after the Arab oil embargo, has the energy industry matured enough to offer the broad range of products and detailed knowledge required to design well in energy terms.

Current developments on the consumption side include breakthroughs in glass technology, improved insulation materials, and a wider availability of energy-efficient lighting sources. On the supply side, environmental concerns have rejuvenated proponents of nuclear power, a “clean” production source with troublesome waste disposal problems. One alternative—still too expensive—is photovoltaics, the direct conversion of sunlight into electricity.

That’s only some of the good news. The following pages contain more detailed reports on advances in daylighting and below-grade construction, financial incentives by utilities to reduce consumption, changes in HVAC systems, and ways to lower heat gain in buildings by blocking the radiation of solar energy. These issues touch every architect who is concerned with a building’s capacity to conserve—or consume—precious energy. Vernon Mays
Earth Sheltering
How else to build with optimum efficiency in frigid Edmonton, Alberta (where winter temperatures drop to -30°F), than to take advantage of the earth’s insulating capabilities? The Edmonton Advanced Technology Center (top), a multitenant laboratory designed by Barry Johns Architect Ltd., of Edmonton, takes full advantage of the sculptural possibilities of berming, as well. The building’s basic form is energy-efficient, with programmed spaces organized along a central circulation spine (photo, bottom left). Insulation values are comparatively low, because the earth berming holds temperatures relatively constant six inches below the surface. Twelve inches of soil on the roof covers R20 insulation laid over a waterproof membrane. Walls below grade are 12-inch concrete, waterproofed and insulated to frost-line depth with R12 foam. The heat produced from people, lights, and equipment is sufficient to maintain comfortable temperatures inside the building, which is equipped with a small gas-fired heating plant. Extensive skylighting (photo, above left) and a light court provide daylight throughout.
New Strides in Daylighting: Improved glass, sophisticated shading systems, and pending breakthroughs expand the range of solutions.

WHILE concern over energy use has stimulated much recent interest in daylighting, the built record of achieved energy efficiency is unclear, especially in light of the lack of published energy evaluations. Anecdotal information suggests that a number of problems have been encountered, some of which have been resolved, others not.

Architects will be aided in the future by better technology and design tools. New glazing products, for example, make it possible to admit adequate daylight while controlling cooling loads and glare.

Although designers have had choices of a range of glass transmittance values, many of yesterday's glazings do not distinguish between transmittance of light and solar heat (half the energy in sunlight is infrared heat). Some new coated glazings now provide "cool" light with about half the associated solar heat gain.

Most daylighting designs rely on diffuse light from the sky, because the intensity of direct sunlight exceeds visual and thermal comfort levels. Of the fixed and operable shading systems now used to control sunlight intensities, fixed solutions are often preferred for their simplicity. But operable solutions provide more responsive control of hourly, seasonal, and climatic variations. Many extensively used motorized shading systems have a good track record in Europe and are now being specified in the U.S. Within a decade, new coated glazings should be available to allow glass transmittance to be varied from 10 to 80 percent by an applied electric signal. Prototypes of such "smart windows" already have been demonstrated. Other advances on the horizon, such as glazings incorporating optical lens systems or holographic coatings, are aimed at directing sunlight farther into buildings than is now practical.

Concerns over heat loss control have made double glazing the standard and low-E coatings increasingly common. New double-glazed units with low-E coatings (R3 windows) provide equal or better performance than conventional triple glazing, and triple-layer windows with low-E-coated plastic center layers outperform them both. This year will see the large-scale introduction of gas-filled, low-E double-glazed windows with R4 ratings. And prototype R6- to R10-rated "superwindows" are being tested now.

But building technology alone won't address all the shortcomings that frustrate good daylighting design. Better design data and tools that allow efficient access to that data are needed. Computer-based hardware and software now in the works promise to bridge the gap between quantitative and qualitative aspects of design that are inherent in currently available tools. Simulations that accurately render luminous environments (indicating points of glare, for example) are becoming possible through software that provides realistic high-resolution, quantitatively accurate images. But to be effectively used, images, data, and new expert advice systems must be accommodated within the design process—a nonlinear, multisensory, and visually-oriented activity.

Whatever the past record of attempts to achieve substantial energy savings through daylighting, the incentives to keep trying are great ($140 billion per year spent for energy in American buildings). Continued interest has produced a new wave of technology and design tool development that will long benefit architects, owners, and building occupants. Stephen E. Selkowitz

The author is group leader of the Windows and Daylighting Group, Applied Science Division, Lawrence Berkeley Laboratory, Berkeley, Calif.

Cutting Electricity Usage: Utilities are now offering rebates for approved equipment, incentives for lower consumption, and free design services.

WHILE the trend toward lower fuel costs has benefited owners of buildings that depend mostly on fossil fuel, those responsible for buildings that rely on electricity find themselves facing energy costs that have steadily increased.

The introduction of rate structures pegged to peak demand only makes much-needed power more pricey. But utilities are finding other ways to discourage peak-hour usage, offering direct financial incentives to stimulate reductions. The most common incentives are rebate or design assistance programs. In the rebate programs a utility typically pays for all or part of certain energy-conserving equipment, or pays the owner an amount for each kilowatt the building offsets from its peak demand. Experiments with incentives began in the early 1980s at the residential scale, but they have not always proven to be cost-effective for the utilities.

The focus has shifted lately to commercial rebate programs. For the small customer, these programs often are structured similarly to residential rebates, in which payments to the customer are made following the purchase of approved products. Of the nearly 50 existing commercial rebate programs, no two offer identical rebates. But, an informal survey of several programs revealed typical payments of 50 cents per efficient fluorescent tube, $5 per compact (screw-in) fluorescent lamp, $10 per energy-efficient ballast, and $40 per ton of energy-efficient refrigeration. Lighting efficiency has emerged as the utilities' least costly strategy and the customers' easiest to use.

Programs for larger customers include a broader range of equipment and a more complex rebate structure. While most of these programs provide rebates as a percentage of the installed cost of approved equipment, in a growing number of cases the rebate is based on a fixed payment per peak kilowatt saved. Although rebate payments vary widely among utilities, a recent study funded by the Electric Power Research Institute documented rebates of 30 to 50 percent of the cost of installed equipment and, in the case of fixed payments, an average of $300 per peak kilowatt saved. To qualify for these programs, large customers usually must prepare an energy conservation study following the utility's calculation methods. Most utilities will assist customers in preparing the study or suggest a consultant, often underwriting all or part of the cost. Some utilities help customers select a contractor and supervise installation.

Unlike rebate programs that emphasize the retrofit of existing buildings, design assistance programs encourage energy-conscious design in new buildings. Typically, a utility sets the amount it will pay a prospective building owner for each peak kilowatt the design team can subtract from a target peak calculated according to building size and function. The utility often pays for a portion of the design services in areas that promise significant peak savings, particularly thermal storage, energy management systems, daylighting, and lighting. While the few buildings completed under design assistance programs have reduced peak demand, the increased supervision that is required may limit the participation of utilities in such programs.

Given the success utilities have had in reducing peak loads this way, one can only speculate that more incentives will develop. Designers who avail themselves of these programs will find they can give clients highly energy-efficient buildings with support from local utilities. Harvey Bryan

The author, an associate professor at the Harvard University Graduate School of Design, is an architect, researcher, and frequent contributor to P/A.
Daylighting/Ventilation

Armed with results from field studies, designers of the Netley Abbey Infants' School (top) in Hampshire, England, took a position contrary to popular wisdom: that building users can intelligently operate the shading and venting systems critical to a building's thermal performance. In designing the school, the Hampshire County Architects' Department used a southeast-facing conservatory (bottom left) as the organizing element. Though classrooms and assembly spaces open onto this circulation spine, giving it a functional coherence, its energy role is more crucial. In winter it preheats intake air and reduces heat loss from the rest of the building; in spring and fall it serves as a source for desirable warm air or is isolated when it overheats; in summer it shields the hot sun (diagrams, left). Paired classrooms (photo, middle left) are heated by overhead ducts that feed from air-handling units located above the conservatory.
Underground Design:  
New technology has led the way for products and practices that touch on everyday design issues, including foundations.

The underground building alternative has evolved in 20 years from a novel idea to a practice that is well established in the architectural mainstream, as evidenced by recent gallery additions to the Louvre and Smithsonian Institution. Likewise, the technology of underground construction has developed, becoming increasingly accessible through new products and information and more relevant to all architects through advances in foundation design.

Proper drainage, for example, is aided by new filter fabrics ("geotextiles" that are used to protect drain pipes and trenches from clogging) and wall-mounted backfill drainage blankets. New insulating concrete masonry units made from lightweight aggregate are available. And a variety of standard weight concrete blocks produced with foam inserts, greatly increasing R-value over older systems, have recently entered the market. Among other new products are foam insulations that serve as concrete forms for foundation walls and slab edges, fiberglass panels for protecting exterior foundation insulation above grade, and rigid foams with a protective weathering surface.

Increasing construction cost is renewing interest in insulated shallow footings for slab floors in cold regions. Design guidelines for such footings were published in the U.S. in 1973, but the idea never caught on in America (as it did in Scandinavia). New computer studies included in the recently published reference, Building Foundation Design Handbook, show that the horizontal exterior ("flowered") insulation required to prevent frost penetration to footings is both energy- and cost-efficient. Field studies of cracking in unreinforced concrete masonry walls reveal that existing recommendations for allowable height of unbalanced fill are inadequate for many soil types. New guidelines are given in the handbook.

Building below grade has been further complicated by other issues. Radon, for example, is both a real concern and potential liability. Control measures involve sealing cracks and joints against infiltration of soil gas and, in some cases, using the perimeter drain system to vacuum the soil. Energy efficiency, too, is getting new respect in the design of house foundations, neglected while other parts of the building were being upgraded. There is little evidence of new or retrofitted insulation causing structural (frost-induced) damage, as was once a concern, although it is prudent to avoid interior insulation on walls with existing structural or moisture problems.

A new level of understanding is beginning to be reflected in the literature, as well. The new edition of Architectural Graphic Standards, for example, increases its coverage and level of detail for earth-sheltered design. Available from the Government Printing Office is the Environmental Protection Agency's Volume, Radon Reduction in New Construction (#716-001/60673). Another new source is the Building Foundation Design Handbook, the first comprehensive text aimed, in both scope and format, specifically at architects. It contains topical chapters on structure, waterproofing, drainage, thermal design, and radon and termite control. Summary chapters address basements, crawl spaces, and slab foundations. The handbook is available by writing to the Underground Space Center, 500 Pillsbury Drive S.E., Minneapolis, Minn. 55455. Kenneth Labs and John Carmody

Kenneth Labs is a lecturer in environmental technology at the Yale University School of Architecture. John Carmody is associate director of the Underground Space Center, University of Minnesota.

Energy’s Impact on HVAC:  
Better thermal envelopes change the way we heat and cool, and new attitudes prompt the use of decentralized fan systems.

During the evolution of buildings between 1945 and 1975 from structures of brick and mortar to veritable machines, few bothered to consider the energy resources required to power them. But the building design professions responded positively to the energy crisis of the mid-1970s, with startling changes in building and systems designs. The most evident and direct impact upon architecture has been the improved thermal envelope—better insulated wall and roof systems, improved fenestration systems, and joining and sealing methods that are virtually infiltration free. Interestingly, in some climates the architect receives a bonus from these improved envelopes in that the improved thermal characteristics remove the need for perimeter radiation, a heating system that often interfered with space flexibility. A more universal bonus for the improved envelopes was that the resultant reduction in cooling and heating loads reduced both the construction cost of the mechanical systems and their ongoing operating costs.

Aside from envelope designs, the architectural impact of energy-efficient design is less evident, but nonetheless significant. In larger institutional and commercial buildings constructed between 1945 and 1975, the two major energy-consuming systems (almost equal in quantity) were lighting and fans (supply, return, and exhaust). The tendency in these buildings was to centralize the fan systems in penthouses and basements and use high-pressure, high-velocity ducting systems with constant volume air delivery—the combination of which consumed large quantities of energy. As the understanding of this aspect of energy systems matures, building air systems assume new configurations that have an impact on architectural design. Typically, fan systems are being decentralized (thus, there will be a multitude of smaller units). Low-pressure, low-velocity duct systems are being installed and, with rare exception, those duct systems are the variable-volume type (a change that already has taken place). A separate system provides controlled quantities of conditioned outdoor air to the buildings.

What effect will these changes have on the architectural design? Rather than providing a single room, such as a penthouse that accommodates a central system serving the entire building, schemes will be required to include small decentralized fan rooms throughout a building. While this may appear to be contrary to earlier concepts of volumetric efficiency, it is mandatory if the energy costs and consumption objectives being mandated by tomorrow's building owners are to be met.

Many other changes taking place in mechanical/electrical energy systems will have considerably less impact upon the architectural design. These include on-line computer systems using digital logic to control the environment (so-called "smart buildings"), a new generation of rotary refrigeration machines, high-efficiency boilers and thermal refrigeration systems, variable-speed technology, and improved techniques of air distribution. Probably the most significant aspect of energy-conserving design is that the architecture/engineering community has matured in its understanding of the need to address energy consumption. And with this maturity have come two important principles: first, that an energy-conservative building need not cost more than any other building and, second, that it need not be less comfortable. William J. Coad

The author is president of McClure Engineering Associates, St. Louis, and an affiliate Professor of Mechanical Engineering at Washington University.
Radiant Barrier Systems:
A layer of foil, properly placed, goes a long way in reducing solar gain in buildings plagued with too much sun.

WHEN planning strategies to keep heat out of buildings, designers have focused primarily on impeding conduction or convection. Until recently, a third method of heat transfer—radiation—was largely ignored. But recent research illuminates the potential for reducing heat gain in buildings by controlling radiation transfer in walls, roofs, and ceilings through the use of radiant barrier systems.

As commonly installed, a radiant barrier is a layer of foil facing an open air space in the building envelope. By reflecting radiation that strikes it and, at the same time, not radiating that energy, such a barrier is effective in impeding heat transfer and gain. With an emissivity of only about 0.05, aluminum foil makes an excellent radiant barrier, eliminating 95 percent of the radiant transfer potential. In most installations, the aluminum foil is applied to a reinforcing substrate such as kraft paper or polypropylene. Fiberglass webbing is sometimes sandwiched between the materials for added strength.

In residential construction, there are three recommended ways to install radiant barrier systems. The first involves simply placing the foil material across the attic floor, though dust accumulation on the foil surface compromises the barrier by reducing reflectivity and raising surface emissivity. Preferred methods of installation are to drape the foil over the top of the truss system prior to installation of the roof decking or to attach the material to the bottom of the roof decking before nailing it in place. The two methods have roughly equivalent success. Yet a third location, recommended for retrofit applications, is to staple the barrier material beneath the top chord of the roof truss. In all types of installation, the foil side of the barrier must face an open air space. Yet, it is unnecessary to form air-tight seals with radiant barrier systems, because radiant energy travels in a straight line. In fact, if the foil is attached to the roof decking, it should be perforated to allow vapor to pass through. Installing radiant barriers in exposed-beam ceilings usually requires special treatment such as a “vent-skin” roof construction—two distinct sheathing layers bounding a vented air space.

Radiant barriers also offer thermal energy protection in commercial buildings with flat, built-up roofs and suspended ceilings that enclose plenums for ducting, wiring, and lighting systems. By draping the barrier above the ceiling plenum, duct losses in the plenum are greatly reduced. The barrier shades the ceiling insulation from radiant heat gains, as well.

In walls, radiant barrier systems can be constructed on building exteriors or interiors. In northern climates, a wall radiant barrier on the interior may be more cost-effective and efficient. And, it can form a superior interior vapor barrier. In cooling-dominated climates, an external radiant barrier can be constructed by creating an air space between the foil surface (which is attached to the wall structure) and the exterior skin of the building through the use of vertical 2x2s. Such an air space may be vented or unvented. More detailed information on radiant barrier systems is available by writing the Florida Solar Energy Center, 300 State Road 401, Cape Canaveral, Florida 32920.

Philip Fairey
The author, an architect, is program director for building research at the Florida Solar Energy Center.

Radiant Barriers
Architect Herb Beatty’s design for his Fort Myers, Florida, house was governed by the rules of low-energy design in hot, humid climates. But he went beyond the basics of site orientation and roof overhangs by including vent-skin walls and roofs, and radiant barriers. When designing a vent-skin wall, one option (drawing, above left) is to use a cupola to help draw warm air upward. But Beatty turned the cupola into a loft, venting the house’s walls and roof at the loft’s base instead.

For simpler installations in buildings without vent-skin walls, three locations for radiant barriers in attic spaces are recommended (drawing, middle). Key to the technique’s success is keeping the barrier’s foil surface facing toward an open air space (photo, above). An alternative commercial roofing practice for one-story buildings (drawing, bottom) incorporates a continuous vapor barrier below the bar joists, with the ceiling plenum serving as a common return system.
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Technics Topics

I 03 Survey puts commercial construction in a new light
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109 Structural advances and new architectural treatments for tilt-up

COMMERCIAL BUILDINGS BY LOCATION

- northeast
- midwest
- south
- west

» percent of commercial bllds.
» percent in metropolitan areas
» percent in non metropolitan areas

GOVERNMENT VERSUS NON GOVERNMENT OWNERSHIP

- offices
- assembly
- education
- mercantile
- built since 1960

Commercial Building Myths

- Most commercial buildings are steel-framed.
- Workers in the Northeast have less floor space than those in the West.
- Of the existing commercial buildings over three floors tall, most of them were built after World War II.

These statements may ring true, but each is false according to the survey "Characteristics of Commercial Buildings, 1986" recently released by the Department of Energy. Of the 4.15 million commercial buildings in the U.S. over 1000 square feet, only 19 percent are steel-framed; 38 percent have a concrete or masonry frame. Of the 58.2 billion square feet of commercial space in the U.S., there is a median of 1000 square feet per worker in the Northeast and only 833 square feet in the West.

And of the 165,000 commercial buildings in the U.S. over three stories tall, 65 percent were built prior to 1945.

Location

The location of new work has considerable bearing upon where a firm practices, or at least markets its services. This survey shows a significant shift in commercial building construction since 1979 away from the Northeast and Midwest toward the South and West. The South saw a 2 percent increase in its share of commercial buildings, and the West a 4 percent increase.

Commercial buildings are accordingly newer in the South and West. Twenty percent of them in the South, for example, have been constructed since 1980, compared with 16 percent nationwide and 12 percent in the Northeast. The median age of commercial buildings in the South and West is 19.5 and 18.5 years respectively, versus 28.5 years in the Northeast.

The types and sizes of buildings also differ among the various regions of the country. The Northeast, with 15 percent of all commercial buildings but 20 percent of the floor space, has relatively larger buildings than other regions; the South, in contrast, has 37 percent of the buildings, but only 33 percent of the floor space.

The Northeast and South also are polarized in terms of building height. The Northeast has the largest number of commercial buildings over three floors in height, and the South the largest number of one-story structures.

Ownership

The survey, while recognizing only government and non-government owners, does identify some important differences between them. For example, nongovernment owners control over three times as many mercantile buildings as do governments, but the latter own over 15 times as many educational build-
ings. Offices and assembly buildings are almost evenly split, with private owners having a slight lead with offices, and public owners a slight lead with buildings used for assembly purposes.

Government buildings tend to be larger than private-sector buildings. Five percent of them are over 100,000 square feet in size, compared with 1 percent among nongovernmental buildings. Put another way, government buildings constitute only 12 percent of all nonresidential buildings, but 21 percent of the total floor space.

Government buildings also tend to be older and more fully used. Of all publicly owned structures, 61 percent were built between 1921 and 1970 (versus 52 percent of those privately owned) and only 11 percent were built since 1980 (versus 16 percent in the private sector). Four percent of the floor space in public buildings is vacant, compared with 7 percent in private commercial buildings.

Size and Use
Major changes in the size of commercial buildings also emerge from the survey. It shows a 6 percent increase in buildings over 100,000 square feet since 1979. Since 1980, 14 percent of the commercial buildings erected have been over 500,000 square feet, compared with 1 percent of those built between 1921 and 1960.

Sizes of commercial buildings vary considerably according to their use as well as the era in which they were constructed. Only 1 percent of all stores and warehouses are over three floors high, while 7 percent of the offices and over 13 percent of the hospitals and hotels are over that height.

Buildings used for education have the highest median size (10,000 square feet), and grocery stores have the lowest (2500 square feet). Schools also have the widest range of sizes. The middle 50 percent of such buildings vary from 5000 to 33,000 square feet, compared to a range of 3000 to 21,000 square feet for hotels and of 2000 to 5000 square feet for grocery stores.

One of the most disturbing statistics to come out of the survey is the dramatic decline in the square footage allocated to each employee in commercial buildings. Before 1900, the median amount of space per worker was 1874 square feet, by 1946 it had dropped to 1066 square feet, and by 1980 to 850. The number had increased slightly to 961 square feet in the 1980s and appears to be on the rise again, with an increase from 850 to 895 square feet in the 1980s.

Not surprisingly, metropolitan areas offer less space per worker than nonmetropolitan areas: 856 square feet versus 1341 square feet. More of a surprise is that the West has the lowest space allocation (833 square feet per worker) and the Northeast and Midwest the highest (1000 square feet and 1251 square feet respectively).

The survey also shows some changes in the number and size of nonresidential buildings. When comparing buildings completed between 1921 and 1960 and those completed between 1980 and 1986:

- The relative number and square footage of buildings used for assembly purposes have decreased.
- The relative number and size of office buildings have increased.
- The relative number of stores has remained about the same but they have increased in size.
- The relative number of warehouses has remained about the same in number but they have decreased in size.

Structural Systems
The study also found a wide variation in the type of structural systems used. Masonry or concrete framing accounts for 56 percent of all nonresidential buildings; wood framing, 34 percent; steel framing, 19 per-
cent: and tilt-up concrete, 3 percent. Those percentages, however, do not account for the changes in use of those systems over time. Wood framing, for example, is more common in older buildings, with a median age of 28.5 years. Metal buildings and tilt-up systems are more common in newer structures, with median ages of 12.5 years and 14.5 years respectively.

Geographical differences in the use of various structural systems also emerge in this survey. Tilt-up concrete systems are more than twice as common in the West as in other regions, while metal buildings are at least twice as common in the South as in the Northeast or West. And masonry structures constitute a larger percentage of the commercial building market in the Northeast and Midwest than in the South.

Building Components

Among the items tracked by the survey was the use of various building components, particularly glass, roofing, HVAC systems, and energy-related items such as insulation and weatherstripping. The majority of commercial buildings (84 percent) have glass on 25 percent or less of their exterior envelope. However, the survey points to an increase in the number of glazed envelopes, since the median age for buildings less than one-quarter glazed is 21.5 years, while that for those more than three-quarters glazed is 14.5 years.

Roofing materials, too, show significant changes over time. Built-up roofing accounts for 42 percent of the roofing on commercial buildings; shingles, 26 percent; metal, 20 percent; single-ply membranes, 3 percent; and slate and tile, 3 percent. But slate and tile have dramatically declined in use, and metal and single-ply roofing are more frequently used.

The survey also shows changes in use of some heating systems and fuels. The median age of buildings with steam radiators is 50.5 years; hot-water radiant systems, 25.5 years; and forced hot-air systems, 15.5 years. In the last 50 years, the market share of natural gas heating has decline slightly (55 to 49 percent); that of oil heating has declined dramatically (20 to 4 percent); and that of electricity has soared (10 to 42 percent). When heating is added to the equation, electricity is a fuel in 97 percent of the buildings; gas, in 54 percent; and oil, in 13 percent. Alternative sources of energy, such as solar heating, are found in only 3 percent of commercial buildings.

Of the conservation measures typically made to the shell of buildings, roof insulation, caulking, and weatherstripping were employed in about three-quarters of the buildings. Wall insulation was added in a little more than half of the structures. Some 35 percent of the buildings had acquired storm glazing and exterior or interior shades or awnings, and 25 percent had windows fitted with tinted or reflective film.

If one were to draw a composite picture of nonresidential construction from this survey, the typical building would be a one-story, masonry-framed, privately owned structure that is less than 10,000 square feet in size and used for mercantile purposes. It would be located in a Southern metropolitan region, and heated by natural gas. What may be more useful, though, are the trends that emerge from this study: the shift in building construction toward the South and West, the growing size and increased glazing of buildings, the turnaround in the square footage allocated per worker, the decline of oil and rise of electricity as an energy source, and the increased use of steel and concrete construction.

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Giving Rise to Better Elevators

Most of the two million elevators worldwide are so safe—statistically, five times safer than taking stairs—and so efficient—computer guidance has cut one-floor door-to-door travel time from 5½ to 4½ seconds in the last decade—that they have become virtually invisible to their riders. But that kind of success hasn't kept industry leaders from reaching for new heights of efficiency, particularly in nonhydraulic elevators used in high-rise buildings.

Start, for example, with an elevator's energy efficiency. If a nearly full elevator is descending or a nearly empty elevator is rising, the driving motor generates, rather than drains, electricity. The ultimate result: Elevators use only 3 or 4 percent of a building's energy.

While refinements in "landing" elevator cabs have reduced floor-to-floor travel time, the real efficiency gains are coming from better dispatching and distribution of groups of cabs by computer.

For example, during the afternoon rush hour, a computer distributes elevator arrivals strategically, favoring heavily populated floors over others and ensuring that the building doesn't empty from the top down. Such computer-controlled elevators can weigh their contents to know when they're full and must bypass waiting hall calls. By the same method, they can sense when rush-time crowds have thinned. Then they revert to unbiased response to calls throughout the building.

Computer dispatching has reduced service time (an industry term meaning the wait for an elevator plus the time spent in it) by 25 percent, says Merton Meeker, Jr., of Otis Elevator Co., the leading supplier of nonhydraulic elevators. Software acts like "an airplane flight recorder," tracking and locating glitches like faulty door closing sensors that stall or slow service, he adds.

The latest evolution applies artificial intelligence to elevators. An advanced computer controller will note how traffic moves within the building, automatically adjusting hourly distribution of cabs and floor-response preferences to developments such as changing tenants or tenant use. Such advanced models can yield an additional 10 to 15 percent cut in service time. "As the performance of the whole industry gets better, it will be reducing the number of elevators necessary to do a given job," Meeker says.

New Otis systems get their trial runs at the company's research tower in Bristol, Connecticut. A surreal sight, the 29-story tower is half the girth of a normal high-rise and virtually windowless. It is covered with gill-like vents that can be used to pull in cold or hot air, creating special conditions in its 11 test shafts.

Advances in vertical transport tend to be limited more by human foibles than technological ones. For example, people push both the up and down buttons, damaging system efficiency by adding unnecessary calls. And, despite the polite entreaties of the digitized elevator voices, passengers tend to shuffle on and off. Based on experience, Otis leaves elevator doors open for at least three seconds for people to get on board at an upper floor. Up to 10 seconds are allowed for the lobby crowd to pack its way in.

Also, elevator safety codes protect passengers by limiting the amount of kinetic energy the cab and hallway doors can exert when closing. That energy, the equivalent of half the door's mass times its speed squared, means that heavier doors must close more slowly. The result of all this? During rush periods, elevators spend half their time stopped.

Advanced elevator technology is also enhancing creature comfort. At the Otis research tower, seismograph charts reveal a renewed interest in ride comfort that is wrought in part by increased competition from the Japanese, who as a culture demand smoother rides.

Their bane is the bumpy ride that occurs when the vertical elevator rails are not perfectly smooth and when air buffets the cab as it passes floor landings. To smooth things out, elevator manufacturers offer option packages that include shaped and extended "toe guards," metal lips that extend several feet below the cab's door sill, to reduce floor-door wind buffeting.

One package also includes bigger rubber roller guides, larger shock absorbers, and an extended cab frame. The latter, in effect, extends the elevator's wheelbase and places passengers in its center so that an elevator ride might approach something akin to limousine comfort.

David Jacobson

The author is a feature writer at The Hartford Courant.

Otis Elevator's 29-story research tower contains 11 test shafts. A typical counterweight elevator.
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Circle No. 311
A New Twist for Tilt-Up

Recent structural advances and new architectural treatments have ushered tilt-up construction into a new era, producing buildings that—when compared to earlier structures built using the same basic technique—are more flexible in their floor plans and window treatments, better looking inside and out, and more economical to construct.

Only a few years ago, this quick and inexpensive construction method was usually restricted to utilitarian one-story warehouses and industrial buildings. The method was simple: Workers poured concrete panels on a flat slab or casting surface that had been treated with a bond-breaker; window and door openings were framed in wood; and, after the concrete panels had set sufficiently, they were tilted up into position as walls.

Little has changed in the basic tilt-up construction method. But in recent years architects have made strides in improving the severe aesthetic that once was the rule in tilt-up construction. Additions such as freestanding walls, canopies, and trellises, for example, have been used in mixed-use projects to lend tilt-up buildings an image that is more acceptable to tenants.

Still, such changes were mostly cosmetic, failing to address the inherent limitations of tilt-up construction. A recent departure from that pattern was the design for buildings in the 415-acre Irvine Spectrum 3 development in Irvine, California, plans for which include 1 million square feet of research-and-development, industrial, and warehouse space in 26 tilt-up buildings. Designers for the project are Leason Pomeroy Associates of Orange and Los Angeles, with the Irvine Company; joint venture developers are the Irvine Company and the Koll Company.

From the developer's point of view, these buildings represent a breakthrough in tilt-up construction techniques that both reduces construction costs and creates structures that can command higher rents. One such advance in the technique involves the placement of the concrete pilasters that support the tilt-up panels. In traditional tilt-up construction, the pilasters are located near the end of each concrete panel. When these panels are connected to create the building's façade, the paired pilasters at the ends of the adjacent panels form solid five-foot sections that cannot be pierced by windows.

Formerly, the typical tilt-up building façade was characterized by an alternating series of concrete solids and strip windows, an arrangement that constrained office planning and future flexibility. With the method used at the Spectrum 3 project, however, the pilasters are moved inward about one-fourth of the distance from the end of each 30-foot panel, thus avoiding the pairing of structural elements where two panels join. The pilasters are made less obtrusive by making them narrower (but deeper, for structural purposes) than conventional ones. Thus, the solid elements on the façade become more delicate and are evenly distributed.

Using this method, the ratio of solid space to windows is reduced. Glazing is redistributed across the building façade in an even rhythm. And the pilasters, standing by themselves every 15 feet, resemble traditional structural columns when it comes to planning window treatments or office layouts.

The inducement to developers to support this construction method is reduced cost. When the pilasters are spaced at 15-foot intervals, rather than paired at spacings of 30 feet, the tilt-up concrete panels become more efficient structural elements. Hence, the panels can be thinner, with significant savings in materials and construction costs.

Moreover, panel-to-panel connections are simpler and more economical without the pilasters at the edges.

For those who ultimately foot the bill, this design approach offers the best of both worlds—the high image and value of office and R&D buildings, plus the economies of fast, low-cost tilt-up construction.

Dan Heinfeld, AIA

The author is regional president in the Orange County, Calif., offices of Leason Pomeroy Associates, architects.
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Progressive Architecture's Official Guide

WestWeek 89

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7th Annual Business Conference
for designers, architects and corporate specifiers of contract and residential furnishings

Critical choices:
intuition and reason in the design process

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Pacific Design Center
Los Angeles

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Schedule of Events

WestWeek 89

Maquette for Sackler Wing Mural, Smithsonian Institution, on view in Architectural Art.

Exhibitions (March 28–31)


Architectural Elements Take on Graphic Design Organizer: Kirsten Kiser Gallery for Architecture, Los Angeles

From Table to Tablescape, featuring “Water Palace,” designed by Sheila Klein and A2Z. Organizer: Susan Grant Lewin and Design Communications Internal!

Designing Textiles: Intuition/Reason Organizer: Association of Contract Textiles

Wednesday, March 29


11:15 A.M.—12:00 P.M. “Restoration: In India, Nepal, Kathmandu, and Los Angeles and the Houses of Frank Lloyd Wright.” Introduction: Jay Rounds, Executive Director, Los Angeles Conservancy. Speakers: John Sanday, AIA, Program Officer, Getty Grant Program for Architectural Conservation; J. Paul Getty Trust; Jeffrey Chusid, AIA, Administrator, Frank Lloyd Wright’s Samuel and Harriett Freeman House.

2:00 P.M.—3:00 P.M. “Choices in Detailing in the Design of Interiors.” Introduction: Joyce MacRae, West Coast Editor, HG. Moderator: Nancy Navogrod, Editor-in-Chief, HG. Speakers: Brian Murphy, Architect; Mark Hampton, ASID, Interior and furniture designer. Sponsors: HG, Mirak.


5:00 P.M.—6:00 P.M. “Daily Dialogue with the WESTWEEK Speakers.” Chair: Daralice D. Boles, Senior Editor, Progressive Architecture. Participants: Jeffrey Chusid, AIA; Michael Gelb; Mark Hampton, ASID; Brian Murphy; John Sanday, FAIA; Jean-Michel Wilmotte; Richard Saul Wurman, FAIA.

Thursday, March 30

8:00 A.M.—10:30 A.M. “Will the New Administration Work for the Pacific Rim?” Welcome:

Part I: "A View from Washington."
Sam Donaldson, Chief White House Correspondent, ABC News.

Part II: "The California Viewpoint."
Howard Fish, President and Editorial Director and Michael Kolbenschlag, Editor-in-chief, California Business; Ronald Grover, Los Angeles Bureau Manager, Business Week; Steve L. Hawkins, West Coast News Manager, U.S. News & World Report; Kathleen K. Wiegner, Senior Editor, Forbes.

Sponsors: California Business, Pacific Design Center.

9:00 A.M.-10:15 A.M.
"Designers West Designer of the Year: Kalef Alaton." Introduction: Carol Soucek King, Ph.D., Editor-in-Chief, Designers West. Speaker: Kalef Alaton, Designer.

Sponsor: Designers West.

11:15 A.M.-12:15 P.M.
"Leaders...The Strategies for Taking Charge." Introduction: Muriel Chess, ASID, Editor, Professional Office Design. Speakers: Warren Bennis, Ph.D., Distinguished Professor of Business Administration, University of Southern California. Sponsors: IFMA, Steelcase.

2:00 P.M.-3:00 P.M.

Sponsors: AIGA, Los Angeles.

3:15 P.M.-4:30 P.M.
"The Design of Artists' Studios in Los Angeles: Art and Architecture." Moderator: Joanne Jaffe, Editor, Los Angeles. Speakers: David Hockney, Artist; Ed Moses, Artist; Elyse Grinstein and Jeffrey Daniels, AIA, Partners, Grinstein/Daniels, Inc.; Steven Ehrlich, AIA. Sponsor: Angeles.

5:00 P.M.-5:30 P.M.

Kathleen K. Wiegner

Ted Tokio Tanaka

3:00 P.M.-4:15 P.M.

Jean Nouvel

3:30 P.M.-4:45 P.M.

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5:00 P.M.-6:00 P.M.
"Daily Dialogue with WESTWEEK Speakers." Chair: Stanley Abercrombie, AIA, Editor, Interior Design. Participants: Kalef Alaton; Kisho Kurokawa; Ricardo Legorreta; Jean Nouvel; John Saladino; Ted Tokio Tanaka, AIA; Jean-Michel Wilmotte.

Friday, March 31

9:00 A.M.-10:15 A.M.

10:45 A.M.-12:00 P.M.

2:00 P.M.-2:45 P.M.
"Interiors and Products Inspired by Japan." Introduction: Annetta Hanna, Editor, ID. Speakers: Toshiko Mori, AIA; Shigeru Uchida, Architect.

Sponsor: ASID Industry Foundation.

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**Product Introductions**

**March 29 30 31**

**Armstrong**
Syllables Grid Accents (System J) is a family of acoustical ceiling panels that can create many custom design variations. The accent provides a focus at the grid intersections.

Circle 105 on reader service card

**Allsteel**
Lateral files are one option in Allsteel's paper management system. The files are available in various sizes, and interior drawer configurations can accommodate different paper sizes.

Circle 100 on reader service card

**American Seating**
Invitation is a new furniture system sharing the frame-and-insert construction of System R, thus allowing a furniture progression within a facility. It is made of veneer-clad wood.

Circle 101 on reader service card

**American Standard**
Additions to the Amarilis line of faucets, new handles, and spouts, which are available in chrome, gold, polished brass, white, and bone. Five new ceramic colors have also been added for the inserts.

Circle 102 on reader service card

**Architex**
Four new patterns, Tamaro, Brushstrokes, Garenza, and Imagination, from the Liz Jordan-Hill line, match overdyed coloration with yarn combinations such as viscose and polyamide. The fabrics are 54 inches wide.

Circle 103 on reader service card

**Arc-Com**
Fresco Wool, a 98 percent wool and 2 percent nylon upholstery fabric, is offered in eight colorways. Multicolored yarns create a hand-woven textured look.

Circle 104 on reader service card

**Armstrong**
The Argo system, designed by Richard Sapper, consists of an aluminum extrusion track and a die-cast aluminum spotlight, which revolves in all directions. Both are finished in white epoxy paint and are suitable for shop windows and galleries.

Circle 106 on reader service card

**Atelier International**
Cassina Research and Design Group of Milan designed the Ingot Table Collection. Modular cast-iron bases allow over 12,000 standard shape, size, height, finish, and edge options.

Circle 107 on reader service card
WestWeek 89

Baker Executive Office
The Pfister Collection includes a table desk, a swivel chair, and a credenza. The desk is made of figured Pomelle and quartered mahogany with American walnut inlays.
Circle 108 on reader service card

Gretchen Bellinger
Royale Royale® is a 100 percent wool damask suited for medium duty upholstery, window applications, and wall installations. The fabric is available in tones of ivory, travertine, and silver.
Circle 109 on reader service card

Bernhardt
Designed by Davis Allen, Brandon is a double pedestal desk that stands 30 inches high. A coordinating table desk is also available.
Circle 110 on reader service card

Brickel
Timothy de Fiebre designed the Emile chair, named after Jacques-Emile Ruhlmann. Features include cherry legs and upholstery detailing.
Circle 113 on reader service card

Brayton
The Club unit consists of two pieces joined by a hinge that allows the pieces to pivot, offering separate seating, or a matched two-seat version. An optional table, a chair, and two sofas make up the collection.
Circle 112 on reader service card

Boyd
The St. Regis brass lamp features a sloped shade, accommodates incandescent bulbs, and is finished in polished brass, polished chrome, silver, granite, or green.
Circle 111 on reader service card

Brunschwig & Fils
Clinton Damask features a stylized daisy in an octagon. The new pattern is available in eight colorways, both monochromatic and two-color.
Circle 115 on reader service card

Brueton
Stanley Jay Friedman’s Moon Chair design was inspired by Frank Lloyd Wright and by Japanese architecture. Both the upholstery and the stainless steel frame are available in a variety of choices.
Circle 114 on reader service card

Carnegie
The Nuance collection includes five designs. Special jacquard looms allow the use of 16 different colors in the filling direction; 28 colors are available in all.
Circle 116 on reader service card
China Seas
Natik and Seya are hand-screened on 100 percent linen in coordinating colors. Natik was adapted from an Indonesian motif and Seya was designed by Bill Blass and Geoffrey Beene.

Circle 117 on reader service card

Condo House
Paul Haigh designed Regent, a wood-framed stacking side chair that complements the Kiwara Table series. Finishes include both wood and color options.

Circle 118 on reader service card

Cumberland
Niko, a new conference/dining chair designed by Berghold Voges, features solid wood arms, which can be finished in mahogany or black. The base is steel with a black baked finish.

Circle 119 on reader service card

Davis Furniture
Smith/Choros designed this seating group, consisting of a chair and sofa series, to fit into smaller office spaces. The solid walnut taper leg is accentuated by the contrasting welt.

Circle 120 on reader service card

Domore
System Seven was developed by architect Robert Reuter. Recent modifications include an integrated electrical system, double-walled solid steel pedestals, and resized work surfaces.

Circle 121 on reader service card

Donghia Furniture
The San Marco sofa is part of the new Rococo collection, designed by John Hutton and inspired by 18th-Century Italian designers. The collection includes the Luciana Club chair and Danielli Day Bed.

Circle 122 on reader service card

Dunbar
The 2200 Desk collection, designed by the Enloen Summers Group, combines solid cherry wood with diamond-shaped ebony pulls. The two-pedestal desk measures 77 inches long and stands 29 1/2 inches high.

Circle 123 on reader service card

ERG International
The Annie collection is available in single-, two-, and three-seat versions. The lounge features elasticized seat and back panels, tailored seams, and a slanted seat cushion for optimum leg circulation.

Circle 124 on reader service card

Eldon
Eldonwal is a series of organizers, including letter trays, sorters, files, and shelves, which utilize wall space. The series is available in three-, four-, and five-foot starter sets, as well as individually.

Circle 125 on reader service card

Executive Office Concepts
A fully upholstered system, 2000 Modular Seating can create rectilinear, curved, and free-formed seating. A variety of seat widths, bench, and table units may be specified.

Circle 126 on reader service card

Fixtures Furniture
Albi, an armless color seating system designed by Don Albinson, features a wraparound back that forms short, upturned armrests. Various models may be specified.

Circle 127 on reader service card
Forms + Surfaces
Wood Panel ceilings are lay-in panels for a 2' x 2' T-bar grid, featured in plain or diamond face, or in bond with border. Red oak, oak/teak, mahogany, and gray axially-laminated veneers may be specified.

GF Office Furniture
The Stratum Panel System offers workstation customization with a variety of components that use the desk as a foundation. Data Wall offers a complete collection of paper management components and accessories.

Geiger International
Jugendstil is a collection of executive furniture recreated from original designs by Josef Hoffmann and Koloman Moser. The collection's many pieces are available in red, black, and natural mahogany finishes.

Harden
The Computer Support Table extends working space by providing pull-out slides on both sides. The table is made of solid cherrywood, available in eight finishes, and accompanies traditional desks and credenzas.

Hastings Tile & Il Bagno
The Cotto Nef collection consists of 13 patterns of multsized and shaped tile sections. Custom-assembled and mesh-mounted, the 12-inch-long sections can be used as borders or joined to create wall murals.

ICF
Gerd Althofer designed Axial to accommodate communications equipment. The steel frame and modular workstations can be configured into single or double rows, or small workstations.

Internai
Richard Penney designed the Next chair. Available in a wide choice of finish combinations, the chair is made of solid maple, with a molded plywood back that is contoured to provide support with a small amount of flex.

Gunlocke
Geiger International
Traditional casegoods use historic elements like ogee tops, plinth bases, and detailed grille doors, trim molding, and period hardware. The hand-rubbed cherry finish is available in four colors.

Haworth
The Catalyst® Task Stool features a knee-tilt/cantilever mechanism. The seat and the foot ring adjust independently to accommodate any work surface.

Kimball/Arc
The highback Executive is a new addition to the Connex selection of chairs. Each model features a fully upholstered shell and upholstery-wrapped open armrests and may be specified to match accompanying finishes.
Bacchus wool damask on the Régence chair, worthy of the executive suite

Brunschwig & Fils
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Circle No. 319 on Reader Service Card
**Kinetics**
The Ring desk allows removable molded rings in both front legs to be replaced with supports for side top returns and various accessories. The desk top is tempered glass; a black leather desk pad is offered.

Circle 138 on reader service card

**Knoll**
The Morrison Window is an addition to the Morrison System. It can be installed as an individual window, in a high/low configuration, or in a clerestory. Clear, smoked, or tempered glass may be selected.

Circle 139 on reader service card

**George Kovacs**
Architect Kevin Schopfer designed the Zarno lighting series, available as a table lamp, floor lamp, torchiere, or pendant. It is finished in polished brass, with a matte black and brass base and stepped glass shade.

Circle 141 on reader service card

**Kusch USA**
The Lotus stacking chair combines a steel frame with a molded wood back. The chair is available in a range of aniline dyes, woodtone stains, powder coats, and chrome finishes.

Circle 143 on reader service card

**Koch + Lawy**
The Gibraltar floor lamp, designed by Piotr Sierakowski, is finished in aluminum or black with stainless steel rods. It is 74 inches tall and features a hi-low switch.

Circle 140 on reader service card

**Krueger International**
The Piretti stack chair offers responsive ergonomics through its back and seat, which move in tandem, adjusting to the user's weight. Seven frame finishes are available and the seat and back can be upholstered or polypropylene.

Circle 142 on reader service card

**Jack Lenor Larsen**
James Howell designed the Elon Chair, useful for occasional and dining seating. It is a fully upholstered design and is 31 1/4 inches high.

Circle 144 on reader service card
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A participant in the Kohler Color Coordinates Program.
Lee Jofa
The Tuscany couch, designed for residential and office applications, features deep cushioning and club-arm styling. It is available in a variety of fabrics and stands 29 inches high.
Circle 145 on reader service card

Lees Commercial Carpets
Patterned carpet tiles offer four textures, including loop pile and frieze, dimensions to fit an 18-inch or a 24-inch grid, and custom pattern capabilities.
Circle 146 on reader service card

Lunstead
The Palladia casegood series, a traditional collection designed by Larry Rouch, may be specified in walnut or cherry veneers in eight standard finishes.
Circle 148 on reader service card

Maharam
Wool Chromatics is a new wool and wool blend upholstery collection, which consists of six patterns. The collection offers 164 color choices, and contains Wool Broadcloth Solid, available in 64 colors.
Circle 149 on reader service card

Meridian
The Stackable Storage System of modules, tops, and bases can be stacked on top or alongside each unit. The exterior surfaces are finished in nonglare, embossed steel matte, available in 37 standard colors.
Circle 150 on reader service card

Herman Miller
Ethospace support cabinets are multifunctional storage units that include coat cabinets, space for hanging files, and units that can accommodate more bulky items.
Circle 152 on reader service card

Ligne Roset
Designed by Annie Hieronimus, the Scala collection has elements that can be grouped in many combinations. Each piece has piping along the length, as well as edging on each cushion.
Circle 147 on reader service card

Metropolitan
The Manhattan collection features unique frame details and consists of side chairs, lounge chairs and settees, occasional tables, conference tables, and credenzas.
Circle 151 on reader service card

Modern Mode
The Round Chair, designed by David Ebert, offers a curvilinear shape with legs tapered both toward the arm and toward the foot. Oak, walnut, cherry, mahogany, and maple chairs, with a variety of fabric offerings, are available.
Circle 153 on reader service card

Modular
The Via Veneto casegood series offers slimmed detailing and rounded edges. Leather, stone, or wood tops may be specified for the desk, which is available in oak, walnut, or maple.
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WestWeek 89

Monteverdi-Young
The Writing Desk is made of high-polish walnut. The bronze glass insert can be made to order in various sizes.
Circle 155 on reader service card

Mueller
The Cara Lounge series includes a chair, settee, and sofa. The maple frame is available in 19 finishes, and the upholstery is Dacron over polyfoam cushions.
Circle 156 on reader service card

Palazzetti
The Argyle chair, originally designed in 1897 by Charles Rennie Mackintosh, is constructed of ebony-dyed ashwood. The chair is available with or without arms, and the seat may be finished in velvet or leather.
Circle 158 on reader service card

Pace
Atlas, designed by Danny Lane for Fiam, is a small table with an inclined surface. The legs are composed of layers of crystal sheets, each of which has been shattered with a hammer.
Circle 160 on reader service card

Pleion
A new collection of panel fabrics, made from Du Pont Dacron polyester continuous filament fibers, can be specified in 47 colors. Five styles are offered: solid, heather, pin dot, basket-weave, and linen-look.
Circle 161 on reader service card

Poggenpohl
Program 2000 kitchen design includes high-gloss lacquered fronts accented by bow handles and horizontal trim. The line offers chromium-plated wire shelving and glass shelves with chrome supports.
Circle 162 on reader service card

Nienkämper
Richard Schultz designed the Sled Base Chair, with a cantilevered base and a waterfall seat-front edge. The chair is available in polished chrome, high gloss black, and pewter finishes, with a nylon-mesh upholstered seat and back.
Circle 157 on reader service card

Panel Concepts
The Omnific Tech Stool offers features especially for technical seating users, including separate articulating arms, forward-and-back tilt control, pneumatic seat height adjustment, and a fixed foot ring.
Circle 159 on reader service card

Ron Rezek
Cirrus, a wall-mounted, cast-aluminum sconce, accommodates incandescent, fluorescent, or halogen bulbs. It is available in white or custom colors and gold or silver leaf.
Circle 163 on reader service card
Upholstery Fabrics

ANKARA is a small scale jacquard weave that recalls the pattern and texture of Turkish tapestries. It is a handsome transitional fabric designed for heavy duty service on high-use seating. ANKARA is one among hundreds of selections from the DesignTex Collection of fine fabrics all designed to satisfy virtually any customer need.
Rosenthal
Designed by Simon Desanto, Flying Carpet is a cantilever chair based on a rectangle contoured to the shape of the body. Nine zip-fastened, replaceable covers are available.

Circle 164 on reader service card

F. Schumacher
Treasures of the Ancient Andes is a collection incorporating images and designs of the Inca, Chancay, Paracas, and Nasca cultures. The patterns are used for woven and printed fabrics and for wallcoverings.

Circle 202 on reader service card

Shaw-Walker
The 36 models of the Radius Conference Table line complement the Tempo 3 open plan system and freestanding steel furniture. The tables are available with round, rectangular, oval, or boat-shaped tops.

Circle 203 on reader service card

Stark Carpets
Water Lilies, part of the Mexicana Collection featuring 100 percent wool hand-hooked rugs and carpets, is in shades of peach, pale blues and greens, and lilac. The pattern is available in both standard and custom designs and sizes.

Circle 205 on reader service card

Saxony Carpet
A new, 100 percent wool Wilton carpet is available in two colorways, either as 27-inch broadloom or as an area rug with a coordinating border.

Circle 200 on reader service card

Scalamandré
Georgian is a 100 percent silk damask upholstery fabric, available in blue, red, green, or copper, which also can be used for wallcoverings or draperies.

Circle 201 on reader service card

Spec’built
The mahogany run-off desk and curved mahogany shelving are two custom designs. The cabinets are finished in Polane, a textured, durable paint requiring minimum care.

Circle 204 on reader service card

Steelcase
Accent panels were designed to complement Series 9000 structural panels. The accent panels add a horizontal design element that can span single or multiple panels already in place.

Circle 206 on reader service card
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Circle No. 349 on Reader Service Card
**WestWeek 89**

**Stendig**

Venice, designed by Lella and Massimo Vignelli with David Law, is one of the New Scale series of sofas, designed to fit into smaller office spaces. It measures 78 inches wide, 33 1/2 inches deep.

Circle 207 on reader service card

**Stow & Davis**

The Paradigm line consists of management- and conference-style chairs, with high or low backs. Four finish options are available.

Circle 208 on reader service card

**Stroheim & Romann**

Nogales is one of the contemporary patterns from the Atrisco Collection. The design recalls the geometric patterns of Southwestern art work.

Circle 209 on reader service card

**Taylor Chair**

Tornero is a group of nine seating styles designed with steam-bent open-wood sculptured arms, waterfall front seats, sculptured backs, and pneumatic lifts. The chairs may be upholstered in a variety of materials and are available in any standard or custom finish.

Circle 210 on reader service card

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WestWeek 89

**Westinghouse Furniture Systems**
A new six-wire system includes an enlarged neutral wire, while an eight-wire system features the option of a dedicated circuit for sensitive equipment.

**Thonet/Madison**
Komplot Design created the stacking Polar chair, which features a molded plywood back, a bentwood arm/leg, and steel wire rear legs.

**Unika Vaev**
Carolina is a 54-inch-wide textured crepe weave, woven entirely of worsted wool fibers. It can be colored to specification, in addition to standard colors.

**Vecta**
The Grand Class is a new group of chairs in the Wilkhahn FS+ seating series, which features automatic adjustment for constant lumbar support. High- and mid-back versions and two upholstery styles may be specified.

**Vitra**
A new office chair, Persona, automatically adjusts to each user's height and weight; there is no need to reset levers, wheels, or knobs.

**Wilsonart**
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Marathon flooring shown to actual design scale.
Metro
WestWeek '89

Manhattan Lounge

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Photography: Burns & Associates

Circle No. 352 on Reader Service Card


This rather wordy study of a worthy subject traces Fathy's difficult role as the main spokesman for a contemporary Islamic architecture.


This 11th edition includes new liability alerts, revised AIA contract documents, and other updated information on the practice of architecture. An Instructor's Guide and Student Edition of the Handbook are also available.

Architecture, by Joseph Maria Olbrich, with new introductions by Peter Halko and Bernd Krimmel. New York, Rizzoli, 1988. 356 pp., illus., $95.

Originally published in three volumes between 1901 and 1908 and reproduced here for the first time in their entirety, these plates document designs for villas, train stations, and public buildings by the influential cofounder of the Vienna Secession. Photographs of finished buildings are accompanied by Olbrich's own exquisite drawings.

Palladio and his Peers

Villas of the Veneto, a handsome photographic survey of the subject by German photographer Reinhart Wolf accompanied by the discrete text of American expatriate Peter Lauritzen, inspires at once a sense of awe and of envy. For the more avid one's appreciation of the villas shown in this volume, the stronger the wish to see first hand these extraordinary works, as concentrated in time as they are in (continued on page 148)
Announcement
Request for Proposals and Qualifications
State Street Mall Revitalization Project

The Greater State Street Council, on behalf of the City of Chicago, intends to retain a consultant team to develop an improvement program for the State Street Area and preliminary designs for selected improvements, including the renovation of the Mall itself, the State/Lake elevated station, selected subway stations, and landscaping and lighting improvements on certain other streets within the study area. The objective is to enhance the retailing environment while upgrading the transit infrastructure and public spaces that serve the area.

At this time, proposals are being sought only from architecture, urban design, or landscape architecture design firms who would serve as prime contractor for the project. The balance of the consultant team will be selected at a later time in consultation with, and with the approval of, the prime contractor.

Architectural/Engineering and Planning firms who have extensive experience in downtown retail developments, streetscape design, project execution in northern climates, management of multi-disciplinary teams, dealing with public/private consortium clients, and specialized skills in urban design, may request an RFP by contacting:

Ernest Brown, Project Administrator
State Street Mall REVITALIZATION Project,
Greater State Street Council
36 South State Street, Suite 902, Chicago, IL 60603
(312) 782-9160

RFP’s will be available January 1989. MBE/WBE requirements shall apply. Pre-proposal conference February 16, 1989
Proposals due March 15, 1989

Colonnade at Villa Serego near Verona.

(continued from page 147)

place. But, as any traveler knows who has tried—and likely failed—to figure out the hours and days for which La Rotonda is open, these villas can be supremely elusive.

Thus this scissored presentation, which captures 30 villas in 200 pages, is likely to find an audience not only among those who know little about Palladio and his period but also among those who know the work through scattered sources. Although the designs of Palladio and to a lesser extent his disciple Scamozzi dominate, the balance of the book includes works by lesser known architects. Palladio’s work is thus placed in the context of his contemporaries.

The actual physical or natural context of these villas is also explored in photographs of their gardens and landscape. In a further subtheme, the integration of art and architecture is examined through sculpture and fresco.

Lauritzen devotes his introduction to the evolution of the 16th-Century farm villa in the Veneto and "Palladio’s role in perfecting it.” Thereafter, the author wisely lets his subjects speak for themselves, so that the heart of the book—a full 154 pages—is given over to photographs with only the briefest of captions. These are followed by a map locating the villas shown and a glossary that gives a brief history and description of each.

The presentation is impressionistic, and there is no attempt to document a given villa fully. Nevertheless, the photography follows a pattern—abbreviated for some subjects, expanded for others—that moves from an overview, say, of the Villa Pisani at Stra by Paduan architect Girolamo Frigimelica, to its atrium, frescos, and gardens.

Two caveats mar this otherwise happy review. Not all of the generally luscious photographs are up to the quality of their subjects, and an occasionally fuzzy focus is compounded by less than perfect production. Still the villas survive these shortcomings, and the volume as a whole manages to put Palladio in his place without in any way diminishing his achievement.

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Circle No. 342 on Reader Service Card
New outdoor lighting for landscape and architectural applications includes tectonic metal shapes, sculptural redwood forms, and ceramic designs. Wall sconces, pendants, garden accents, bollards, and walkway and post lights are available.

Liteforms

Circle 218 on reader service card

Residential and commercial carpets designed by eleven internationally known architects and artists and fabricated with ICI Timrelle fibers make up the Dialog collection. Some patterns are offered in multiple colorways. Clockwise from top left the designs are by: Matteo Thun; Gerhard Richter; Sol LeWitt; and Roy Lichtenstein. Furniture of the Twentieth Century.

Circle 219 on reader service card

A table and chair replicated from Sir Edward Lutyens' original drawings are part of an extensive new collection. The walnut Palm table consists of three leaves which rest on the points of a triangular base. The Spider chair, also made of walnut, is hand-tooled and finished. The drop-in seat is upholstered in leather. Lutyens Design Assoc., 11 Redcliffe Place, London SW10, England.
NEW PRODUCTS AND LITERATURE

**Woven wallcoverings** for contract applications ranging from executive offices to boardrooms make up Color Weave, a collection of 72 coordinated colorways in four separate patterns. A sample book describes the entire palette. OJVM.  
*Circle 220 on reader service card*

**Telescopic seating** designed for multi-function facilities is flexible and comfortable. A 10-minute video demonstrates the seating system in operation. Hussey Seating.  
*Circle 221 on reader service card*

**Plywood siding** for residential and commercial applications is discussed in an illustrated, full-color product guide. Finishing tips, refinishing and maintenance information, specifications, and application recommendations are covered. American Plywood Association.  
*Circle 222 on reader service card*

**Spherical floodlights** from the Infranor series provide 16 preset rectangular beam patterns. They are the subject of a four-page brochure that also discusses specifications, components, beam classification, and ordering information. Sterner Lighting Systems.  
*Circle 223 on reader service card*

**An architectural coating** called Flurodize® is an alternative to anodizing. The process, which provides the durability of fluoropolymer chemistry, is available for both spray and coil application to aluminum. The metal coating can be used in curtain walls, window and door cladding, roofing, storefronts, curtains, window and door casings for architectural applications, are now available in three Victorian patterns, which are offered in 2' x 4' sizes. Chelsea Decorative Metal.  
*Circle 225 on reader service card*

**Parking structure** repair and maintenance guidelines are contained in a new 80-page, illustrated publication. Precast deck systems, post-tensioned systems, patching and overlays, and surface preparation are some of the topics covered. Structural Preservation Systems.  
*Circle 226 on reader service card*

**Occupancy sensors** that control incandescent and fluorescent lights up to 1800 watts weigh only seven ounces, measure 3" x 5", and are only 1/2 inch thick. Some models can be operated by remote control receivers. UEC.  
*Circle 227 on reader service card*

**A snow and ice melting system** called Snowflow uses a patented thermoplastic heating cable that emits heat in only one direction. A control panel monitors the system, which is ideal for shopping malls, business complexes, hospitals, sports stadiums, and other public facilities. Heat Trace USA.  
*Circle 228 on reader service card*

**A wall-hung console** called Amelior has a faux bois lacquer finish, a flamed granite top, and polished edge details. Specifiers may choose from several size and finish options. Devin.  
*Circle 229 on reader service card*

**Plywood siding** for residential and commercial applications is discussed in an illustrated, full-color product guide. Finishing tips, refinishing and maintenance information, specifications, and application recommendations are covered. American Plywood Association.  
*Circle 222 on reader service card*

**A demountable wall system** called the Eliminator uses standard drywall materials and construction methods and is available for either 2½-inch or 3½-inch framed walls. Metal studs at 25-gauge replace the standard top track, snap in and out of position without measuring or fastening, and allow Gypsum wallboard to be hung and removed easily. Clinch-On Products.  
*Circle 230 on reader service card*

**Acoustical wall panels** from the new Hard Side collection feature a molded fiberglass core with chemically hardened sides that can be rounded, squared, beveled, or mitered for custom design applications. Five standard widths are offered. Peabody Noise Control.  
*Circle 231 on reader service card*

**A residential door** called Fiber Classic is made from a compression-molded fiberglass product that looks like wood but is three to four times more energy-efficient. The plastic doors accept screws and nails and can be finished or stained like conventional wood doors. Therma-Tru.  
*Circle 232 on reader service card*

**An entrance handle** called Dallas, which is part of the complete Designer’s Series of door hardware, features brass and steel construction throughout and a lifetime warranty. Master Lock.  
*Circle 233 on reader service card*

**Spherical floodlights** from the Infranor series provide 16 preset rectangular beam patterns. They are the subject of a four-page brochure that also discusses specifications, components, beam classification, and ordering information. Sterner Lighting Systems.  
*Circle 223 on reader service card*

**An entrance handle** called Dallas, which is part of the complete Designer’s Series of door hardware, features brass and steel construction throughout and a lifetime warranty. Master Lock.  
*Circle 229 on reader service card*

**Decorative pressed-tin ceilings** and cornices for architectural applications are now available in three Victorian patterns, which are offered in 2' x 4' sizes. Chelsea Decorative Metal.  
*Circle 225 on reader service card*

**Vinyl siding** in light or medium gray tones has been added to the company’s complete line of siding for residential applications. Gold Bond Building Products.  
*Circle 231 on reader service card*

**Sound-reduction doors** for broadcast studios, theaters, test labs, and other acoustical applications are featured in a new 8-page brochure. Drawings and photographs illustrate design features, size and type options, and other information. Jamison.  
*Circle 232 on reader service card*

**A residential door** called Fiber Classic is made from a compression-molded fiberglass product that looks like wood but is three to four times more energy-efficient. The plastic doors accept screws and nails and can be finished or stained like conventional wood doors. Therma-Tru.  
*Circle 236 on reader service card*
A removable ceiling allows access to connections and concealed wires. Special springs, precise grooving around the edges, and a stepped perimeter ensure fast and simple removal of the veneered panels, which are available in beech, oak, and ash finishes. Lambr BV, % Netherlands Consulate General. Circle 237 on reader service card

Conductive carpet, designed to control electrostatic discharge from today’s office equipment, is the subject of a new eight-page brochure written in a question-and-answer format. The dangers of electrostatic discharge to office computers are also addressed. BASF Fibers. Circle 239 on reader service card

Site furniture from the 1989 Ultrum Collection includes metal, wire, and wood pieces for office buildings, parks, malls, and other public spaces. Many models—in-ground, flush-mount, wall-mount, or portable units—may be specified. GameTime. Circle 240 on reader service card

Clay Mini-Bricks are illustrated in a new color brochure, which also includes specifications, tolerances, and square footage information. One-seventh the size and weight of ordinary brick, Mini-Brick installs up to three times as fast as ordinary brick and can be used in freeze/thaw applications. Huntington/Pacific. Circle 241 on reader service card

Sliding wall systems can be stacked at 90 degrees or hung parallel with the closing plane. The walls are top hung and slide on tracks of durable zinc-coated steel or solid brass, depending upon the weight of the panel. Steel guide pins are located in the bottom tracks. Hafele. Circle 242 on reader service card

Wood ceilings are offered in 11 species and can be finished with clear sealers, wood stains, or 100 standard and custom colors. A patented clip-and-rail suspension provides a quick economical installation. Rulon. Circle 243 on reader service card

A strip window system developed for low- and medium-rise buildings, called the Front Set Express window system, features a 2-inch-wide frame and 1/2-inch-deep units. Amarillo. Circle 244 on reader service card

Building Materials


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Some buildings require concealed door closers in order to meet the architect's design. Others call for heavy-duty closers because of hard daily usage. Still others require special intricate functions to meet fire and safety codes. Whatever your need is, DORMA has an extensive line of door closers for nearly any application — anywhere in the world.

Having the best products is not the only reason DORMA is the fastest growing door control manufacturer in North America. Our reputation for customer service and on-time delivery reflects a level of customer satisfaction which we feel is the ultimate measure of our success. Our commitment shows.
P/A in March

Two Pelli Projects/Two Award Winners

Two very different projects by Cesar Pelli & Associates will lead off the March issue. The Norwest Center is a 55-story office tower in Minneapolis that harks back to the Modernistic towers of the 1930s, while the Phase II expansion of West Hollywood's Pacific Design Center, winner of a 1987 P/A Design Award, elaborates upon Pelli's glass-skinned first-phase building. Another former P/A Award winner dating from 1973, Myriad Gardens in Oklahoma City by Conklin Rossant, will also be in March.

Other Features

Mario Botta's new library at Villeurbanne, France, inserts a regular geometry into an irregular, urban site. Artist Charles Arnoldi, in the Santa Monica restaurant DCThree, places sculptural forms in a rectilinear space. The P/A Technics article will examine the uses of glass and glass block.

Maryland Department of Transportation
State Highway Administration

Severn River Bridge Design Competition
Annapolis, Maryland

The Maryland State Highway Administration invites interested engineering firms to enter a competition for the privilege of designing a bridge carrying Maryland Route 450 across the Severn River in Annapolis, Maryland. The bridge will be approximately 2700 feet long, with a minimum main span of 300 feet, and a vertical clearance of between 65 and 75 feet. (Exact dimension to be determined by the U.S. Coast Guard.) It will be located about 20 feet south of the existing bridge, which will be partially removed. The estimated construction cost is approximately $30 million.

The bridge will span the Severn, a scenic tidal river, near its entrance to the Chesapeake Bay, and will be the eastern gateway to Maryland's capital city. The site adjoins the U.S. Naval Academy, a state park, and the historic areas of Annapolis. Entrants must be engineering firms experienced in long span bridge design or joint ventures of such firms with other engineering firms, with individual engineers, or with related professionals, such as architects, urban designers and landscape architects. Entry must be made by submission of an application form and a letter of interest and qualifications in a specified format.

A maximum of six finalists will be selected from among the initial entrants. State Highway Administration will contribute a fee of $20,000 to each finalist toward the preparation of a preliminary design of the bridge. A jury made up of eminent professionals and state and local representatives will rank the preliminary designs. It is the intent that the Maryland State Highway Administration will award a contract to the winning firm to perform the final engineering design for the bridge. The estimated fee is $700,000 to $1,000,000 depending on the type of bridge proposed. Twenty-five thousand dollars in prize money will also be awarded by the jury.

For application forms and other required information write S. Donald Sherin, Chief, Bureau of Consultant Services, Room 414, Maryland State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21203-0717. Applications must be received by 4:00 p.m. Eastern time, April 3, 1989.
CHAIRPERSONS
School Of Architecture
Pratt Institute seeks energetic, committee individuals with experience in academic administration and teaching to oversee its progressive curricular, and help plan, develop, and guide new program initiatives. Reporting to the Dean, each Chairperson will coordinate his/her respective programs with the other programs offered by the School and Pratt Institute’s Center for Community and Environmental Development; will direct and actively participate in the Studio teaching of their own programs. The selected candidates will assume responsibility for the academic leadership and administration of the following programs:

GRADUATE CITY & REGIONAL PLANNING
Applicants must have the MSCP degree (Doctorate preferred), plus at least seven (7) years related experience. A working knowledge of both community development, urban design and planning is required.

GRADUATE ARCHITECTURE & URBAN DESIGN
A Master's in Architecture and/or Urban Design, with at least seven (7) years related experience in both disciplines is necessary. Candidates must have a working knowledge of both architecture and urban design, as well as an architecture license.

Salary is commensurate with qualifications. We provide excellent benefits. Review of resumes to begin immediately and accepted until the positions are filled. Please submit applications, indicating position sought to: Personnel Department, NYGA, PRATT INSTITUTE, 200 Willoughby Avenue, Brooklyn, NY 11205. An AA/EOE.

ARCHITECT/ENGINEER
Career position with the Postal Service. Professional degree or license required. Salary: $29,000-$47,000 (dependent on experience). For application contact: Human Resources Office, U.S. Postal Service, 141 Washington Street, Hartford, CT 06103-9422.

DIRECTOR OF MARKETING AND DEVELOPMENT
An award-winning architectural and engineering firm in the Northeast is currently seeking a Director of Marketing to strengthen our marketing staff and to ensure continued growth in a variety of markets.

The successful candidate will be a highly motivated, articulate, growth-oriented professional with a strong academic background in architecture and prior experience in marketing professional design services.

The marketing director will be responsible for developing client leads, proposals, response to RFPs and project marketing strategy. This position is highly visible and offers significant opportunity of both personal and professional advancement. Travel required.

We offer competitive salaries with incentive bonuses and outstanding benefits.

Please forward a cover letter, resume and examples of written proposals to PROGRESSIVE ARCHITECTURE, Job Mart, Box 324.

Urban Design Officer
City of Long Beach
Salary up to $55,000

The City of Long Beach seeks an urban design officer to promote the highest design standards in the planning, development and redevelopment of the City. He/she will establish and manage the City’s design review function within the City’s development permitting process, work with developers and other architects in the ongoing building designs to respond positively to community goals, and ensure that City plans and land use controls foster a high quality urban environment. Current design issues range from the placement and design of office towers in a highly successful downtown redevelopment program to achieving compatibility between new and existing residential development in established neighborhoods.

Applicants should hold academic degrees in a design field and have 10 years practical experience in architecture or urban design. They should be sensitive and creative designers who possess the communication skills required to operate successfully in the public arena. Excellent employee benefits/affirmative action employer/civil service requirements.

Send resume immediately to Robert Paterno, Director of Planning and Building, City of Long Beach, 333 West Ocean Blvd., Long Beach, CA 90802.

Penn State's Department of Architecture anticipates availability of tenure track and visiting positions at the assistant or associate professor levels to teach architectural design beginning Fall 1989.

Emphasis is on design and criticism with ability to teach in related areas of technology, theory, history or management. Desirable credentials include: advanced professional degree in architecture, or equivalent education, practice and teaching experience in architectural design. Familiarity with the interiors industry and computer graphics. Position to be filled September 1989.

Closing date: March 1, 1989 or until suitable candidates are located. Submit curriculum vita and names and addresses of three references to: John Lucan, Chairman, Search Committee, 206 Engineering C, Box JB, University Park, PA 16802. Affirmative Action/Equal Opportunity Employer. Women and Minorities are Encouraged to Apply.

The School of the Art Institute Faculty Positions in Interior Architecture

The School of the Art Institute of Chicago, Department of Interior Architecture, invites applicants for two faculty positions in the Department of Interior Architecture, starting in the fall of 1989. One is tenure track and one is a full-time visiting appointment. A Masters degree in Architecture or Interior Architecture, and a minimum of five years teaching and or practice is desirable. Responsibilities will include team teaching a core design studio, graduate advising/technology class, drawing or history studio. Salary will be commensurate with experience. Please send resumes, examples of work, and names of three references to: John Kurtich, Divisional Chair, School of the Art Institute of Chicago, Columbus Drive and Jackson Boulevard, Chicago, IL 60605. Deadline: March 15, 1989. Notification April 15, 1989.

Princeton University School of Architecture is seeking candidates for the full-time position of Assistant Professor of Architecture. The position is tenure-track. Teaching duties include participation in undergraduate and doctoral programs. "Desirable qualifications are teaching experience at the level of assistant professor or above, background in architectural design and one of the following: urban design, building technology, history and theory, and computer graphics. Position to be filled September 1989. Application letter and vita should be sent before February 28, 1989 to:

Faculty Search Committee
Princeton University
School of Architecture
Princeton, NJ 08544

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Tenure track position anticipated to Joe Sewards, Human Re-esign and architectural theory, supply and distribution, and 9/89, FIDER-accred. Interior Professor of Architecture, full-time and with tenure. Lowell is the time to advance your career. Send your resume to Joe Sowards, Human Resources Manager, GEE & JENSON, P.O. Box 24600, West Palm Beach, Fl 33416-4600.

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Princeton University School of Architecture is seeking candidates for the position of Professor of Architecture, full-time and with tenure.

Teaching duties will include participation in undergraduate, professional and doctoral degree teaching, with an emphasis on the professional program. The University is seeking a person of distinction, who has made recognized contributions in the fields of architectural design and architectural theory, and/or urbanism. Previous experience as adjunct or visiting professor in University courses, and as principal in practice, is desirable. The position is open from September 1989. Application letter and vita should be sent before February 15, 1989 to:

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School of Architecture
Princeton, NJ 08544

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Situated in the heart of West Palm Beach, headquar- ters, you will be involved in all aspects of professional practice and will be given the chance to use all your talents and abilities. You must be registered and have at least 8 years architectural project experience, with an emphasis on power supply and distribution, and creative lighting systems design.

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Domtar

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Selected Details

Glass Staircase
Esprit Store
London

Rarely does an architectural firm get to redesign its own project, but that very opportunity came to Foster Associates with this commission. They had designed the previous shop in 1978, and were asked by the new owners to redo the store and add retail space in the basement. The architects tied the two levels together by cutting a large, circular opening in the concrete floor and running a triangulated stair through it (above, left). The structure of the stair consists of steel box-sections, finished in micaceous iron-oxide paint and bolted to steel pipe-columns. Fabricated of stainless steel, the tubular handrails have welded joints and a grit-blasted finish, while the stair treads, made of float glass nearly an inch thick, have a sand-blasted finish and polished edges. Clear silicon bonds the glass treads to the grit-blasted stainless steel stringers, which are bolted to the stair's main structure. If, as Foster Associates say, "the shop is close in spirit to theatre," then this stair is its stage, the glass treads its drama.
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For additional information see Sweet's 1988 Catalog File: "General Building and Renovation," or call 800-447-1982 for nearest Kentile Sales Office.

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If you specify insulated steel commercial doors, this ad can prevent serious embarrassment.

Thermospan™ foamed core insulated steel commercial doors are the result of a technological breakthrough in thermal efficiency and quality construction. If you aren’t specifying them now, you could be paying too much — and getting too little for your money. Find out now why the Thermospan line is all the door you’ll ever need.

Thermospan 100 actually costs less than comparable steel doors with polystyrene insulation. Yet it offers superior foamed-in-place performance. Call or write immediately for complete information (because there’s nothing worse than discovering too late that you’ve paid too much for too little).

Thermospan 100
Thermospan 150
Thermospan 200

Thermospan quality features:
- High tensile steel skin with roll-formed integral struts
- Sections bound together by foamed-in-place polyurethane insulation for increased rigidity
- A complete thermal break along joints and endcaps to reduce heat transfer between steel skins
- Rubber bulb joint seals and factory-installed top seal to minimize air filtration
- U-shaped bottom seal that won’t ice up and seals against uneven floors.

Wayne-Dalton Corp.
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