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NOVEMBER 1986

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ABP ABC MPA

ARCHITECTURAL DESIGN

Editor in charge: Daralice D. Boles

TECHNICS

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DEPARTMENTS

Cover
The Museum of Contemporary Art, Los Angeles, by Arata Isozaki (p. 83). Photo: Richard Bryant.

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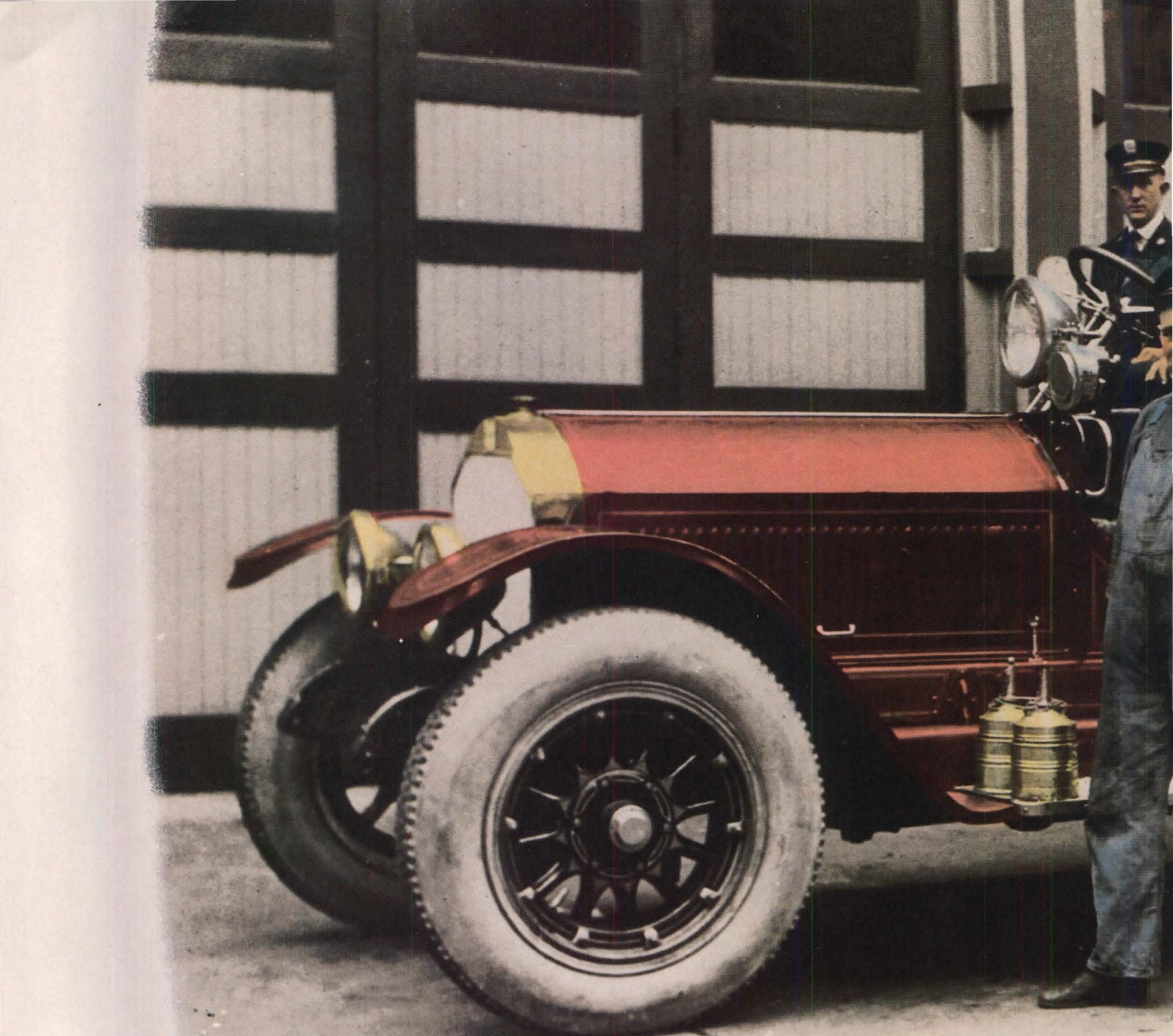

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A Future for Buildings from the Past

The vigorous movement to reuse our existing buildings is likely to be sustained under new tax policies and expected economic conditions.

IT was in November 1976 that P/A began earmarking special annual issues for the subject of reusing old buildings. In the decade since then, architectural reworking of old buildings has expanded dramatically and become a fully integrated part of the typical practice. A 1983 poll by AIA showed that over 30 percent of the revenues of member firms come from remodeling/renovation work, and a poll soon to be taken will almost undoubtedly show this percentage increasing.

Meanwhile, we at P/A have been integrating features on such work into our regular monthly coverage. This year, we published major articles on public housing rehab in May and on the Barcelona Pavilion and New York Public Library restorations in August, preceding this month's features on two landmark theaters in East Germany.

In this country, the rehabilitation of old buildings has benefited, since 1981, from special tax incentives, which have been widely cited as making projects feasible that would otherwise have been too risky. (See P/A Roundtable, on preservation, Nov. 1985, p. 107.) For the past year or more, impending Federal tax reform has been seen as threatening the preservation movement and the reuse of existing buildings generally.

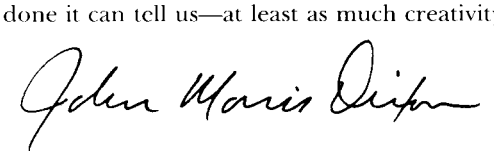
As it turns out—after all the lobbying is done and the new tax code adopted—tax incentives for rehabilitation have been retained, if somewhat curtailed. The present tax credits—25 percent for certified historical structures and 20 or 15 percent for other structures 40 and 30 years old, respectively—will be replaced with two tiers of credits—20 percent for certified examples and 10 percent for structures built before 1936. Reduced though they may be, these credits will remain real incentives. The new code's lengthened depreciation periods and limitations on tax shelter losses will apply to all real estate, but their effect will be mainly to squelch risky, speculative new construction.

Since the rehabilitation tax credits went into effect, a number of other factors have shifted in favor of reuse: Space in old buildings has become desirable in the marketplace for apartments, shops, and offices—including some rather large-scaled ones; zoning regulations in some key cities have been altered to favor lower, street-hugging building forms, with smaller total volume, thus reducing the incentive to demolish and rebuild. And reuse is now facilitated by expanding offerings of sympathetic products—replacement windows, hardware, and moldings, for instance, and unobtrusive diffusers and lighting.

One driving force behind the activity in rehabilitation and remodeling is simply our huge stock of existing buildings, well located at a time when well-placed sites are in short supply. A report on commercial buildings issued in 1985 by the Energy Information Administration estimated that (as of 1983) there were about 4 million commercial buildings in the United States with a total floor area of 52 billion square feet. Of this total, 36 percent of the buildings (with 33 percent of the area) were constructed before 1946 and another 42 percent (with 37 percent of the area) in the period 1946–1970. All of these structures are candidates for remodeling and rehabilitation. The existing stock of commercial buildings was not changing rapidly when that survey was made: In the preceding four-year period, only about 3 percent of existing buildings had been demolished.

The role of architects in the renovation of structures of all kinds has been more than simply accepting commissions. Architects have frequently been the discoverers of buildings and whole districts ripe for revitalization; in numerous cases, they have been the owners of such buildings—particularly the pioneering examples that set the pattern for broader renewal (which often drives real estate prices out of architects' reach and sends architects to yet the next urban frontier).

In today's economic and cultural climate, it is surely as laudable to save an old building of potential usefulness and architectural grace as to introduce a good new building to the world. And the process can demand—as anyone who has done it can tell us—at least as much creativity. ■



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Views

"Architects" are Registered
For a long time I have noticed that P/A and also many other magazines which report on architecture, have become very sloppy about the use of the word "architect." This carelessness is harmful to the profession because it is diluting the value of the "title" and confusing the public about the difference between architect and "non-architect" persons who in fact illegally practice architecture.

The simple definition for architect is "one who is licensed by the state to practice architecture." All others are not architects regardless of their education, experience, talent or whatever. Your September 1986 issue credits quite a few non-architects as architects; they are P/A anointed.

Secondly, the term "designer" would be more appropriate as "design assistant to the architect"—after all the architect of record for the job is the one with the legal responsibilities. The term "designer" separates the architect as one who does not design but merely prepares the "blueprints."

Thirdly, "buzz-words" or "initials" as architect are also not acceptable since licenses are granted to persons only.

All of the above is for the protection of the public and if your magazine thinks so little of the title architect, then the public too can denigrate it. Please be more careful in the future in using the title architect; verify if one actually is an architect and in which state or country, depending on the project location. I don't think it is too difficult for your editors and reporters to ascertain if one is in fact a licensed architect and where so licensed.
William Krisel, AIA
Los Angeles, Calif.
[P/A agrees that the term "architects" should be used only for registered architects. We will make sure that our published credits say "Architects" only when that is indeed the case. We will, however, continue the established custom of using firm names, and we cannot assume responsibility for checking the credentials of those who identify themselves to us as registered architects.—Editors]

Lighting and Computer Screens
I read your "Work Lights" article (P/A, Aug. 1986, pp. 96–101) with great interest, and appreciate the vast amount of useful information contained therein. I must, however, qualify one of the references made to my comments on visible light sources.

During the discussion of indirect lighting, Howard Branston is quoted as saying that working under indirect lighting can be like working under an "overcast sky," unless there is some direct lighting in the room to give it some sparkle. Pursuant to this comment, you state, "But a visible light source, Dunbar admits, also means that it may reflect in a computer screen."

While this is true in cases where the visible brightness of the luminaires noticeably exceeds the brightness of the ceiling and/or upper walls, it is not true where the brightness (foot lambert) value produced by the light fixture is relatively consistent with the brightness of the ceiling and/or upper walls.

In an experiment conducted by Lighting Technologies, Inc., and the University of Colorado, researchers found that in the subjective responses of 48 test subjects to glare on VDT screens, Peerless indirect luminaires with low-brightness visible light sources scored significantly higher (produced less debilitating glare) than direct parabolic luminaires. Further, in research performed at Penn State University, it was concluded that low-brightness visible light sources from indirect luminaires can produce as much as a 10–22 percent increase in perceived illumination.

Therefore, if an indirect light source with some degree of visible (direct) illumination is used in areas with VDT screens, the designer should be very careful to use a lighting system engineered to produce a low-brightness visible light source that is consistent with the brightness of the ceiling and/or upper walls. In fact, recent independent reseach points to such a system as being perhaps the most effective solution to both the VDT glare problem and the "cloudy day" effect produced by totally indirect luminaires.

Also of note is your comment on indirect lighting that ". . . there should be at least three feet between the fixture and the ceiling." Peerless has developed and marketed lensed indirect luminaires designed for suspension as close as 12″ to the ceiling for several years. Not only have these systems been successfully used in VDT-intensive and other critical work areas in facilities all over the United States, but were also used (12″ from the ceiling) in the Colorado experiment mentioned earlier.
Marshall Dunbar
Peerless Lighting Corporation
Berkeley, Calif.
[These additional observations are appreciated.—Editors]

Photo and Model Credits
The photo of the San Francisco Design Center by Mark Mack of MACK (P/A, Sept. News report, p. 25) was by Paul Peck of a model by Henry A. Spangler and Associates.

Columbia Corrections
In the article on Susana Torre/Wank Adams Slavin renovation of Columbia University's Schermerhorn Hall (P/A, Sept. 1986, p. 130), the comparative campus level drawings of 1896 and 1939 were reversed.

Columbia University's Graduate School (P/A News Report, June 1985, p. 26) is officially the Graduate School of Architecture, Planning and Preservation.

JG Omitted from Guide
JG Furniture Systems' showroom at Center One, IDCNY, New York, was omitted from the Designer's Saturday Showroom Guide (Sept., p. 202). P/A regrets any inconvenience this may have caused JG or designers visiting showrooms.

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DESIGNER(S) RESPONSIBLE FOR THIS SUBMISSION
(identify individual roles if appropriate):

I confirm that the attached entry meets eligibility requirements (paragraph 1-3) and that stipulations of publication agreement (paragraphs 4-6) will be met. I verify that the submission is entirely the work of those listed on this form (or an attached list as necessary).

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3 Designer may be under contract to or in negotiation with a manufacturer for this design, but design must not be available in the marketplace as of entry deadline.

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4 If the submission should win, the entrant agrees to make available further information, original drawings or model photographs as necessary, for publication in the May 1987 P/A and exhibition at major industry events.
5 P/A retains the rights to first publication of winning designs and exhibition of all entries. Designer retains rights to design.
6 P/A assumes no obligation for designer's rights. Concerned designers are advised to document their work (date and authorship) and seek counsel on pertinent copyright and patent protections.

SUBMISSION REQUIREMENTS

7 ***Submissions will not be returned under any circumstances.*** Do not use original drawings or transparencies unless they are sent with the understanding that they will not be returned. P/A will not accept submissions with outstanding custom duties or postal charges.
8 Drawing(s) and/or model photo(s) of the design should be mounted *on one side only* of one 20″x 30″ foamcore board presented horizontally. ***Any entry not following this format will be disqualified.***
9 There are no limits to the number of illustrations mounted on the board, but all must be visible at once (no overlays to fold back). No actual models will be accepted. Only one design per board
10 Each submission must include a 5″x 7″ index card mounted on the front side of the board with the following information typed on it: intended dimensions of the piece of furniture, color(s), materials, components, brief description of important features, design assumptions, and intentions. This information is to be presented in English.
11 Each submission must be accompanied by an entry form, to be found on this page. Reproductions of this form are acceptable. All sections must be filled out (by typewriter, please). Insert entire form into unsealed envelope taped to the back of the submission board. P/A will seal stub of entry form in envelope before judging.
12 For purposes of jury procedures only, projects are to be assigned by the entrant to a category on the entry form. Please identify each entry as one of the following: Chair, Seating System, Sofa, Table, Desk, Work Station, Storage System, Lighting, Bed. If necessary, the category *"Miscellaneous"* may be designated.
13 Entry fee of $35 must accompany each submission, inserted into unsealed envelope containing entry form (see 11 above). Make check or money order (no cash) payable to *Progressive Architecture.*
14 To maintain anonymity, no identification of the entrant may appear on any part of the submission, except on entry form. Designer should attach list of collaborators to be credited if necessary.
15 Packages can contain more than one entry; total number of boards must be indicated on front of package.
16 Deadline for sending entries is January 9, 1987. First class mail or other prompt methods of delivery are acceptable. Entries must show postmark or other evidence of being en route by midnight, January 9. Hand-delivered entries must be received at street address shown here by 5 p.m., January 9.

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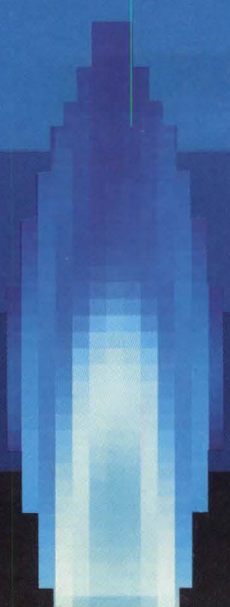

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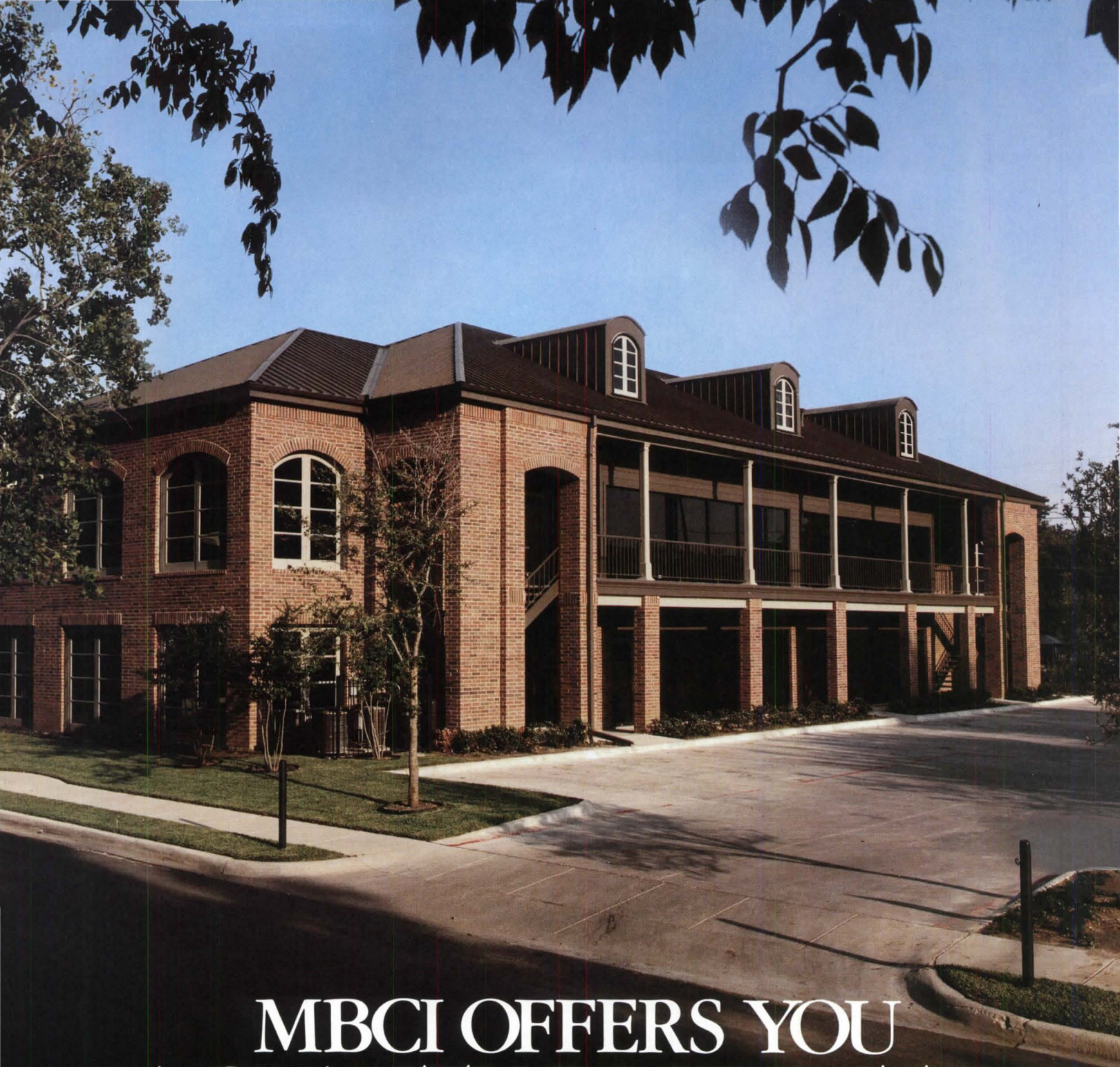

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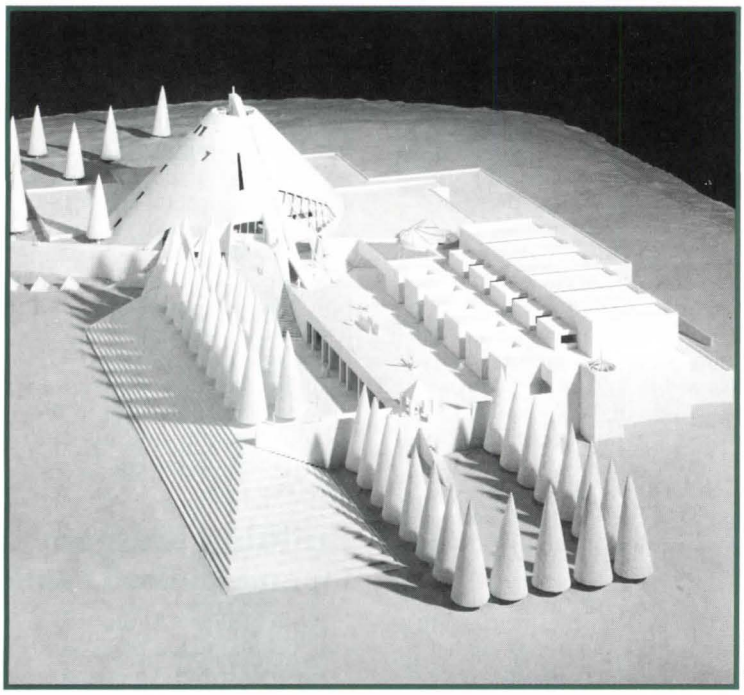
Circle No. 353

P/A News Report



Robert Reck

Predock's design for American Heritage Center and Fine Arts Museum, Laramie, Wyoming.

Tepee or Peak, Predock Wins

Antoine Predock seems to be this year's competition champ. His first success of the year was the Fine Arts Center at Arizona State University, a two-stage competition attended by finalists Edward L. Barnes, ELS Design Group, Arthur Erickson, Arata Isozaki, and Barton Myers (P/A, Feb. 1986, p. 21). More recently, Predock defeated Charles Moore, Michael Graves, and Hammond Beeby & Babka in the commission for a Children's Museum in Las Vegas.

Now, the self-styled southwest regionalist has won a northwest commission, placing first in the competition to design an American Heritage Center and Fine Arts Museum at the University of Wyoming in Laramie. The AHC-AM is a curious, hybrid complex, housing both a library of papers and artifacts relating to the old West—including the collections of Western movie stars like Jack Oakie—and a standard university art gallery. Predock has given these two facets of the program the distinct

(continued on page 28)

Krier Plans for SOM Institute

Theorist Leon Krier takes up his position as the first Director of the Skidmore, Owings & Merrill Institute (P/A, July 1986, p. 23) in September 1987. He will hold the post for a three-year period, working in the SOM Foundation's new premises—the Charnley House, an early Frank Lloyd Wright work in Chicago which SOM is now restoring—with a budget of $1 million.

Here is just the opportunity sought by this prophet who for so many years has been "crying in the wilderness." Krier visualizes two main areas of activity for his period in office, using the Institute as an atelier for research and as a platform for international meetings.

First to come will be a series of publications crystallizing the

(continued on page 30)

Jim Murphy

Downtown transit stop in Portland.

Portland Transit System Inaugurated

On the first weekend after Labor Day, Portland, Oregon, celebrated the official opening of its new light rail transportation system. Officially called the Banfield Light Rail because five miles of its 15-mile path run up the middle of the newly improved Banfield Freeway (I-84), the project earned an Award in the 31st P/A Awards Program (P/A, Jan. 1984, p. 130) for the Zim-

(continued on page 31)

C.M. Highsmith

Restored Willard Hotel (right) and additions (left).

Washington's Willard is Back

After more than 15 years as a vacant, hulking eyesore within a block of the White House, the turn-of-the-century Willard Hotel reopened this fall as the Willard Inter-Continental. Designed by Henry J. Hardenbergh (who also designed New York's Plaza Hotel), the "old" Willard has been given new life by restoration architect Vlastimil Koubek.

Nearly everything of value inside the original Second Empire hotel was sold at auction when it closed. The rest was vandalized by vagrants or damaged by the combined ravages of time, neglect, and weather. Koubek's researchers and consultants used paint chip

(continued on page 27)

Strode-Eckert

New overpass for Portland light rail.

Portland *(continued from p. 31)*
criticism and sniping, the project seems to be emerging with a mostly positive image. It is, however, truly unfortunate that a special newspaper section about MAX, printed for the celebration, contains no mention of the architects. A commemorative magazine published for the same occasion tucks the names Greg Baldwin and Zimmer Gunsul Frasca, alphabetically separated and unidentified, among hundreds listed in the back as "Other staff and contractors," while giving credit by name to auditors, public affairs staffers, and engineers. A sad thanks for a fine effort, and a superior result. ***Jim Murphy*** ■

Higher Profits, Higher Costs

Why do architects seem to work harder but have lower compensation than other professionals? How has the increasing cost of liability insurance affected architects' profits? Answers to such questions are in a financial performance survey recently completed by Birnberg & Associates/ The Profit Center. Architects, says the survey, "obtain greater revenue from each dollar of direct labor" than engineers, but "architects' higher operating costs are hindering their profitability." Overhead rates for architects average 155.9 percent, compared to 130 percent for engineers.

The survey also shows that, while liability insurance costs have risen an average of 33 percent, the relatively strong economy last year brought an increase in pretax profits from 6.84 percent to 7.86 percent. Still, "architects were significantly less profitable than other disciplines," says the survey. If the effect of high overhead rates and low profitability has been buffered by a strong economy, one can only guess at their effect once the new tax proposals become law, reducing the incentives for investment in construction. Answers to that will just have to wait until next year's survey. ***Thomas Fisher*** ■

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Get more business. *Shaded pictures (right screen) like this help clients see your vision clearly from any perspective. An invaluable selling tool. Drawing courtesy of Stephen Douglass, Architect, Cambridge, Massachusetts.*

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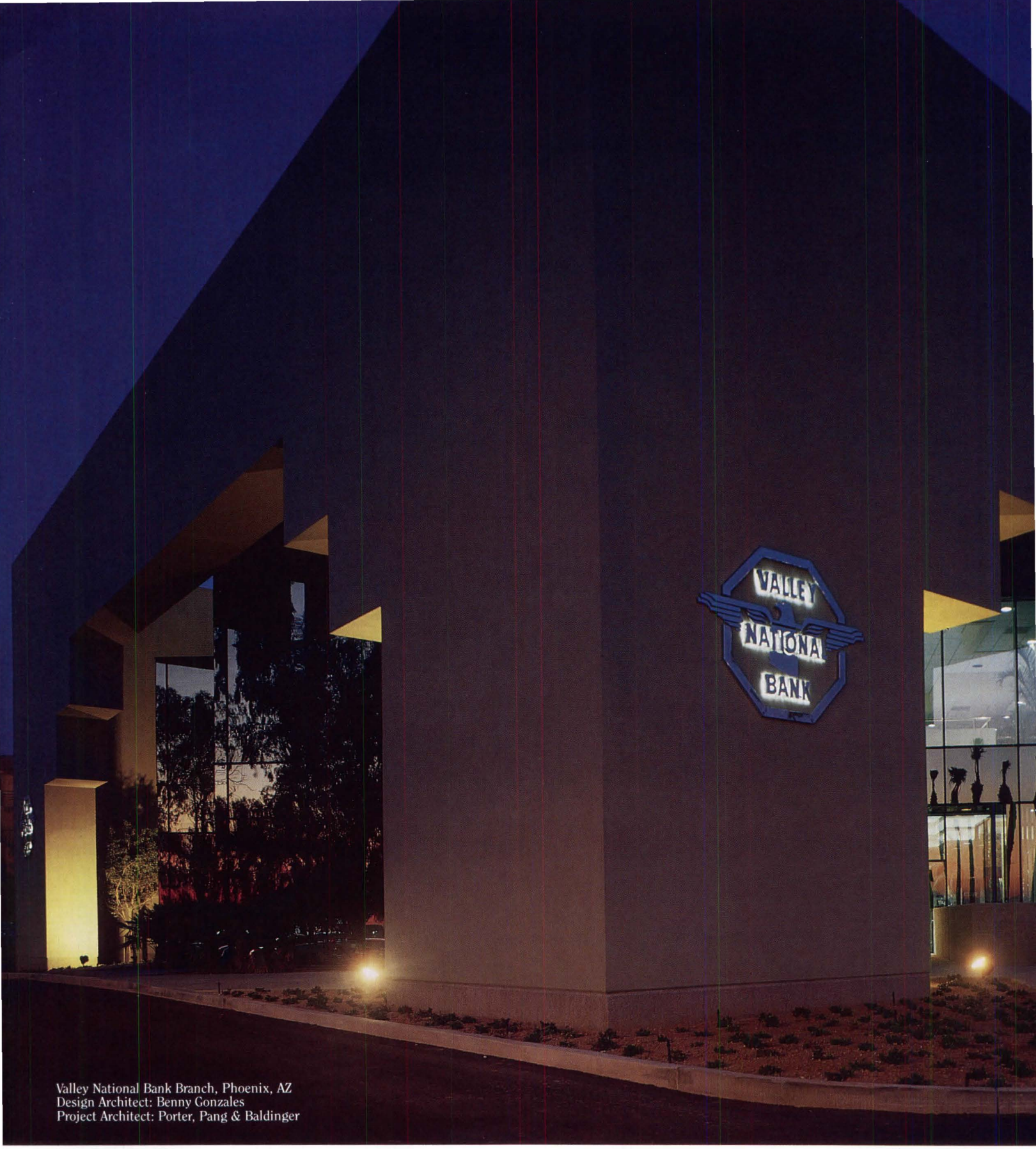

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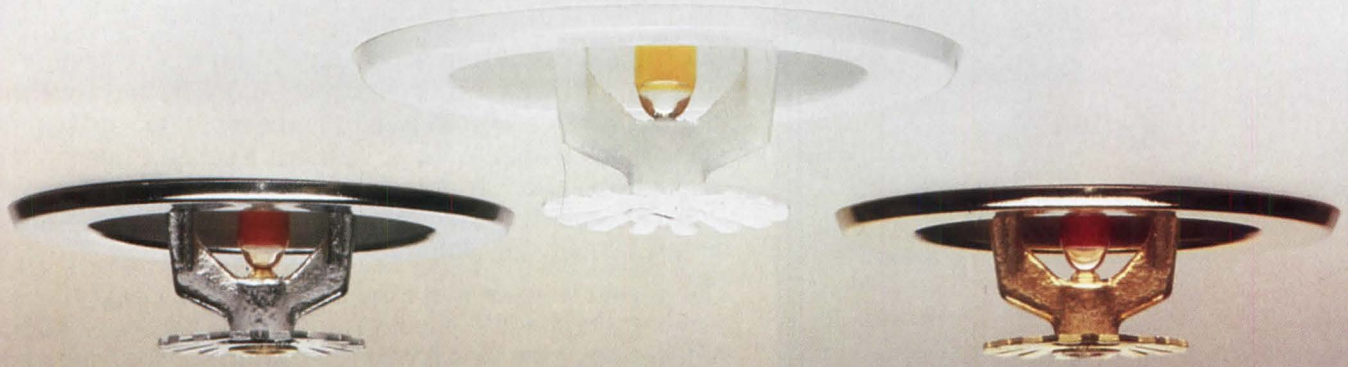

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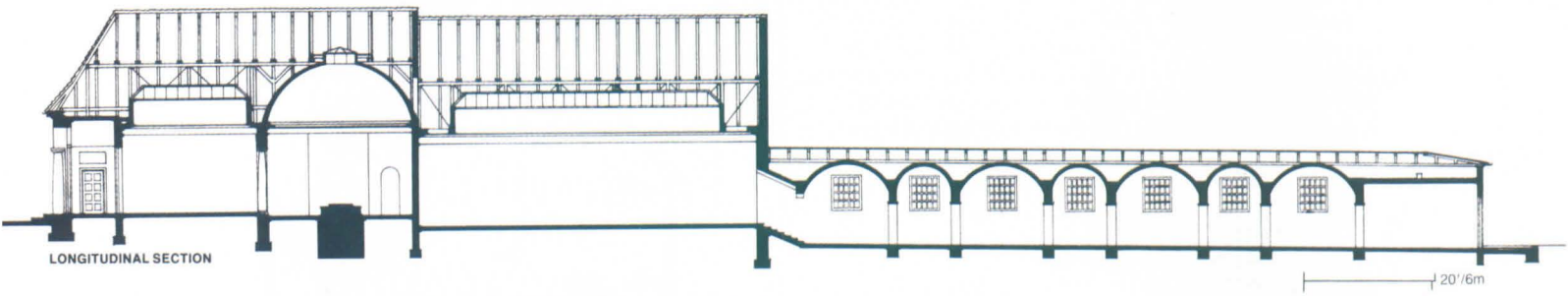
A prime example of Danish Classicism is carefully restored and expanded by architect Niels Frithiof Truelsen.



Photos: Fleming Nielsen

Top to bottom: original Museum entrance; new café and octagonal sculpture hall; sculpture hall; restored exhibit hall.

Report from Denmark: Faaborg Museum

Located in a former fishing village on the southern tip of Denmark's picture postcard island of Funen, the newly restored Faaborg Museum stands as one of the finest examples of Danish Classicism of this century. Designed by architect Carl Petersen, the 1915 Museum was declared a national landmark in 1980 and has since undergone significant renovation at the hands of Danish architect Niels Frithiof Truelsen. Petersen's sensitive use of texture and light in this building to emphasize its organic unity served as an inspiration to Gunnar Asplund and an entire generation of Scandinavian architects. Now, restored to its original color scheme and enhanced by the discreet addition of a sculpture hall and restaurant, The Faaborg is certain to serve as an inspiration to present and future generations.

Danish Classicism has its genesis in the work of the celebrated architect P.V. Jensen-Klint at the turn of the century. A forceful and determined figure, Klint advocated the wider use of fine craftsmanship in architecture. In his concern that architecture manifest a wider sense of social responsibility, he was succeeded by his son, Kaare Klint, and by Carl Petersen. The Faaborg Museum commission gave Petersen his first chance to express these ideals in a concrete project. Petersen commissioned Kaare Klint, 14 years his junior, to design the furniture for the Museum. The project was to be Klint's breakthrough as a designer; the Faaborg chair is now a classic.

Petersen had great difficulty fitting the Museum on its miniscule site—only 216′ x 26′. He managed however, to give the building a strongly articulated entrance, monumental, yet austere. Within, the museum is full of architectural surprises and illusory perspectives. There are no 90-degree angles whatsoever; yet the irregularity of the plan is scarcely noticeable to the viewer.

Intimate galleries extend from a narrow corridor spine, each gallery a distinct size and proportion. The transverse vestibule, with its coffered barrel-vaulted ceiling, is followed by a square room, an octagonal domed hall, and a longitudinal gallery space—all lighted from above. This series of rooms and passages concludes in the museum's celebrated library overlooking the garden, with interior furnishings by Klint. On the other side of the library Truelsen has placed his new sculpture hall and restaurant facilities.

The restoration project, undertaken by Truelsen in consultation with the museum's director, Susanne Thestrup-Andersen, was supported in part by the Rasmussen family (heirs of the original client). Many mechanical improvements are almost invisible, including the repair of the roof, and installation of new insulation, overhead lighting, and ventilation and electrical systems. The museum's famous tiled floor has been completely restored.

Most striking of all the restoration work, however, is the repainting of the interior according to the original color scheme. Reminiscent of a Pompeiian villa, the strong colors were thought by some to overshadow the artwork, and have been the subject of controversy from the museum's opening. Following Petersen's death in 1924, the walls were redone in museum gray. Now, however, they have been returned to their original glory and, in fact, provide a pleasing complement to the museum's collection of Late 19th-Century painting and sculpture.

The newly built sculpture hall

(continued on page 38)

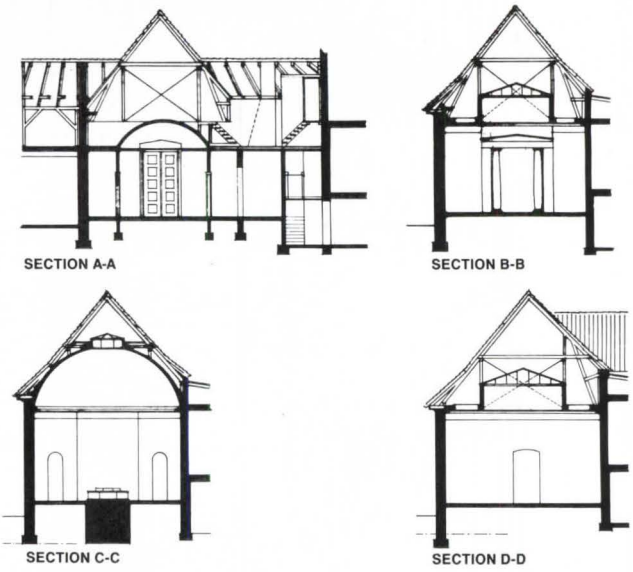
(continued from page 37)

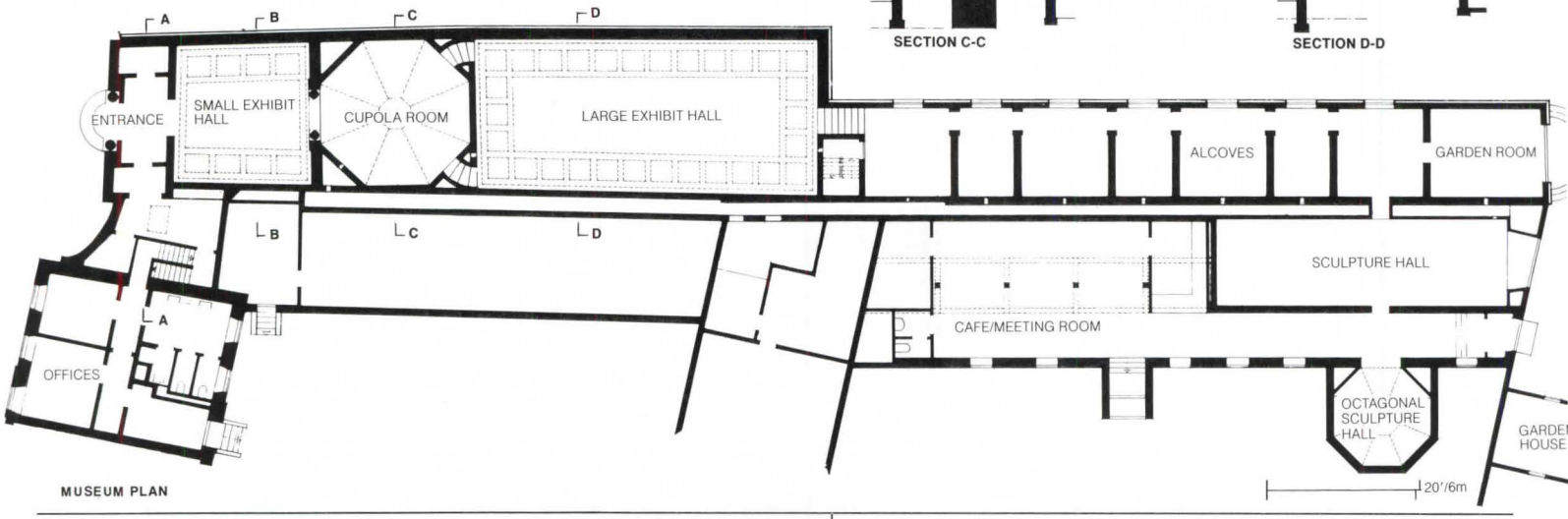
and restaurant area occupy the site of a former storage room. Whitewashed beams, soft beechwood flooring, and pleasant ochre walls complement the original building's materials and colors. The passage from the museum into this new space is announced by a slightly classical entranceway, repeating the understatement of the museum's street entrance.

Now that the Museum has reopened, it is changing from private to public ownership, an event made most noticeable by the removal of the museum's once omnipresent ashtrays. Its founder and patron, Mats Rasmussen, was a heavy smoker who insisted on the provision of this amenity throughout the building. Otherwise, the recently completed project retains the spirit and brilliance of its designer. A prime example of Nordic Classicism, it will continue to function as an inspiration to professionals and laymen for generations to come.

Anders Mortner ■

The author is a practicing architect in Stockholm and writes for the newspaper Svenska Dagbladet.





MUSEUM PLAN

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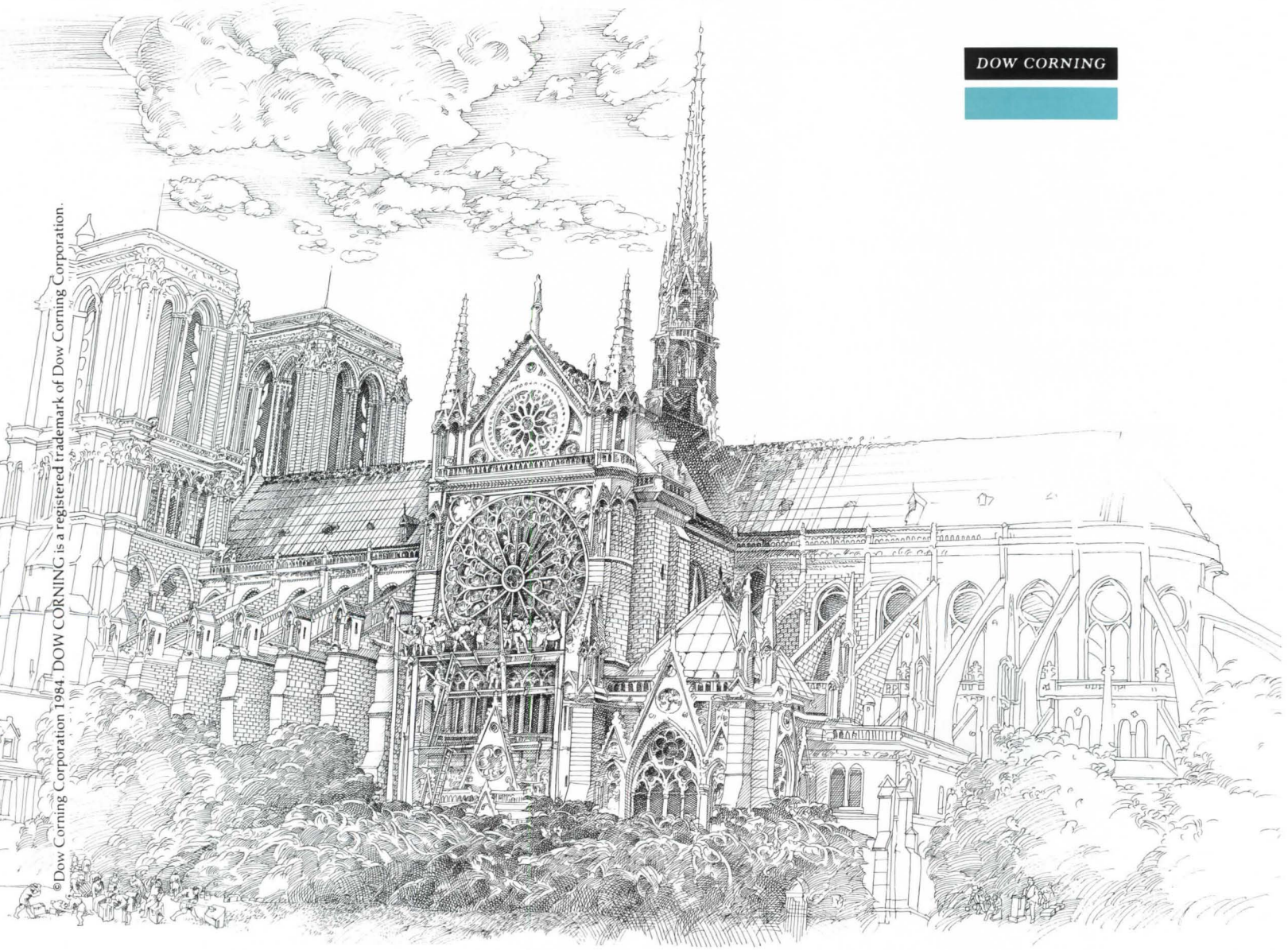

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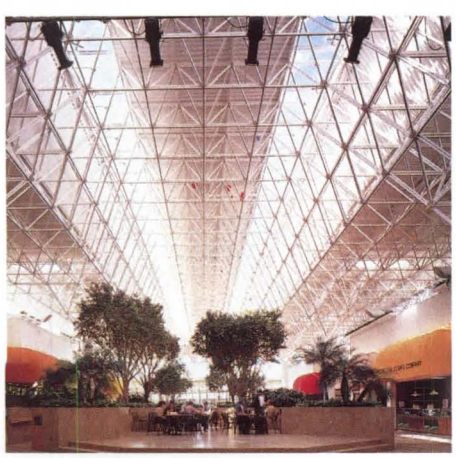

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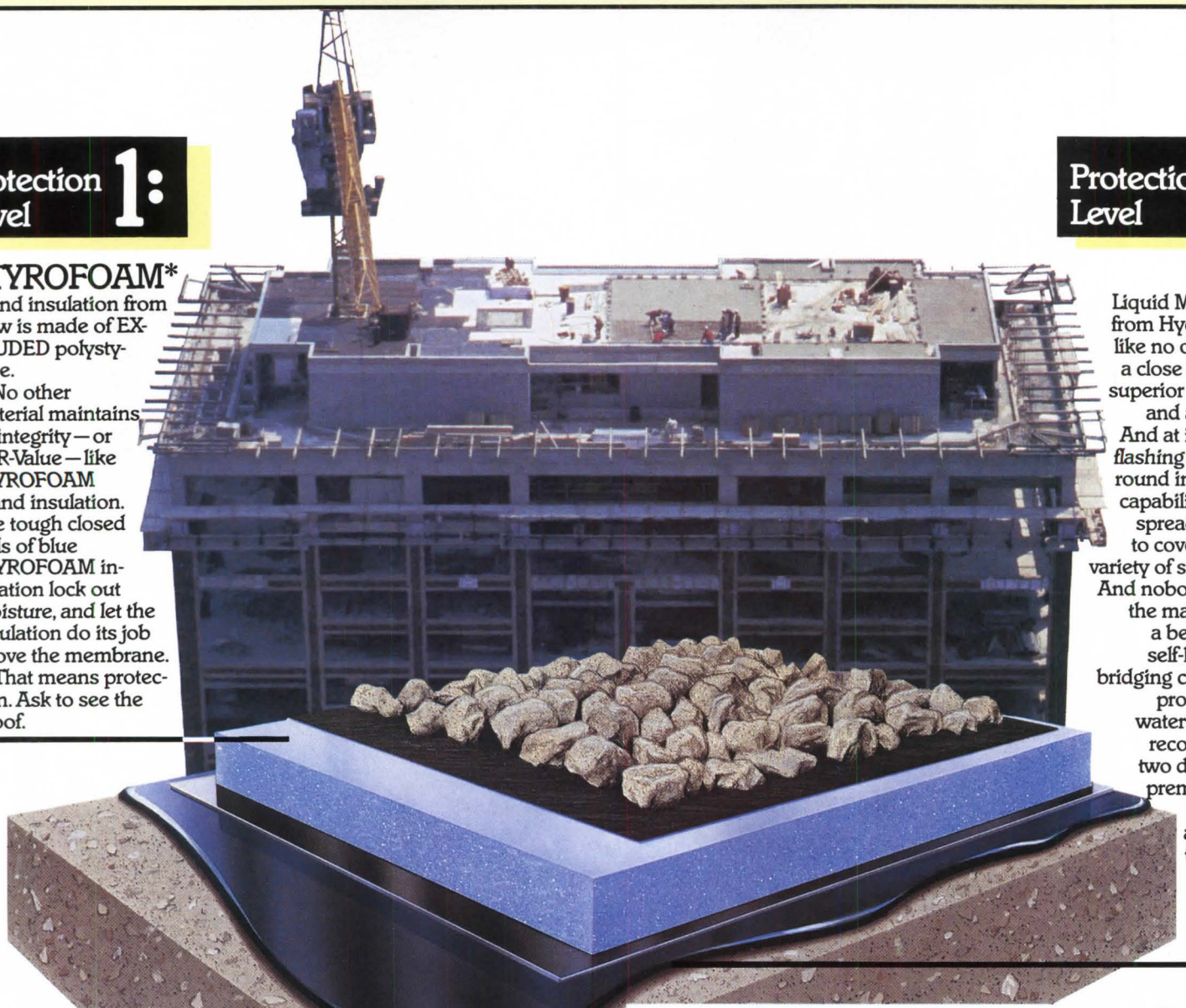

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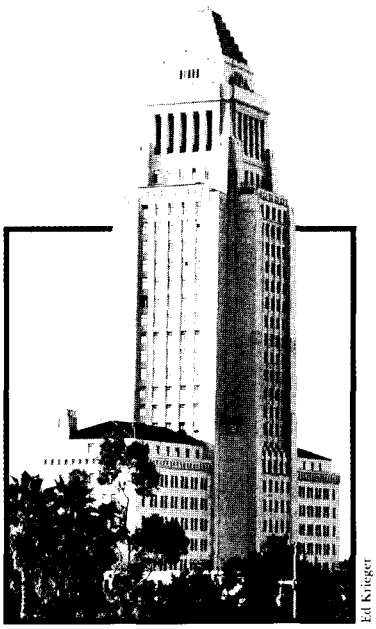
Preservation News

This special section, part of P/A's preservation coverage, considers upcoming projects and completed works. Compiled by Daralice D. Boles, except as noted.



Ed Krieger

L.A. City Hall

L.A. City Hall to be Restored

The 1928 Los Angeles City Hall, a local landmark made famous in the Superman movies, is to be restored. Hardy Holzman Pfeiffer Associates have been commissioned to develop a master plan for the public and ceremonial spaces of City Hall. The New York firm is also in charge of the restoration of the Los Angeles Public Library, recently damaged by fire. ■

Sullivan Murals

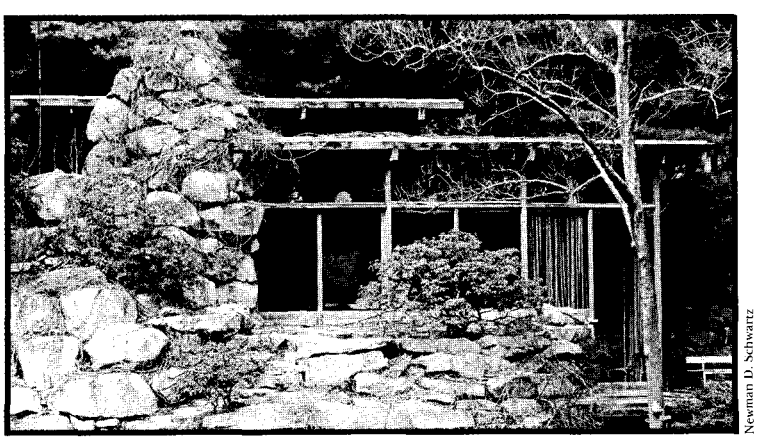
Three monumental murals in the 1889 Auditorium Theater are to be refurbished, as part of the ongoing restoration of the 97-year-old Adler and Sullivan landmark. Two were painted in oil on canvas and affixed to the plaster wall with white lead by the French artist Albert Fleury; the proscenium arch mural was painted in oil and gold leaf directly onto dry plaster by American Charles Holloway. ■

Opa-Locka at 60: Revival Begins

Even in South Florida, site of the nation's best known resort towns, Opa-Locka stands out. Designed by architect Bernhardt Muller and developed by pilot-inventor Glenn Curtiss in the late 1920s, Opa-Locka is a classic garden-city cloaked in Arabian garb. Efforts are now under way to restore and revitalize this curious theme town.

Inspired by the writings of Ebenezer Howard, Curtiss originally planned Opa-Locka as a self-sustaining community, its residential neighborhoods supported by local industry—specifically the manufacturing plant for Curtiss Aviation. He also hoped to draw tourists from Miami, building a zoo and golf course, parks and an airfield. Legend has it that the Arabian theme was suggested by a great-granddaughter of Queen Victoria who dissuaded Curtiss from his original concept for an Eng-

(continued on page 44)



Newman D. Schwartz

Dragon Rock, Russel Wright's residence at Manitoga, New York.

Russel Wright's Manitoga Restored

In 1942, renowned industrial designer Russel Wright acquired 80 acres in Garrison, N.Y. There, at Manitoga, he built Dragon Rock, an experimental house designed with the aid of Frank Lloyd Wright. Set on a cliff top whose stone surface forms the floor, Dragon Rock is, says architect Anthony Alofsin, "a prime example of modernism in the 1950s."

Over the past three years, Alofsin has directed the restoration of Dragon Rock. Some of the biggest problems for preservation stem directly from the original design. Embedded in the cliff, with plants growing on its flat roof, the house has been subject to excessive water

(continued on page 48)

Robert Gamble

Rescued but not yet restored Myrtle Hall.

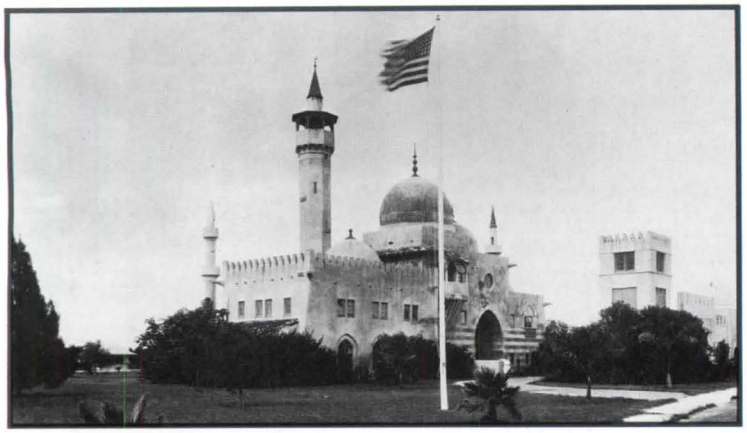
Myrtle Hall Saved for Now

In the isolated section of Perry County, Ala., where the Henry House, now called Myrtle Hall, is located, historic preservation is "still rather novel to the public at large and to public officials," says architectural historian Robert Gamble of the Alabama Historical Commission. The plantation house, listed in the Historic American Buildings Survey of the 1930s, has remained unoccupied in recent years. Last spring the owners announced plans to raze the structure after it was badly vandalized.

The hastily organized Henry House Committee then enlisted the support of Montgomery philanthropist Mary Katherine Blount, who purchased the house and saved it from demolition. The Committee is now working with Mrs. Blount to attach a protective easement to the property to be conveyed with any change in title.

In a nomination to the National Register of Historic Places, Myrtle Hall is described as "a notable example of a regional variant of the Greek Revival style in Alabama" that "departed from conventional neoclassical detail and proportioning."

The last minute stay of execution for Myrtle Hall is, says Gamble, the exception. He reports that "out of scores of early structures in this region recorded by the Historic American Buildings Survey, 40 percent are gone, most within the last 30 years." ■



Michael Maxwell

Opa-Locka City Hall, circa 1930.

Opa-Locka *(continued from p. 43)*
lish medieval village. Streets were laid out in 1925. By 1927, when a hurricane turned South Florida's boom to bust, most of Opa-Locka was complete. The main commercial street alone was never finished.

Today, over 75 of approximately 100 original structures remain, if in poor condition. Four public buildings, including the city hall, rail station, and two commercial buildings, are listed on the National Register of Historic Places. Nineteen others, including 15 residences, will be added next spring, and the balance will be designated locally.

Problems facing this campaign to revitalize Opa-Locka are formidable. The badly deteriorated building stock reflects a depressed local economy, with average family earnings well below the county average, and unemployment at twice the norm.

The Opa-Locka Community Development Corporation is counting on a restored downtown to boost a tourist-based revival, drawing visitors from the proposed Dolphin stadium, two miles north of town. A new industrial park at the Opa-Locka Airport is also planned. Beilinson Architect of Miami have started work on the restoration of Opa-Locka's 1926 City Hall and Fire Station, to be completed in six months. The CDC is about to issue a request for proposals for the development of the designated Hurt Building. They also plan to move the train station, now in a railway right-of-way, and to sponsor its development in a new location.

The Dade Heritage Trust has made low-interest loans available to local citizens for restoration. The city itself, working under the direction of Miami planner and preservationist Michael Maxwell, has installed new street lamps and benches modeled on Muller's original designs. Maxwell is also curating a show on Muller that opens next February at the University of Miami, where his collection is lodged.

Although optimistic about Opa-Locka's future, Maxwell tells a cautionary tale. Last month, the county bulldozed the town pool and pool house, claiming that a letter advising authorities of the structure's pending designation never arrived. He hopes, however, that design guidelines to be implemented next spring will better preserve Opa-Locka's legacy and ensure that new construction is compatible with old. ■

Julie Ainsworth

Renovated Great Hall.

Folger Library's Great Hall

The Great Hall of the Folger Shakespeare Library in Washington, D.C., has reopened after a summer-long renovation. Design consultant Clifford La Fontaine, who also designed the Folger's opening exhibit, presided over the renovation work and designed the 14 handsome new display cases which will house selections from the library's priceless collection.

Library director Werner Gundersheimer says that the greatest revelation to come from the ren-

(continued on page 47)

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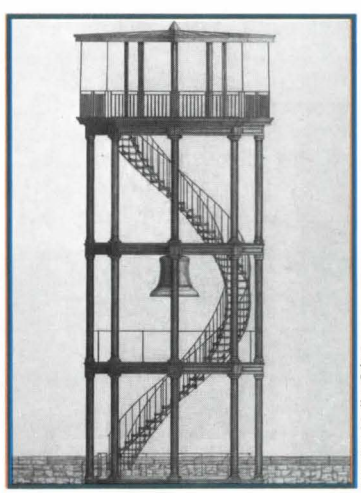
THE START OF SOMETHING BIG IN DECORATIVE LAMINATES.

Folger *(continued from page 44)*
ovation is the hall's original floor. La Fontaine's cabinetry respects the patterns and divisions in the floor tile, revealing previously concealed border inscriptions.

The dark and somber hall is no more; gone are the heavy curtains that concealed its splendid windows. A transparent solar screening material over the glass admits light and affords views out, while still protecting the artifacts and manuscripts.

The Folger's Capitol Hill building was designed by Paul Philippe Cret and completed in 1932. The 190-foot-long Great Hall evokes an Elizabethan long gallery. La Fontaine's clever lighting design shows off the vaulted plaster ceiling and permits the space to be used for banquets, small ensemble performances, and other functions planned by the private, nonprofit library, whose recent expansion was designed by Hartman Cox (P/A, July 1983, pp. 65-73). ***Thomas Vonier*** ■



Drawing: Medhat Salam

Fire Watchtower, Marcus Garvey Park.

Rebuilt Tower

The Fire Watchtower in Marcus Garvey Park in New York's Harlem district, designed by James Bogardus and built in 1856 by Julius B.Kroehl, was in active use for only 24 years. Yet its cast-iron frame construction remains an important precursor to skyscraper construction in New York.

In July 1987, the badly vandalized tower is to be completely dismantled for off-site cleaning and repair, under the direction of architect Medhat Salam. Missing and damaged parts will be duplicated. Redundant tie rods dating from 1893 will not be replaced. In addition, wood enclosures at the base and roof levels, which obscure the tower's structural clarity, will not be rebuilt. The reconstruction is to be completed by July 1988. ■

Kenneth Clark

Sunnyside Gardens, circa 1926.

Sunnyside Gardens Renewed

Sixty years after its construction, Sunnyside Gardens remains an anomaly. Designed by planning pioneers Clarence Stein and Henry Wright from 1924 through 1928, the Queens housing development is a garden suburb in New York City, only 15 minutes by subway from Times Square.

Over the past half century, the modest brick houses—600 in all, plus nine apartment buildings, organized in perimeter blocks around common parks—had fallen on hard times. Covenants governing resident parks lapsed, leaving dilapidated gardens divided by fences. The development's commercial strip on Skillman Avenue declined over time, and the housing stock deteriorated.

Sunnyside's slide has, however, halted, thanks to community efforts coordinated by the Sunnyside Foundation. Executive Director Nina Rappaport wrote the report that earned Sunnyside a place on the National Register in 1984. A façade-cleaning program is now in its second year, with 180 homes completed. A new conservation easements program established this year will preserve the parks in perpetuity. Maintenance workshops and bulk contracting arrangements are assisting individual homeowners. A government grant will pay for improvements on Skillman Avenue, to be completed in 1988. Youth programs and street fairs encourage community involvement.

These efforts make Sunnyside as exemplary a preservation effort as it is a planning paradigm. Rappaport believes that the Sunnyside model remains a viable alternative to contemporary urban and suburban living. She urges architects visiting the IDCNY in Queens to take the 10-minute stroll up Skillman Avenue and visit this pioneering community, where, according to one-time resident Lewis Mumford, "space, sunlight, order, color—these essential ingredients for either life or art—were constantly present." ■

Theatre Historical Society

Chicago Theater, circa 1921.

Chicago Theater Open Again

Once the flagship theater of the Balaban & Katz chain, the Chicago Theater was the quintessential "movie palace." Designed by Rapp & Rapp in 1921, the theater underwent several major renovations over the course of its history.

Now architects Daniel P. Coffey & Associates have restored the auditorium to its 1933 appearance, cleaning and repairing fresco murals that date from that period. They have restored and expanded the Grand Lobby and Promenade.

Banners lining State Street to celebrate the reopening of the Chicago Theater on September 10 were patterned after its grand marquee, which, like the theater it announces, is now protected in perpetuity. ■

Wright *(continued from page 43)*

seepage. In addition, the designer used aluminum for flashing, in one of his many experiments with new materials, and the joints have not held over time.

Other inventions, however, remain fresh and startling. At Dragon Rock, Russel Wright embedded bamboo and butterflies in plexiglass and used backlighted translucent cellular foam as a lighting device. He also designed reversible wall panels and drawers, painted one color for winter and another for summer.

Russel Wright also redesigned his landscape, repairing damage done by loggers. He diverted a stream to flood an abandoned rock quarry, and carved subtle paths through the wilderness which remains to delight hikers.

The grounds of Manitoga, enlarged last year by more than 100 additional acres, are now open to the public, managed as of January 1, 1986, by the independent Manitoga Inc., whose 15-member board is now actively seeking funds to finish the restoration of Dragon Rock. Workshops and other educational programs at Manitoga fulfill Wright's desire "to bring to American culture an intimacy with nature." ■

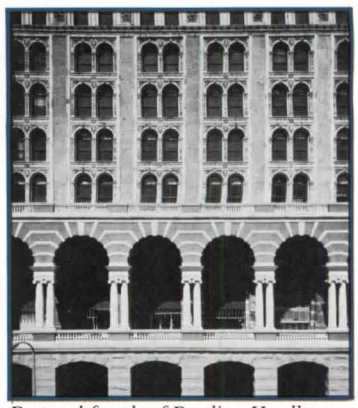
Reading Headhouse Restored

The restoration of the entrance level of the Reading Terminal Headhouse in Philadelphia gives new life to a significant landmark. Designed by the Wilson Brothers, the 1893 Headhouse served for 90 years as the downtown terminus of the Reading Railroad.

With the completion of the commuter rail tunnel two years ago (P/A, Jan. 1986, pp. 48–50), the formerly elevated trains moved underground. The Headhouse now serves a new population, providing access to the new below-grade Market Street East station and concourse-level retail space.

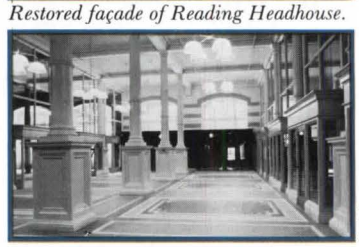
To their credit, the Urban Mass Transit Authority spent $2.7 million restoring this generous public space. The pink Jonesboro Granite and molded brick façade with its cast stone colonnade, badly disfigured over time, was meticulously restored by joint-venture architects Cope Linder Associates/Bower Lewis Thrower with consultant John Milner Associates.

Future plans include the restoration of eight upper floors for office and commercial use, and, still further in the future, restoration of the double-height waiting room as a reception area for the proposed convention center, which makes use of the historic train shed behind the Headhouse. Even if these plans do not come about, however, Philadelphia has regained a significant structure made whole again, and an inviting public space in the tradition of old-fashioned train travel. ■



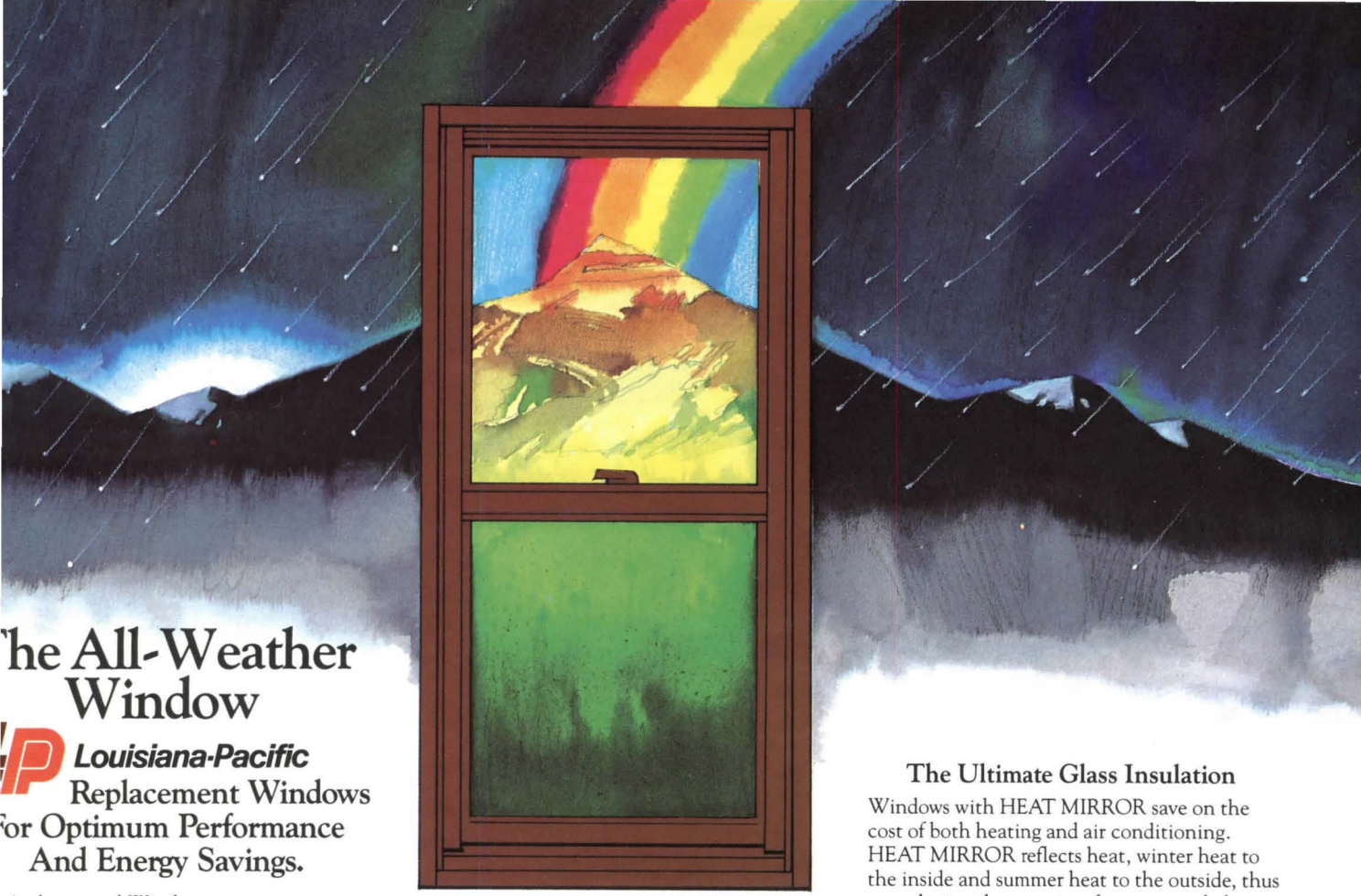
Peter B. Olson

Restored façade of Reading Headhouse.



David Gentry

New interior of Reading Headhouse.



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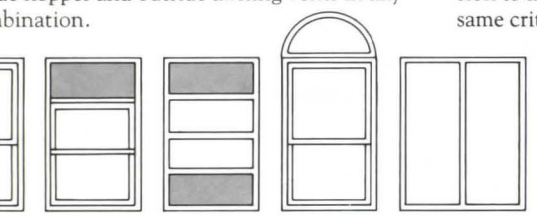

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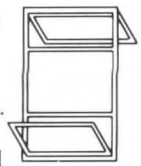

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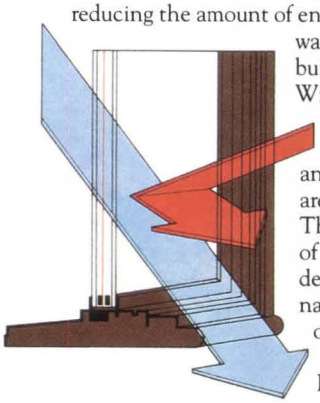

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P/A Calendar

University of Pennsylvania

Stencil mold, in "The Drawings of Friedrich Weinbrenner," through November 23.

Exhibits

Through November 16
The Architecture of Frank Gehry. Walker Art Center, Minneapolis. Also, **January 31–March 22,** Contemporary Arts Museum, Houston, Texas.

Through November 23
The Drawings of Friedrich Weinbrenner, Architect of Karlsruhe. Arthur Ross Gallery, University of Pennsylvania, Philadelphia.

Through December 1
Ornamental Architecture Reborn: A New Terra Cotta Vocabulary. National Building Museum, Washington , D.C. (See P/A, Aug. 1985, p. 25.)

Through December 19
Charles Moore Retrospective. Williams College Museum of Art, Williamstown, Mass.

Through December 21
New Architecture: Foster, Rogers, Stirling. Royal Academy of Arts, Piccadilly, W. 1, London.

Through December 28
The Architecture of Richard Morris Hunt. The Octagon, Washington, D.C. (See P/A, May 1986, p. 28.)

Through January 1
The Function of Ornament: The Architecture of Louis Sullivan. Chicago Historical Society, Chicago (p. 27).

Through January 4
Drawing Toward Building: Philadelphia Architectural Graphics, 1732–1986. Pennsylvania Academy of the Fine Arts, Philadelphia.

Through January 4
Oskar Schlemmer. Walker Art Center, Minneapolis.

Through January 4
Gordon Matta-Clark: A Retrospective. Staditisches Museum Abteiberg, Monchengladbach, West Germany.

Through January 11
In Pursuit of Beauty: Americans and the Aesthetic Movement. The Metropolitan Museum of Art, New York.

Through February 16
The Machine Age in America 1918–1941. The Brooklyn Museum, Brooklyn, N.Y. (See pp. 100–115.)

Through February 28
Bauhaus. MIT Museum, Cambridge, Mass.

Through March 2
Twentieth Century Design. The Brooklyn Museum, Brooklyn, N.Y.

January 7–January 31
Lloyd Wright: Architect. Max Protetch Gallery, New York, N.Y.

January 14–February 6
Paper Works. Gallery at the Old Post Office, Dayton, Ohio.

Competitions

November 14
Deadline, International Interior Design Award. Contact IIDA Secretariat, AGB Exhibitions Ltd., Audit House, End Road, Eastcote, Middlesex HA4 9XE England 44-1-868-4499.

November 15
Deadline, Rome Prize Fellowship Competition. Contact Fellowships Coordinator, American Academy in Rome, 41 E. 65th St., New York, N.Y. 10021.

November 30
Extended registration deadline, National Design Competition for Artists Live/Work Space. Send $45 registration fee with name and address to Michael Robinson, Vision, Inc., The Center for Environmental Design and Education, 219 Concord Ave., Cambridge, Mass. 02138.

December 31
Deadline, National Glass Association Award for Excellence in Design with glass. Contact Debra Levy, National Glass Association, 8200 Greensboro Dr., McLean, Va. 22102 (703) 442-4890.

January 1
Entry deadline, LUMEN Awards sponsored by the Illuminating Engineering Society New York Section. Contact Sara Schrager, Lighting & Production, 245 W. 107 St., #11D, New York, N.Y. 10025 (212) 865-0355.

January 2
Deadline, Rotch Travelling Scholarship Competition. Contact Norman C. Fletcher, Secretary, Rotch Travelling Scholarships, 46 Brattle St., Cambridge, Mass. 02138 (617) 868-4200.

January 9, 1987
Deadline for submissions, P/A 7th Annual International Furniture Competition (see p. 15).

February 1
Application deadline, Rudy Bruner Award for Excellence in the Urban Environment. Contact Program Coordinator, Rudy Bruner Award, Bruner Foundation, 132 W. 43 St., New York, N.Y. 10036 (212) 575-5115.

Conferences

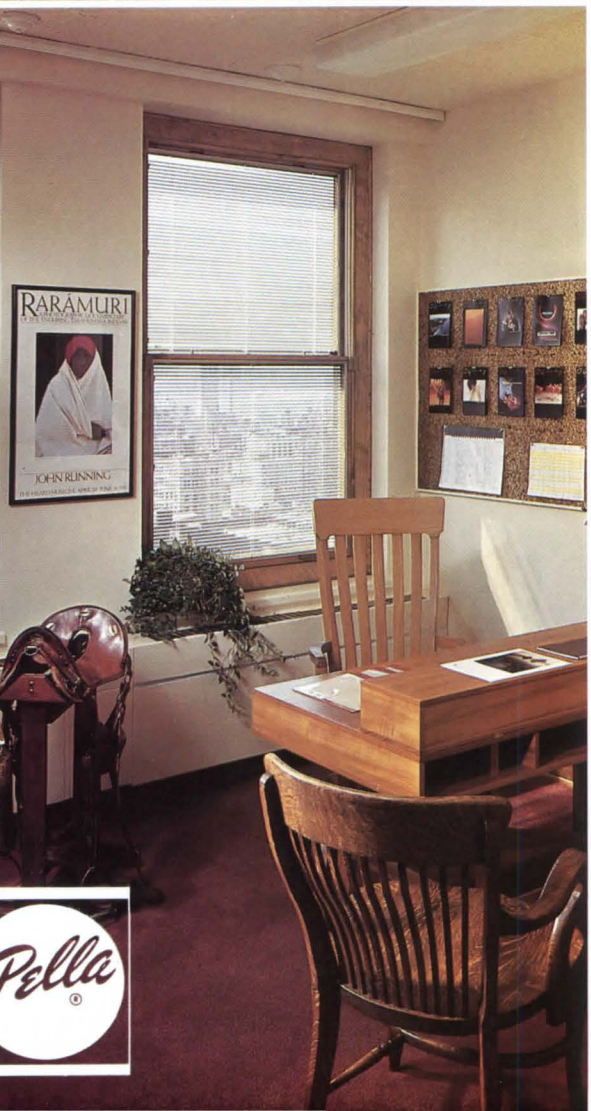
November 19–21
Forming Economical Concrete Buildings. Westin Hotel, Galleria, Dallas. Contact Karen Gonzalez, Registrar, Portland Cement Association, 5420 Old Orchard Rd., Skokie, Ill. 60077 (312) 966-6200.

November 19–23
Gerontological Society of America Annual Meeting. Chicago. Contact Victor Regnier, 2635 Hollyridge Dr., Los Angeles, Calif. 90068.

December 1–2
Light and Color for Human Performance. College of Architecture, Georgia Institute of Technology. Contact Deidre Mercer, Dept. of Continuing Education, Georgia Institute of Technology, Atlanta, Ga. 30332-0385 (404) 894-2547.

December 2–4
The Window Conference for Historic Buildings. Sheraton Boston Hotel and Towers, Boston, Mass. Contact The Window Conference, P.O. Box 27080, Central Station, Washington, D.C. 20038 (202) 343-9568.

December 3–5
Athletic Business Conference for Sports and Health Facilities. Hyatt Regency, Atlanta. Contact Pam Schmitz, Athletic Business, 1842 Hoffman St., Suite 201, Madison, Wisc. 53704 (608) 249-0186.



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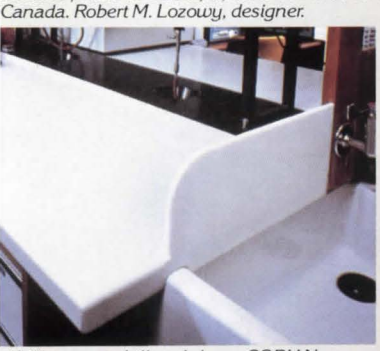

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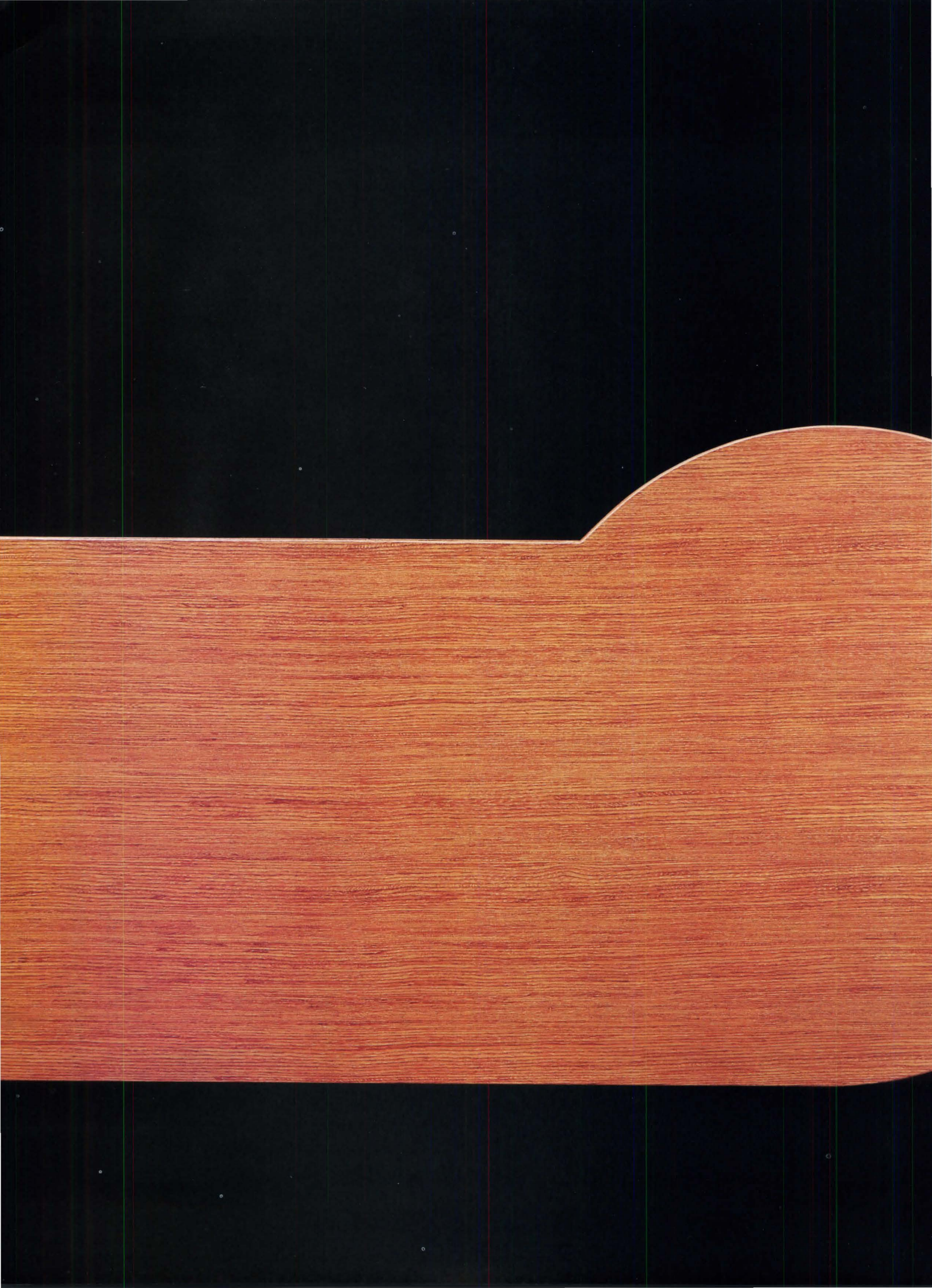

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Hult Center for the Performing Arts, Eugene, Oregon.
Architects: Hardy, Holzman, Pfeiffer Associates, New York, NY.
Roofer: Acme Roofing, Eugene, Oregon.
Photograph by Timothy Hursley.

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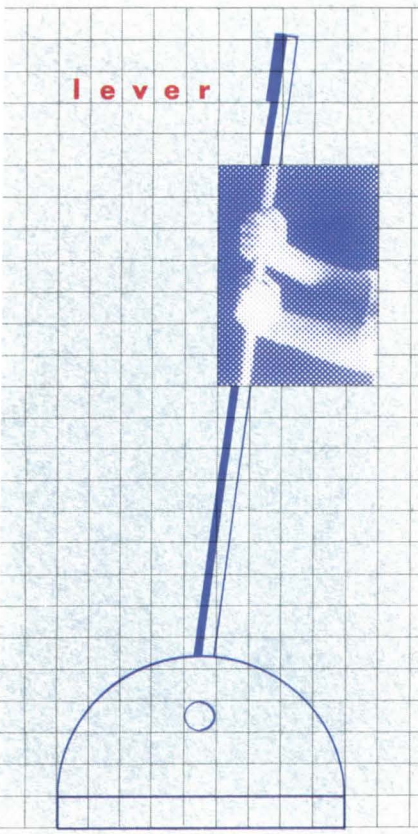
P/A Practice

Management: Richard Hunter Cross III describes the management of design firms in terms of setting the right levers.
Specifications: William Lohmann discusses changes that affect the way we think about and act upon shop drawings.



Management: Design Firm Strategies

As the parable goes, the firm picks its most talented designer to be president; not only does it lose a valuable designer, but also it gains an unskilled president. The axiom then "trickles down" through the other layers of management with a predictable result. The firm becomes a series of unrelated projects rather than a business.

Historically, when professional status insulated the professions from the messiness of commerce, this practice worked out well. Recently, however, fundamental shifts have occurred in professional practice:

- **Slowdown in Growth of Demand.** Design is not a growth industry. It is a cyclical industry that now is suffering from dramatic levels of excess capacity. Worldwide demands for design and construction peaked with petro-dollar imbalances of the late 1970s. The design industry expanded aggressively to meet these needs. But since then foreign demand has receded and the industry has experienced a wrenching reduction in force.

Exacerbating problems for domestic firms, the commercial construction boom wound down at the same time, leaving the most attractive cities of the 1970s—those where aggressive firms had expanded—wallowing in their vacancy rates. And on the public side, general governmental austerity has dimmed the hopes for any near-term relief through a pickup in public contracting.

- **New Forms and Sources of Competition.** Paralleling excess capacity, fundamental shifts in the structure of the design industry have opened the doors for new styles and new sources of competition. The basis of competition has stiffened to include new factors, among them price. Other competitive factors, including foreign firms, design/build contractors, integrated development companies and in-house design teams, also have arisen to challenge the traditional domestic independent professional firm.
- **Quickly Accelerating Technology.** For decades the tools and methods of design did not change much. However, the last ten years have grafted a "hockey stick bend" onto the technology curve. Assimilating the rapid pace of innovation in design methods, construction systems, and materials has been a formidable challenge for most professional firms. But developing facilities with the new technologies is only part of the solution. Adapting the organization both financially and structurally to realize fully the benefits of new technologies—to stay competitive—is the more difficult charge.

Although the full implications for design firm management and structure are unclear, it is unquestionable that the new base of technology has convincingly dispatched old notions of the "Whole Man" professional. Teams of specialists with new skills are replacing the independent generalist as the "engine" of design. More is being accomplished with fewer billed hours but with attendant new requirements for scheduling, resource allocation, and job monitoring.

- **Public Distrust of Professionals.** Clients have become less trustful that professionals will satisfy their needs for functional and economic performance. As evidence, project control is shifting from professional designers to construction managers, broader interpretations of professional liability are being raised and upheld, more rigorous contracting and monitoring procedures are emerging, and adjustments in professional ethics are encouraging firms to compete like other businesses.
- **Changing Client Needs.** The economics and financing of proposed projects, and the reduction of risk through better management of design and con-

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Specifications: Shop Drawings—A Necessary Evil

The process of preparation and review of shop drawings, a critical link in construction communications, is undergoing a metamorphosis. Two major influences are at work—a continuing increase in professional liability risk and the expanding use of computers throughout the industry. They promise dramatic changes in the traditional pattern of responsibility for shop drawings and their form and content. As a result, close monitoring of the review process will be necessary.

The increase in professional liability (and resultant increase in liability insurance rates) has everyone looking for ways to reduce risk exposure. Because a significant number of insurance claims are related to shop drawing review (as many as result from drawing and specification errors and omissions), the pressure is on. At least three current shifts can be identified.

A first change is the direct transfer of responsibility for design (especially engineering) of some components to a fabricator. Elevator design may have been a very early example, but curtain wall design is classic. Twenty years ago, every nut and bolt was detailed and specified by the architect. The curtain wall was built as designed and the architect was responsible for its performance, aside from workmanship problems. Later the bidding was opened to alternate systems proposed by a fabricator, with the provision that the bidder alone was responsible for the substitute system. Today most curtain walls are specified on a performance basis under a single contract, and the architect controls only the visual aspects of the system—profiles, modules, materials, finishes.

The potential impact on shop drawings is tremendous. If the architect is responsible only for visual design, only related sub-

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Management *(continued from p. 65)*

struction have gained importance among clients in their selections of professional firms. In response, many competitors are broadening the scope of their services and geographic reach and are feeling new pressures to upgrade their management systems.

- **Globalization of Professional Markets.** World redistribution of wealth is forcing growth-oriented firms to look beyond traditional markets, to adapt to foreign practices, and to compete successfully under new rules and with new international rivals. The international option raises, in turn, a host of issues, including: risk management in international joint ventures; cash management resulting from high upfront costs and nontraditional payment schedules; compensation, organizational status, and career management for employees with international assignments; foreign corrupt practices legislation; control of overseas operations; currency speculation; tax avoidance; and others.

Together these shifts raise the premium for professional management in design organizations. Standing in the way, however, are the relative inexperience of most principals as professional managers, professional education's reluctance to emphasize management in core curriculums, and the inappropriateness of most "textbook" solutions from manufacturing-based business environments. A simplifying model—a paradigm—helps to break through these barriers to prescriptive thinking about design firm management.

Levers

One paradigm is levers. Levers are mechanical devices that allow management to steer businesses. Consciously or unconsciously, managers set the levers. In doing so, they also set the prospects and the limits for their firms' successes.

- **Setting the Product Lever—Generalist vs. Focused Practices.** Professional licensing opens a rich array of opportunities for the individual and the firm. Should firms adapt aggressively to expand their lines of services—as, for example, most did in moving into environmental planning during the 1960s and as many are now doing by adding financing and construction management capabilities—or should they "stick to their knitting?"

Both positions have appeal. Shifting the lever toward the generalist setting leads to full service offerings, insulates against the prospect of missing new trends in services, and lowers the risk of a downturn in any single service area. The alternative, the focused setting, can lead to lower costs and/or to specialized expertise, which in many instances is valued more highly than similar services offered by generalist competitors.

- **Setting the Client Lever—Broadcast vs. Targeted Markets.** Because most professions are defined broadly, each discipline usually spans the needs of a diverse range of clients. Should firms take aggressive advantage of opportunities to ply their services to new constituencies or target their efforts and develop expertise in serving particular types of clients?

Setting the lever in the broadcast position extends the base of opportunity. The targeted setting builds a more accurate understanding of particular clients' value systems and, more often than not, stronger client loyalties.

- **Setting the Organization Lever—Skill-Based vs. Geography-Based vs. Market-Based Structures.** Firms can choose to organize around skills, geography, or client groups. Clients' needs in the market-based organizations determine the services. Services available in the other organizations determine the clients.

Many firms organize around disciplines: civil, mechanical, electrical, architecture, landscape. Customarily, a senior professional assumes responsibilities for finding clients, for producing profits, and for maintaining the quality of service in each area. Setting the organization lever in this position helps to ensure high standards of professional execution and can lead to distinctive product attributes that become widely recognizable in the marketplace.

Most other firms organize around geography. This is often the result of growth by acquisition, coupled with a desire to create presidential positions that can be used to retain key individuals. Setting the lever in the geographical position helps to isolate performance, but can provoke unproductive rivalries that prevent the firm from capitalizing on benefits from interrelationships.

The few firms that organize around markets become the dominant purveyors of services to particular classes of clients. Setting the lever in the market position encourages the development of services in close response to the needs of particular markets. Often these services will be ones that have been considered beyond the scope of the traditional practice. But upon examination, many of these services can be profitable and can lead to competitive advantages. Examples are demand forecasting and load management analysis for electric utilities; market analysis, brokerage, and financing for speculative developers; investment analysis and market research for manufacturers; and curriculum development for educational institutions.

- **Setting the Human Resources Lever—Career vs. Professional Orientation.** Some businesses consider expenditures on the work force as long-term investments that will be regained many times over employees' entire careers. By contrast, professional ethics foster a notion of autonomy of the individual. This notion drives many professional firms to consider their employees as project expenses, making up nearly 100 percent of costs of goods sold and easily replaceable, rather than as valuable long-term investments.

In the end, professional firms usually lose out this way. New employees serve through apprenticeships at the convenience of the firm. Then the most talented and valuable employees leave to form independent and competitive operations.

Setting the lever in the career position requires a long-term perspective and a commitment to creating incentives (usually the prospect of ownership), support systems, and challenges for individuals as their careers progress. Setting the lever in the professional position minimizes owners' exposure to fluctuations in the amount of business and cuts to the bone the "extracurricular" demands on practicing principals' time.

Levers and Strategy

There are some obvious "gear-crunching" inconsistencies to be avoided in the patterns of lever settings. For example, skill based organizations (the Organization Lever) with professional orientations (the Human Resources Lever) find it difficult to sustain commitments to target markets (the Customer Lever). Targeted marketing, by contrast, is facilitated by market-based organizational structures and career paths that discourage turnover and reward specialization.

Beyond avoiding inconsisten-

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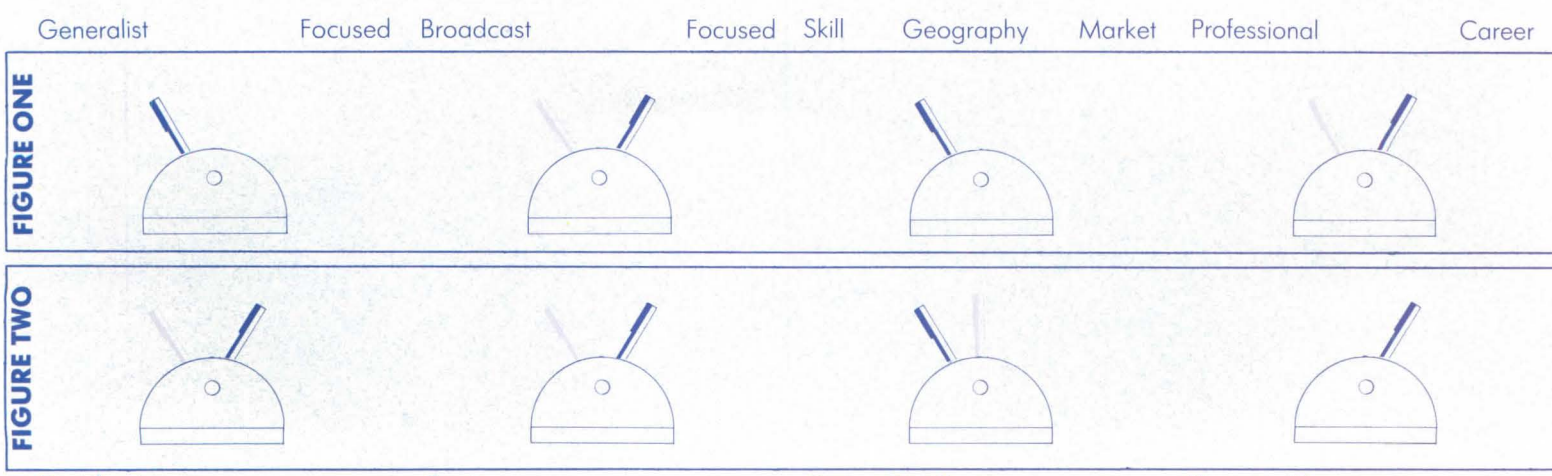


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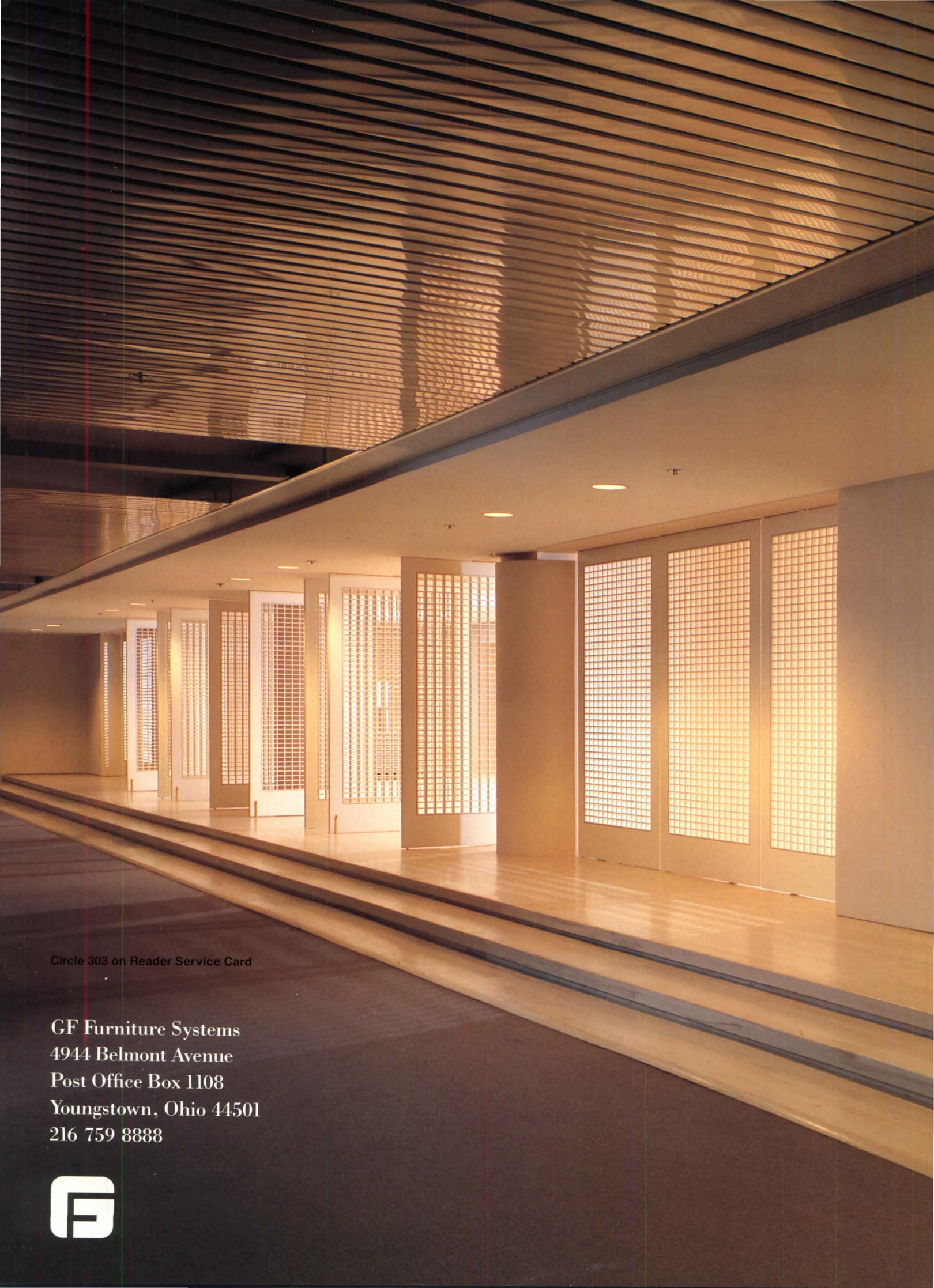

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Management *(continued from p. 66)*

cies, firms need to ensure that in setting the levers they reinforce their notions about what they are and about what they want to become. This can be the basis for a simple two-part exercise that can spur unexpected and useful insights.

The exercise is a group process that involves all of the principals and usually takes a day. The first step is to document the basic values of the firm and its goals. Often this has been done as part of a prior exercise in business planning. The next steps involve: analyzing whether the current lever settings reinforce values and goals; making recommendations about future lever positionings; and discussing how to make the shifts. Adeptness at "tweaking" the organization—pulling the levers, at the right times, the right distances, in the right directions, and in the right sequences—will turn out to be a challenging task for most firms.

Case Examples

Two examples help to illustrate this technique:

Firm A has a staff of 125 professionals and offers architecture, structural engineering, interior design, and landscape architectural services through a dominant main office and two regional profit centers. The firm considers itself elite among designers and places heavy values on prestigious commissions, professional awards, and providing a stimulating environment that both attracts and nurtures the cream of professional talent. A small circle of partners controls the firm, conducts its marketing activities, and oversees all of its engagements. There is a high turnover among junior professionals. Because of the high visibility and prestige associated with Firm A, however, it has no trouble replacing staff. In the past, a few persistent juniors have achieved senior associate status—quasi-tenure—which is suspected but not yet proven to be an intermediate step toward partnership.

During the first part of the exercise, Firm A executives positioned their levers as shown in Figure One.

In probing the organizational question they noted that although each separate office reported profits—a clue that initially suggested a geographical organizational structure—the dominant organizing unit was, in fact, the ad hoc project team.

In discussing their other lever settings the Firm A management team made two findings:

- The lion's share of their most successful projects came from a small circle consisting of Fortune 500 companies, national developers, and universities. They concluded that by shifting the Customer Lever from broadcast toward focused they could improve their marketing efficiency and their mix of work.
- Their project-driven approach to human resources over the years had led to an impending crisis in management succession. Most of the principals would retire over the next decade and, at present, there were few satisfactory replacements. The best and the brightest tended to leave. As a result they placed a high priority on shifting the Human Resources Lever toward the career position to ensure continuity of the firm.

Firm B has a staff of 1100 professionals and offers a full range of architectural and engineering services through a network of 17 profit centers. Specialties include power plant engineering, water and sewage treatment engineering, manufacturing plant and process design, building design, and certain environmental services including air and water quality monitoring. Firm B is an employee-owned corporation whose annual report emphasizes steady growth and consistent profitability that result from longstanding commitments to technological leadership.

Firm B executives positioned their levers as shown in Figure Two.

In discussing its lever settings, Firm B made two different findings:

- Strong geographic decentralization stood in the way of capitalizing upon synergies between offices, fostered unhealthy competition, and made it difficult to ensure that large national accounts would receive consistent levels of attention and the same high quality services from all offices. As a result, Firm B decided to shift the Organizational Lever toward skills by appointing Practice Area Managers

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Management *(continued from p. 76)*
whose jobs would be to ensure service quality firm-wide, and to shift the Customer Lever toward Focused by assigning responsibilities for key national accounts to corporate vice presidents.

- Firm B recognized that speciality firms were successful in attacking its generalist, full-service reputation and its broadcast client orientation. These specialists offered tailored "packages" for certain types of work and for certain types of clients. These packages included not only design services, but also, in many instances, construction management, financing, facility operations, and maintenance—all at a price that made the packages appear to be attractive alternatives to dealing with separate vendors. Firm B concluded that shifting the Organization Lever toward skills (above) would provide some help, but that, in addition, it would appoint four Focus Market Managers to package and coordinate a whole range of services for its key markets—pulp and paper, electric power, petrochemical, and municipal water/sewer authorities.

Summary

The paradigm of levers offers design executives a rare opportunity to evaluate their firm's operation and organization and to plan strategies about where their firm is headed. The lever settings not only determine how well a firm responds to threats and opportunities in the near term. The settings also establish momentum and set limits for the firm over the longer term. Reexamining the settings on a regular basis further helps design executives to reconfirm or adjust their strategies as conditions change and ensure that the firm's operation and organization support those strategies. The levers, in short, give executives a degree of freedom in charting strategy and a way to make it happen. ■

Richard Hunter Cross III

The author is a senior associate at The Berwick Group, Inc., a Boston-based management consulting firm. He holds master's degrees in architecture and business.

Specifications *(cont. from p. 65)*
mittals should be reviewed. Unrelated items, such as attachment brackets, gutters and drainage paths, design of expansion joints, glazing details, erection sequences, internal fasteners, and thicknesses of metal, should remain the fabricator's or contractor's responsibility. Clarification of design intent and some coordination by the architect may be necessary but not in the form of red-lined, architect-stamped review.

Logically, a second shift is toward fewer shop drawing submittals. If it is not necessary to review a shop drawing, why accept responsibility for doing so? Some fabricated items are fully detailed on the contract drawings and do not need to be copied back to the architect or engineer. Others are standard products and adequately described in published literature. If the contractor is fully responsible for performance design, the architect or engineer may have no real basis for requiring a review. Unwanted, unnecessary shop drawings should not be specified. Unsolicited shop drawings should be returned to the contractor without comment.

A third result of increasing liability is the effort to limit the design professional's responsibility for shop drawings through disclaimer contract clauses and related wording on shop drawing stamps. Many firms now stamp shop drawings "reviewed" instead of "approved," even though court rulings have ignored the subtle shades in meaning between the terms. If submittals are acknowledged in any way, the architect or engineer has been held to at least a partial responsibility for their correctness and completeness. A client contract (and shop drawing stamp) that limits review responsibility to "conformance with the contract documents and design concept of the project" is helpful, however. AIA Document A201 "General Conditions of the Contract" and related contract forms reflect such wording.

The other major influence on the preparation of shop drawings is the computer. More and more fabricators are utilizing computer-aided drafting equipment, easily modifying standard details for a project. Custom drawings are quickly corrected and returned for further review. They are using automated takeoffs and estimates. Many will soon be using computer-driven shop equipment. Eventually shop drawings will be submitted

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Specifications *(cont. from p. 78)*

on compatible computer media or directly by telecommunication between offices.

The ramifications of increased automation in the shop will be important to the architect and engineer. There should be fewer errors in submittals but that will be accompanied by a demand for faster turnaround. Even when fewer types of shop drawings are specified, we will see an increase in the volume of submittals in some fields, showing every detail in three or more views and with numerous, wordy, repetitive notes. This is likely to happen initially for structural steel, concrete reinforcement, custom formwork, HVAC layout, and curtain wall submittals.

In the design professional's office, processing shop drawings is (and will be) a time-consuming chore. The paper load is tremendous and an organized submittals log is one way of closely monitoring the flow. The log, listing samples, product literature, test data, certifications, and field record documents as well as shop drawings, can be maintained manually on loose-leaf pages in a binder or on file cards. Storing the log as a cumulative word processing document, however, allows for easier update and printing. A data processing file has the further advantage of flexibility—sorting the file by CSI number or due-out date and generating weekly summary reports. The filing sequence should be by CSI specification section number, trade, subcontractor, or other logical format.

A basic log should identify each new submittal item with a unique number or code and title. Key dates must be documented: date on the submittal item, when it is received in the office, and target and actual return dates. The target date can be highlighted if it is overdue. When initial review is complete, action and comments should be logged in. If an item is resubmitted, the subsequent dates and action should be added to the record. A more sophisticated log may include dates on which a submittal is forwarded to and received from outside consultants and a checkoff column for the general contractor's review stamp. An up-to-date log makes it possible to track an individual submittal or determine the office work load at a given time. The piles of paper are less likely to get out of hand. If tied to project specifications through a computer, the log can even warn the architect or engineer of missing items. It also has a decided psychological benefit in meetings with the contractor and client.

From the design professional's standpoint, shop drawings are a necessary evil. That view is confirmed in "Untangling the Web of Professional Liability" (published by Design Professionals Insurance Company), which proposes additional methods of dealing with them. Shop drawings will always be with us. ■

William T. Lohmann, AIA, FCSI

The author is Specifications Manager for Murphy/Jahn, Chicago.

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The designer: Thomas J. Bolin, ASID, Planning & Design, Inc., Minneapolis.

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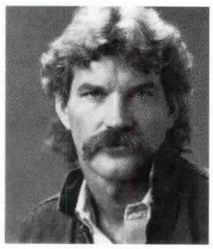

Thomas J. Bolin, ASID
Planning & Design, Inc., Minneapolis

The dining/conference area (photo below) set the Art Deco design referent used throughout the car. The visual expansion is created with a color progression of Mauve Mist to Wildrose to Amethyst gloss decorative laminates on the inset ceiling.

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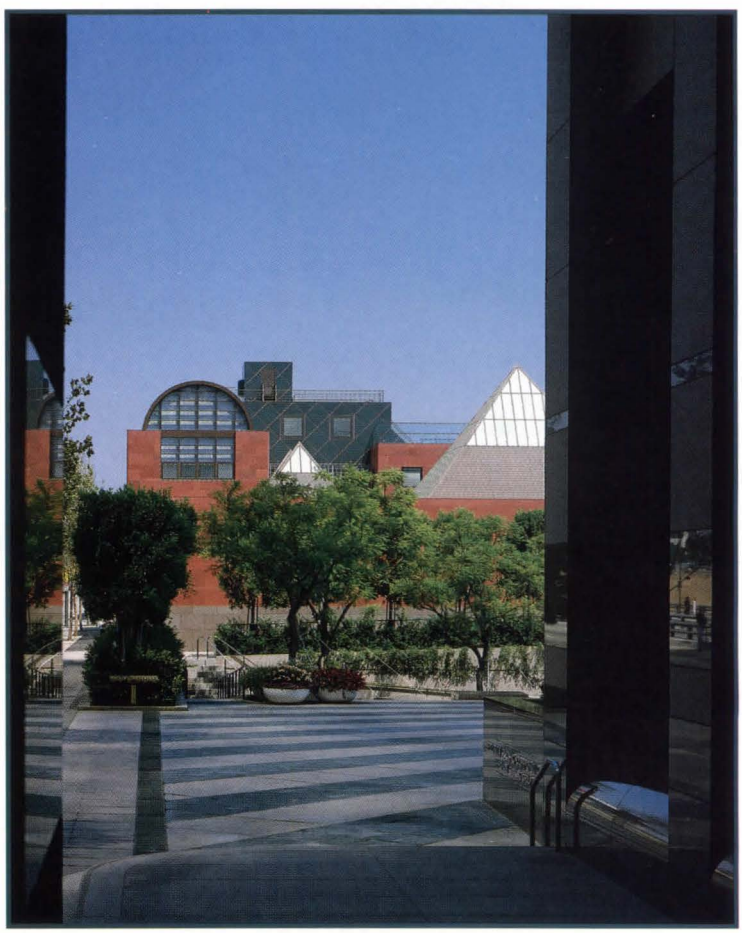

The Museum of Contemporary Art, view from south.

Museum of Contemporary Art
Los Angeles

Most of MOCA's seven-level bulk is concealed below street level, revealing only architect Arata Isozaki's playful assemblage (above, Grand Avenue façade) of geometric solids: the 11 pyramidal skylight forms; the small square block of the elevator tower; and the 53-foot-high, barrel-vaulted element that houses the museum's library and boardroom, and which also serves as a ceremonial gateway to the museum, sheltering a cube-shaped ticket booth. At the street level itself, the museum appears to be two distinct buildings separated by the sculpture court. But the low-rise mass to the south, with its skylights, is actually the upper portion of the double-height spaces of Galleries A, B, and the South Gallery. The slightly taller mass to the north contains the bookstore and three floors of offices, library, and boardroom, with the eight skylight pyramids of the North Gallery's roof beyond.

Red Indian sandstone covers the building in alternating cleft- and honed-finish bands above a red granite base. Aluminum panels, painted dark green with bright pink diagonal joints, cover part of the office wing, the ticket cube, and the underside of the gateway portal (facing page, façade of administrative office/bookstore wing). Copper covers the library roof and pyramid bases.

NEXT month in Los Angeles, the permanent home of The Museum of Contemporary Art will open its doors to the public. The building, the first new structure in the U.S. designed by Tokyo architect Arata Isozaki, has been the focus of widespread attention long before it even broke ground. Given its unusual history, however, that isn't surprising.

MOCA has the distinction of being the country's biggest public artwork. In 1979, just as a committee of prominent local collectors and artists were talking to Mayor Tom Bradley about the need for a museum of contemporary art in Los Angeles, the city's Community Redevelopment Agency was drafting the RFP for an 11.2-acre site in the downtown Bunker Hill area. The CRA, having heard about the Mayor's advisory committee, came up with a rather unorthodox idea. The planned mixed-use development would be required by law to set aside 1½ percent of its budget for public art. Given the billion-dollar scope of the project, why not use the art budget—which would come in at over $20 million—to build a museum? The (privately maintained) museum was then written into the RFP, and The Museum of Contemporary Art went from idea to institution.

Winners of the competition for the development, later christened California Plaza, were developers Cadillac-Fairview, Inc., with Arthur Erickson & Associates as architects. Erickson's original scheme for the museum was turned down by MOCA, which insisted on choosing its own architect. A search committee interviewed a number of well-known architects, and in January 1981, chose Isozaki, because the committee agreed that his work was relatively free of "stylistic preconceptions." But the honeymoon was a short one. Over the next year, Isozaki's battles, with certain committee members who believed that the architecture should be as anonymous as possible (which is odd, considering that anonymity is not exactly Isozaki's trademark), came to a head in March 1982. At the public unveiling of the MOCA design, a visibly distraught Isozaki (after questions by journalists who were puzzled by the project's lackluster quality) essentially disowned his design.

The ensuing coverage of this sensational event brought quick action on the part of MOCA's trustees. The board stripped the architecture committee of its considerable powers and appointed a recent addition to the committee, Frederick M. Nicholas, to the board, and designated him overseer of the building project. Nicholas, an attorney and real estate developer known for his negotiating skills, cleared the way for Isozaki to redesign the museum to his satisfaction—and the board's. Nicholas became MOCA's "building czar," working with Isozaki's office, associated architects Gruen Associates, the developers of California Plaza, the contractors, the CRA, and the museum itself, to bring the project in on time and on budget—which he did, while also overseeing the work on the museum's interim quarters, the Temporary Contemporary (P/A, March 1984, pp. 80–85), a warehouse renovation by Frank O. Gehry & Associates that has been such a popular and critical success that it has become a permanent annex. When museum director Richard Koshalek says, "It's a miracle that we got such a good building out of all of this," he also acknowledges that without Fred Nicholas (who is now the board's Vice-Chairman), there might have been no building at all.

Political intrigue, however, was only one of Isozaki's problems. The other was that of designing a building that not only suited the requirements of the museum but those of the developer—who, after all, was footing the bill. The museum needed space for galleries and related public areas, offices and library, and extensive service areas, totaling 98,000 square feet, with 28,000 of it reserved for the galleries. These were to have high walls, to accommodate the large scale of much contemporary art, and many of them were to have abundant natural light. But MOCA's program had to be integrated into an unusual site.

Fitting In

California Plaza, scheduled for completion in 1992, is a $1.2 billion, mixed-use ensemble of office and residential towers, retail plazas, cultural facilities, a station for the planned Metro Rail system, and public open space, including a reconstruction of the famous Angel's Flight funicular. Bunker Hill Associates, the consortium of Cadillac-Fairview and Metropolitan Structures West (the developer that came in when Cadillac-Fairview's financing faltered), welcomed a museum as a sure-fire way to attract people to L.A.'s chronically underutilized downtown, but the design guidelines set for MOCA by the developers and the CRA were strict ones. The site ultimately chosen for MOCA was on, and partially embedded in, Cal Plaza's five-story parking structure. The museum, which would be entered from Grand Avenue, the site's western boundary, could not block pedestrian access or views to Cal Plaza's future retail tenants. The building, therefore, had to maintain a low profile and had to be split in the middle. Furthermore, its column grid had to conform to that of the parking structure. Still, the developers saw MOCA as the "jewel" in their planned urban setting, according to William J. Hatch, President of Metropolitan Structures West, the project's managing partner.

Given these rather daunting parameters, Isozaki produced a design that gracefully reconciles program and site. The plan consists of two large squares, each made up of two Golden Section rectangles, separated at street level by a sculpture court that satisfies Cal Plaza's requirement for a visual and pedestrian access to retail areas. From street level, the architect built up (administrative offices and library) and down (galleries and service areas). In order to give the museum enough daylighted gallery space, Isozaki placed the galleries on a single floor, one level below Grand Avenue. Given the plans to surround MOCA with tall buildings, he felt that the only way to compete with them was to fragment the building, as much as possible, into what he called "a village in a valley of skyscrapers." Using some of his signature geometric solids—cube (office blocks), pyramid (skylights), and cylinder (library)—Isozaki's orchestration of simple yet arresting "metaphorical images," gives the building considerable iconic power.

Materials offered Isozaki another means of making MOCA stand out. Given the strength of Southern California light, his choice of cleft-finish sandstone (which he

(continued on page 90)

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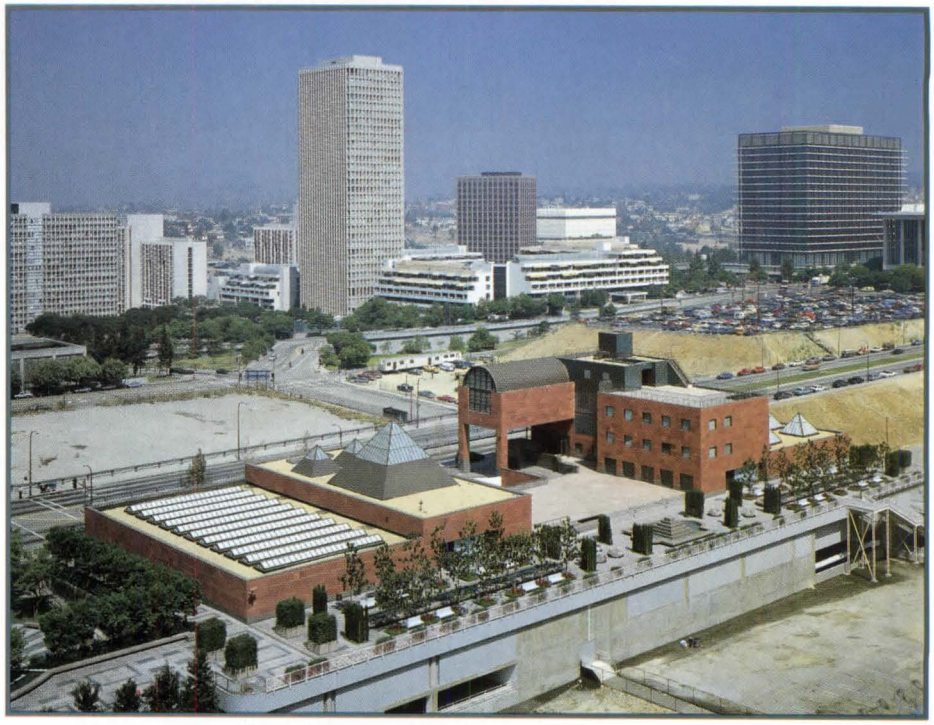

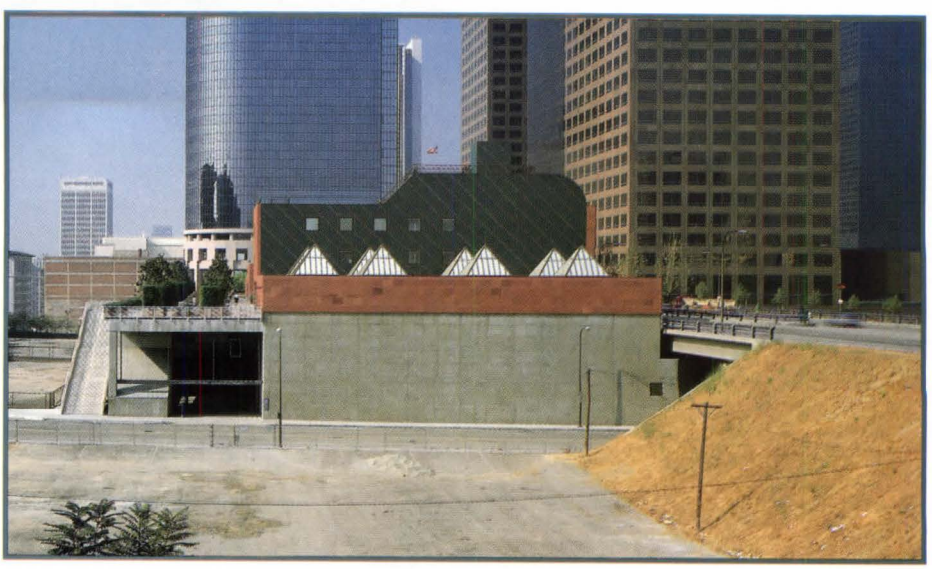

The museum building is built on, and partially in, the parking structure of California Plaza, an 11.2-acre mixed-use development in the downtown Bunker Hill area. Thus far, only a small part of the planned development is complete—MOCA and the 42-story One California Plaza tower (bottom photo, looking north, with tower directly behind museum), designed by Arthur Erickson & Associates, the project's architects and master planners. A view from east of the museum (top) shows the sculpture court that divides the mass of the building that is above street level into two "halves" and offers pedestrian access between Grand Avenue, the primary approach, and the retail areas of One California Plaza (to which the gardens along MOCA's eastern edge belong). While the museum still lacks the setting for which it was so tightly designed, its pyramidal skylights look quite at home with the stepped pyramid of City Hall (center).

The museum is entered under the barrel-vaulted mass of the library (facing page, with bookstore at right, opening onto sculpture court), along a terrace, with a crystallized-glass parapet, on the Grand Avenue side to a stair that leads down to the granite-paved, sunken entrance court (facing page, café at left, museum entrance on right). Isozaki intended the courtyard to be the *outside half of* an "inside-outside" entry.

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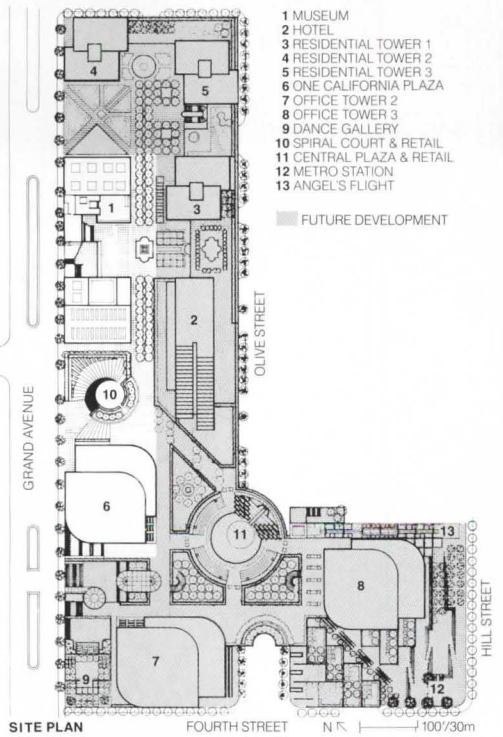
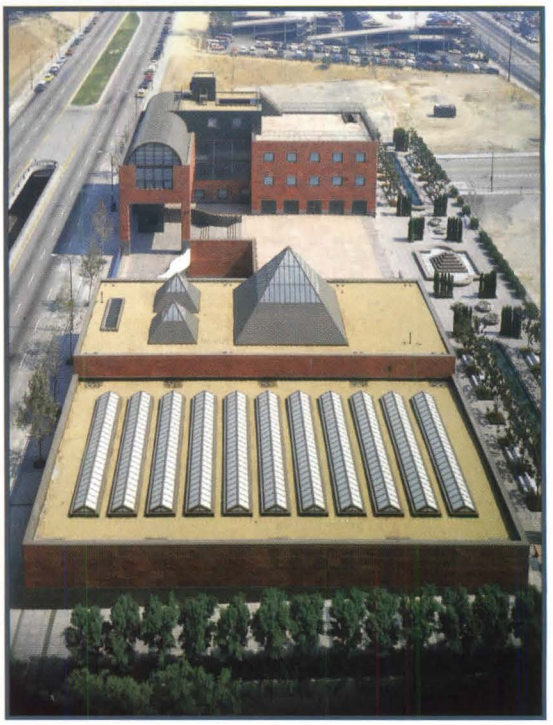
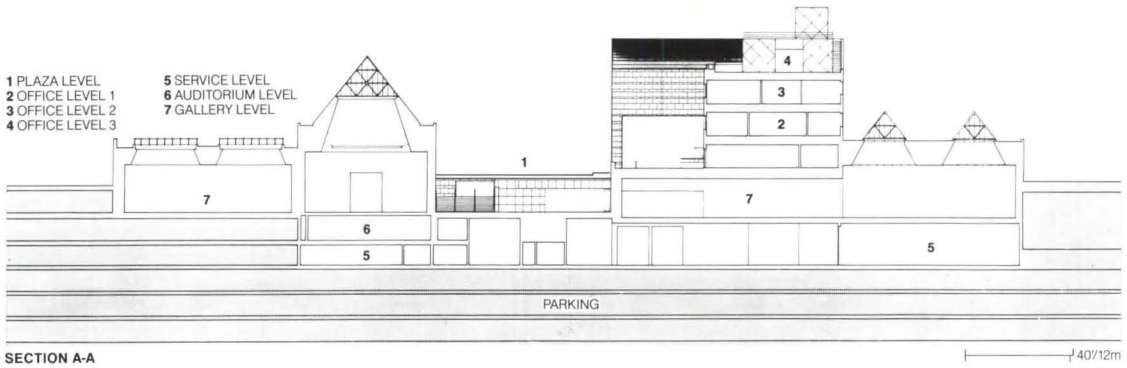


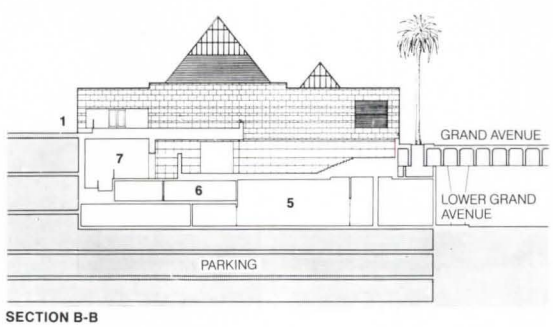
SITE PLAN



In order to keep the museum galleries on a single level and make the gallery interiors as tall as possible within the parameters of the established height and massing restrictions, the architects placed the galleries one level below Grand Avenue. To create galleries with varied "personalities," and which could accommodate a diversity of art and exhibit forms, daylighted galleries (A, B, South, and North) are balanced with artificially lighted ones (C, D, and E), and discrete spaces (A, B, C, and E) with those that are divisible by partition walls (South, North, and D). The galleries are accessible to museum staff via a passenger elevator, but the public must use either the sunken court entry or the group/handicapped entrance, on the south side of the sculpture court, which has its own stair and elevator down to the gallery level (see Plaza Level plan). The level below the galleries houses all the museum's service areas, including art storage and preparation, and the loading dock, which is accessible from Lower Grand Avenue—essentially a service street for the museum and the California Plaza parking structure into which the museum is set. The 35,000-square-foot service area is separated into "clean" (art storage, crating, inspection, photography studio, framing workshop) and "dirty" (workshop, miscellaneous storage, etc.) zones.



SECTION A-A



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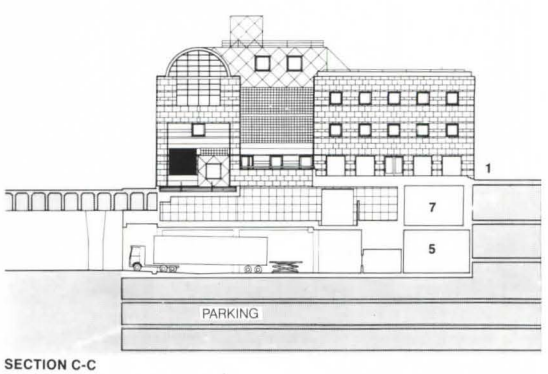
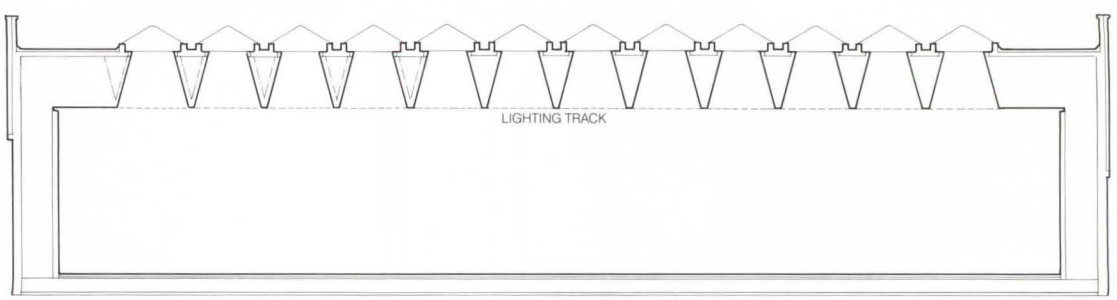
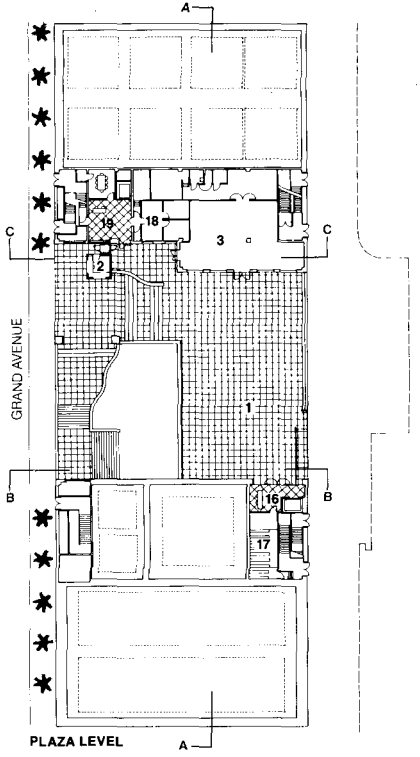


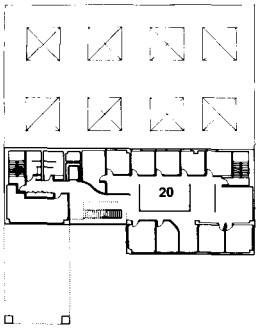
SECTION C-C

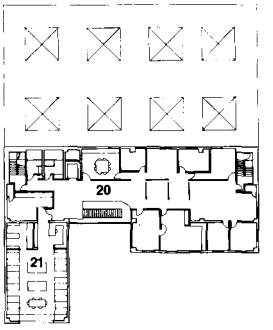


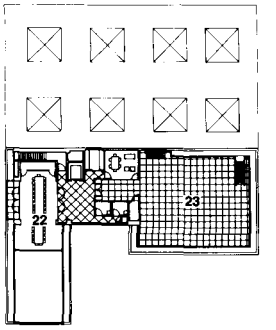
LONGITUDINAL SECTION, SOUTH GALLERY

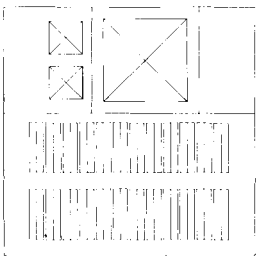


PLAZA LEVEL

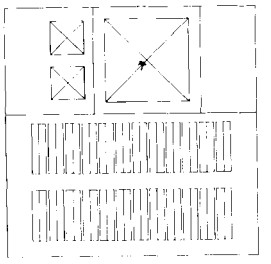




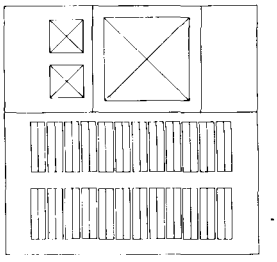




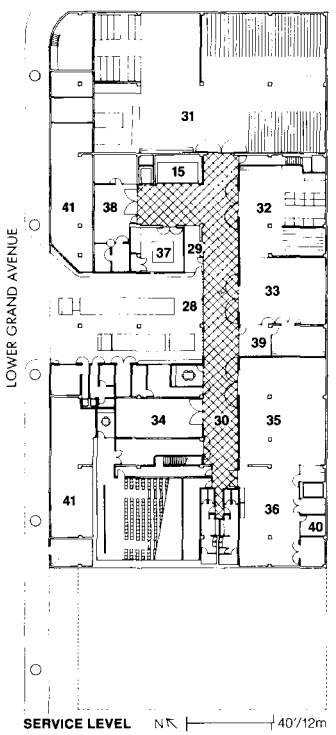
OFFICE LEVEL 1



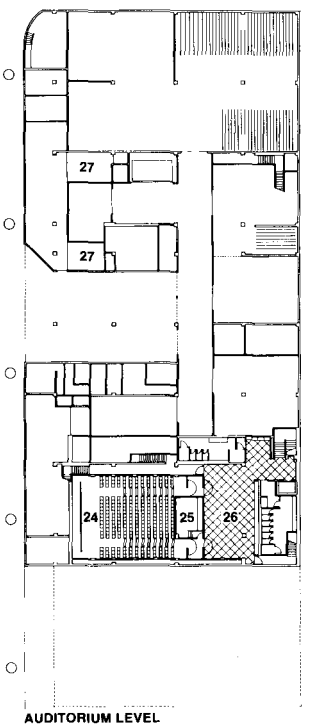
OFFICE LEVEL 2



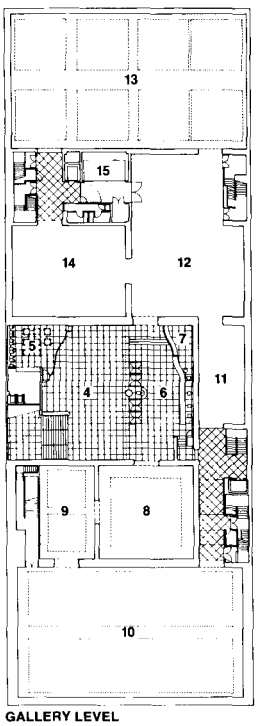
OFFICE LEVEL 3



SERVICE LEVEL N 40'/12m

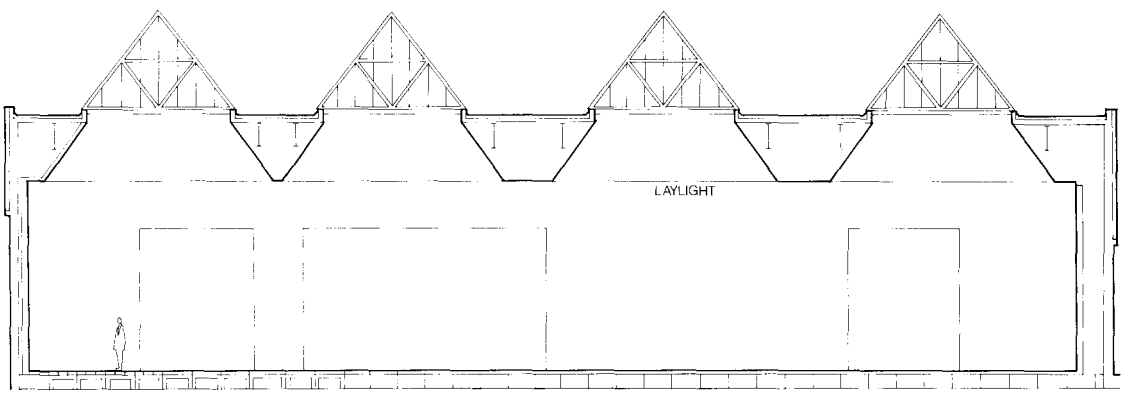


AUDITORIUM LEVEL



GALLERY LEVEL

1 SCULPTURE COURT
2 TICKET CUBE
3 BOOKSTORE
4 ENTRANCE COURT
5 CAFE
6 ENTRANCE LOBBY
7 INFORMATION AND COAT CHECK
8 GALLERY A
9 GALLERY B
10 SOUTH GALLERY
11 GALLERY C
12 GALLERY D
13 NORTH GALLERY
14 GALLERY E
15 ART ELEVATOR
16 GROUP AND HANDICAPPED ENTRY
17 ORIENTATION
18 EDUCATION
19 OFFICE ENTRANCE
20 OFFICES
21 LIBRARY
22 BOARDROOM
23 ROOF TERRACE
24 AUDITORIUM
25 CONTROL ROOM
26 LOBBY/VIDEO GALLERY
27 MECHANICAL MEZZANINE
28 LOADING DOCK
29 SECURITY
30 CONCOURSE
31 PERMANENT STORAGE
32 TEMPORARY STORAGE
33 CRATE PACKING/UNPACKING
34 CRATE STORAGE
35 FABRICATION
36 TOOL WORK AREA
37 FRAMING AND MATTING
38 PHOTOGRAPHY STUDIO
39 REGISTRAR
40 EXHIBITION INSTALLER
41 MECHANICAL/ELECTRICAL



LONGITUDINAL SECTION, NORTH GALLERY 10'/3m

The counterclockwise, spiral circulation scheme designed by Isozaki for the gallery level begins at the public entrance lobby (above), a compressed, low-ceilinged space with granite floors, crystallized-glass clad walls and information/membership desk, and ceiling panels of brushed stainless steel. At opposite ends of the information desk are the coat check and handicapped lift. The lobby leads directly into Gallery A (above, in distance, and facing page), the most dramatic of the museum's seven galleries. A 45-foot-square room with 23-foot-high walls, its pyramidal, skylight-topped vault rises 60 feet from the floor. It has the highest level of natural light of the four daylighted galleries, and is intended to display large-scale sculpture and paintings. Supplemental track lighting is installed at the base of the skylight, and hardware for air circulation, fire alarm, public address, etc., is carefully integrated into the geometry of the interior. The Minimalist spaces illustrate Isozaki's intention to make the galleries as neutral as possible, to provide the proper setting for the contemporary works on display—in this case, Franz Kline's paintings *Black Iris* (left) and *Sabro II* (right), and Louise Nevelson's sculpture *Moon Fountain*. (These works, from MOCA's permanent collection, do not represent an actual installation.)

(continued from page 84)

had used in the Fukuoka Mutual Bank) is an inspired one. The dark-green aluminum panels, with their rotated grid of pink channels, are a playfully Post-Modern touch, but strike a rather trendy note among forms and materials that are not so easily dated.

But if Isozaki felt no qualms about taking stylistic liberties with the museum's exterior, he checked his eclectic tendencies at its front door. The seven galleries are uniformly Minimalist in their lack of architectural embellishment; there isn't a column, molding, or baseboard in sight. Their individual "personalities" are defined solely by proportion and light.

The Galleries

Back when the architecture committee was visiting other museums in order to develop a program for MOCA, they were struck by the daylighting strategy used in Jørgen Bo and Vilhelm Wohlert's addition to the Louisiana Museum in Denmark (P/A, Aug. 1983, pp. 82–87). A sawtooth skylight, made of a translucent, multilayered synthetic filtering material sandwiched between layers of glass, sent diffused light into the gallery, through a fiberglass ceiling scrim. The architecture committee asked Isozaki for a similar design, which he and lighting designer Paul Marantz carried out—minus the scrim and plus a series of interior baffles—in the sunny South Gallery, and which was translated into a traditional laylight system in the more subdued North Gallery. The same glazing material is used for the skylights that crown the pyramidal vaults of Galleries A and B, the museum's most spectacular, exhilarating spaces.

Isozaki designed the galleries to be negotiated in a pair of counterclockwise spirals (his Oriental answer to the Western proportions of the plan), with minimal corridor space; each gallery was, whenever possible, to lead directly into the next. This strategy works clearly, but makes for some awkward moments in the straight stretch between the two spirals. As you leave the South Gallery, the stair and elevator from the group/handicapped entrance on the plaza level create a sort of "back door" vestibule along the museum's east side, and the small gallery (Gallery C) adjacent to it looks more like an alcove than a room. Further along this east wall, in Gallery D, a large, artificially lighted space that leads into the North Gallery, two sets of emergency-exit doors make the room look as if it had been borrowed for the occasion. A little corridor space might not have hurt after all.

The galleries are elegantly detailed (even sprinkler heads look impeccable in Isozaki's ordered geometry, and the technical equipment controls and signage are confined to elegant metal-paneled consoles on the walls). The white walls and maple floors (heaven for museum-goers because they are cushioned like a dance floor, but hell to maintain) form about as neutral a background as you can create, but it is the proportions of Isozaki's spaces, just as much as their Minimalist aesthetic, that reveal his obvious understanding of contemporary art.

Access and Context

MOCA's unusual site conditions do cause a few logistical problems. Once you've walked up Grand Avenue to the gateway formed by the elevated block of MOCA's library and bought your admission ticket, your first impulse is to ascend the short flight of steps to the sculpture court, but what you'll find there are the office entrance, bookstore, and group/handicapped entrance. The general public must enter through the lobby, down the stairs just north of the ticket cube. Part of this confusion results from the design guidelines, which required that the bookstore be on the same level as the Cal Plaza retail areas. (Handicapped visitors, by the way, must take a lift up from Grand Avenue, and cross the court to the handicapped entrance, to get an elevator down to the gallery floors.) Visitors coming up from the Cal Plaza garage may have a difficult time finding their way to the museum through the public spaces of One California Plaza, the one office building thus far completed on the site. Directional signage there is both inadequate and misleading.

Ironically, MOCA's success on the level of urban design is impossible to evaluate, because most of the setting for California Plaza's jewel is still missing; the two remaining office towers, three residential towers, and hotel are a few years off. MOCA looks impressive from Grand Avenue, its intended path of approach, but from any other direction, it looks a bit like a ship stuck on a sandbar; as Bunker Hill drops off to the east, Isozaki's red-sandstone blocks sit high and dry on Cal Plaza's concrete parking structure. But even when the tide comes in and tall buildings rise around it, MOCA will be much more than what Isozaki so modestly described as a village in a valley of skyscrapers. These skyscrapers, which adhere closely to the anonymous norm of Downtown, U.S.A., may dwarf Isozaki's building, but they won't be able to beat it for sheer formal or material muscle. (Although careful studies were made to ensure that the galleries would have sufficient levels of natural light even when in shadow, you wonder what will happen to the sensuous play of sun on the sandstone when all the adjacent buildings are up.) Isozaki's use of simple but overscaled forms and his confident hand with unusual materials (red sandstone is a real novelty in Los Angeles) will ensure that MOCA will keep top billing in this particular show—and, just as important, will become a focal point in a neighborhood that really needs one.

The museum has come a long way from being a gleam in a committee's collective eye seven years ago. It can now boast not one, but two, first-rate buildings by renowned architects, and a combined amount of exhibition space (nearly 80,000 square feet) that other museums dream of—and which will be a blessing as MOCA's permanent collection grows, since the site restrictions at California Plaza forbid any additions to the building. It has a monumental, luxurious building, and a gritty, industrial building, which together offer appropriate settings for a vast range of contemporary art forms. While the Temporary Contemporary played a key part in putting MOCA on the art world map, the museum wanted a permanent home that suited its aspirations to institutional immortality, and Isozaki's building is it. But this isn't mindless monumentality; it's the sort of carefully considered solidity that makes the difference between a building and a landmark. ***Pilar Viladas*** ■

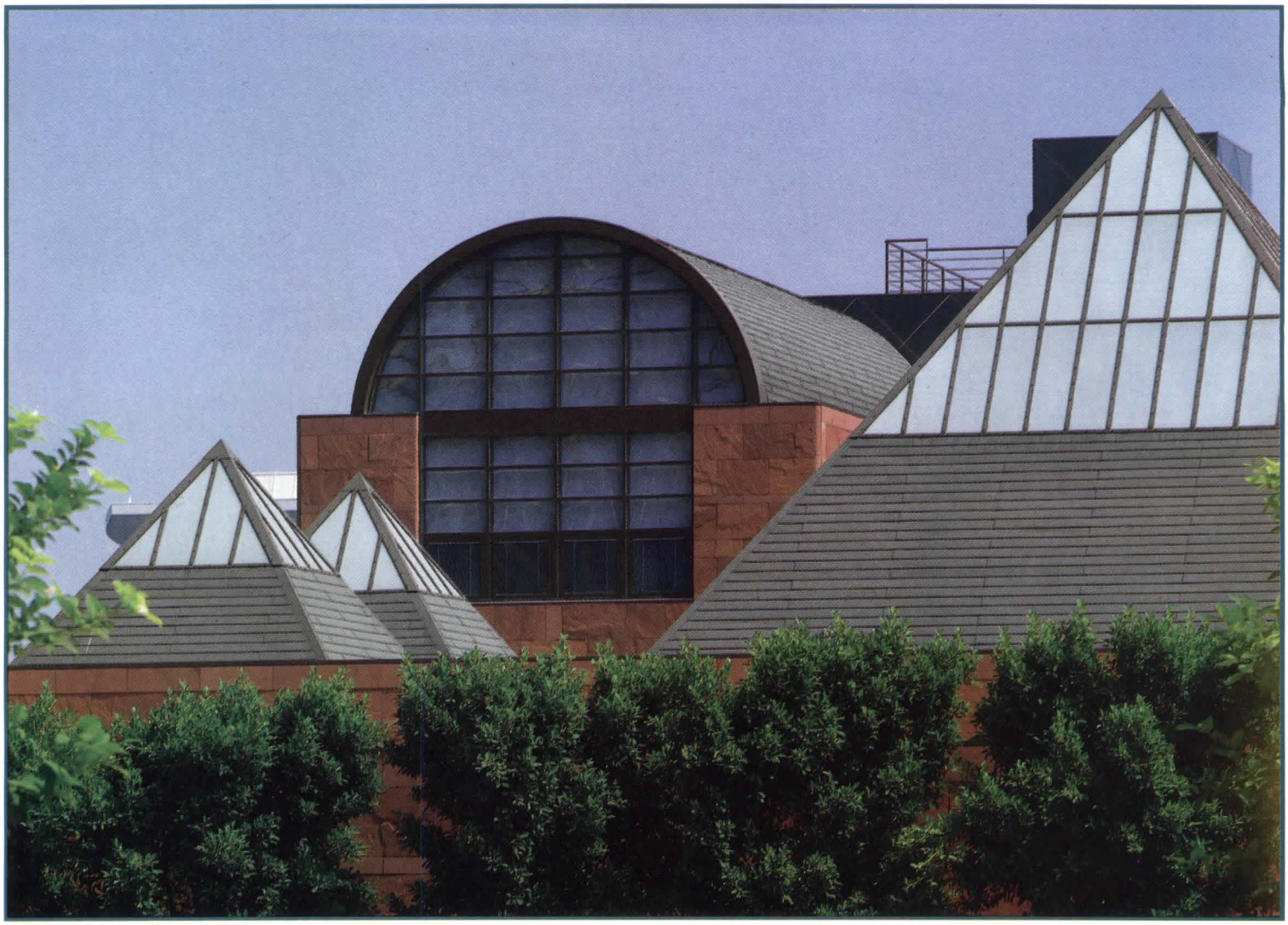
Gallery A leads directly into Gallery B (bottom), a 1200-square-foot, rectangular space, with 18-foot-high walls, and a pair of pyramidal skylight vaults. With its light levels lower than those of Gallery A, Gallery B has a more mysterious atmosphere that seems well suited to paintings such as Mark Rothko's *Brown Blue, Brown on Blue* (bottom, at right). Gallery B leads, in turn, directly into the South Gallery, where Brice Marden's *Fass* is visible (bottom, in distance).

The South Gallery (top) is a long, 6800-square-foot space topped by sawtooth skylights and interior baffles that minimize shadows. Track lighting is suspended in a grid 18 feet above the floor. The gallery can be subdivided to display artworks of varied sizes and scales, such as Wallace Berman's collage, *Silent Series #14,* left, and Matt Mullican's *Untitled (Yellow and Black City),* right.

The North Gallery (facing page, shown here with partition walls) is a large, divisible gallery with dimensions almost identical to those of the *South Gallery,* but with a more traditional, double-glazed laylight system. Light enters through eight pyramidal skylights, and is further diffused through the laylights. Partially visible in the distance at left is Tom Wesselman's *Bedroom Painting #3,* and at right, Ron Davis's *Bent Vents and Octangular;* Robert Rauschenberg's *Gift for Apollo* is in the foreground.

The museum's 162-fixed-seat auditorium (facing page, bottom) is located a half-level down from the gallery level. Its concrete walls are punctuated by custom-made, perforated stainless-steel acoustical panels.

One of the most dramatic spaces in Isozaki's composition for MOCA is that of the library (this page, top, and facing page, top), a 23-foot-high, concrete barrel-vaulted volume with a 20-foot-high "window" of white onyx (and four clear glass windows underneath). The onyx, for which Isozaki cites the precedent of Skidmore, Owings & Merrill's Beinecke Rare Book and Manuscript Library at Yale, was the architect's answer to the problem of shading the library interior from heat gain and harmful UV rays, without having to resort to a cumbersome shading system that would obscure the strong architectural forms of the window. Tucked into the top of the barrel vault at its north end is the boardroom (this page, bottom), which overlooks the library floor one level below, and which opens onto a small balcony on the west and a roof terrace on the east. The mirror at the north end of the room conceals a movie screen; the sleek, stainless steel light fixture that runs the length of the vault was designed by Isozaki.



Project: *The Museum of Contemporary Art, Los Angeles, Calif.*
Architect: *Arata Isozaki & Associates, Tokyo (Arata Isozaki, principal in charge; Makoto Shin Watanabe, project designer; Makoto Kikuchi, Ron Rose, Hajime Yatsuka, Allyne Winderman, design team).*
Associate architect: *Gruen Associates, Los Angeles, Calif. (Herman Guttman, Kurt Franzen, partners in charge; Robert Barnett, project architect; Jonathan Hankin, Anna Marie Howell, Chad Dasnajali, production team; Mike Enomoto, construction supervisor; Teresa Sanchez, Victoria Austin, construction coordinators).*
Client: *The Museum of Contemporary Art, Los Angeles (Richard Koshalek, Director; Frederick Nicholas, Vice Chairman, Board of Trustees, and building facilitator; Marcy Goodwin, architectural coordinator).*
Developer: *Bunker Hill Associates; Metropolitan Structures West, Los Angeles, Calif., managing general partner (William J. Hatch, President; Shem Krey, project manager).*
Site: *a 340′ x 110′ lot on Grand Avenue between Second and Third Streets.*
Program: *98,000 sq ft,including 28,000 sq ft of galleries; 35,000 sq ft of service areas; bookstore, café; auditorium, offices, and library.*
Structural system: *cast-in-place concrete system combining beam and slab, flat slab, waffle-joist slab, and post-tensioned beams; cast-in-place library/boardroom barrel vault; and structural steel beam and truss roofs with concrete slabs on steel decking.*
Building materials: *concrete; sandstone; aluminum; granite; copper; crystallized glass; glass block; wood flooring; drywall; acoustical tile (see Building Materials, p. 160).*
Mechanical system: *chilled and hot water from California Plaza central plant; multizone unit for galleries and service areas; pre-action sprinkler system.*
Consultants: *John A. Martin & Associates, structural; Syska & Hennessy, mechanical; Jules Fisher & Paul Marantz, Inc., lighting; Bolt, Beranek & Newman, acoustical and audio-visual; Chermayeff & Geismar Associates, graphics; Patricia Moritz, architectural graphics. Gage-Babcock & Associates, fire protection; ABM Security Consulting, Security; Marcy Goodwin, Nancy Rogers, interiors.*
General contractor: *HCB Contractors.*
Costs: *$22 million.*
Photos: *Richard Bryant.*

Rebuilt from the Ashes

Two East German landmarks, Karl Friedrich Schinkel's Schauspielhaus (beginning this page) and Gottfried Semper's Opera House (p. 102), have recently been restored.

Among the thousands of important buildings badly damaged in World War II were two landmark theaters shown on these pages, the Schauspielhaus by Schinkel in East Berlin and the Opera House by Semper in Dresden. Aside from the considerable practical problems of rebuilding—cost, dearth of traditionally trained craftsmen—there were difficult philosophical questions: Could modern technological trappings be rationalized within significant traditional forms? And paramount: Should a Communist regime display and even honor flagrant forms of an Imperial past?

Fortunately, during the years these debates were carried on, national and international attitudes towards preservation changed. The East Germans, observing the esteem that important historical buildings conferred upon their possessors, found it in their hearts to save the prime examples of their natural cultural heritage and to value their reconstruction as a mission of the working class. (See also P/A, Nov. 1981, pp. 86–91.)

For both buildings, the exteriors were rebuilt according to the original models, but adjustments had to be made to incorporate modern-day requirements. In these two cases, the policy as to how these adjustments were made differed significantly.

THE area of Friedrichstadt in what is now the east sector of Berlin was laid out in 1692 on a strict rectangular grid, with buildings holding the street lines. Three central blocks were set aside as the Gendarmenmarkt, or market square, now the Platz der Akademie, and over time three sculptural buildings were erected. First, in 1700, two small churches were built, a Huguenot Church in the north block and a German Church in the south. Then, in the 1770s, the idea of creating a unified symmetrical complex with a central building was conceived, and a small French Theater was built in the middle block, a tall domed tower being added to each of the churches. At the turn of the century a large theater by the architect Carl Gotthard Landhans replaced the smaller one, but it was a building mocked and criticized by many, including architect Karl Friedrich Schinkel.

As luck would have it, in 1817 the despised theater burned down, and Schinkel was commissioned to build a new one, a court theater, but with a number of constraints: the foundation of the former theater had to be used, as well as six monumental Ionic columns from the portico; and while the building was to be no larger than the former one, it had to include rooms for festive court occasions, leaving less space for the theater itself. In the resultant Schauspielhaus, the theater, with a semicircular house and a large proscenium stage, occupied the high central wing. The north and south wings contained rooms for festive events, and on the upper level of the south wing was a small and charming concert hall. While a monumental staircase led to the building's symbolic entrance, generally theater-goers entered at base level, via a porte-cochère under the grand staircase.

The Schauspielhaus, completed in 1821, was celebrated for its dramatic presence at the focal point of the square, as well as for the avant-garde ordering system of its façades: Pilasters were organized on a modular grid, with windows spanning from pilaster to pilaster, foreshadowing the skeleton structures of the modern age while reflecting the Trassyllos Monument in Athens, which Schinkel knew from an 18th-Century publication.

The exterior of the Schauspielhaus, highly revered, underwent almost no change until World War II. Not so the interior. As the restraint and modesty of the appointments did not fulfill the ideals of the Kaiser at the turn of the 20th Century, the central theater was redone in a Neo-Baroque style. In 1935, an attempt was made to reverse the damage and return the interior to its original form.

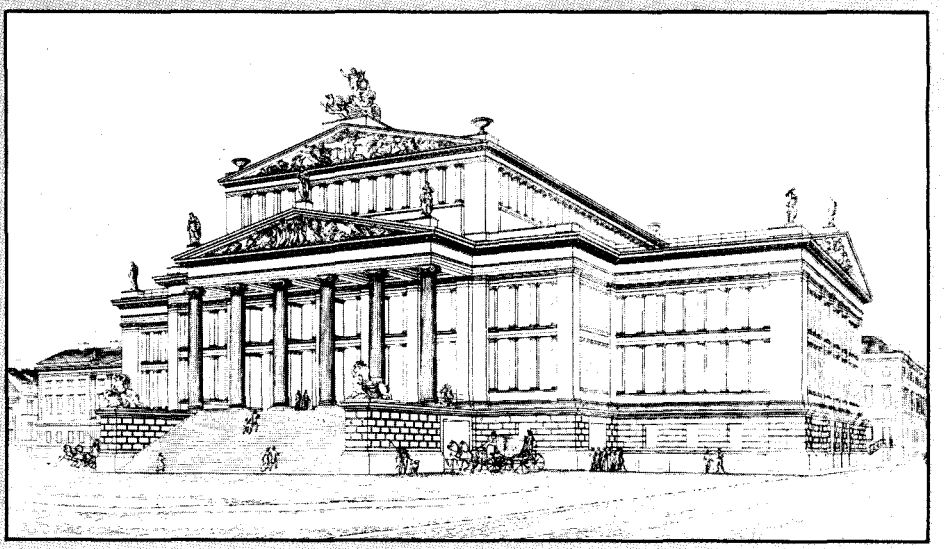
In 1943, a bomb fell on the Huguenot Church, starting a fire which left the Schauspielhaus little more than a shell. Shoring-up efforts began in the 1950s, but there followed two decades of deliberation on the building's fate. In 1966 the decision was made to insert a concert hall in the large central space rather than recreate a theater for drama, but the problem still remained: in what style? For the exterior there was no question. The celebrated form of the original would be recreated as authentically as possible. For the interior, the answer came only in 1976: the architect Manfred Prasser proposed it be designed freely, but "in the style of Schinkel." In 1984, the work was complete.

The exterior was restored in sandstone, as Schinkel had originally planned (though for budget reasons it was first executed in stucco and only in the 1880s redone in stone). The gable reliefs presented a quandary: Except for the one over the main por-

(continued on page 100)

When a bomb fell on the Huguenot Church in Berlin in 1943, fires raged (background photo), destroying the interiors and badly damaging the exteriors of the three buildings on the Gendarmenmarkt Square. The three buildings, shown before the war (photo top right) are two 18th-Century churches—Huguenot to the right, German to the left—and the central Schauspielhaus by Schinkel.

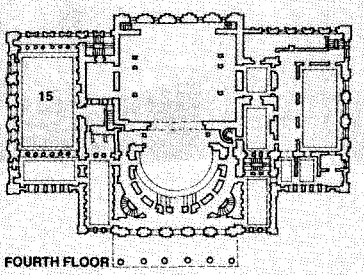
The exterior of the post-war Schauspielhaus (top left) was repaired (right) in sandstone, though the relief work in all the gables but the topmost one were redone in stucco, as in Schinkel's time. The exterior sculpture program recreated scenes from antique mythology, with the theater as unifying theme. The building is crowned by a sculpture of Apollo, the leader of the Muses, in a Roman quadriga, and the reliefs in the gables represent the stories of Orpheus, of Dionysus and Ariadne, of Niobe, and of others, all designed by Schinkel's friend Friedrich Tieck and executed by the craftsman Rathgeber.



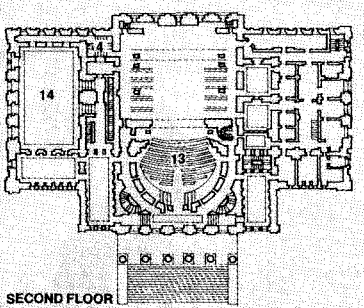
The exterior of the Schauspielhaus was rebuilt in a faithful rendition of Schinkel's original. The restoration of the relief work in the gable encompassed stabilization and repair (as can be seen from the before and after detail, above, from the north gable, a depiction of Ariadne and Dionysus), as well as informed invention.

The interior, on the other hand, was changed considerably. The rectilinear, Classical exterior (as illustrated in Schinkel's own drawing, top right) originally housed a horseshoe-shaped theater (small plans, right) but the new layout incorporated a rectangular concert hall (large plans, far right).

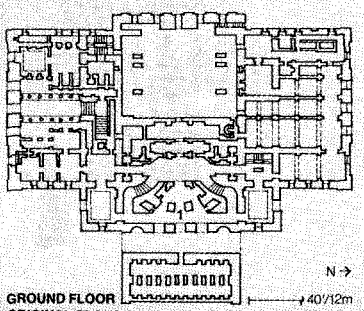
The architects' attitude towards interior decoration called for "free style" Classicism, as Schinkel might have done it but without specific models. This can be seen in the Carl Maria von Weber Room (facing page), a reception room in the building's north wing.



FOURTH FLOOR

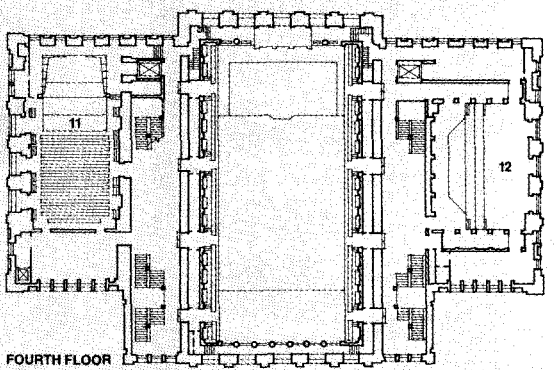


SECOND FLOOR



GROUND FLOOR
ORIGINAL PLANS

1 ENTRANCE
2 ENTRANCE HALL
3 COAT ROOM
4 MUSIC CLUB
5 CONCERT HALL
6 BEETHOVEN RECEPTION ROOM
7 WEBER RECEPTION ROOM
8 BAR
9 VESTIBULE
10 PORTICO
11 CHAMBER MUSIC HALL
12 REHEARSAL HALL
13 MAIN THEATER
14 RECEPTION ROOM
15 SMALL CONCERT HALL



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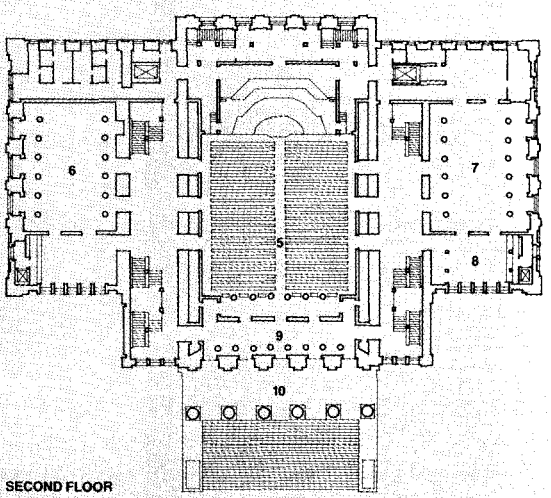
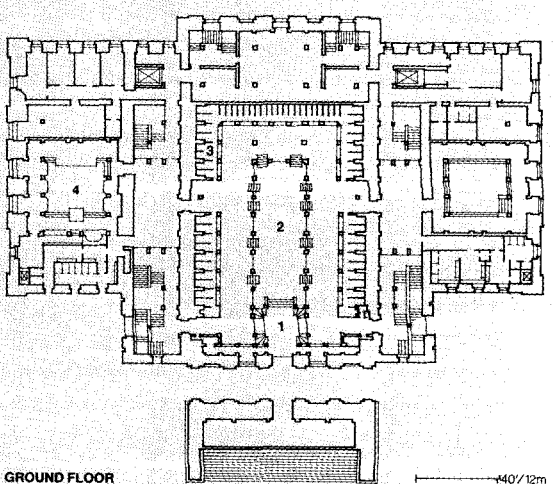


SECOND FLOOR



GROUND FLOOR

tico, which had been done in sandstone, they were all of stucco. Should the higher quality material be used throughout? Finally, because of the difficulty of achieving the original deep relief of these sculptures in sandstone, stucco was used again.

As to the interior, the layout changes were approached in a simple, straightforward way, the resultant plans seeming almost more fitting than Schinkel's original design: The central space, now a 1750-seat concert hall, is Classically rectangular (150 by 70 feet, and 60 feet high), rendering the rectangular envelope, after all this time, an honest reflection of the interior. The small concert hall in the south wing is now a chamber music hall, reception rooms again occupy the second floor, and new cloakrooms on the ground floor and staircases throughout are generously scaled. The principal entrance is still via the original porte-cochère.

But the approach to the decoration of the large concert hall must rank as the most curious preservation story in modern times. Except for this hall, the rooms are designed Classically, as Schinkel might have done them, but without any literal models. Judged as contemporary Classical rooms, they are very pleasant, especially the pink, blue, and silver chamber music hall and the blue Carl Maria von Weber reception room. But in the main hall, the architects, perhaps losing their nerve for "free" design, resorted to applying the motifs from the original small concert hall. The motifs are indeed admirable, and one wonders why the architects did not choose to reuse them in their original space, recreating the little hall perfectly. Instead, they applied them to a room over four times as large in plan (and ten times the volume), an approach that is questionable intellectually and gave rise to certain physical distortions. While the original little hall had one balcony running along the two sides, the new hall has an extra balcony along the sides and across the back, and the original six Ionic columns along the rear wall of the small room have been increased in size to fit the larger space. The resultant upper wall treatment seems to squash the short base treatment below it. Meanwhile, the new non-proscenium stage, which can be varied in size by lowering or raising numerous platforms, is an uncomfortable modern insertion, and the arches of the contemporary organ do not marry well with the Schinkelesque parts.

The architecture-as-wallpaper approach has required a number of curious adaptations: The diagonally coffered ceiling contained six circular paintings; 16 more had to be created. Sixteen sculptures had decorated the upper walls in the original hall and were re-created from old photographs and drawings; eight extra had to be invented. Eighteen busts of famous German musicians had turned the original hall, according to Schinkel's vision, into a Valhalla of German music, but now 38 were needed: A number of international musicians were recruited, while some of the original composers were unceremoniously withdrawn. While the resultant hall is impressive for the number and virtuosity of its parts, it is not an unqualified success. One never quite loses the sense that it is just a big hall with decoration added.

Important locally as the interior rehabilitation of the Schauspielhaus has been, it is evident that the re-creation of the exterior is the internationally significant act of preservation, and the East Germans are completing the urban complex. The square itself has been restored (to its late 19th-Century state, with pavement, not grass as in Schinkel's time); the Huguenot church has been rebuilt as a community center; the German church is being restored; and the gaps in the surrounding blocks are being filled in. ***Susan Doubilet*** ■

The chamber music hall (facing page top), located in the space formerly occupied by a small concert hall, as well as the foyer in front of the main concert hall (facing page bottom), are new designs in a free Schinkelesque style. But the large concert hall (above) is based on Schinkel's original small concert hall, shown in a 1935 photograph (right). Motifs are either repeated to fill the much larger space (the ceiling coffers, for example) or enlarged to fit. The organ and the stage are modern designs.

Project: *Schauspielhaus, East Berlin.*
Original architect: *Karl Friedrich Schinkel.*
Restoration architects: *Eberhard Gisske, Klaus Just, Manfred Prasser, East Berlin.*
Site: *The Platz der Akademie, formerly Gendarmenmarkt, East Berlin.*
Program: *large concert hall, up to 1800 seats; chamber music hall; reception rooms; offices; rehearsal rooms; changing rooms; music club; cloakrooms.*
Structure: *new steel frame.*
Major materials: *Exterior: sandstone, stucco. Interior: plaster, faux marbre, terrazzo floors, brass handrails.*
Cost: *115 million DDR Marks. (Official value, 1985: $40 million; market value: $10 million.)*
Photos: *Courtesy of the Landmark Preservation Institute, East Berlin.*

Gottfried Semper's second Opera House in Dresden has been rebuilt to modern technical standards, but following in every way possible the original design.

THE German town of Dresden, the "Florence on the Elbe," was renowned for centuries for its culture and great beauty. The Theater-Platz on the banks of the Elbe River, a center of courtly and cultural life, had been the site of the medieval Electoral Castle, the Catholic court church, the Zwinger Palace (converted to a museum in this century), and, in turn, numerous theaters and opera houses.

In 1817, Gottfried Semper, a professor at the Dresden Academy, was commissioned to design a royal court theater on the Theater-Platz. Semper, known as a reformer, espoused a belief in theater for the middle class rather than for aristocracy, and to represent his sympathies he chose the early Italian Renaissance style for his building instead of the prevalent court Baroque.

In 1869 the court theater burned down. By then Semper was living in Vienna, having fled there (via London, Paris, and Zurich) from Dresden after taking part in the Revolution of 1849. Chosen by popular referendum to design the new court theater, he agreed to do it, but from Vienna. Setting up his son Manfred as project leader in Dresden, he designed and controlled every detail of the theater himself by means of daily letters.

While retaining his first opera's basic parti, Semper, out for glory, now chose Venetian High Renaissance as the building's style, so that the pathos and grandeur of the theater would stand out in the complex on the Elbe.

This second theater, built slightly west of the earlier one, also had a semicircular house, with curved foyers on two levels ringing the house and looking out upon the plaza. This time, however, the plaza façade, rather than following the semicircle of the house, was a segment of a circle, considered somewhat of a transgression against Semper's ideal of clear formal expression. Stair towers on the sides gave access to the five balcony levels above. The building's decorative program was based on Greek mythological tales related to the theater, as well as scenes and personalities from contemporary theater and opera. While Semper organized artists to design the individual works, he had a specific orchestration in mind: Decoration in the lower spaces was kept simple to pave the way for the splendor above; and in the house, only the painted curtain was elaborate. The second theater opened in February of 1878.

In 1912, as tastes changed, the foyers were repainted in a Jugendstil manner. But in February of 1945, the bombing of Dresden left the theater little more than a shell.

The building was shored up in the 1950s, and neighboring buildings—the Zwinger, the church—were rebuilt, but the problem of how to build an opera house to modern technical standards took years to resolve. Overbearing modern additions were proposed, but the preservationists, who wanted to build a faithful replica of the old, finally won out. First, they were able to prove that research material existed (Gottfried's 6000 letters to Manfred in the ETH archives in Zurich were, needless to say, invaluable) and to demonstrate through mockups that craftsmen could be found or trained to carry out the artwork. Second, they could point to the exquisite acoustics of the original theater. Third, they agreed to a compromise—to widen the back section of the building, enlarging the stage house. Three low modern square buildings for prop workshops, practice rooms, café, and offices were erected at a small distance, behind the original building, connected to it by glazed bridges. The reconstructed theater, now known as the Semper Opera House, reopened in early 1985.

The foyers and the stair towers were redone authentically, but numerous changes had to be made in the house, and decorative treatments had to be altered to fit. Its back wall was pushed back five feet by relocating some of the stairs, further aggravating the semicircle/segment problem; the fifth balcony, which had had poor sight lines, has become the lighting gallery; and the decorative ceiling had to be adjusted by the addition of a concentric ring. The other balconies are angled down towards the stage, and to adjust to this change the columns of the proscenium have been elongated. And separate loges no longer exist. Even the preservationists involved admit that the coloring of the house overall is slightly too light, and the painted curtain, re-created according to a sketch by the painter Ferdinand Keller, is too somber.

The foyers and stairtowers, however, have regained their original magnificence. They are the rooms, after all, to which the greatest artistic energy was originally devoted, and they are again the decorative climax of the architecture.

Susan Doubilet ■

The front façade of the Semper Opera House (above), facing the Theater Square, reflects the form of the building within, an important principle of Semper's: The walls of the rounded foyers represent the almost concentric theater house behind them, while the tall stage house rises like an ancient temple in the rear. Semper used the Italian High Renaissance as his stylistic model, and based his sculptural program on theatrical themes from Greek mythology, ancient Greece, and contemporary Europe. While the central entrance serves for state occasions, the side porte-cochère entrances are normally used.

This façade, fortunately, was scarcely hurt in the war. Even the painting in the exedra, though repainted before the war, was hardly damaged and could be uncovered. The sandstone walls, taken from quarries along the Elbe River, needed some patching and cleaning. The contrasting textures on the façades reflect Semper's interest in the effect of sun on stone.

To the right of the opera house, at a slight distance, is the Elbe River. To the left, also facing the square, is the restored Zwinger, originally a palace and now a museum, with a picture gallery by Semper. Nearby is a guardhouse by Karl Friedrich Schinkel, recently restored to serve as the opera house's box office.

The curved upper foyer (facing page) was designed to have the festive spirit of a gallery in a 17th-Century castle. As one passes through it, new views constantly unfold: of the court church, of the electoral castle, and of the Zwinger's picture gallery. The coffered ceiling is richly elaborated, with paintings in each of the ovals based on the themes of heroism and love.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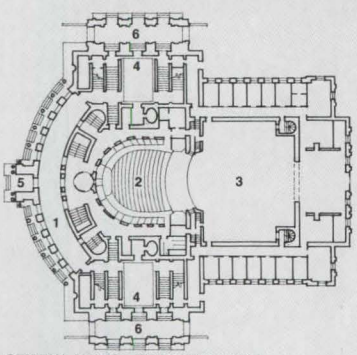
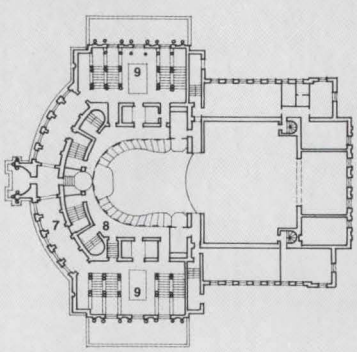
REISIGER



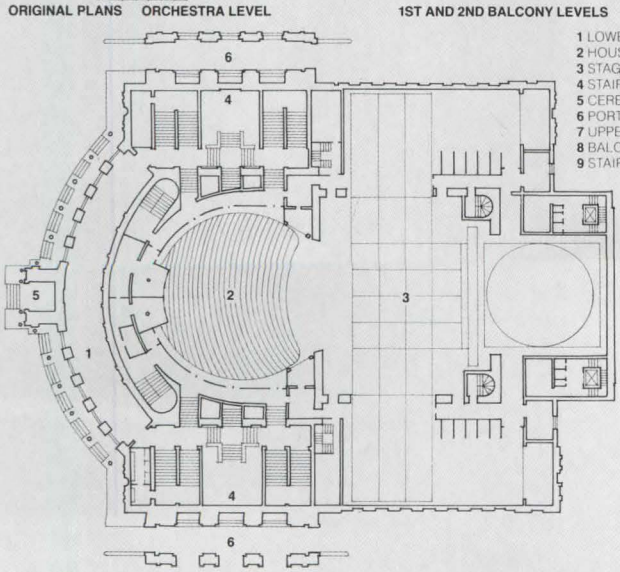
ORIGINAL PLANS ORCHESTRA LEVEL



1ST AND 2ND BALCONY LEVELS 40'/12m

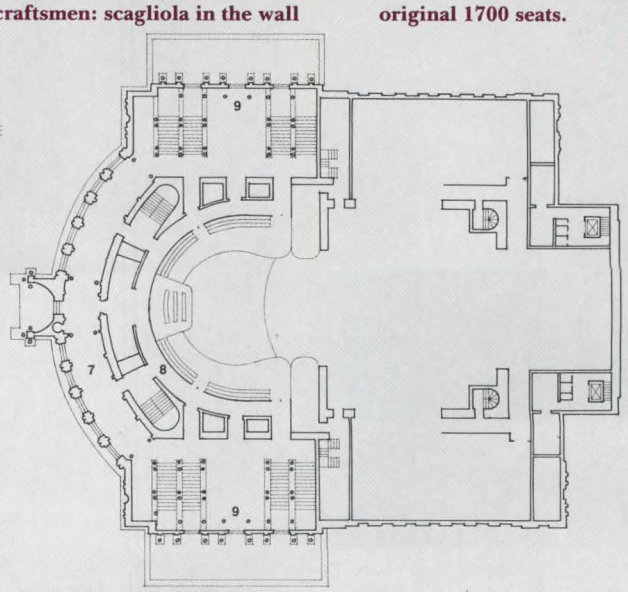
The upper vestibules of the stair towers (opposite page and, in "before" and "during" stages, above) are darkly dramatic, in contrast to the light-filled foyers and the light-toned theater house to which they lead. The paintings in the lunettes represent themes from the theater and opera—Classical on the Elbe side, Romantic on the Zwinger side. The finishes represented a challenge to the newly trained craftsmen: scagliola in the wall panels, faux marbre for the paired Ionic columns with gilt capitals, and Genoan style ornamental painting on the cross-vaulted ceilings.

The plans (below) indicate the changes in the building, most notably the widening of the stagehouse and the deepening of the house itself. As a result of eliminating seats with poor sight lines—on the fifth balcony, for example—the theater has 1300 rather than the original 1700 seats.



1 LOWER FOYER
2 HOUSE
3 STAGE
4 STAIR TOWER
5 CEREMONIAL ENTRANCE
6 PORTE COCHERE ENTRANCE
7 UPPER FOYER
8 BALCONY
9 STAIR TOWER VESTIBULE

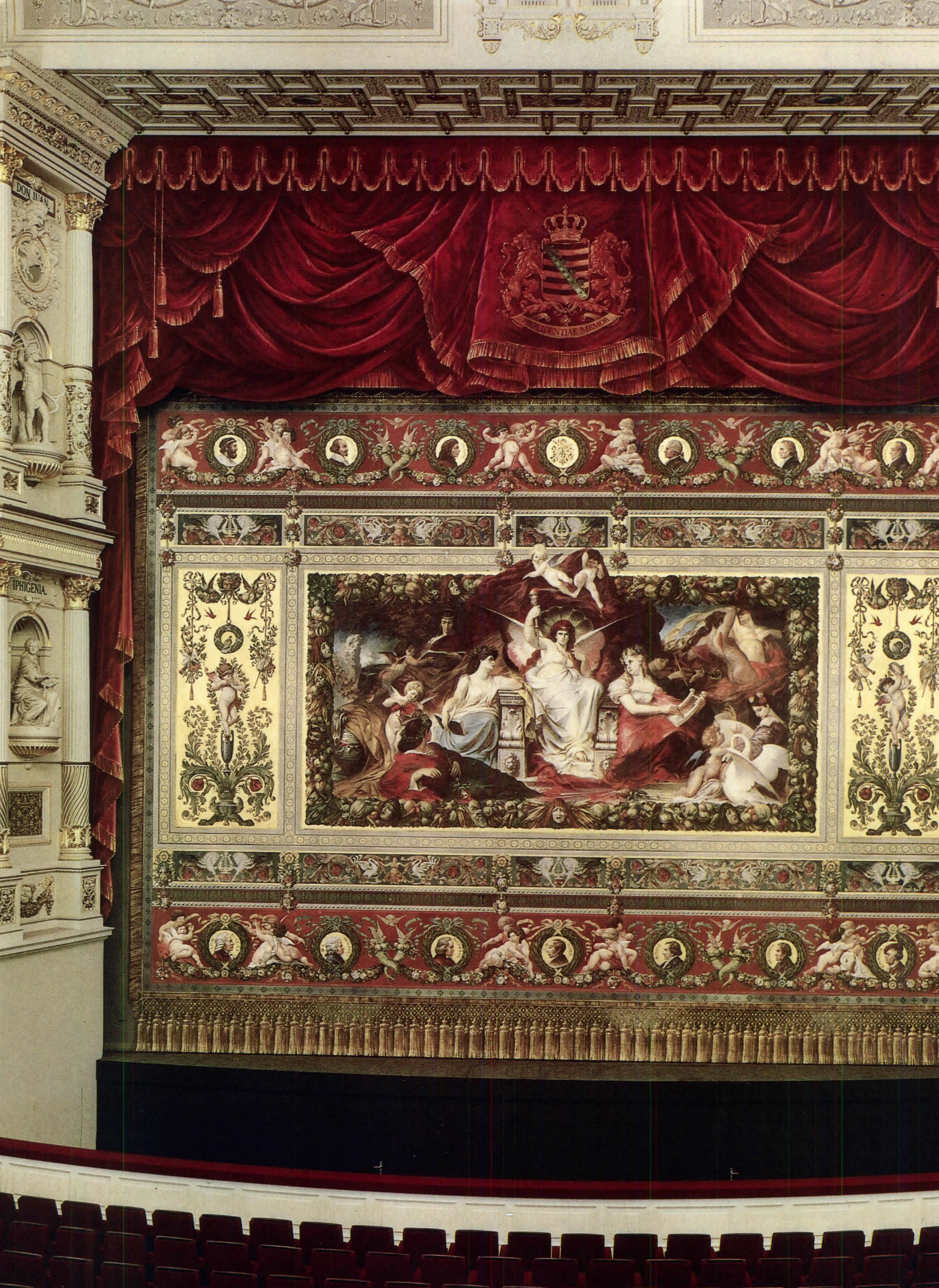
ORCHESTRA LEVEL



1ST AND 2ND BALCONY LEVELS N 40'/12m


I. RANG

The inner wall of the upper curved foyer (this page; see also p. 103) is decorated with Pompeiian style paintings, in contrast to the Genoan decoration in the stair vestibules (background this page and enlarged, in the restoration stage, on facing page). Semper and his son traveled to Italy to observe the decorative treatment of palazzi.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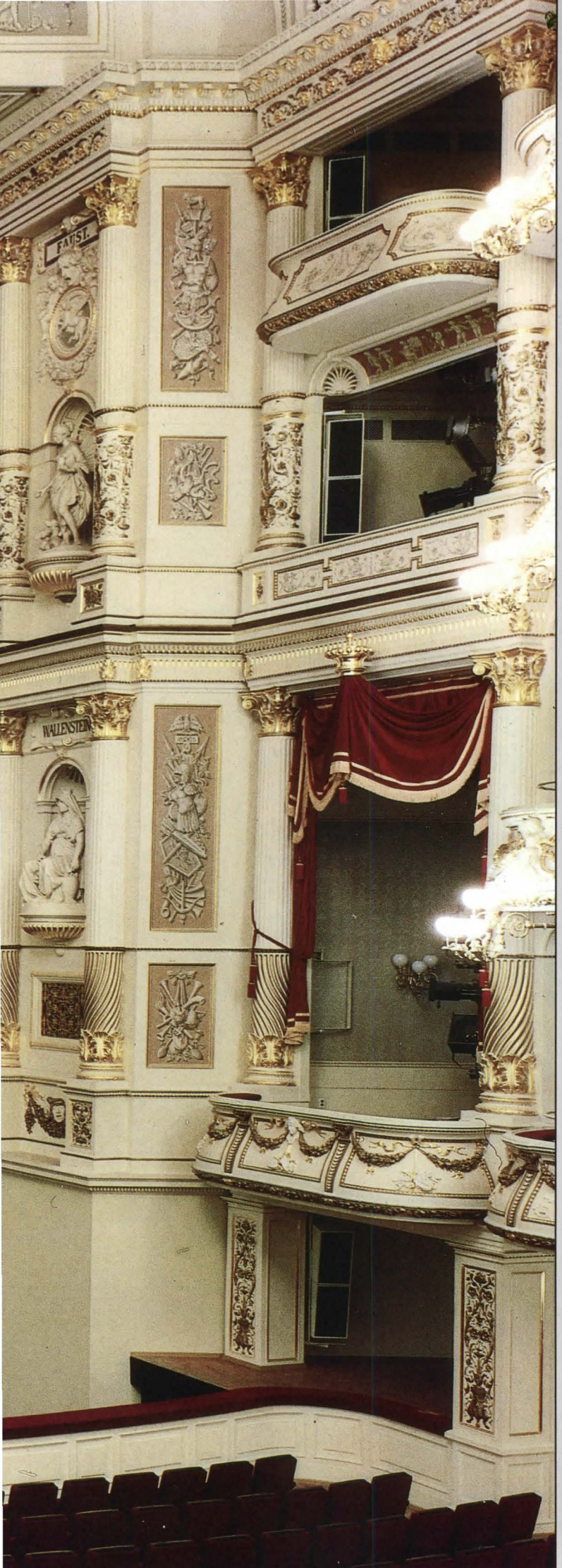
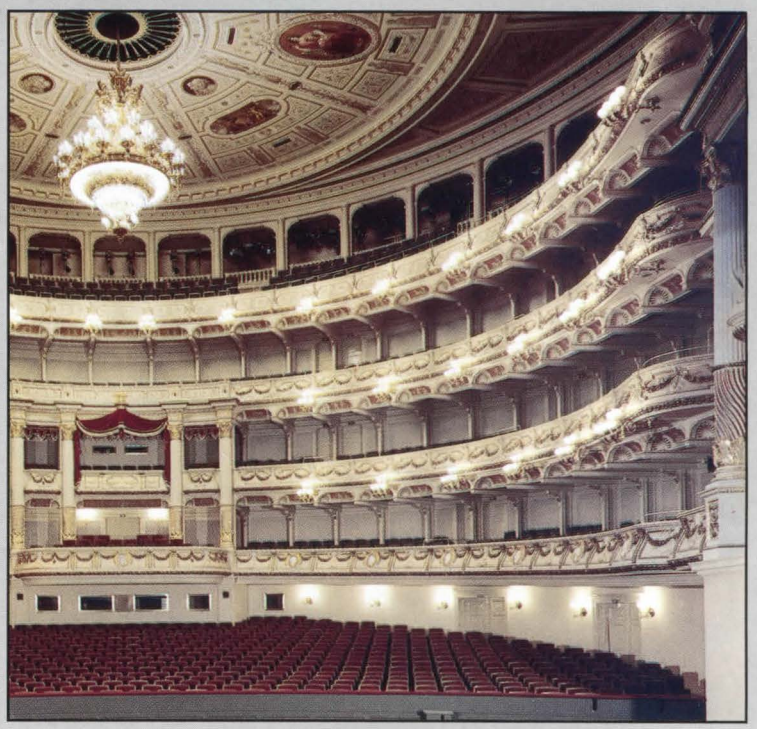
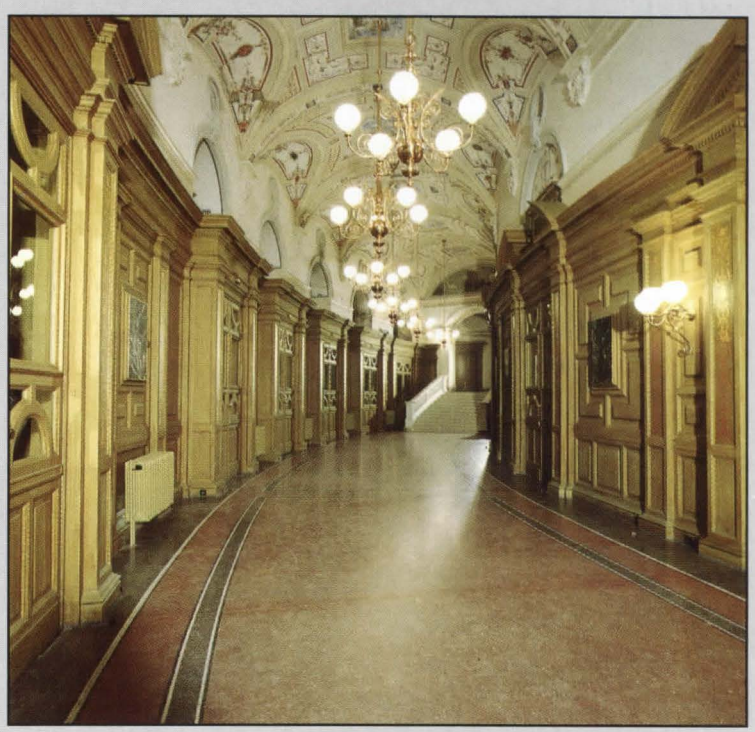






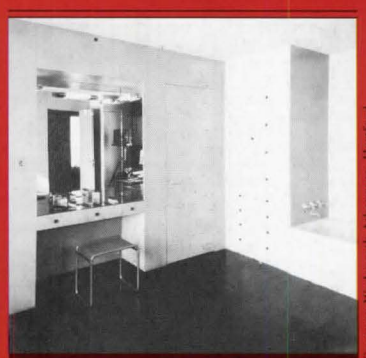
The painted curtain (left) dominates the theater house (top above), which otherwise is subdued in color. The curtain, originally designed by the artist Ferdinand Keller, was re-created from an original oil sketch. It represents Fantasy on a throne, with Muses on either side and poets' portraits above. The ceiling decoration is based on Muses from four European theatrical traditions—Greek, English, French, and German—and includes as well portraits of famous authors.

The lower curved foyer (bottom above) was designed to be warmer in tone and simpler than the elegant foyer above (p. 103). Its walls are an example of another faux material: The wood effect is only skin deep, "oak" being painted on stucco.

Project: *Semper Opera House, Dresden, East Germany.*
Original architect: *Gottfried Semper.*
Restoration architects: *Wolfgang Hansch, Dresden; Gerhard Glaser, Heinrich Magirius, Landmark Preservation Institute, Dresden.*
Site: *Theater-Platz, Dresden.*
Program: *1300-seat opera house; foyers; cloakroom; backstage rooms.*
Major materials: *Exterior: sandstone. Interior: plaster, faux marbre, scagliola, marble.*
Costs: *reported to be 250 million DDR Marks (official value, 1984: $85 million; market value: $21 million).*
Photos: *Courtesy of the Landmark Preservation Institute, Dresden.*

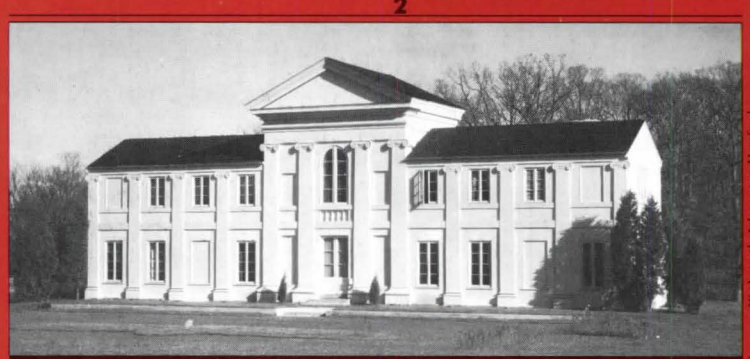
P/A Preview
Machine Age America: 1918-1941

The largest exhibition ever held on American art, architecture, and design in the years between the two World Wars has just opened at the Brooklyn Museum.



Courtesy Wadsworth Atheneum, Hartford

2



Courtesy Wadsworth Atheneum, Hartford

1

A. Everett Austin and Leigh H. French, Austin House, 1930, Hartford, Conn. (1); Dressing Room, Austin House (2); Rene Chambellan, with Chanin Company, entrance gates to executive suite, Chanin Building, 1928, New York (facing page).

The following excerpts are taken from the introductory and architecture chapters of curators Richard Guy Wilson, Dianne H. Pilgrim, and Dickran Tashjian's book The Machine Age in America: 1918–1941, *which accompanies the exhibition and is published by the Museum and Harry N. Abrams, Inc.*

DURING the period between the two world wars, 1918 to 1941. . . . machines and their products increasingly pervaded all aspects of American life. This new consciousness implied a whole new culture that could be built as readily as the machine; history seemed irrelevant, traditional styles and pieties outmoded. The machine became the fundamental fact of modernism. . . . the machine age offered the chance to invent a singularly American art, one that ranged from products for the home to the great building enterprises of the day. . . . Individuals from the factory worker to the housewife became machine operators. . . . and human beings were (even) viewed as machines. . . . Contributing to the consciousness of a new age was World War I, the first full-scale, all-mechanized conflict. . . . The victory of the allies was in a sense a machine victory: the American ability to supply in overwhelming numbers the new war machines was the force that tipped the balance.

The modern American skyscraper city became to most people a "giant machine," as (Alfred) Stieglitz called it (but). . . . not every American felt the creation of a machine art and culture to be a high priority. A traditional academic viewpoint dominated many art and architecture schools. Allegorical maidens in gowns were still painted, and neo-classical and colonial revival buildings were still built. . . . An inspection of almost any house from the late 1920s shows a dichotomy between the historical façade and period furnishings and the new, machine-made service areas (as in the). . . . Everett Austin, Jr., House in Hartford, Connecticut, 1930 (*1, 2*).

The agenda for the machine age not only included the traditional arts of painting, sculpture, and architecture, but also envisioned a total transformation. Everything needed to be redesigned, claimed Norman Bel Geddes; as Walter Dorwin Teague remarked, "we are not building big and little gadgets—we are building an environment." (Although) no single machine style or aesthetic approach won the day. . . . Four stylistic interpretations emerge out of machine aesthetics of the 1920s and 1930s: moderne, machine

Roberto Schezen

purity, streamline, and biomorphic.

In the 1920s the prime objects were complex arrays of machine parts, machines with a variety of parts, gear boxes, setback skyscrapers, and the automobile. . . . The moderne, a decorative style, was one response to this . . . syndrome. . . . Opposed to such decorative elaboration was machine purity, which also saw the machine as angular geometry. . . . With the streamlining of the 1930s, more cohesive units, such as aerodynamic monocoque shapes of airplanes, serve as the inspiration. In the late 1930s with the biomorphic aesthetic, multi-contoured forms and natural shapes, such as amoebas, became the prime object. . . . To understand the architecture of the 1920s and 1930s (though) it is necessary both to employ the terminology of the period and to view the buildings as representative of the different concerns and approaches to the machine.

The Moderne

Most of the American architecture in the 1920s that aspired to be modern tended toward a machine-as-parts aesthetic. Grounded in several different European influences. . . . the . . . approach also had an American base. Bertram Goodhue, who died in 1924, was considered by many the most important modernist, more important even than Frank Lloyd Wright. Goodhue's Nebraska State Capitol, 1920–31, retained vestiges of traditional architecture. . . . Yet the overall form was unique—a setback tower, almost a skyscraper—and the ornament was flattened and geometrical. Goodhue's work. . . . acted as a prime source for American modernism in the 1920s. For many architects, the major stimulus for the machine-as-parts . . . setback approach to design was the 1916 New York zoning ordinance, which mandated that . . . as the mass rose, setbacks at different heights were necessary. While . . . buildings in the setback modernistic idiom rose across the country . . . most of the important activity centered in New York. Ralph Walker was one of the leading New York modernists. Around 1922 he began design on a new building for the New York Telephone Company, the Barclay-Vesey (3). . . . Walker's semi-Gothic, lushly decorated, pier-setback scheme became the standard method of progressive skyscraper design. Raymond Hood . . . emerged as the most inventive and also the most inscrutable.

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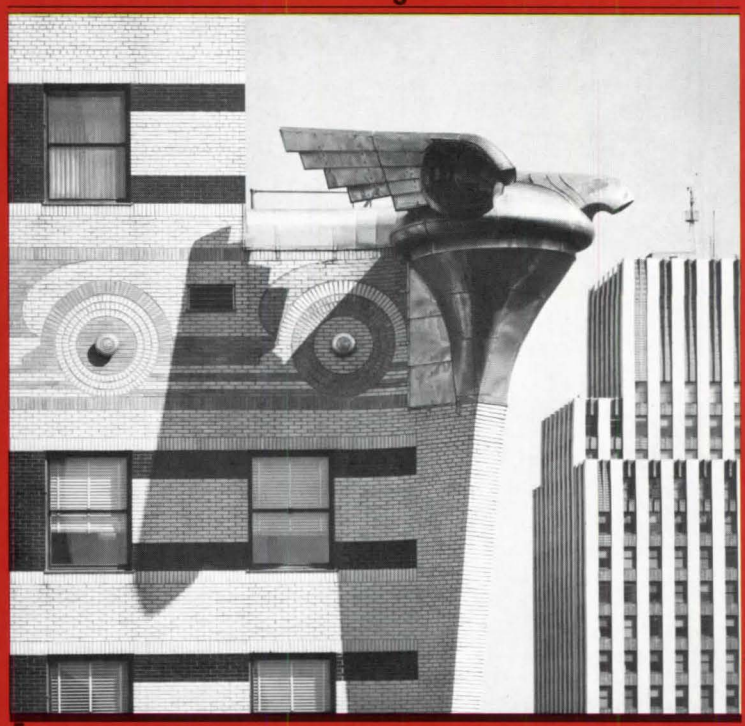

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Ralph Walker for McKenzie, Voorhees & Gmelin, Barclay-Vesey Building, 1922–26, New York (3); Raymond M. Hood with Hood, Godley & Fouilhoux, American Radiator Building, 1924, New York (4); William Van Alen, Chrysler Building, detail of 31st floor, 1928–31, New York (5); Richard Neutra, Lovell House, interior, 1927–29, Los Angeles (6); Kraetsch and Kraetsch, Butler House, 1936, Des Moines (7).

. . . His surface treatment ranged from the American Radiator, 1924, a steel-framed setback structure with a skin of black brick enlivened with gold Gothic ornament (*4*) to the Daily News, 1929–31, with vertical strips applied in an abstract manner. The Chrysler Building (however) is perhaps the most obvious tall building-as-machine. . . . Throughout . . . automotive motifs abound (*5*, showing Daily News at right).

The International Style

By the mid-1930s the setback modernist approach began to give way to a new image, perceptibly lighter and more volumetric in form and purified of excessive decoration. . . . The International Exhibition of Modern Architecture show at The Museum of Modern Art, 1932 . . . assisted in this reorientation.

Though born and trained in Vienna, Richard Neutra was the most sophisticated American working in the International Style. His Lovell "Health" House (*6*) . . . easily ranks with the best European works, and went far beyond them in the utilization of machine age technology. On the interior certain machine age motifs dominated: a long, polished-aluminum lighting trough stretched through the living room and library; inset into the main stair well were Ford *Model A* headlights and rims. While Neutra's Lovell House . . . equaled the quality of the European work, still the feeling at The Museum of Modern Art in those years was that European architecture, design, and art were the most modern and sophisticated and should be the model for Americans. . . . Due to (MoMA's) propagandizing of the International Style, aesthetics were merged with a technological interpretation, so that the style became in many people's opinions the consummate machine age expression; in addition it contributed to a purification of the ornamental excesses of the modernistic approach.

The Streamlined

The other major factor in the changed visual appearance of American architecture in the 1930s was the emergence of the sleek, streamlined body, the machine in motion. However, the major impetus for architectural streamlining came in the early 1930s when Norman Bel Geddes published his House of Tomorrow. . . . Technologically, Bel Geddes claimed, his house was

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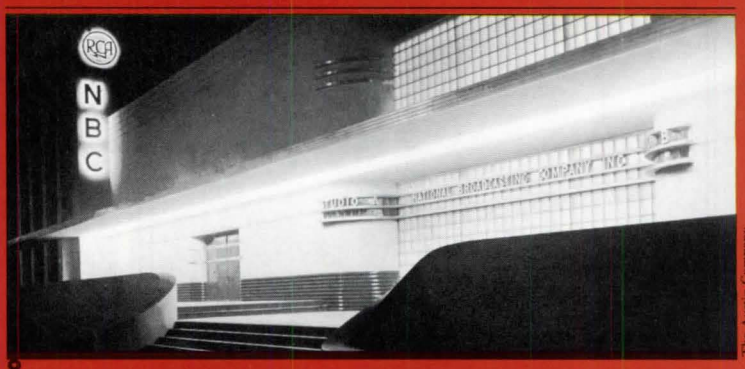
advanced, with built-in lighting, dimmer switches, air conditioning, and a turntable in the garage. Overall, it imparted an air of nautical efficiency. . . . Even more nautical was the extraordinary E.E. Butler House in Des Moines, Iowa, 1935–36, designed by the owner and George Kraetsch (7). A poured-in-place concrete structure with seven levels bisected by an interior ramp, the Butler House is integrated vertically. . . . it was filled with integrated lighting in each room and advanced appliances such as a garbage disposal, dishwasher, and towel dryer in the kitchen.

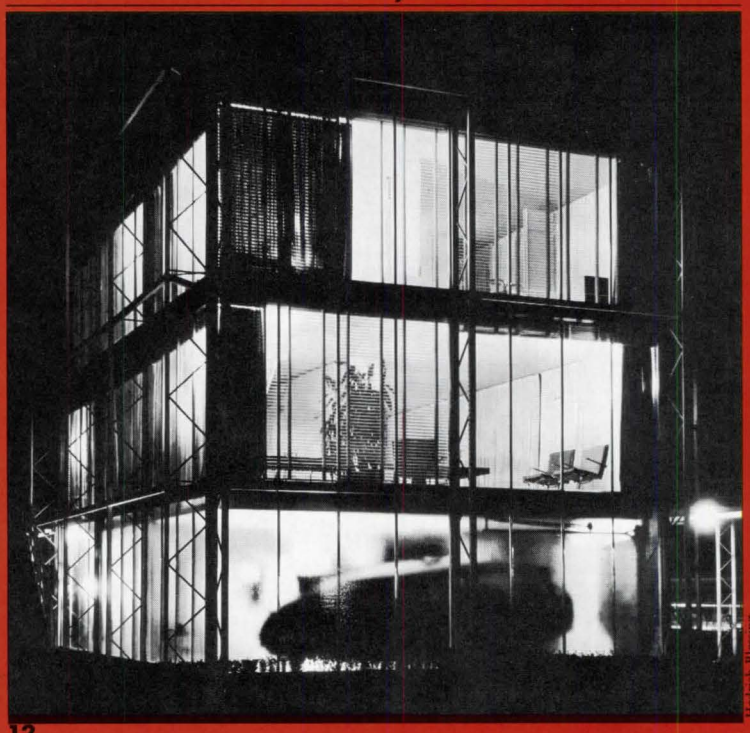
Streamlining in American architecture was generally restrained, a curving wall or two, a little pipe-railing; however, in Southern California, it became a more aggressive overall expression, (as in). . . . the Pan Pacific Auditorium, Hollywood, 1935, by Wurdman and Becket. . . . and Robert Derrah's Coca-Cola Building Plant and Office, Los Angeles, 1936. Streamlining became the image for new resort architecture that sprang up in the late 1930s in places such as Miami Beach. Henry Hohauser, the leading Miami Beach architect, produced some three hundred designs for small hotels and apartment houses.

Stripped Classical Modernism of the 1930s

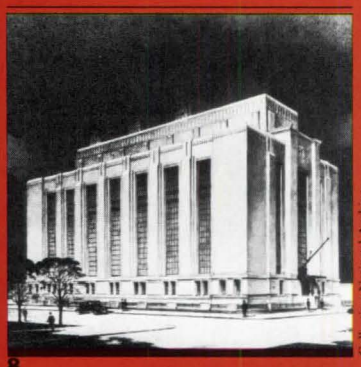
By the early 1930s there emerged a distinct American modern style that synthesized the diverse threads of the International Style, the streamlined, the lingering 1920s machine-as-parts setback approach, and the modernistic into a classical bias toward balanced, symmetrical, and hierarchical forms. Essentially a hybrid, this American classic modernism . . . could engage in visual excess but usually ignored verbal polemics. The designers were, in general, traditionally trained architects who attempted to come to terms with the new language by using it as an appliqué to basically traditional forms. The background of this modernized classicism can be seen in the work of Goodhue, Eliel Saarinen, and Paul Cret. . . . Cret's Folger Shakespeare Library in Washington, D.C., 1929–32, uses classical forms without the ornamental language of classicism. . . . (His) Central Heating Plant for Washington, D.C., 1933 (8), adapts the stripped classical image to industrial structures. . . . On the completed structure relief sculptural panels show mechanical details of the buildings, boilers, and their operations. A stripped classical modernism was applied to numerous commercial struc-



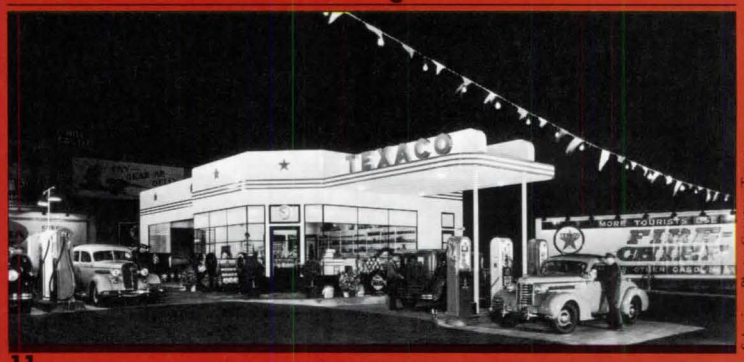
9 The Austin Company



12 Heinrich-Blessing



8 Collection National Archives



11 Schreiner Photo, Courtesy Texaco

Paul Cret, Central Heating and Refrigeration Plant, 1933–34, Washington, D.C. (8); Austin Company, NBC Studio Building, 1938, Los Angeles (9); Holabird and Root, Design for Texaco Service Station, 1932 (10); Walter Dorwin Teague, Texaco Type "A" Station, 1936, Oakland (11); George Fred Keck, Crystal House, *Century of Progress Exposition*, 1934, Chicago (12).

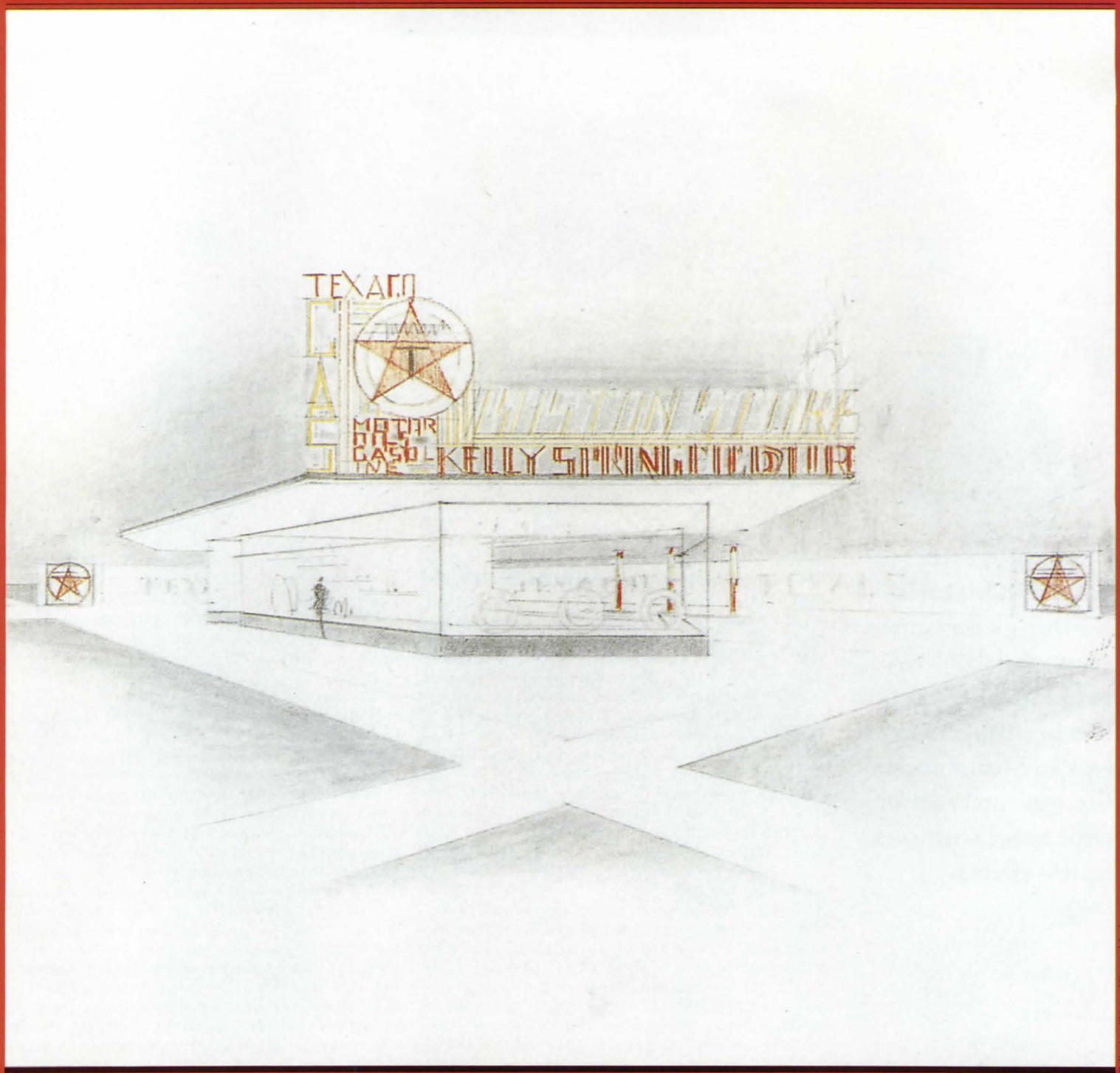
tures of the 1930s, such as the Austin Company's large "Radio City of the West" for NBC in Los Angeles, 1937–38 (*9*).

Toward an American Machine Architecture

At the other extreme from the attempt to graft modern details onto a classical parti were those architects who attempted to go beyond style and create a totally machine architecture. . . . style was replaced by an attempt to utilize the machine and its processes in creating architectural form. The touchstone of much machine-oriented architecture of the 1920s and 1930s was the industrial building, especially the factory. (However) . . . The gas or service station provided for much of the American public the most direct contact with architecture of the machine. Standardized stations imparting a company image sprung up in the early 1920s. . . . By 1930 many of the large oil companies and their local distributors. . . . realized that neat, clean, and efficient buildings were part of an advertising package. Sensing a new market, many steel-building-component manufacturers, along with architects and industrial designers, began to design prototype standardized service stations.

Holabird and Root designed a number . . . for the Chicago distributor of Texaco and Kelly Springfield (*10*). . . . The most successful and famous . . . were undoubtedly Walter Dorwin Teague's 1936 designs for Texaco. . . . (which) could be constructed with a variety of materials—wood and stucco, brick, or the most popular, steel frame and porcelain panel (*11*). . . . (and) were so successful that by 1940 over five hundred had been either erected or remodeled.

Houses of the future littered the late 1920s and 1930s, as architects and critics tried to adapt the principles of mass production and standardized machine-produced parts to the American house. . . . Buckminster Fuller illustrated in 1927 the possibilities of a fully machine-generated house. . . . His "4-D Utility Unit" of 1927–29 (Dymaxion House). . . . never did go into production. *The Century of Progress* Exposition brought to the public's attention a number of demonstration houses reputedly fit for mass production. George Fred Keck's two houses were the most interesting and far reaching. . . . His House of Tomorrow was designed in early 1933 as a demonstration



Collection Chicago Historical Society

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structure to show off a number of new materials and appliances. . . . (and his 1934) Crystal House (12). . . . Except for a poured-concrete slab . . . was prefabricated.

While machine processes did make an impact, the overall effect of the machine was more in the rhythm of design and the quest for a new image. The machine liberated architectural imagery in the 1920s and 1930s; however, the real impact of the machine as a process would not be felt until the post-war years, when housing was mass produced by builders at Levitt-style towns across the United States.

Exhibition schedule

Brooklyn Museum, New York: 17 October 1986–16 February 1987.
Carnegie Institute, Pittsburgh: 4 April 1987–28 June 1987.
Los Angeles County Museum of Art: 13 August 1987–18 October 1987.
High Museum of Art, Atlanta: 1 December 1987–14 February 1988.

Fire Breaks

Achieving life safety in historic buildings demands considerable care and ingenuity from the architect. It also has brought some lasting and rather profound changes to the codes.

RARE is the historic building that meets all of the life safety provisions of today's codes. Such buildings usually have some design inadequacy, such as an open egress stair or a long, dead-end corridor, or contain some unfamiliar or unrated material, such as oil-based wallcoverings or lath and plaster walls. In times past, when older buildings seemed to have little intrinsic merit, such code violations presented few problems. Owners and architects were often as eager as code officials to get rid of noncomplying stairs or archaic materials. But as the preservation of historic buildings has become a socially valued goal, it has come into direct conflict with the goal of life safety. No architect working with such buildings can avoid the conflict. And no simple solution to it exists.

Analyzing the Building

There do exist, however, some fairly simple procedures for analyzing code problems in historic buildings. Many preservation architects begin with a thorough survey of the building, ideally with a survey form in hand that contains questions not only about such issues as the height and area of the building or the number and location of exits, but about such details as the material, thickness, and condition of walls or the extent and type of finishes. The location of that information on schematic floor plans helps in its later analysis. So too does the listing of code reference numbers next to each section on the form.

Upon the completion of the survey and the identification of code problems, many preservation architects then give the local code officials a tour of the structure and discuss with them the problems and possible solutions. "When you involve local officials early on," says Hugh Miller of the National Park Service, "it's often easier to resolve a code conflict." Hyman Myers of the Vitetta Group/Studio Four adds that, "while few officials will agree to anything during that initial tour, their response gives you a sense of what they will accept. The difficulty," says Myers, "is in getting them to leave their office."

Consultation with officials should continue as code-related decisions are made during the design process. "We've had local code officials even argue our side at appeals hearings," says John Waite of Mendel-Mesick-Cohen-Waite-Hall, "because of their close involvement in a project." Outside allies also don't hurt. Hyman Myers, acknowledging the political nature of the process, suggests enlisting the support of a local historical commission or anyone in local government who might be sympathetic to historic structures.

Analyzing the Codes

Procedures and politics aside, "the most important issue," says Myers, "remains that of making the building safe. The architect is obligated to find an alternative equal to what the codes require." What constitutes an equal alternative depends upon the codes enforced in a given location.

While most building codes now have some provisions for historic buildings, at least four different approaches to the problem exist. Some codes, such as that in Connecticut, take a procedural approach, describing the review process without prescribing any solutions. Such codes might suggest acceptable life safety alternatives, or, as in Connecticut, involve the state's historical commission in determining what qualifies as a historic building. But they generally leave the choice of appropriate measures up to the local code officials. Such an approach has the advantage of giving the architect and local official freedom to reach a mutually acceptable solution, but the disadvantage of not giving them much guidance.

Other codes, such as those in Massachusetts and Georgia, take a performance approach. Such codes generally go into much more detail as to the range of alternative life safety measures allowed in buildings, depending upon the use and level of hazard. Performance-oriented codes thus try to strike a balance, guiding architects and code officials without trying to determine the solutions. "The drawback of performance codes," says Dennis Brown, a member of an AIA subcommittee evaluating code provisions for historic buildings, "is that they still put a burden on local code officials to make decisions for which many do not have the time or even the training."

Attempts at reducing that burden have led to prescriptive codes such as that in effect in California. Such codes lay out, in a prescriptive language, what can and cannot be done in historic buildings. "The California code," says Brown, "is very clear about what it will allow. It also relieves local officials

of liability, which is good. But by giving those officials the final say as to whether a building must comply with the regular code or the historic code, it still creates some uncertainty." Prescriptive codes also lack the flexibility of other approaches.

A fourth type, developed for the Ohio code and adopted by BOCA for the Basic Building Code, assigns scores to various categories of life safety features. The categories include the rating of corridor partitions, the extent of automatic alarms, the capacity of exits, and the maximum travel distances. While each use group must achieve minimum scores in three areas—life safety, means of egress, and general safety—the code leaves it up to architects how those minimums are met. Such a scoring approach greatly reduces the interpretation required—and thus the liability—of local code officials. It also gives architects a lot of guidance without overly constricting their options. "It is the least subjective of the codes for historic buildings," says Dennis Brown, "and is very rigorous; most new buildings would have a hard time achieving its minimum scores." The major complaint against this approach, apart from quibbling over scores, is, according to Brown, "its bias toward high-rise buildings." It gives points for elevator controls and smoke control systems, for example, which either don't exist or are not feasible for most low-rise historic buildings.

What constitutes the best approach depends upon whom you ask. Some architects and code officials, concerned about their growing liability, seem to favor the more prescriptive, quantifiable approaches. Others, concerned about restrictions on their freedom, seem to favor the procedural and performance approaches. The one thing most people seem to agree on is that no one approach is likely to become the standard. "Code writing," says David Hattis of Building Technology Inc., "is a political process that every community must resolve for itself."

Segregating a Fire

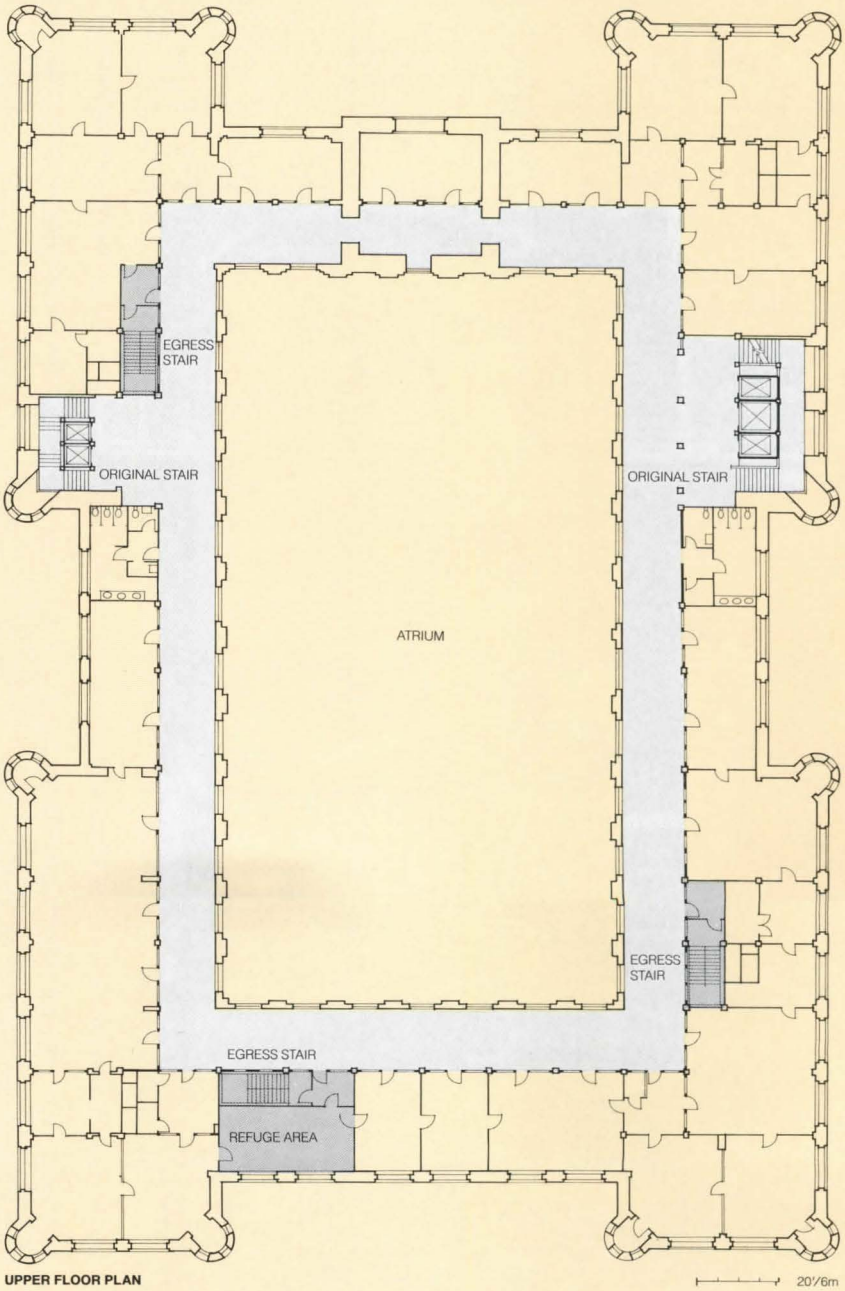
As a poltical process, code writing has shifted its focus over the last 100 years. "When codes first became common in the 19th Century," says Theodore Prudon of The Ehrenkrantz Group/Eckstut, "the combustibility of buildings was the major concern. Egress became important by the early 20th Century; and smoke, not until after World War II." The history of codes helps in predicting problems in buildings from various periods. "If you're dealing with a monumental building from the 1880s," says Prudon, "you might have fireproof construction, but egress problems. In a 1920s office building, you might have enough egress capacity, but inadequate separations."

Egress and fire separation remain two of the most difficult code compliance problems in historic buildings. Sometimes adequate separations exist, but are just not recognized as such because they involve unfamiliar materials or an untested assembly. Of considerable help in such situations is a handbook on the fire ratings of archaic materials and assemblies published by the Department of Housing and Urban Development. The book not only lists the fire performance of a wide range of older construction and finish types, but describes ten rules developed by fire researcher T.Z. Harmathy to estimate the rating of unfamiliar assemblies. The rules state, for example, that assemblies have a greater fire resistance than their individual components and that air gaps or moisture increase an assembly's rating.

Where required separations don't exist in a historic building, the challenge comes in creating them without destroying the building's original

Maxwell MacKenzie

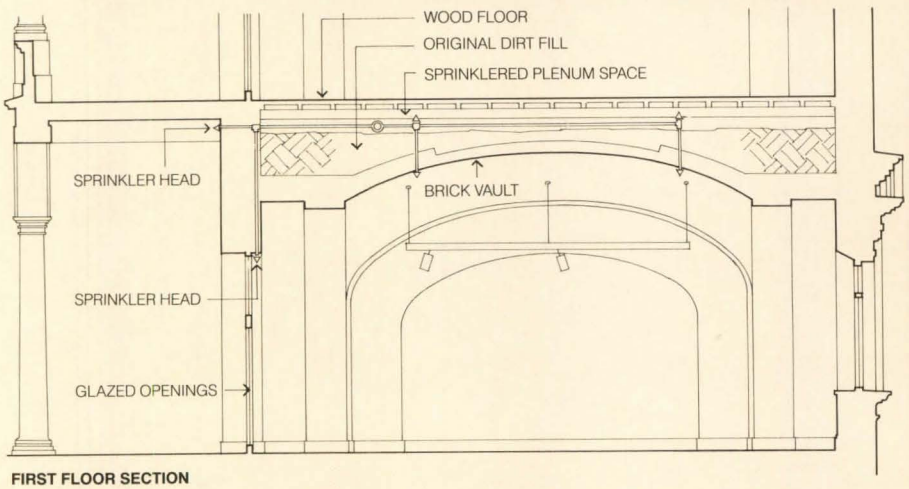
The Old Post Office in Washington, D.C. (left and below), now used as an office building with commercial activities on the lower floors, faced several code problems, including an atrium with too many floors opening out to it and ornamental stairs that were not properly enclosed. After considerable testing, architects Arthur Cotton Moore Associates and fire protection engineers Gage-Babcock proved to the satisfaction of the fire officials that, because of the atrium's large volume, smoke would accumulate less rapidly in the open corridors than it would were they enclosed. To avoid enclosing the ornamental stairs, the architects had three new fire stairs installed. Handicapped egress was accommodated with the addition of refuge areas.



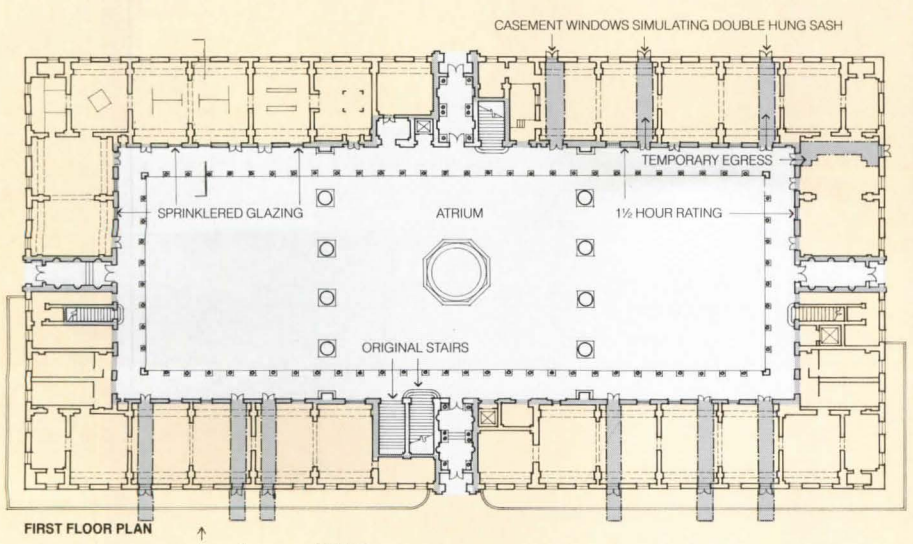
UPPER FLOOR PLAN

The Pension Building (right and below), also in Washington, D.C., is being converted into offices and a museum by Keyes Condon Florance. The building's four exit doors lacked sufficient egress width, so each pair of doors and sidelights was converted into two pairs of doors. When the atrium is used for inaugural events, temporary exits, with ramps leading to and from large casement windows, will be installed. The archways between the offices and atrium, originally open, are to be glazed and sprinklered to achieve the required 1½-hour separation. The arcade surrounding the atrium also will be sprinklered, as will the space between the brick vaults and the wood office floors. A smoke removal system was unnecessary because of the atrium's volume.

Harlan Hambright & Associates



FIRST FLOOR SECTION



FIRST FLOOR PLAN

fabric. In some cases, the rated separations can be concealed behind a fixed door or blackened window, above a historic ceiling, or as an underlayment beneath an original floor. In other cases, where concealment won't work, the separation should be made as unobtrusive as possible, recessing automatic self-closing fire doors into the walls, for example, or enclosing a stair in rated glass doors and partitions with minimal frames.

Inadequate egress presents a similar challenge: how to achieve life safety without destroying the original fabric. In some cases, such as house museums, it may be easier to limit occupancy than to add egress capacity, which might damage the very fabric that gives a building its significance.

When egress capacity must be added, "the building itself often suggests the solution," says Hyman Myers. Large mill buildings, for example, often can be divided into compartments, with four-hour separations at internal bearing walls, allowing horizontal egress. If a large building itself cannot be compartmentalized, then the installation of a refuge area, with a four-hour rated enclosure and separate air supply and exhaust, may work. One drawback of refuge areas is that an adjacent fire stair should be provided, offsetting some of the advantages of horizontal egress.

In smaller buildings that lack code-complying stairs, solutions other than adding two new stairs may exist. An existing fire escape or a remote fire stair accessible across, say, an adjacent roof may be accepted, depending upon the other life safety measures taken in a building. If the addition of fire stairs is inevitable, certain locations should receive first consideration. "We try to locate new fire stairs in existing vertical openings such as air shafts," says Hyman Myers. "If they aren't available, we look for already modified spaces or the least obtrusive locations." If the stairs must stand outside the original building, the Department of the Interior's standards recommend that they be compatible in form and material, but clearly look like modern additions.

Detecting a Fire

Unlike separation and egress, fire detection systems are relatively inexpensive, unobtrusive, and easily accommodated. Detection systems respond to one of three conditions during a fire: heat, smoke, or flame. Heat detectors, the oldest and typically the least expensive and least accident prone, also have the slowest response to a fire. Some heat detectors respond to air temperature and some, to the rate of temperature increase. Heat detectors also come in small, easily concealed pneumatic tubes in which a gas triggers an alarm as it expands with an increase in air temperature. Where heat detectors find their best use is in relatively small spaces that contain a lot of fast burning material or in spaces where their concealment (using pneumatic tube detectors) or reliability is more important than their slow response.

Smoke detectors usually cost more and have a greater sensitivity to ambient conditions than heat detectors, but they also respond more quickly to fires. Probably the most commonly used detectors, smoke detectors consist of the ionization or photoelectric types. Ionization detectors respond to smoke particles that interrupt the flow of ionized air molecules moving between two electrodes within the detector. These are most effective in spaces that contain fast burning materials or where a fast response to a fire is important.

Photoelectric detectors shoot a light beam from a light source to a receiver either within the detector itself or across the room. When smoke particles either scatter or lower the intensity of the light

beam, the receiver responds with an alarm. These detectors work best in spaces likely to develop slow burning, smoldering fires. In historic buildings that lack air-conditioning systems, smoke detectors may require adjustment or filtering to prevent their being triggered by air-borne dust.

Flame detectors respond either to the infrared or ultraviolet energy of a fire. Because of their sensitivity to radiant energy, they have the fastest response of any detection system, but that also gives them a higher potential for false alarms. Infrared detectors, in particular, can be triggered by solar radiation and so must be shielded from the sun. Also, care must be taken that objects do not block the detectors' "view" of a room. Because of those conditions, such detectors are most often used in high hazard locations or where the fastest response possible is desired.

While a detector exists for almost every need, it's not always easy getting the right one in the right place. The height and volume of a space, the expected speed and intensity of a fire, and the speed and reliability of a detector all play a part in their selection and placement. When in doubt, it's best to err in having too many rather than too few. "I believe in a belt and suspender approach," says Hyman Myers. "If there is any question about which type of detector to use, put in both." Drawings should note the locations of detectors, since their improper placement can negate their performance advantages. "The placement of detectors," says Walter Coon of Burns & McDonnell, "is often left up to electrical contractors, who tend to install them at a maximum spacing without regard to special situations or hazards."

Suppressing a Fire

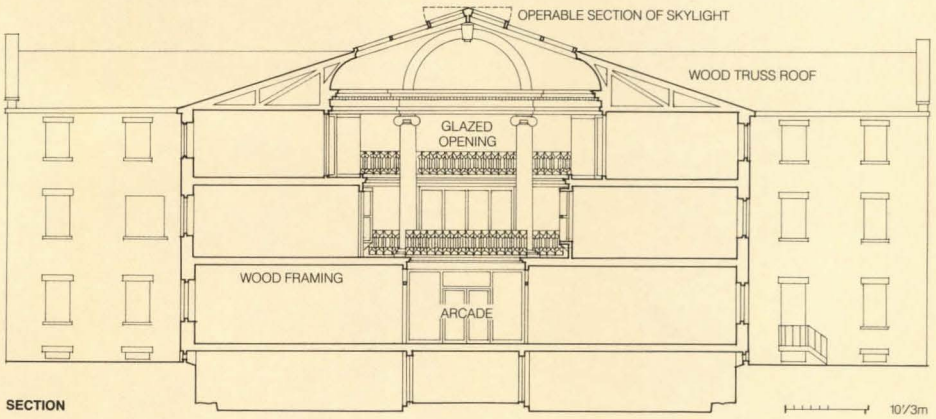
Detection, in most historic buildings, is accompanied by some form of fire suppression. Such suppression systems "can make up for a lot of the code-related sins in historic structures," says John McCormick of Rolf Jensen & Associates.

Suppression systems come in a variety of forms, each with its own advantages. Wet pipe systems, in which the sprinkler pipes contain water under pressure at all times, are the most common in new construction, because of their fast response and relative simplicity. In historic buildings, though, particularly museum quality buildings, wet systems find less favor because of the potential for water damage should the systems leak. The concern here rests not so much upon a malfunction of the sprinkler systems themselves, which have become very reliable in recent years, but upon the potential water damage should a maintenance person's ladder accidentally hit a sprinkler head, for example, or building movement loosen a pipe joint.

Dry pipe systems, whose pipes are filled with pressurized air that holds back the water until a sprinkler head opens, may be somewhat more common in historic buildings, not because dry systems have any less potential for water damage, but because of the relatively higher number of unheated spaces in such buildings. A major drawback of dry pipe systems is their delayed response to a fire, since the air in the lines must escape before the water can reach an open sprinkler head.

Pre-action sprinklers seem to be among the most favored suppression systems in historic buildings, offering both a rapid response to fire and protection against water damage. Pre-action systems operate in two stages. When a fire alarm sounds, it triggers a valve in the system to open, filling the normally dry pipes with water, ready for the operation of a sprinkler head. Like dry pipe systems, pre-action sprinklers can run through unheated spaces, and like wet pipe systems, they can get

The three-story Providence Arcade in Providence, R.I. (left and below), had combustible construction, a glazed roof, and open stairs at the open ends of the arcade. To compensate for the building's combustible wood framing, the architects—Irving B. Haynes & Associates—had an alarm and sprinkler system installed. To make the open stairs comply with the code, they glazed the two ends of the arcade, separating the stairs from the interior of the mall. A variance, though, was required so that the glazing did not have to have a 2-hour rating. The glazing of the arcade's ends then presented the problem of smoke removal, the solution to which involved installing operable glazing in the center of the skylight.



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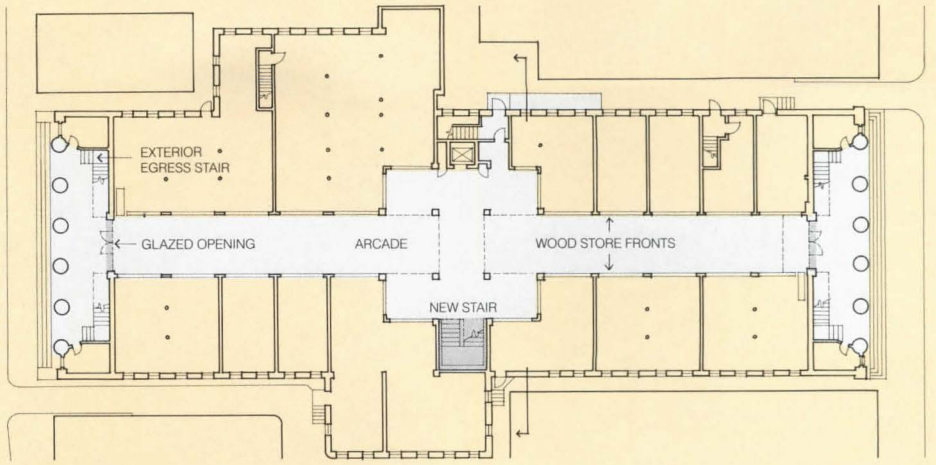
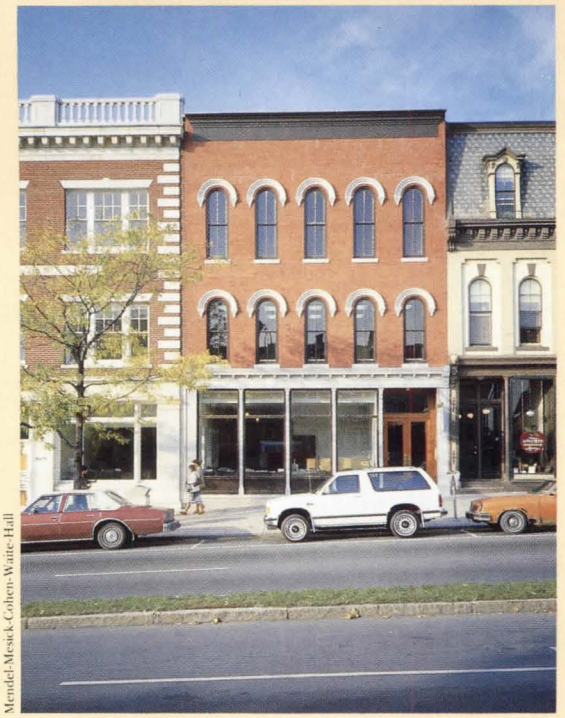
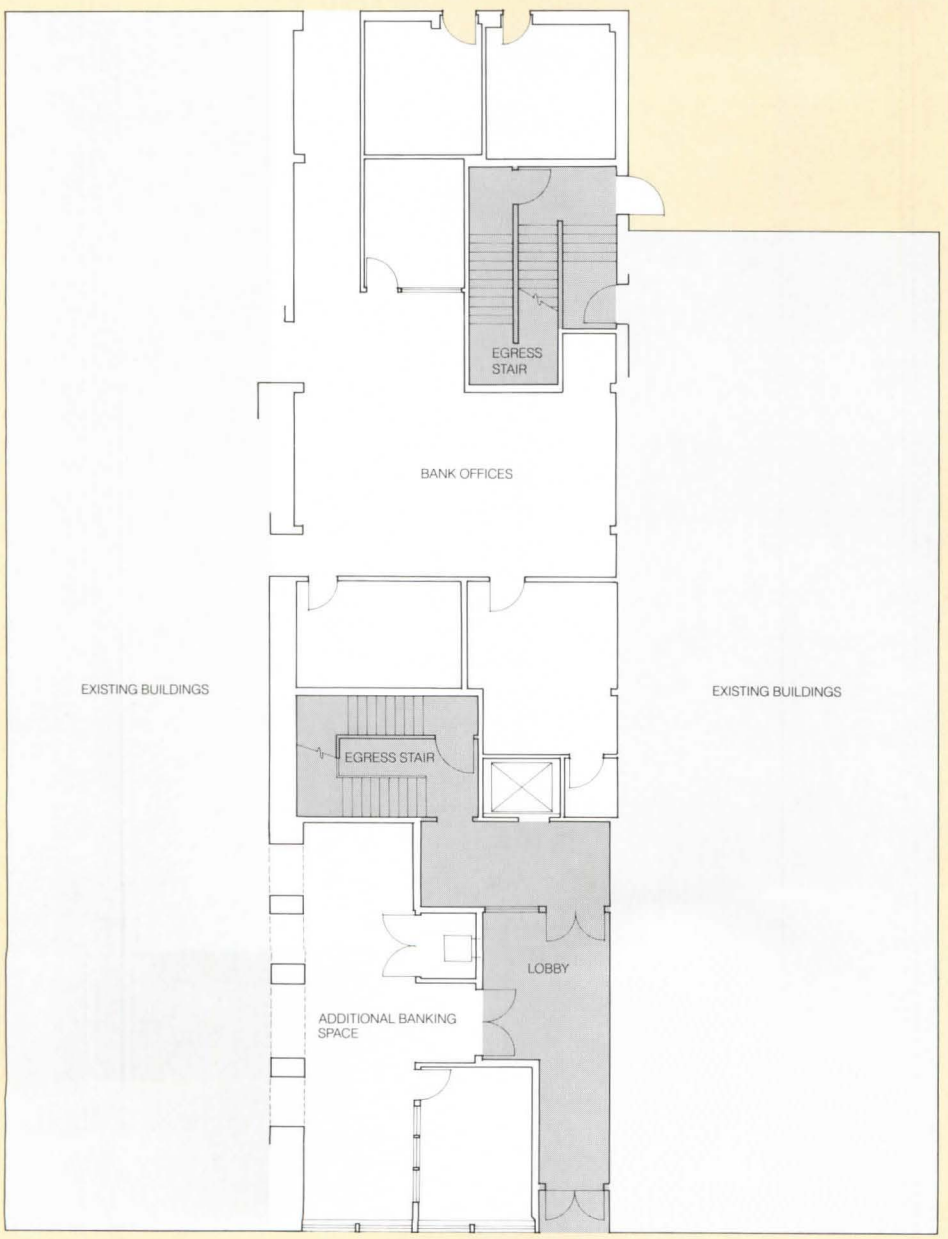


FIRST FLOOR PLAN

The Canandaigua National Bank in Canandaigua, N.Y. (right and below), lacked adequate means of egress as well as adequate floor space for its banking room and offices. The solution arrived at by architects Mendel-Mesick-Cohen-Waite-Hall involved the demolition of an inappropriate modern building and the insertion of a new core in its place to serve the two buildings to either side that were owned by the bank. The new core contains two code-complying fire stairs as well as an elevator and additional office space. The core's façade was designed to match that of the building that once stood on the site. While an opportunity such as this is rare, the problem of adding a core, sympathetic in form and material, to a historic building is not.



Mendel-Mesick-Cohen-Waite-Hall



FIRST FLOOR PLAN

water on the fire as soon as a sprinkler head opens. Pre-action systems, though, won't leak water should a pipe or sprinkler head become damaged. The alarm system also notifies an owner if water has entered the pipes, providing a further safeguard against leaks.

Deluge systems operate in a manner similar to pre-action sprinklers, but offer far fewer advantages for historic buildings. The crucial difference between the two is that all of the sprinkler heads in a deluge system remain open at all times. When an alarm opens the water valve, as in a pre-action system, these systems literally deluge the building with water. While very useful in high hazard occupancies, deluge systems are usually inappropriate for the lower hazard occupancies in most historic buildings.

Halon suppression systems offer some distinct advantages over sprinkler systems. Since they utilize a halogenated gas rather than water to extinguish fires, halon systems eliminate the problem of water damage, making them ideal for areas of a building that contain electrical equipment or delicate fabrics or papers. (The force of the gas coming out of improperly aimed nozzles, though, can tear fabrics or knock over light furniture.) Halon systems, because they use separate tanks of gas for various rooms in a building, also are more easily installed and concealed than sprinkler systems.

The major disadvantage is their cost: not so much the cost of installation as of refilling the tanks with halon gas after their use. The system also requires a relatively confined space to be effective. If a room is very large or the doors are left open, the gas may not reach a concentration adequate enough to extinguish a fire.

Code Trade-offs

A recent trend in the various codes has been the granting of trade-offs for buildings equipped with a complete fire suppression system. The trade-offs, allowed in both new and existing buildings, include reduced exit capacities and fire ratings, longer travel distances and dead-end corridors, and wider spacings of fire hydrants and access roads.

Such trade-offs, say their proponents, recognize that suppression systems save lives as well as property by reducing the intensity and spread of fires and by making them easier to fight. Statistics seem to back up that claim: The National Fire Protection Association reports that there has never been a multideath fire in a fully sprinklered building where the system was fully operational. The opponents of trade-offs say that such claims are misleading. "Sprinklers reduce the heat from a fire," says Robert Wessel of the Gypsum Association, "but not its smoke, which is what kills most people. As for the NFPA statistics," he adds, "they don't account for fires where one or two people died or where the sprinkler system didn't work."

The trade-offs were initiated as an incentive for people to install sprinklers. "It's difficult making a blanket requirement that all buildings be sprinklered," says consultant Raymond Vidler, "when sprinklers add anywhere from $1.00 to over $2.00 to the square-foot cost of a structure." By reducing other requirements, the codes make a suppression system more feasible "without significantly reducing life safety," says Vidler.

But that assumes, say the opponents of trade-offs, that sprinklers always work. "Many things can go wrong with a sprinkler system," says Walter Coon. "Valves can be accidentally or intentionally closed, pipes can freeze, water mains can break, and changes of use can make the layout of heads obsolete. It's simply wrong to put so much faith in suppression systems."

Changing Codes

Sprinkler trade-offs, like the alternative life safety measures allowed in historic buildings, raise some important questions about codes. The writing of codes has traditionally been a political process, involving the ideas and experience of many people. As such, the codes have served as a final authority on matters of life safety, prescribing in very specific language what is and is not allowed.

The trade-offs now allowed by most codes signal a change in those assumptions. The code provisions for historic buildings, particularly those that take a procedural or performance approach, place the evaluation of alternative life safety measures in the hands of the owner, architect, and code official. What was a political process has become, in such cases, a matter of negotiation among individuals. Such provisions also have changed our perception of the codes as a final authority. We now see that, as Hyman Myers put it, "there are many ways to make a building safe." With that change has come a change in our reading of codes, focusing more on their intent than on specific requirements.

None of this diminishes the importance or value of these documents. What it suggests is that the codes may be undergoing a shift, not unlike their shift in emphasis from combustibility to egress to fire separation that has occurred over the last 100 years. In this case, the shift may involve not a particular life safety principle so much as the way those principles are interpreted. If the provisions for historic structures are any indication, code decisions may become more localized; code requirements more flexible; and code language more concept-oriented. Traditionally seen as design constraints, such codes might become what every architect has, at some point, wished them to be: design tools.

Thomas Fisher ■

Acknowledgments

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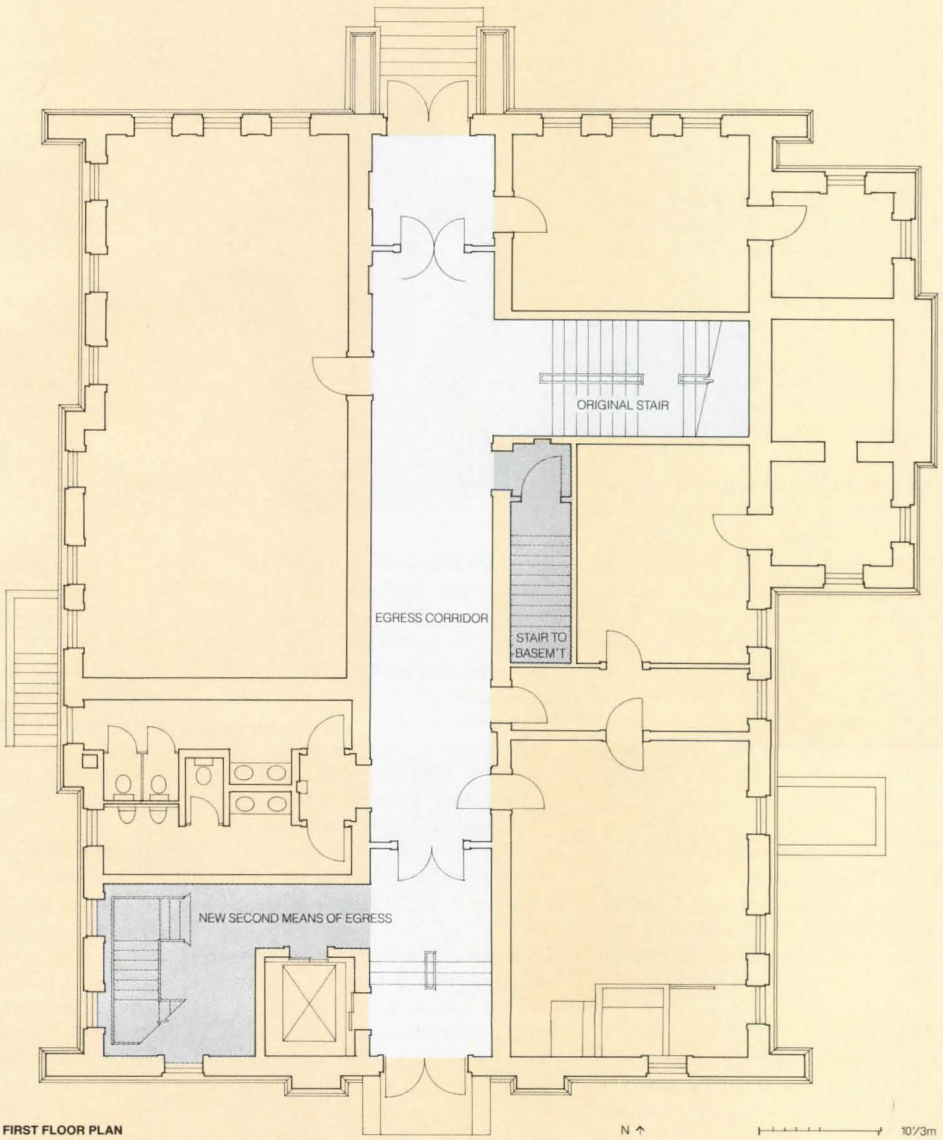
Further Reading

"The Guideline on Fire Ratings of Archaic Materials and Assemblies" is available as unbound copies from The HUD User (1-800-245-2691). Another useful publication, "Assessment of Current Building Regulatory Methods as Applied to the Needs of Historic Preservation Projects" (number PB 287413), is available from the National Technical Information Service (703-487-4659). The National Fire Protection Association (Batterymarch Park, Quincy, MA 02269) has just published recommendations for the protection of historic structures (NFPA 913) as part of its 1987 technical committee reports. (See Technics Related Products and Literature, p. 122.)

Mendel-Mesick-Cohen-Waite-Hall

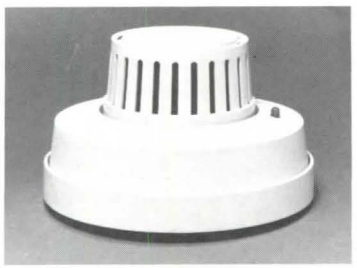
In buildings that lack a code-complying second means of egress, space for a stair often must be found within the building. In the rehabilitation of the Otsego County Courthouse in Cooperstown, N.Y. (left and below), the architects—Mendel-Mesick-Cohen-Waite-Hall—added a second means of egress, along with an elevator and toilet facilities, in one corner of the building. They retained as much of the historic trim as possible, and designed the new stair to be in keeping with the character of the building, even though the stair would be used mainly as an emergency egress. The location of the stair was determined not only to avoid the most architecturally significant spaces but to get the stair as remote as possible from the existing ornamental stair.



FIRST FLOOR PLAN

Technics-Related Products

The products on these pages are related to the Technics article "Life Safety in Historic Buildings" beginning on page 116.



PEC-3 photoelectric smoke detector for commercial, industrial, institutional, and residential applications has a field cleanable photo chamber. The UL-approved unit has an optional concealed locking mechanism to prevent unauthorized removal of the detector. It can be intermixed on the same zone circuit with other Pyrotronics low-voltage detectors. Pyrotronics.
Circle 102 on reader service card

Sprinkler systems four-page, two-color brochure provides information on products and services for the fire-sprinkler market, including foreign and domestic pipe and pipe fabrication. The company fabricates complete, ready-to-install systems. L.B. Foster Company.
Circle 200 on reader service card

The SALUS retrofit fire sprinkler system, made of a fire-retardant ABS material, is suitable for nursing homes, single-family homes, office buildings, mobile homes, hotels, and motels. The SALUS system, a virtually invisible molding, has a total cost lower than the initial cost of most wet systems, according to the manufacturer. International Safety Systems, Inc.
Circle 103 on reader service card

Fire extinguisher cabinets featured in a 12-page color catalog include two new series. Crystal-Vu has an acrylic bubble door that projects past the surface of the wall, enabling 180-degree vision of the extinguisher. Knightline streamlined cabinet has frameless acrylic doors in clear, white, red, or black backgrounds and white, red, or black lettering. Both cabinets are manufactured in steel, stainless steel, and aluminum. Other products include fire hose, valve cabinets, and accessories. Samson Metal Products, Inc.
Circle 201 on reader service card

LCN Sentronic® life safety door closer/holder for fire and smoke barrier doors automatically closes doors when smoke is sensed by remote or built-in detector, preventing the spread of smoke and fire. A 16-page brochure includes application photos, product details, wiring diagrams, installation illustrations, and suggested specifications. LCN Closers.
Circle 202 on reader service card

Fire-Master bulb sprinklers feature tapered ½-inch orifices that ensure uniform spray distribution for maximum fire protection without turbulence. They come upright or as pendents with orange, red, yellow, or green bulbs. Sprinklers are rated at 135 F, 155 F, 175 F, and 200 F, and are UL listed and Factory Mutual approved. Finishes are bronze or polished chrome. Firematic Sprinkler Devices.
Circle 104 on reader service card

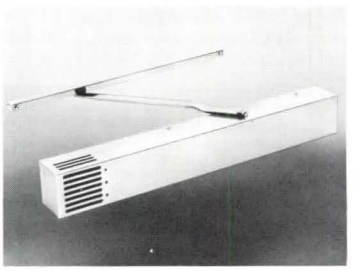
Insulated construction for fire resistance and sound control is the subject of a 15-page brochure that discusses the problems of unwanted noise and the increasing danger of fire in stores, offices, motels, and residential dwellings. It assists in the selection of the company's wall and floor/ceiling systems best suited to reduce sound transmission and resist the passage of fire. CertainTeed Corporation.
Circle 203 on reader service card

Multilarm VI microprocessor-controlled, disk-based system provides complete system control. It is field programmable, offering multiline messages and alarm monitoring, and is compatible with proprietary or telephone lines. The CRT terminal connected to the central processor displays continuous system status, time of day, date, alarms pending acknowledgment, and operator warning messages. Applications include fire alarm monitoring and security alarm monitoring. Pyrotronics.
Circle 105 on reader service card

Smoke detectors in both ionization and photoelectronic models are shown and described in a 12-page brochure. There are plug-in, base-mounted, and direct-wired types. A table of product specifications covers smoke detectors and accessories. BRK Electronics, System Sensor Div.
Circle 204 on reader service card

DeltaNet Fire and Security System features modular design that allows expansion without removing existing wiring, and an alarm verification feature that reduces the number of false alarms. Each panel can handle up to 56 zones in an enclosure occupying only six square feet of wall space. When a detector signals an alarm, the panel automatically resets the detector to verify the alarm. Honeywell Inc.
Circle 106 on reader service card

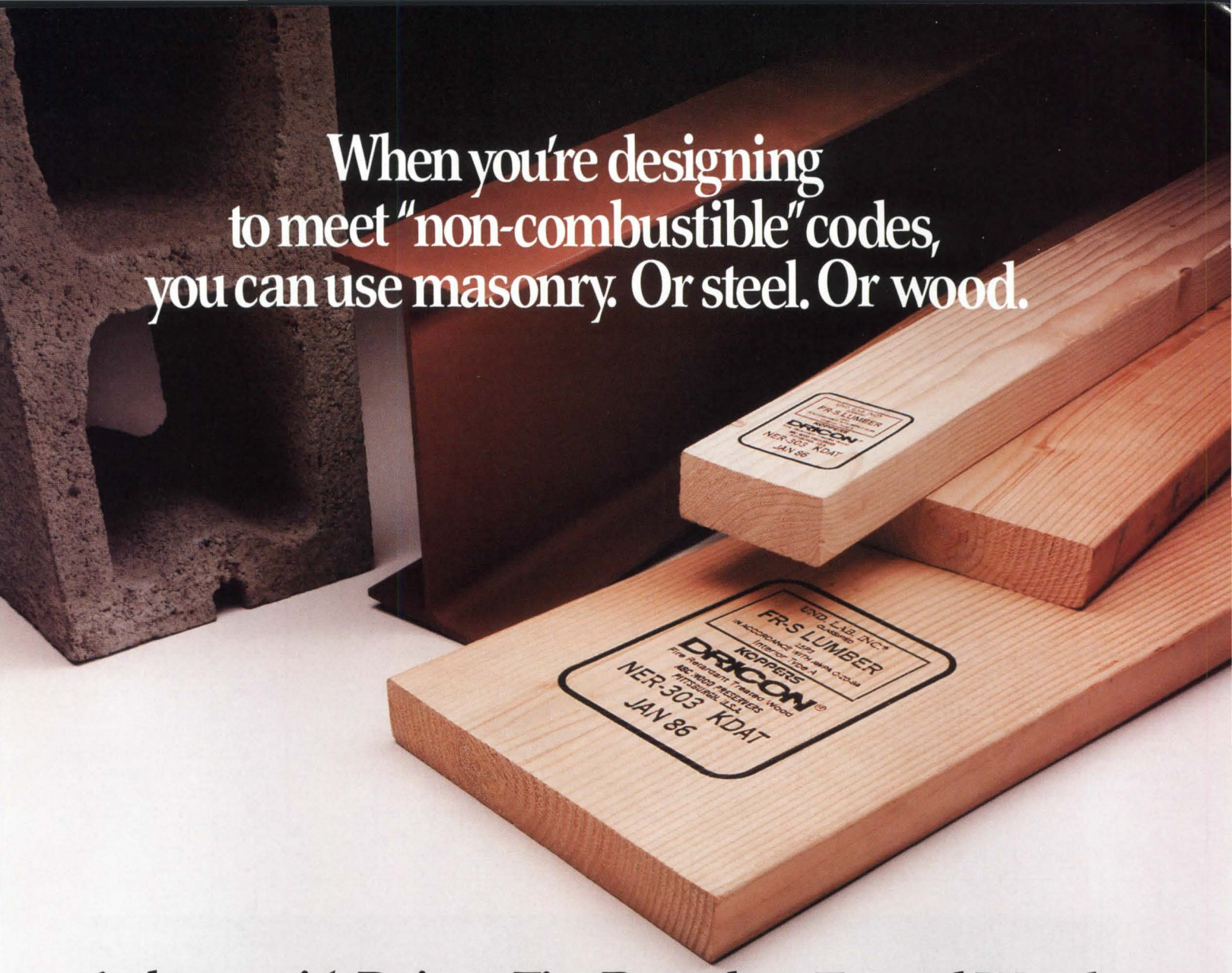
Sprinkler Systems catalog covers Micromatic®, the smallest standard sprinkler, decorative and corrosion-resistant sprinklers, and special application models. There are both wet pipe and dry pipe systems. The catalog illustrates systems operation and components and typical schematics for deluge and pre-action systems. The Viking Corp.
Circle 205 on reader service card



The Heritage Smok-Chek smoke-actuated door control devices are available with integral photo-optic detector and can be mounted on a standard two-inch door frame. A "free swing" adjustable friction arm allows the door to be held at any position, from full open to closed. Smok-Chek is compatible with any fire protection system and is available in all voltages. It has separate valves for latching and closing speeds and adjustable hydraulic backcheck. Rixson-Firemark.
Circle 107 on reader service card

The 224 Series smoke detectors for use with compatible UL-listed 2-wire fire alarm control panels provide RF and electrical transient protection. The smoke detectors have several electronic options. Gentex Corporation.
Circle 108 on reader service card

Computer-aided drywall selection service selects the USG partition assembly that meets or exceeds criteria for a specific job. There are more than 200 high-performance drywall partition systems, both load-bearing and non-load-bearing, for apartment, office, institutional, and mechanical-room construction. Information needed includes STC/MTC ratings required, fire-resistance requirements, and structural criteria. After analyzing these requirements, the computer selects the most effective and economical system for the job. Detailed partition performance analyses provided include a system component listing, customized specifications, and a list of materials. United States Gypsum Company.
Circle 109 on reader service card
(continued on page 124)



As long as it's Dricon® Fire Retardant Treated Wood.

Because for weather-protected applications, Dricon fire-retardant treated wood from Koppers' licensees offers a number of advantages you just can't get using any other fire-protected construction material.

Greater Versatility And Economy.

With Dricon wood products, building to meet "non-combustible" code requirements doesn't have to snuff out your design freedom or burn up your budget. Since it *is* wood, Dricon FRTW's in-place costs are often lower. It installs faster and can be easily fabricated to almost any configuration you can imagine—during original construction or later remodeling. Dricon wood requires less maintenance than many other construction materials. And in most "non-combustible" construction, Dricon FRTW will not alter insurance rates.

FR-S Designations Across-The-Board

Unlike most fire-retardant treated wood, Dricon FRTW carries an Underwriters Laboratories, Inc. FR-S designation for *all* softwood species of lumber and plywood. It has a rating of 25 or less for flame spread and smoke developed. It actually exceeds the requirements of the model building codes, and can even qualify for use in FM Class 1 roof systems. In fact, it's so special that the formula and process for making it are patented.

Dricon Won't "Eat" Metal. And Termites Won't Eat Dricon.

Even in sustained 95% humidity, metal in contact with low-hygroscopic Dricon FRTW shows less than 2% of the corrosion allowed by applicable federal standards. And Dricon wood can be painted and stained without unsightly blooming. What's more, it's the only interior fire-retardant chemical that's registered with the EPA as a preservative for wood treating. Dricon treatment provides safe and effective protection against termites and decay for above-ground interior applications.

Put Our Reputation Behind Your Reputation.

Best of all, the Dricon process was developed by Koppers Company, Inc., the same people who bring you world-famous Wolmanized® pressure-treated lumber. So with Dricon FRTW, you're always assured of quality products backed by experienced technical and service personnel.

Protect your reputation as a designer by specifying Dricon fire-retardant treated wood products. They can help you build more economically, creatively, and safely. For more information and the name of your nearest Dricon dealer or distributor contact: Koppers Company, Inc., 1900 Koppers Building, Pittsburgh, PA 15219. 412/227-2460.

The leader across the board.™

DRICON®
Fire Retardant Treated Wood

Circle **No. 350** on Reader Service Card

Fire Stop Sealant, a one-part silicone elastomer, used in a bank plaza in Bellevue, Wash., met stringent fire codes while saving on both material and installation labor cost. The sealant is easily "gunned" into floor penetrations and is designed to stop fire, smoke, toxic gases, water, and dust. Dow Corning.
Circle 110 on reader service card

Promatec® passive protection systems restrict fire hazards with penetration seals, radiation shields, fire protective wraps, Durasteel fire walls, and related specialty fire protection systems. Promatec supplies materials and technologies for nonresidential construction, such as electric utility plants, commercial, industrial, and institutional buildings. The systems are described in a 12-page brochure. Promatec.
Circle 206 on reader service card

Spectron Emergency AC Systems maintain power to equipment such as lighting fixtures, emergency lighting, automatic doors, intercoms, motors, fire alarms, security systems, and private telephone exchanges during utility power failures or significant voltage reductions. Microprocessor-controlled electronic circuitry assures maximum readiness and full output capacity at all times, according to the manufacturer. The circuits automatically monitor system performance parameters, perform periodic battery discharge and recharge cycling, and provide self-diagnostic service indications. A 20-page brochure contains photographs, information about operation, detailed system descriptions and specifications. Dual-Lite, Inc.
Circle 207 on reader service card

The Aquarius Series sprinklers are fast-operating, fusible solder type automatic sprinklers with a low profile and flush style. The series has a 160 F rating. Sprinkler portion has a chrome finish, and escutcheon plate is either chrome plated or painted. Sprinklers, valves, spray nozzles, and other fire protection products are described and illustrated in an eight-page brochure. Grinnell Fire Protection Systems Co.
Circle 208 on reader service card

Dayliter fire vent Model AUL meets UL requirements; Model AFM provides complying performance where UL listed or FM approved fire vents are code mandated. Both meet activation time requirements. An eight-page brochure describes fire vents, explosion vents, and skylights and includes fire vents for metal buildings. APC Corp.
Circle 209 on reader service card

Ultra-Board nonasbestos products offer fire protection with 0 flame spread and 0 smoke density according to ASTM-E4. They resist the effects of weather, water, rot, insects, and most chemicals, and can be used for indoor and outdoor applications. Ultra-Board is impact-resistant and is easily cut, nailed, and drilled with standard tools. It can be painted, plastered, laminated, or paneled. Eternit.
Circle 111 on reader service card

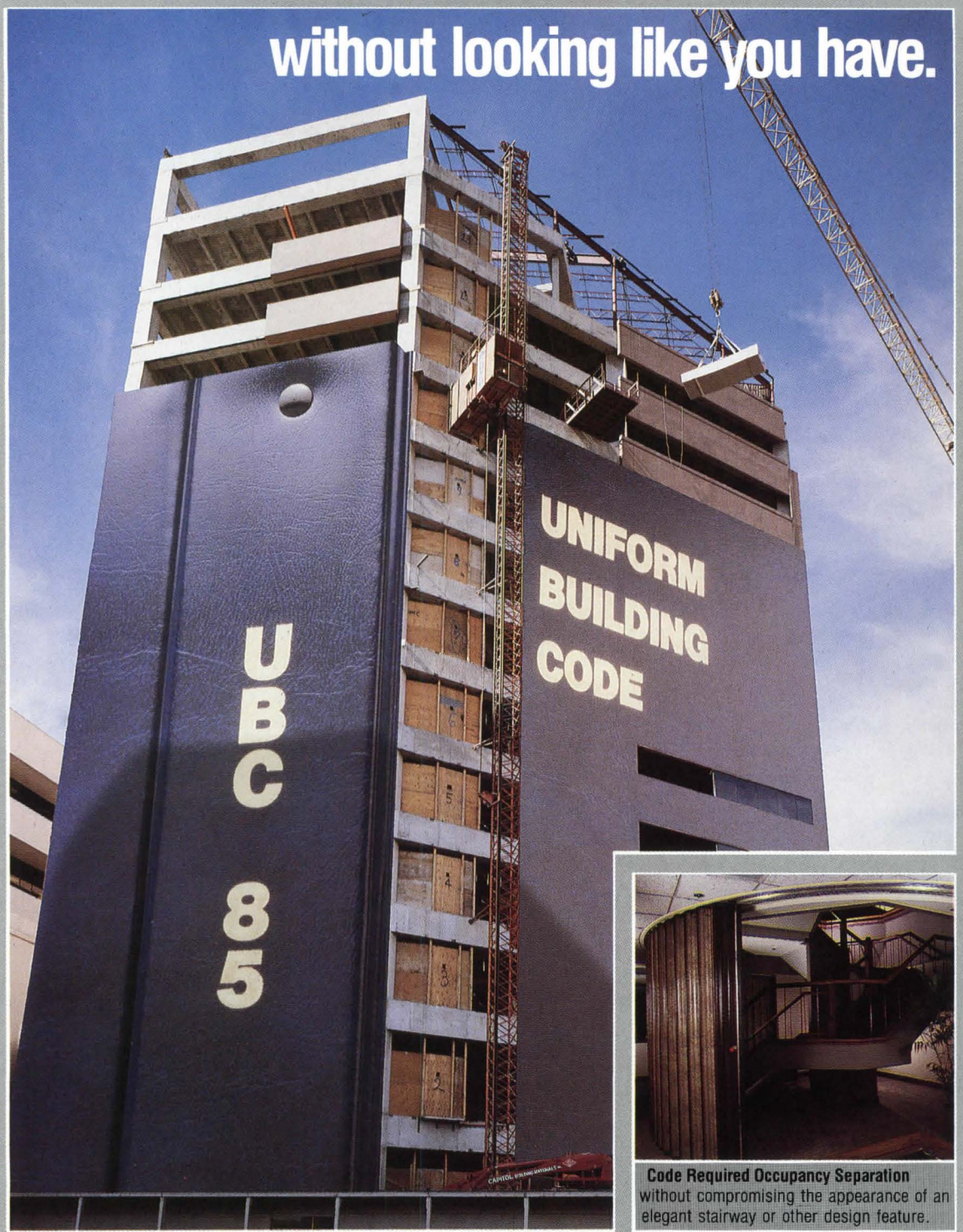
Phantom concealed sprinklers have up to two thirds less dimensional exposure than other concealed sprinklers. The Phantom's 2¾-inch cover plate is the smallest diameter available in the industry. There are four standard and four deluxe finishes, as well as custom blending to match special ceiling treatments. The cover plate conceals the sprinkler head until fire strikes. The sprinkler activates at a predetermined temperature, releasing an effective water spray pattern. Star Sprinkler Corporation.
Circle 112 on reader service card

'Analytical Methods of Determining Fire Endurance of Concrete and Masonry Members—Model Code Approved Procedures,' a 12-page guide for calculating fire resistance, explains the new procedures adopted by BOCA/Basic National Building Code, Uniform Building Code, and Standard Building Code. Concrete and Masonry Industry, Firesafety Committee.
Circle 210 on reader service card

'Fire-Rated Hollow Metal Doors and Frames' manual presents data on current industry practices with emphasis on the requirements of the National Fire Protection Association. The manual discusses design limitations, local regulations, architects' responsibilities, and a description of the types and sizes of fire-rated doors and frames now on the market. A section on proper selection and use of hardware for swinging hollow metal doors also covers automatic door bottoms and anchors for fire-rated frames. For a copy, send $17.50, including postage and handling to The National Association of Architectural Metal Manufacturers, 600 S. Federal St., Chicago, IL 60605.
(continued on page 126)

Now you can build strictly to the codes . . .

without looking like you have.



Few would argue with the critical need to conscientiously comply with building codes.

Yet, for those whose task it is to design beautiful, functional buildings, the influence of volumes upon volumes of code requirements is undeniable.

Fortunately, Won-Door's folding fire doors now provide a way to comply with critical building codes and still allow you to design your building to look and function the way you choose.

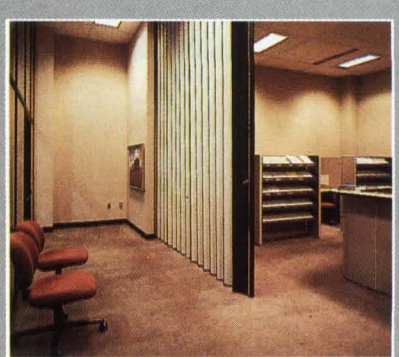
For example, Won-Door Fireguard Doors can provide:

Code Required Fire Exit Corridors as long and as high as needed by folding from a hidden wall pocket.

Code Required Occupancy Separation without compromising the appearance of an elegant stairway or other design feature.

Code Required Area Separation preserving the design prerogative for large open space areas.

Code Required Elevator Lobby Separation without cumbersome swing doors or floor tracks.



Increased Building Security as an added bonus with optional automatic opening and closing systems.

Call Won-Door toll free **1 (800) 453-8494**, or your nearest Won-Door dealer for all the details.

Won-Door Fireguard™ protecting life, property *and* beautiful building design.

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Circle **No. 392**

Glassprotex door and wall assemblies have two major components: a metal framing system and fire protective glass panels called Contraflam. Two lights of tempered glass separated by a metal spacer have the cavity between filled with a clear, transparent gel. When exposed to extreme heat, Contraflam absorbs heat radiation by transforming the water in the gel to water vapor, which dissipates much of the energy generated by the fire. An eight-page brochure describes the system, provides specifications, and includes detail drawings. O'Keeffe's Inc.
Circle 211 on reader service card

Two new fire-rated particleboard products are a high-pressure decorative plastic-laminated panel and a 61-inch-wide structural panel. The first has a Class I fire rating and meets UL standard tests for surface burning characteristics of building materials, has a flame-spread rating of 20, and a smoke development rating of 115. The 61-inch Duraflake FR panel has the same fire-retardant qualities of previous Duraflake fire-rated products but its width is suitable for unique architectural applications. It is available in standard 8-foot lengths, and up to 16-foot lengths on special order, and in thicknesses from ⅜ inch to ¾ inch. Willamette Industries, Duraflake Div.
Circle 113 on reader service card

FireSafe AD-108® water-based chemical saturant/sealant acts as a fire retardant and preservative. It can be used to protect wood shingles, deckings, subfloors, studs, textiles, wooden interiors, draperies, carpets, and wall fabrics. It reacts to fire or heat by combining with the combustible gases and tars and converting them to noncombustible carbon char, nitrogen, and carbon dioxide. Treated material will also produce less smoke. When used on older surfaces, FireSafe AD-108 can restore color and retard shingle curling. Amdal Chemical Corporation.
Circle 114 on reader service card

Polybutylene pipe for residential sprinkler systems can normally be cut and assembled onsite at ground level. Its light weight, flexibility, and ease of joining result in savings in installation time and cost for the installer, particularly in retrofit applications, compared with black iron or copper pipe. A six-page performance report discusses its effectiveness, and the advantages of its use. Installation recommendations are included. Shell Chemical Company, Polybutylene Business Center.
Circle 212 on reader service card

Gyp-Crete and Gyp-Crete 2000 eight-page brochure provides up-to-date fire-control and sound-control ratings and complete product specifications. These products are poured over the structural subfloor to smooth rough, irregular wood and concrete, slow the spread of fire, and increase sound control. Gyp-Crete Corp.
Circle 213 on reader service card

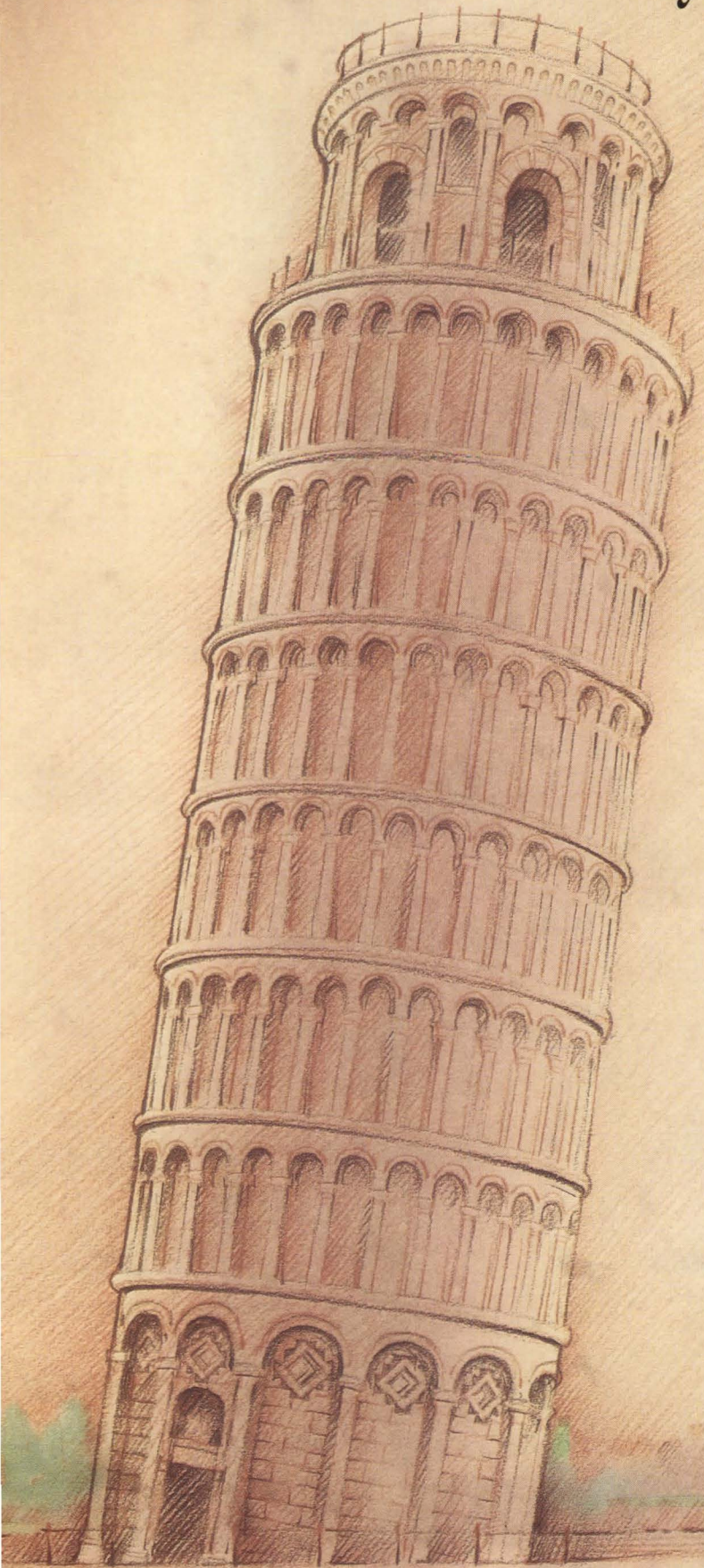
Dricon® fire-retardant-treated wood reduces flame spread and smoke development and helps wooden members to maintain structural strength in a fire even longer than untreated wood. It does not readily pick up moisture and does not contribute to corrosion of metal parts. In weather-protected aboveground applications, it also resists rot and termites. Koppers Company.
Circle 115 on reader service card

Wood fire doors have multi-ply Superstiles on all ¾-, 1-, and 1½-hour fire doors, eliminating half-surface hinges and throughbolts. Properly reinforced surface-mounted closers and vertical rod exit devices can be installed with screws. Metal edge guards are wrapped with matching veneer. Algoma Hardwoods, Inc.
Circle 116 on reader service card

Ultraline ceiling, a narrow-faced grid system, is UL approved, with a one-hour fire rating. The grid uses special reveal-edge panels with a 9/16-inch face and ¼-inch reveal surface. The grid has mitered intersections and a center recess in either white or black. A T-bolt allows attachment of demountable partitions, projection screens, and track lighting. Chicago Metallic Corporation.
Circle 117 on reader service card

Super Firetemp® structural fireproofing board is made from lime, silica, reinforcing fibers, and water. It contains no asbestos. It is white, dust-free, and resistant to shrinking and cracking. It is available in a variety of densities. Pabco Div., Fireboard.
Circle 118 on reader service card

Sometimes what you thought would last, lasted. But not the way you thought.



If you've been swayed to believe that glazed tile is a good choice for high traffic floors, you've been presented with a lop-sided view.

Real quarry tile is the only smart choice for long-lasting results in heavy traffic areas. Summitville quarry tile is made from the finest clay and shale, extruded to provide uniform density, strength and color — a full 1/2" of solid color that lasts and lasts.

MADE IN AMERICA

Compare that to the .0025" surface treatment of a glazed paver tile that has been advertised as suitable for high traffic areas.

Why risk performance with a product that claims to be "the smart choice over quarry" when you can have the real thing...Summitville quarry tile, a proven performer that passes the tests of time and heavy traffic.

Check the standards before you specify. Glazed tile that wears out before its time could set your best laid plans askew. But Summitville quarry tile will last just like you thought it would.

Summitville®

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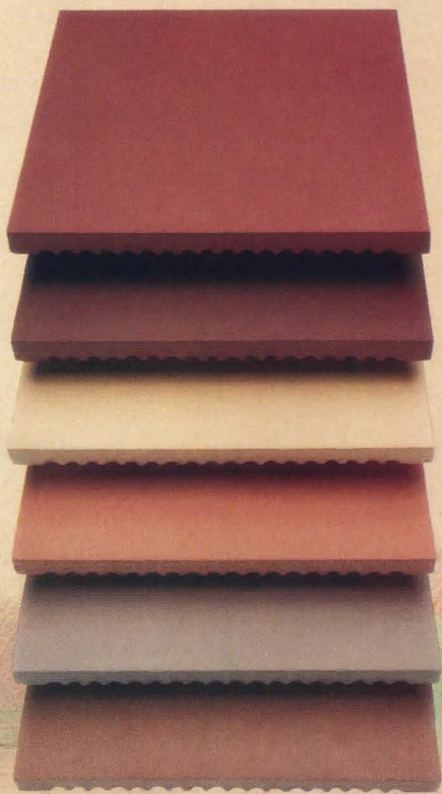

Circle **No. 382** on Reader Service Card

INTRODUCING A 21ST THAT LOOKS RIGHT AT

The Marvin Magnum Authentic Double-Hung may look like it belongs in the Nineteenth Century. But the truth is the technology we build into this window will be more at home in the Twenty-first.

AUTHENTIC. RIGHT DOWN TO THE DIVIDED LITES.

Some companies might be content to simulate what were originally divided lites by placing a wood (or even plastic) grid over a single pane of glass.

Not Marvin.

By taking the time and making the effort to create real divided lites, we give you a window that more closely replicates the original. We bring the true spirit of craftsmanship to the job. The same craftsmanship to be found in the original windows.

At the same time, we offer you a wide range of glazings for efficiency. Choose single, insulating, solar bronze, solar gray, solar cool, Low-E, or Low-E with Argon. At Marvin, authenticity is no excuse for inefficiency.

A STRONGER WINDOW. FROM STRONGER STOCK.

This window is made to stand the load. 5/4" stock is standard in the frames, with 1 3/4" throughout the sash. Header, check rail and bottom sash, all are sealed with the best possible weatherstripping.

The result is a window that performs better under severe weather conditions. Without compromising the architectural integrity of the building.

CENTURY WINDOW HOME IN THE 1800'S.

AN EASIER WINDOW TO MAINTAIN.

Both sash on every Magnum Double-Hung tilt into the room for cleaning. It's a feature that will save time and money for years to come.

Even the exterior is easy to maintain since we offer this window with Polycron finish, as well as in natural Ponderosa pine that's been specially treated to protect against rot and decay.

The object isn't just a window that looks and works better. It's a window that looks and works better while it lasts longer.

WE SET THE STANDARD FOR NON-STANDARD SIZES.

Some companies are content to offer standard sizes from inventory. We make every window to order. This unique, Marvin way of doing business makes it easier for us to fabricate windows that simply don't fit into other companies' plans.

Whether its a special project with hundreds of one-of-a-kind replicas or a single window that simply boggles the mind, we stand ready to work with you. Every step of the way.

Ask around. People will tell you how we cooperate.

WE'RE READY AND WAITING. RIGHT BY THE PHONE.

For more information, plus the name of your nearest qualified Marvin Magnum distributor, call us toll-free at **1-800-328-0268** (in Minnesota 1-612-854-1464). Or write Marvin Magnum Windows, 8043 24th Avenue South, Minneapolis, Minnesota 55420.

We'll show you why the future looks better through a Marvin Magnum Authentic Double Hung.

MARVIN MAGNUMS

ENGINEERED TO OPEN THE MIND.

Circle **No. 355**

The sole

Presenting carpet of Antron Precedent™ carpet that looks newer, longer than any other.

Acknowledged Industry Leader New	Antron Precedent New
400,000 traffics	400,000 traffics
1,000,000 traffics	1,000,000 traffics

Finally, there's a carpet fiber system that's a step above all others: Du Pont ANTRON PRECEDENT. Because carpet of ANTRON PRECEDENT looks newer *up to two times longer* than any other carpet.

We've proven it. In a side-by-side test held in a busy New York City university, more than a million people walked across two contract carpets: one made of Du Pont certified ANTRON PRECEDENT, the other an equal construction of the acknowledged industry leader.

survivor.

Take a close look. Not only did the carpet of ANTRON PRECEDENT excel in soil and stain resistance; it also succeeded in retaining its original look and texture longer.

In the revolutionary system behind ANTRON PRECEDENT, state-of-the art hollow filament fibers are combined with DuraTech.® an advanced commercial treatment based on the latest in Teflon® carpet protector technology. This, along with stringent Du Pont construction specifications, is what sets ANTRON PRECEDENT apart.

DU PONT
Approved Carpet of
ANTRON
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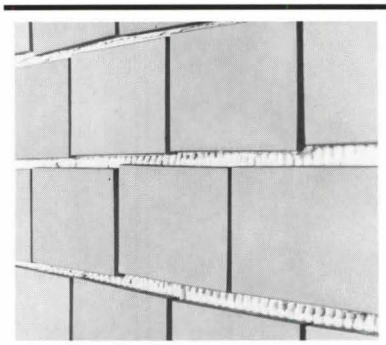

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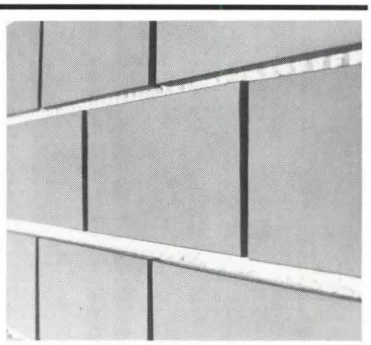

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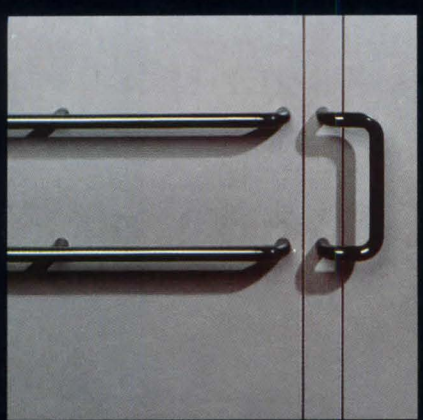

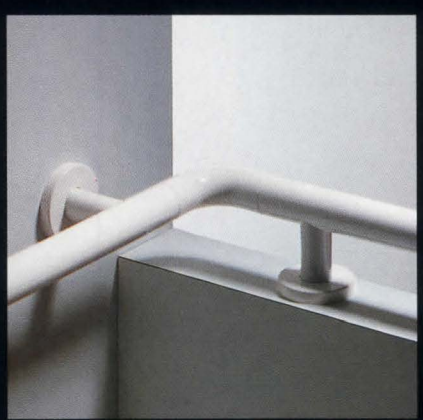

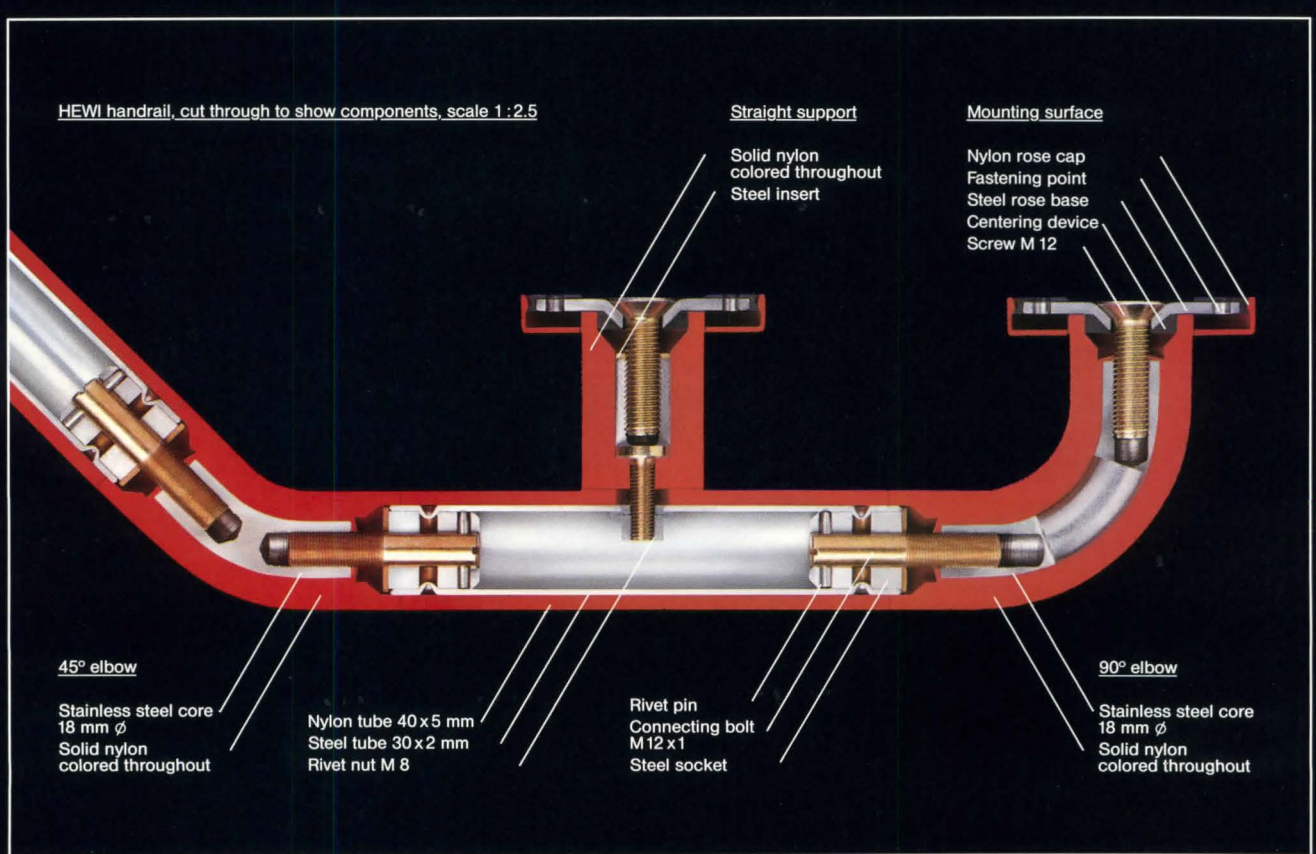

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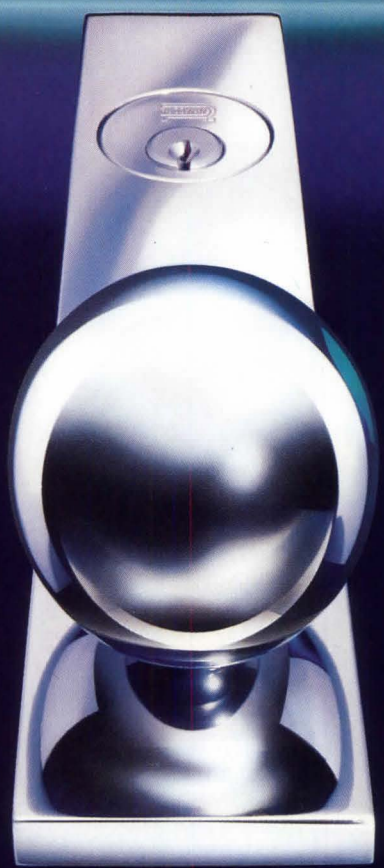

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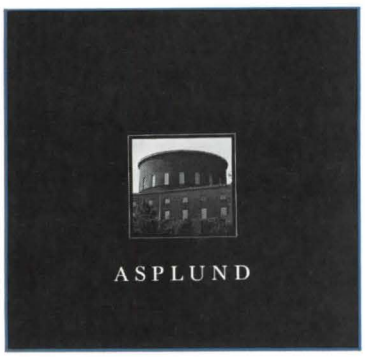
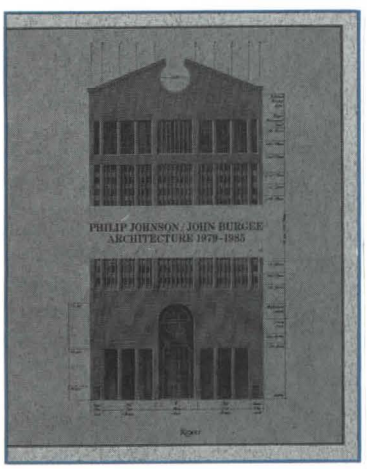
Books

Asplund ***edited by Claes Caldenby and Olof Hultin. New York, Rizzoli, 1986. 132 pp., $35.00.***

Philip Johnson/John Burgee Architecture 1979–1985, ***Introduction by Carleton Knight III. New York, Rizzoli, 1986. 192 pp., $45.00.***





Asplund

Contemporary wth Modernism's great masters, the brilliance of Erik Gunnar Asplund dominated the development of early 20th-Century Scandinavian architecture. Throughout his career, this Swedish architect designed buildings that reflected the cultural, political, and technological changes that his country was experiencing. His innovative spirit broke away from the National Romantic Movement and the dwindling conservative teachings of the Swedish Academy of Fine Arts. After a pilgrimage through Italy in 1913, his work acquired a Classical flavor, which he fused with the regional vernacular typologies. By the time he and his partner Sigurd Lewerentz won the Woodland Cemetery competition in 1915, he was already considered one of Scandinavia's leading Neo-Classicists. As the chief architect of the 1930s Stockholm Exhibition, Asplund brought *funkis* (functionalist) architecture to the foreground of international consciousness. Towards the end of his prematurely shortened career, his work became bolder and more rational, and yet he maintained a satirical ability to combine Classicism with his national heritage.

Asplund, edited by Claes Caldenby and Olof Hultin, is a beautifully illustrated volume that captures the distinctive career of this paragon of architects. It is an exhaustive photographic documentation of Asplund's principal buildings, in the form of color photographs taken in 1984 and 1985, which are presented in a large format, affording the reader a closer look at the works. The book features essays by Kenneth Frampton and Carl Axel Acking, with condensed versions of previously published articles by Stuart Wrede and Elias Cornell. Caldenby sets the tone for the book, highlighting the atmosphere under which Asplund's career started and flourished. A personal ode by Carl Axel Acking follows, paying tribute to the man and the affectionately-referred-to professional "slave driver." An essay by Kenneth Frampton elaborates on Asplund's role in the 1930 Stockholm Exhibition and the development of Scandinavian functionalism. Wrede's essay, "Landscape and Architecture," analyzes the aesthetic and symbolic dimensions of Asplund's landscape design and its integration with his semianthropomorphic architecture. "For Asplund, landscape does not assume the passive or secondary role it does elsewhere in the Modern Movement, and rather than make a revolutionary break with the past, Asplund sought to renew and revitalize landscape traditions," states Wrede. Finally, the essay by Cornell, originally published in 1961, is a classic essay on Asplund's work. It is entitled "The Sky is a Vault." In it, Cornell scrutinizes the spatial qualities of the buildings. He states that "the work of Erik Gunnar Asplund always achieves its consummation, its ultimate meaning, in spaces; solemn, uplifting, austere, diurnal, festal, theatrical, playful." This inimitable capacity for variation was a result of one lifelong pursuit: Asplund's continual search for "the *essentials* of architecture"—an apposite lesson for one and all.

Johnson/Burgee

Back in 1979, the design for a new 37-story stone-clad office building, capped by a broken pediment, shocked the architectural community. It was unheard of. The Doyen of Modern architecture was looking to the past for inspiration; what's more, he was using sources quite literally. Was this a sign of the times, or was it a symptom of senility? Today, the answer is quite clear: The mind is intact. The building turned out to be the single most important skyscraper of the last 25 years [in the reviewer's opinion]. It was, of course, the AT&T. The architect, of course, was Philip Johnson with John Burgee. The result was the consecration of Post-Modernism.

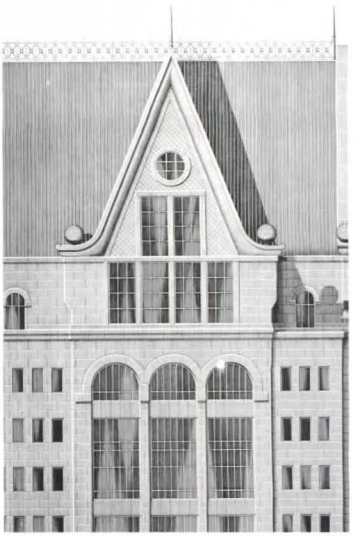
Since that time, Johnson/Burgee have made their home in the commercial highrise market, consistently producing a wealth of buildings that are stylistically inconsistent but architecturally threaded together by two common denominators: historicism and contextualism.

A change also occurred in the real estate development field as a result of AT&T's apparition. Because of the fluctuating economy, developers (Gerald Hines in the foreground) realized that in order to be competitive, their buildings had to do more than simply accommodate the functional requirements of the program. The American consumer market, which has been obsessed with designer products, now demanded designer skyscrapers. No longer would cheap, dumpy, glass boxes do. The heyday of the architect as engineer was gone; the architect as artist had returned.

Johnson/Burgee have been in the spotlight of this renewed forum, opening the doors for young talented firms to follow. For many years, commercial architecture was a dirty word in academic circles, and justly so, but that has changed. The names of Johnson and Burgee can now be placed next to those of Raymond Hood, Cass Gilbert, and Ernest Flagg as significant American skyscraper architects.

The new *Philip Johnson/John Burgee* documents the most dazzling period of the firm's work. The 25 projects featured in this book include swaggering office buildings and palatial urban complexes, colleges, and cultural centers. Also included is a slick religious monument, and buildings currently in production or in construction. Despite the extensive color photographic material, and the very handsome etchings of various buildings, there are many instances when the spreads per project are too short, not illustrating the buildings in their entirety. Scanning through this Hit Parade of

(continued on page 138)



190 South LaSalle Street, Chicago.

Johnson/Burgee *(cont. from p. 136)*
Johnson/Burgee's top 25 leads to delight and confusion, simultaneously.

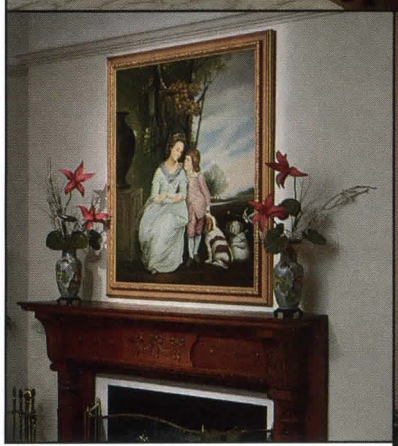
Johnson states, "We never copy ourselves." This, naturally, makes it difficult to identify their buildings or a specific train of thought as such because, as Carleton Knight III says in his introduction, "Just when they start something new, they go off in another direction." Historicism is a constant, but it is reflected in a diversity of degrees and styles. Anything goes—from Gothic spires of mirrored glass to Schinkelesque office parks and Ledouxesque campus buildings. Most recently, a Moderne elliptical "object" building has been completed in New York, disrupting the urban wall maintained by buildings such as AT&T.

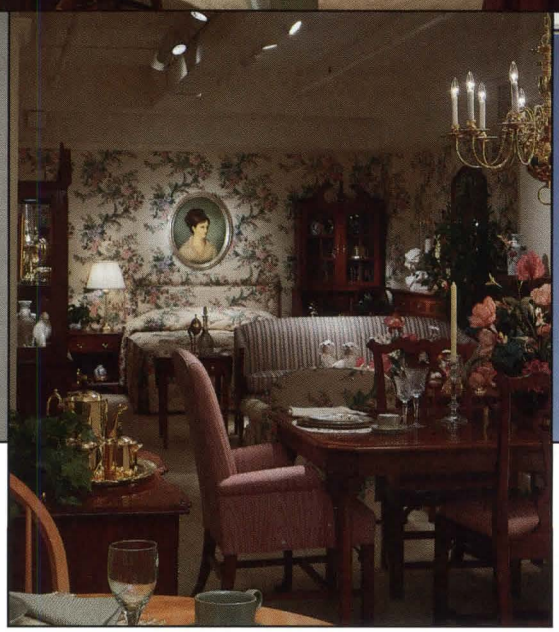
For the most part, however, Johnson/Burgee have successfully married a broad past with the technological present, keeping their seemingly whimsical application of history in check by their contextual responses to stylistic and urbanistic cues, proving that their reference system is more than skin deep.

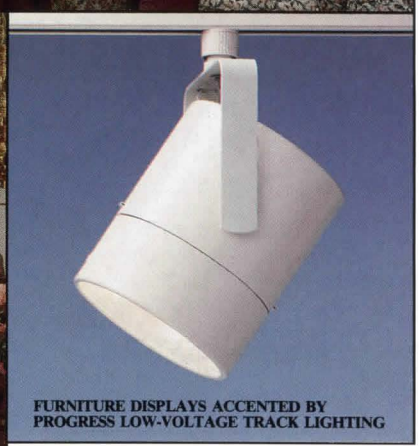
On a lighter note, the chronology of buildings at the end of this volume is filled with memorable quotes by Johnson, Burgee, and others. When for instance, Johnson was interviewed for the new Cleveland Play House, he stated: "There are only two architects in the United States capable of your commission, Thomas Jefferson and Philip Johnson. One of them is not available." . . . leaving us with an ample selection of hors d'oeuvres for coffee table chatter. ***Sonia R. Chao*** ■

The reviewer, an architect living and working in New York, has co-authored a forthcoming monograph on Kohn Pedersen Fox.

We light the American dream







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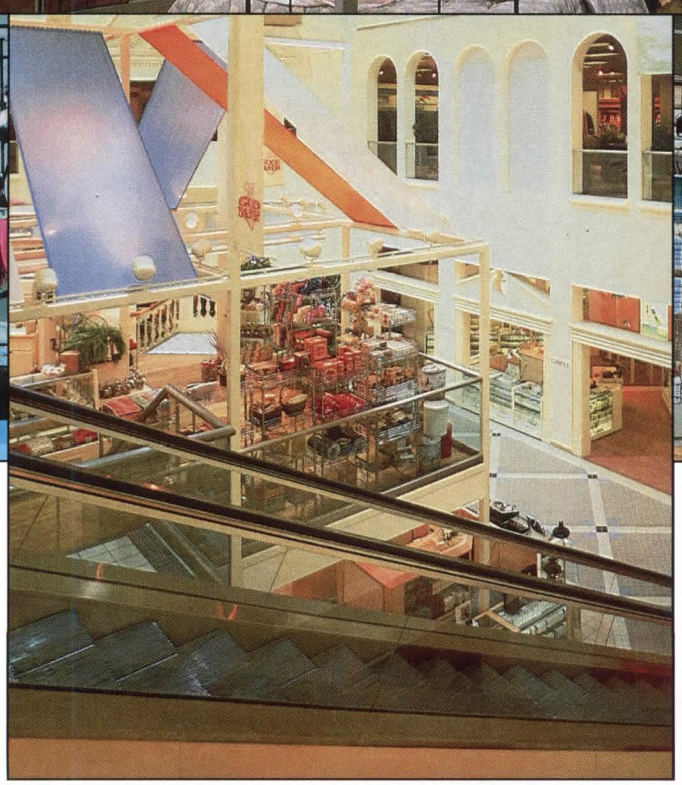
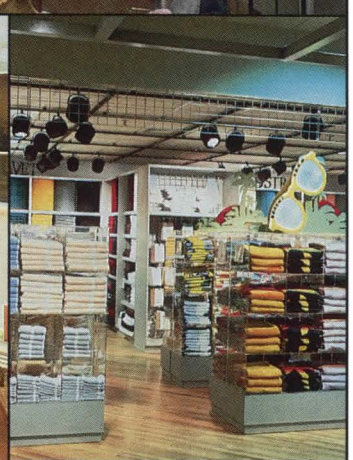
We light the American dream





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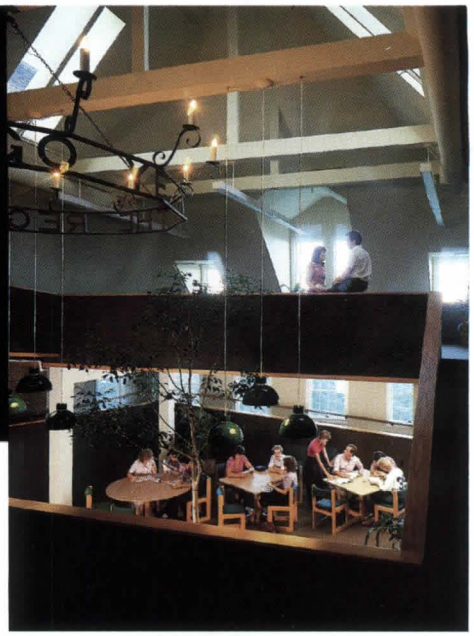

The engineers said, "Raze it." Sentimental alumni said, "Save it."

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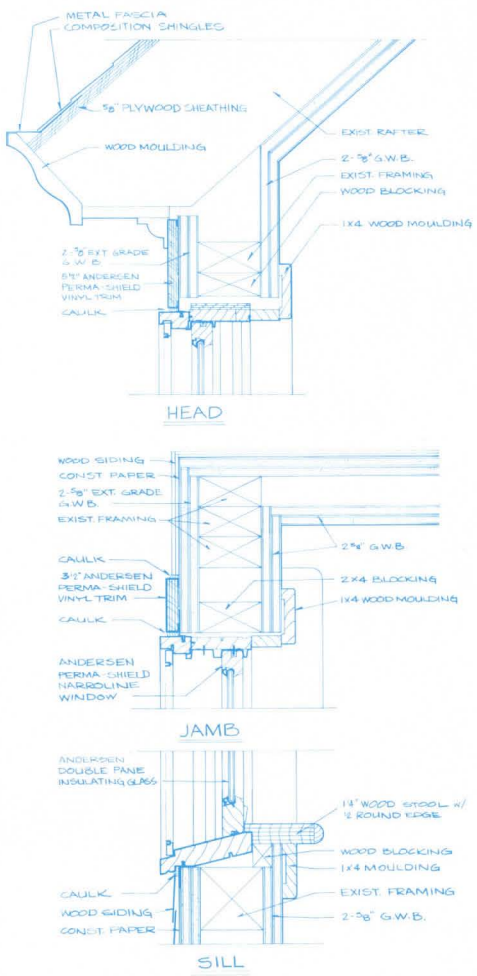

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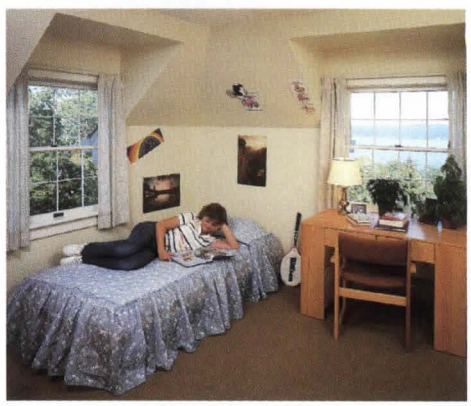

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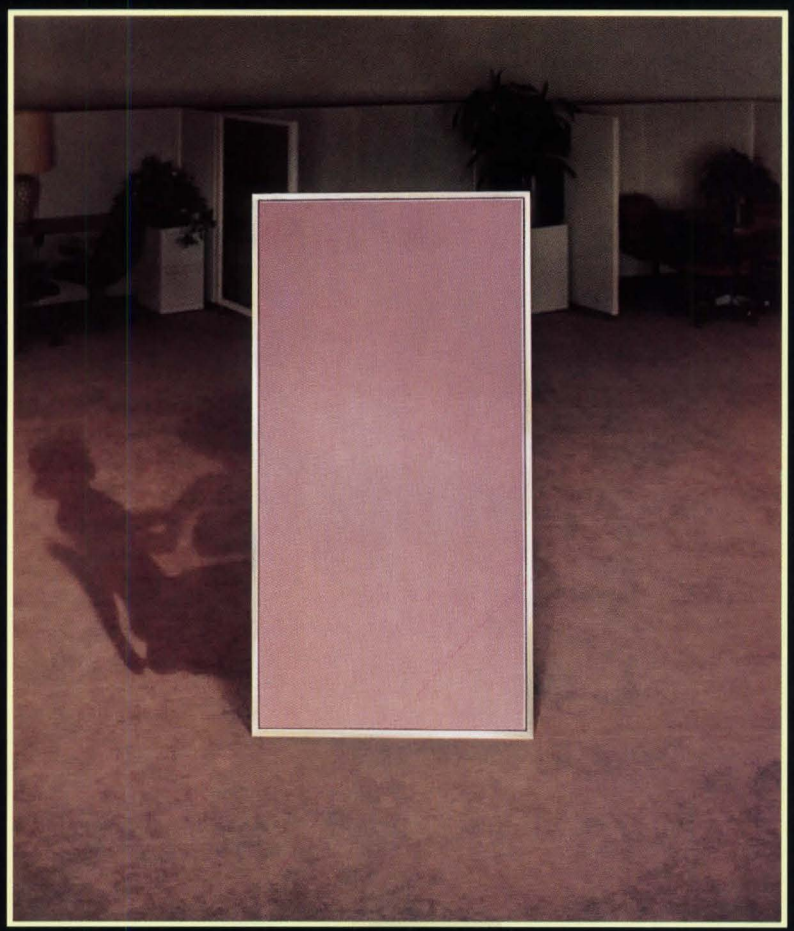

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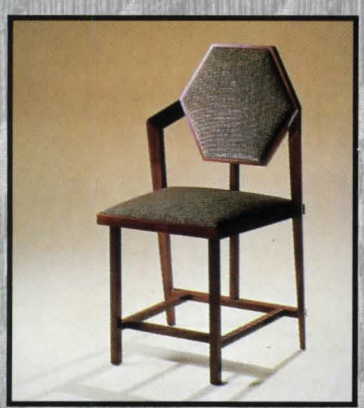
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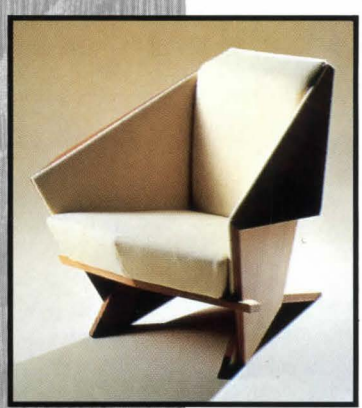
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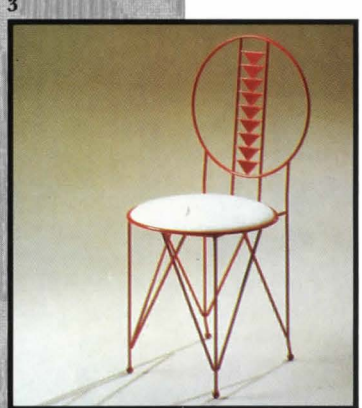
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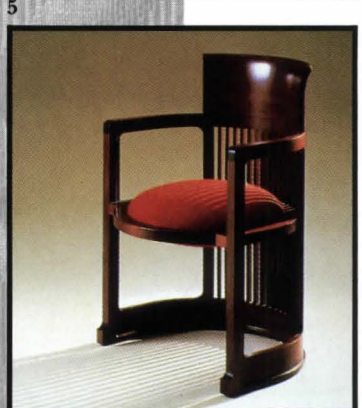
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8

Wright Again

Fans of Frank Lloyd Wright's designs for interior furnishings should be pleased by two new product collections. Seven of the architect's furniture designs are being reproduced by the Italian furniture manufacturer Cassina, SpA, through a licensing agreement with the Frank Lloyd Wright Foundation, and marketed in this country by Atelier International Ltd. The reproductions, the latest in Cassina's Masters Series, cover several phases of Wright's long career. The Robie Chair was designed in 1908 for the Chicago house of the same name; it is shown here with the Allen Table, designed in 1917 for the Henry J. Allen house in Wichita, Kansas. The wood Midway 1 chair and the enameled steel-rod Midway 2 chair and Midway 3 table were designed in 1914 for the Midway Gardens in Chicago. The Barrel Chair is a reproduction of a 1937 chair made for Wingspread, Herbert Johnson's house in Wisconsin. The chair was a reinterpretation of one that Wright had designed in 1904 for the Darwin D. Martin House in Buffalo, New York. The laminated plywood Taliesin Chair was designed by Wright in 1949 for his living room at Taliesin West.

Circle 100 on reader service card

Also making its debut is a group of fabric, wallcovering, and rug designs from Schumacher. Most of the fabrics and wallcoverings are based on details in Wright's architecture and stained glass—shown here is Chevron Repp, a woven design based on the art glass in the Martin House—but there is also one fabric design reproduced from a textile collection that Wright created for Schumacher in 1955. Rounding out their new offerings are four rugs, all of which are adaptations of rugs designed by Wright. ***Pilar Viladas*** ■

Circle 101 on reader service card

1. Chevron Repp; 2. Midway 1 chair; 3. Taliesin chair; 4. Midway 2 chair; 5. Midway 3 table; 6. Barrel Chair; 7. Allen table and Robie chairs.

The Pontus collection from Europe consists of 500 prints, chintzes, dobby weaves, jacquard tapestries, silks, and pearlized wall fabric. Wallcoverings known in the 19th Century as anaglyphic, in crisp new relief patterns, are designed for painting and glazing after application to provide a broad range of texture, color, and finish. Jack Lenor Larsen.
Circle 119 on reader service card

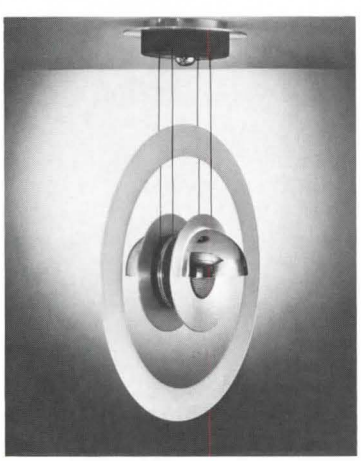
'Project Management for Small Design Firms,' a looseleaf-bound 90-page manual, shows managers how to manage projects profitably. It includes the forms, checklists, resource material, and other essential information for architects, engineers, interior designers, and other professionals. Copies are available, at $25 each plus $3 shipping, from Birnberg & Associates, 1227 W. Wrightwood St., Chicago, IL 60614.

D.I.S.C. Designer's Interactive Systems Catalog is an electronic resource catalog that combines the interaction of a computer's storage and "search" function with the visual capability of the laser disk. Images of everything that meets a particular specification appear in color on a video screen, one by one. A second monitor displays information about that product. A detailed printout of the description of each product and the showrooms where the manufacturer is represented is produced, along with a black-and-white or color picture. D.I.S.C. is said to substantially reduce the time and effort required to locate and assemble products. Designer's Data Services.
Circle 120 on reader service card

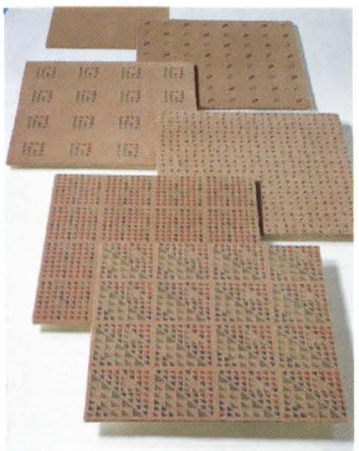
Window brochure provides descriptions, illustrations, and performance test data on windows for residential, office, hospital, school, apartment, and high-rise building applications. Featured styles are single- and double-hung tilt-in, rolling, and double-hung with removable sash. Most have thermal breaks, and options include double or triple glazing. Amacor.
Circle 214 on reader service card

The Executive Collection of five new fabric designs for the contract market consists of 100 percent wool, 100 percent wool faced, or wool blends. Granville has horizontal wavy lines; Forsgate is a solid; Sherburn has light and dark dashes on a middle value ground; Harrington is a heavy twill; and Emperor is a geometric. Stroheim & Romann.
Circle 121 on reader service card

Soundsoak acoustical wall panels are offered in Ovation, a classical wool string look in three natural colors, and Encore, a woven polyester fabric in 24 colors. Both offer 60–70 percent sound absorption rating and a flame spread, according to ASTM 84, of 25 or less. Armstrong World Industries.
Circle 122 on reader service card



Luna Pendant light, by sculptor/designer Kevin von Kluck, has an outer ring of sand-etched glass. Its rotational mobility allows light to be directed through a full 360-degree range. It uses two 50-watt maximum tungsten halogen bulbs. Height is 24, 30, or 36 inches. Finishes are polished brass or chrome, cranberry red or peacock blue gloss. Boyd Lighting Company.
Circle 123 on reader service card



Self Lock carpet tiles, a free-lay system, require no adhesive, dramatically reducing installation costs, says the manufacturer. The patterned tiles are available in cut pile and loop pile textures in 18-inch or 24-inch squares. Lees Commercial Carpet Co.
Circle 124 on reader service card

The Series One Operational Chair is tailored to support users of video display terminals and other keyboard operators. It has a medium-low back and is constructed to give concentrated postural support and comfort during extended periods. Controls adjust positions to forward tilt for keyboard activities, upright for desk tasks, and back tilt for administrative tasks and rest periods. The chair is available with or without open urethane arms in a choice of fabrics or custom upholstery, and offers full 360-degree swivel on a five-star base with dual wheel casters or optional glides. Panel Concepts.
Circle 125 on reader service card

The Gold Coast Collection of washerless lavatory faucets and bath and shower valves is described and shown in a brochure covering 15 different models. Faucets and valves have coordinated finishes of polished brass with clear Crystalac handles or antique brass with smoke Crystalac handles. Elkay Manufacturing Company.
Circle 126 on reader service card

Thermax® Quik-R wall insulation for polymer stucco coatings is covered in a brochure that includes information about its application in wood frame, masonry, and steel stud walls. The insulation is a polyisocyanurate foam board with fiberglass facings that allow direct application of polymer stucco coatings, eliminating the need for metal lath or gypsum sheathing. The Celotex Corporation.
Circle 127 on reader service card

Accu-Speed Connectors accommodate all sizes and thickness of contemporary glass block, according to the manufacturer. For interior or exterior applications, they are available in two sizes for either a one-half-inch or three-eighths-inch joint. The connector helps to make uniform joints. Mayer Equity Inc.
Circle 128 on reader service card

Arm-R-Secur glass-clad polycarbonate laminate offers protection against ballistic and physical attack. Arm-R-Clad heat-strengthened glass resists abrasion and scratching. Arm-R-Secur products are recommended for security detention facilities, bank and teller windows, jewelry store windows and display cases, hospitals, and museums. Hordis Brothers, Inc.
Circle 129 on reader service card

'T' Series movable partitions are used to create office space in new or renovated areas. The system consists of a steel ceiling channel, a metal floor plate, panels, connectors, a finish strip between panels, a snap-on vinyl base, and doors. A 20-page full-color brochure illustrates the system's use in two different interiors. Trendway.
Circle 215 on reader service card

Kaleidoscope ceramic tile, manufactured by Appiani of Italy for commercial and residential applications, consists of 18 colors. It is a glazed interior wall and light residential floor tile in four sizes: 2″ x 2″, 4″ x 4″, 8″ x 8″, and ½″ x 8″ pencil trim. United Ceramic Tile Corporation.
Circle 130 on reader service card

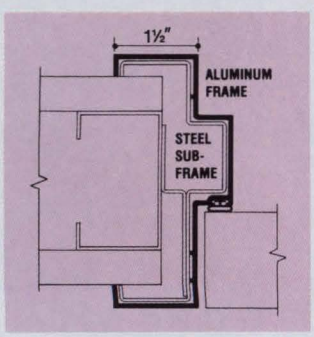
Vinyl Cove Base four-color brochure shows product applications, includes size details, and displays the eight colors offered. The .080-inch-thick cove base is available in 2½-, 4-, and 6-inch widths and in four-foot lengths. The eight colors have a satin finish. Roppe Rubber Corp.
Circle 216 on reader service card

Asbestos insulation removal in building renovation and demolition projects is discussed in literature that cites the hazards of asbestos dust; substantial fines levied against building owners/managers and contractors; and EPA shutdowns of renovation projects with asbestos violations. It provides a step-by-step procedure for removing old insulation, which is then isolated in airtight, nontoxic, tear-resistant, leak-free bags. Crystal X Corp.
Circle 131 on reader service card
(continued on page 151)

The PHOENIX*, by Alumax: It's attractive; It's aluminum; It's *90-minute fire rated.*

On July 10, 1985, the independent laboratories of Warnock Hersey International conducted a 90-minute fire endurance and hose stream test on a prospective product by Alumax/Magnolia Division. The result was PHOENIX, *the first aluminum door frame to receive a 90-minute fire rating.*

PHOENIX combines the fire resistance of steel with the aesthetics of aluminum. Few materials are so fire resistant as steel. Steel alone, however, does not have the design flexibilities or aesthetic appeal of aluminum. To achieve the advantages of both metals, therefore, a bimetal frame system was devised which consists of unexposed 16-gauge steel sub-frame and 6063-T5 alloy outer aluminum frame.



*Patent Pending

PHOENIX permits design consistency — with no job site finishing. New PHOENIX matches Alumax's 20-minute *Royal* and *Imperial* frame lines in both color and configuration. Available are factory finishes of clear, bronze and black anodized, plus a variety of electrostatically applied, baked on paint finishes. The steel subframe, too, is bonderized, dip process painted and oven dried.

PHOENIX is a free-standing system which can accommodate multiple sizes of doors. PHOENIX units utilize single doors up to 4 feet by 8 feet, 10½ inches; double doors up to 6 feet by 8 feet, 10½ inches. Throat sizes range upward from 3½ inches, and corner tabs are included for convenient field installation.

PHOENIX is produced by Alumax, an integrated company. Each aspect of production, from smelting to extrusion, machining to fabrication, is Alumax owned and operated. As a result, it is able to offer not only an exceptional level of quality, but a custom capability which is second to none.

Complete data on PHOENIX is now available. *Imperial, Royal* and other architectural products by Alumax are covered in your current Sweet's Catalog. For more on PHOENIX, write: *Alumax/Magnolia Division, Interior Products Group, Post Office Box 40, Magnolia, Arkansas, 71753. Or call 800-643-1514 (In Arkansas, 501-234-4260).*

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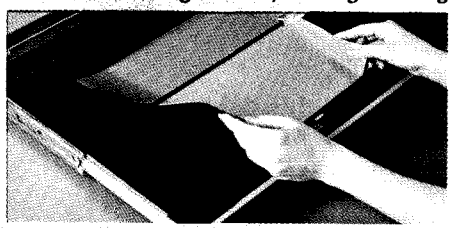

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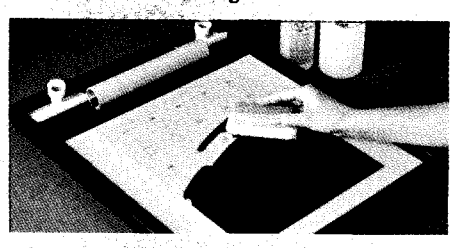

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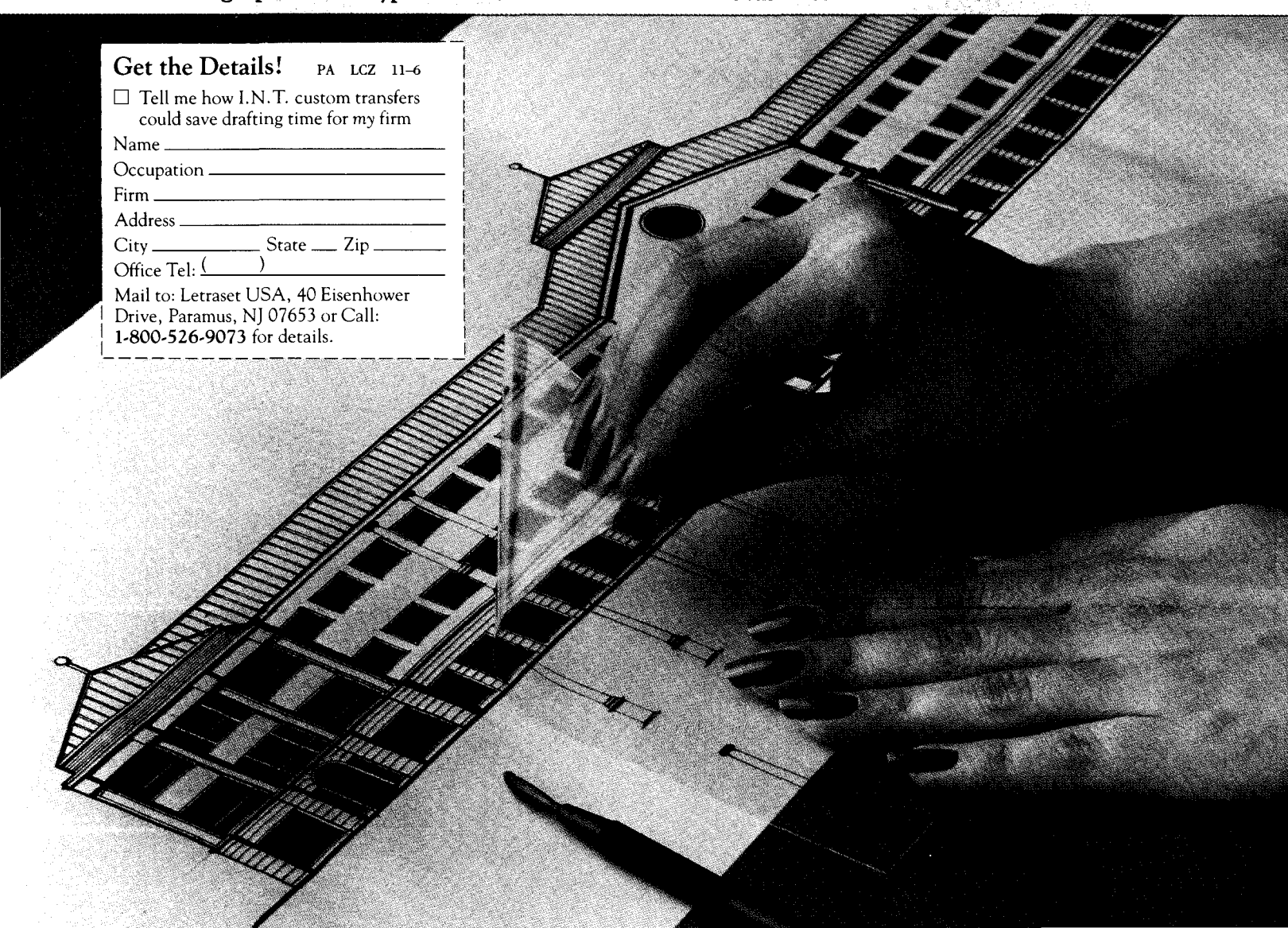


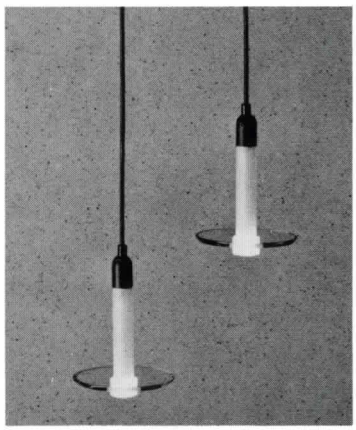
The PC cabinet in oak or walnut holds personal computers, printers, and paper, and has casters for mobility. An adjustable shelf accommodates the monitor and disk drive, and a sliding keyboard shelf pulls out when in use. The lockable printer drawer accepts six inches of paper and rolls out for easy viewing and printer operation. The door locks to protect hardware and data. Wright Line Inc.
Circle 132 on reader service card

The Impressions fabrics are 19 new Hospitality prints in patterns that range from an updated paisley to contemporary graffiti and traditional florals. All are 54 inches wide, 100 percent cotton, suitable for quilting as bedspreads or lamination for room darkening. Coral of Chicago.
Circle 133 on reader service card

AFL Architectural Floodlight for exterior and interior use is available in three beam patterns, three colors, and nine mounting configurations. Two options offered are a barn door system that provides flexible glare control and a cylindrical J-box. AFL offers easy installation and maintenance and vandal resistance. Kim Lighting.
Circle 134 on reader service card

Window replacement units developed for historical and landmark buildings are highly insulated, with U-factor options from .15 to .40. The translucent units have light transmission options from 3 to 83 percent. Both features save heating, cooling, and lighting energy. Units can be fabricated in sizes up to 5′ x 20′. Kalwall Corporation.
Circle 135 on reader service card

Two new fluoropolymers complement the Kynar 500-based coatings. Both offer exceptional gloss retention and resistance to fade and chalk—even in severe exterior applications. Kynar SL fluoropolymer for low-temperature-bake coating applications can be formulated as a solution coating for curing at 150 F or as a dispersion coating that cures at approximately 300 F. Kynar ADS is the base for solution coatings that air dry at ambient temperature for field-applied top coats over conventional maintenance coatings for added protection. Pennwalt Corporation.
Circle 136 on reader service card

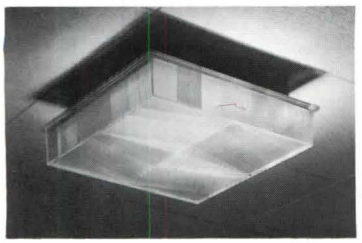


Vodka suspended light fixture has a nine-inch frosted glass tube, a six-inch-diameter clear glass disk, and a black canopy. It hangs from a black cord. A 25-watt, 12-volt halogen bulb is included. Koch & Lowy.
Circle 137 on reader service card

Architectural columns 12-page reference manual shows plain and fluted columns and a variety of caps. Columns are clear heart Redwood that will not rot; caps, bases, and plinths are made of fiberglass. There are detailed installation instructions, sample specifications, and estimating information. Corinthian, Doric, Tuscan, and Ionic orders are included. Hartmann-Sanders Column Company.
Circle 217 on reader service card

PRG Fall Bulletin lists several books on building and museum conservation, as well as several instruments such as moisture alarms and detectors. Among titles offered are *Protecting Historic Architecture and Museum Collections from Natural Disasters, Conservation of Historic Buildings,* and *The Textile Conservator's Manual.* PRG.
Circle 218 on reader service card

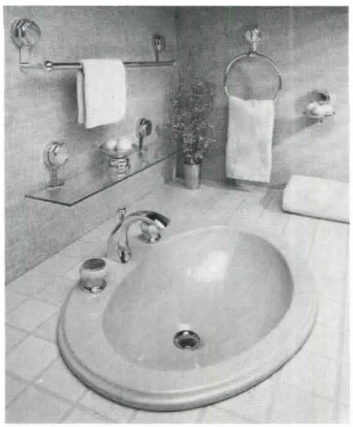
Internal inspection systems reviewed in an eight-page brochure are flexible fiberscopes, rigid borescopes, and accessories. Detachable tip adapters of flexible fiberscopes allow one scope to do the work of several. Borescopes have a 260-degree scanning capability, a pistol-grip, one-hand operation, and adjustable focusing. Olympus Corporation.
Circle 138 on reader service card
(continued on page 152)



CBSQ Series fluorescent fixture/emergency light combination has energy-saving PL-9 AC fluorescent lamps and can power up to four external flood lamps or exit signs during power failures. Upon interruption of power, the units provide instant illumination for a minimum of 90 minutes. When power is returned, a charger restores the battery to its initial state. The lights are available for surface, semiflush, or fully recessed mounting. A wraparound prismatic lens provides optimum illumination of ceiling and walls. Elan Emergency Lighting.
Circle 139 on reader service card

Modular office furniture, System 7000, shown in a 16-page brochure, can be assembled in a variety of configurations using 90-, 60-, 45-, and 30-degree linking pieces. Worksurfaces are adjustable in ¾-inch increments from 25 to 30 inches. Equipment cables are stored out of sight in worksurface channels. Accessories include pivoting file baskets, inclinable worksurfaces, task lighting, shelves, and desk sets. Lista International Corporation.
Circle 219 on reader service card

Broadlume wall bracket offers cost-effective unitized construction, efficient wide-spread light distribution, and compact styling. The unit accommodates 70-, 100-, and 150-watt high pressure sodium lamps. Its one-piece housing and lens combination is internally finished for lasting performance. A five-to-one spacing-to-mounting-height ratio means fewer fixtures are needed; units mounted 12 feet above ground can be spaced 60 feet apart. Guth Lighting.
Circle 140 on reader service card



Sovereign faucets and accessories are offered in five different faucet heads: Octagonal, Rope, Ribbed, Plain, and Turban. Each can be ordered in combinations of metal, Lac de Chine, and custom color finishes. Discs can contrast with bodies or be of semiprecious stones. The faucets are shown with the company's custom-colored vitreous china basin available in several shapes and colors. Kallista, Inc.
Circle 141 on reader service card

Derako® all-natural ceilings are available in nine standard wood species and specials. A variety of stains and hues match or complement interiors. Ceilings are flat or contoured, open or closed, removable or fixed styles. A patented clip and rail suspension provides rapid, economical installation. Rulon Company, Div. of CRF Industries, Inc.
Circle 142 on reader service card

Door control hardware brochure shows overhead holders, latches, flush bolts, pivots, floor and wall stops and bumpers, and custom hardware. It also discusses custom services. Glynn-Johnson, Div. of Dayton Walther Corp.
Circle 220 on reader service card

Detention hardware brochure describes a series of both manual and electromechanical locks. They are suitable for new installations or existing facilities and can be supplied for minimum, medium, and maximum security facilities. Adtec Security.
Circle 221 on reader service card

Architectural Guide to Door Hardware is a 20-page catalog of residential and commercial locks, grip handles, and knobs. Two series are electrically locking and unlocking and UL fire rated. Descriptions, illustrations, and tables of functions are included. Color photos show finishes available. Schlage Lock.
Circle 222 on reader service card
(continued on page 158)

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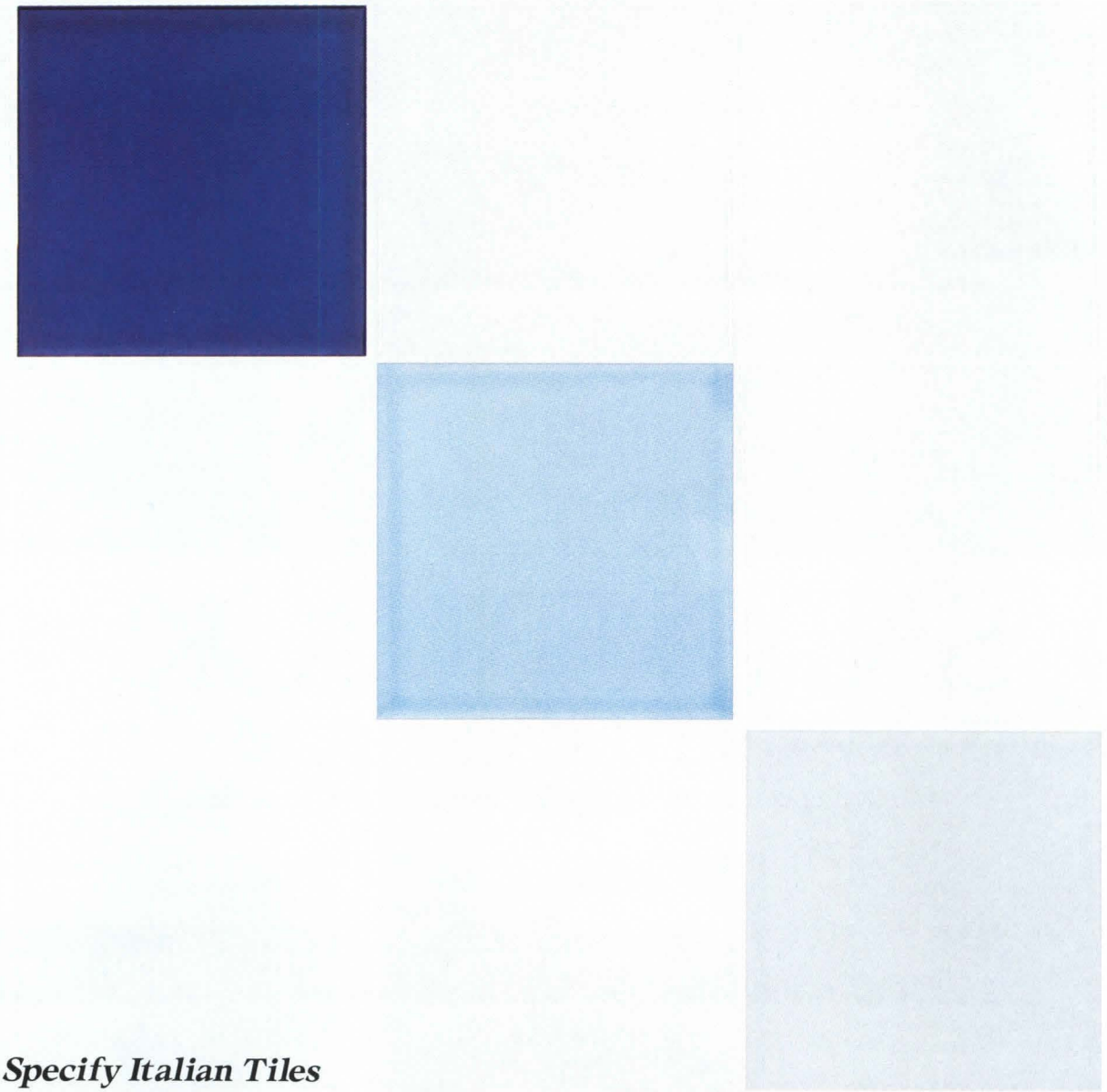

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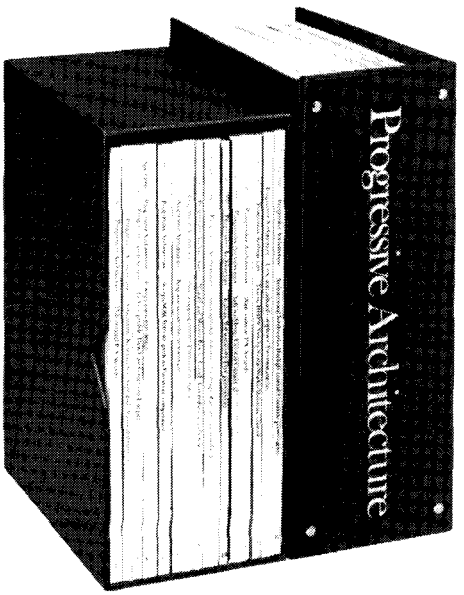

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The Rubber Children's Group has chair frames of black powder-coated steel encased in a durable textured rubber tubing and polypropylene back straps. Chair seats are natural beech, textured finishes in 24 colors, or padded and upholstered. The 23-inch-high companion rubber tables have round or square tops of clear lacquered beech or textured finishes in 24 colors. Bases are black powder coated steel encased in black textured rubber tubing. Metropolitan Furniture Corporation.
Circle 143 on reader service card

Replacement window catalog describes the company's full line of commercial aluminum replacement windows, including projected, casement, double- and single-hung, sliders, fixed-light, specialty, and combination units. The 16-page catalog has extrusion diagrams, specifications, testing information, and covers panning systems, internal blinds, and security glazing. Season-all Industries, Inc.
Circle 223 on reader service card

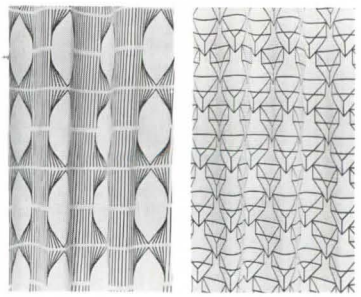
A Victorian color card for interior and exterior paints features 16 colors for residential and commercial applications, as well as floor and trim paints. More brilliant than Colonial colors, Victorian colors are mixed on buildings, especially on gingerbread detailing around porches, windows, doors, and roofs. Finnaren & Haley, Inc.
Circle 224 on reader service card

The Tramex Moisture Encounter provides nondestructive moisture testing of timber, plaster, felt, and brick. It has three separate ranges of sensitivity for a variety of tasks, including identifying rising damp in walls, locating leaks in felt roofs, and determining an accurate moisture percentage in timber. United Construction Products.
Circle 144 on reader service card

Acoustone® and Auratone® ceiling panels and tiles are offered in 24 designer colors available as standard. There are five groups: Spectra, deep earth colors; Whisper Pastels, tinted neutrals and saturated pastels; Sunset Fog, mulberry, rose, peach, and haze; Dry Earth, sandstone, buckskin, and caramel; and Palazzo Deeps, burgundy, oakwood, and black. Acoustone ceilings have a mineral fiber base mat with color throughout. Water-felted Auratone tiles and panels have surface-coated color, which can be repainted to extend ceiling life. USG Acoustical Products Company.
Circle 145 on reader service card

Brick special shapes catalog includes shapes for water tables, sills, treads, copings, jambs, radials, angles, and arches. Several shapes for each type are shown, with dimensions. Color photos illustrate a variety of brick uses. General Shale.
Circle 225 on reader service card

Looseleaf binders can be customized to fit a wide range of binding needs, such as business presentations, seminar materials, and instruction manuals. A new six-page brochure shows options for customizing these binders with silk screening, foil stamping, embossing, or dimensional appliques. Related products also shown are index sheets and page protectors. General Binding Corporation.
Circle 226 on reader service card



The seven Schematix Collection prints, inspired by drafting symbols and terminology, are small repeat linear designs that can be hand screened on the company's inherently flame-retardant drapery fabrics. For use in healthcare, hospitality, office, and residential areas, the prints are offered in more than 70 colors, or can be matched to swatches submitted by the designer. Ben Rose.
Circle 146 on reader service card

A wheelchair lift with a 750-pound capacity for indoor or outdoor use is operated electrically with optional battery backup. The 12-square-foot platform has a nonskid surface and an 18-inch ramp for easy access. The lift and options available are described in a four-page brochure. Toce Brothers, Ltd.
Circle 227 on reader service card
(continued on page 160)

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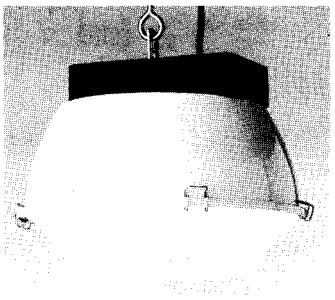
The Fettucini Chair, crafted of laminated plywood, is available in solid or multicolored finishes, or natural or stained beechwood, with a leather or cane seat. It is appropriate for dining or conference room, or as an occasional chair in the office. It is available assembled or knocked down for easy bulk shipping for the contract market. Vladimir Kagan Designs.
Circle 147 on reader service card

Five hydraulic dock levelers are described in full-color, two-page specification sheets. The sheets describe special features including an automatic safety-stop system, standard integral and full-range toe guards, high-stability inverted cylinder design, time-saving infinite hydraulic control, and optional Dok-Lok® vehicle restraining system. Rite-Hite Corporation.
Circle 228 on reader service card



The Mini Lo-Bay fixture saves energy as well as space, with sufficient lighting for a variety of applications. The two-to-one spacing-to-mounting-height ratio allows low mounting heights with wide spacing. The 10" x 6" x 2.3" housing of durable die-cast aluminum has a bronze powder paint finish. The aluminum reflector is enclosed by an injection-molded acrylic refractor providing efficient lighting distribution. It is available with three types of mountings. Ruud Lighting, Inc.
Circle 148 on reader service card

PreFixx™ clear liquid coating protects vinyl wallcoverings against stains invisibly. Unlike shiny plastic surfaces that distort the beauty of wallcoverings, says the manufacturer, with Prefixx colors are not noticeably changed, luster is controlled, design stays crisp and detailed, and embossing remains defined. The coating prevents the migration of staining agents into the vinyl. It is available on select patterns in Genon, Essex, and Bolta wallcoverings and can also be applied on custom order to most patterns in the company's fabric-backed vinyl wallcoverings. DiversiTech General.
Circle 149 on reader service card

Wallscapes™ fluorescents integrate high efficiency fluorescents into a compact wall-mounted lighting system. Different optical packages allow for direct, indirect, or combination direct/indirect lighting applications. Wallscapes can be mounted end-to-end for continuous runs of uninterrupted illumination for indirect or perimeter lighting. ALKCO.
Circle 150 on reader service card

Building Materials

Major materials suppliers for The Museum of Contemporary Art, which is featured this month, as they were furnished to P/A by the architects.

The Museum of Contemporary Art, Los Angeles, Calif. (p. 83). *Architect: Arata Isozaki & Associates, Tokyo.* Built-up roofing: Koppers. Copper roofing: Aetna Sheet Metal. Exterior sandstone, granite, and granite and concrete pavers: Carrara/Hatch. Glass block, crystallized glass: Nippon Electric Glass. Skylights: Fisher Schlain. Office windows: Fentron Industries. Steel railings: Reliance. Perforated aluminum panels: Hutchison. Acoustical ceiling tile: Armstrong. Carpeting: Royalty Carpet Mills. Lighting: Edison-Price; CLS Lighting. Office systems: SunarHauserman. Office seating: Herman Miller. Library furniture: ICF. Boardroom and specialty tables and boardroom seating: Knoll International.

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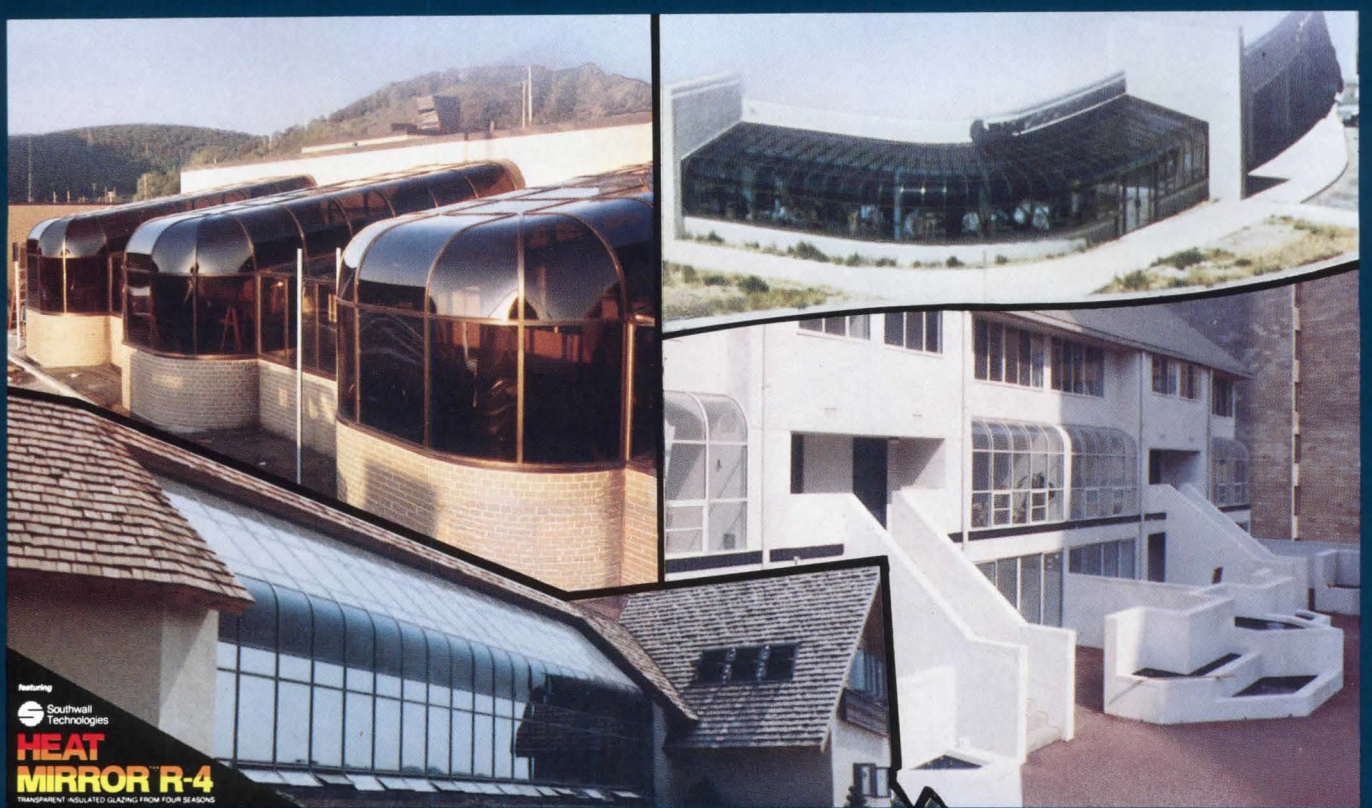

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White terra cotta surface is shown partially cleaned

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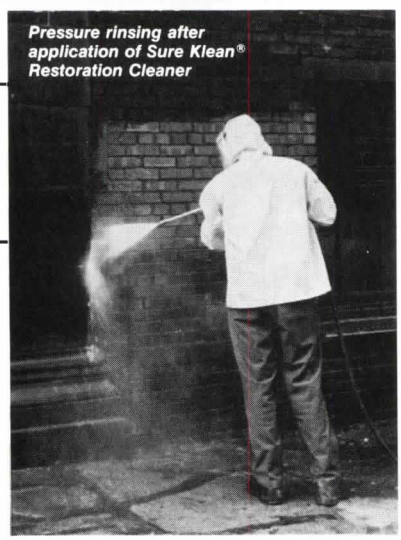

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P/A

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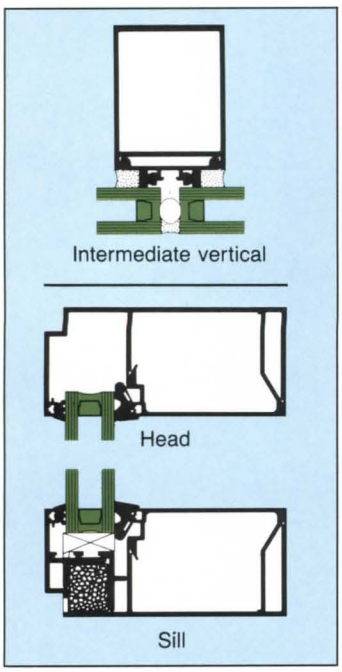

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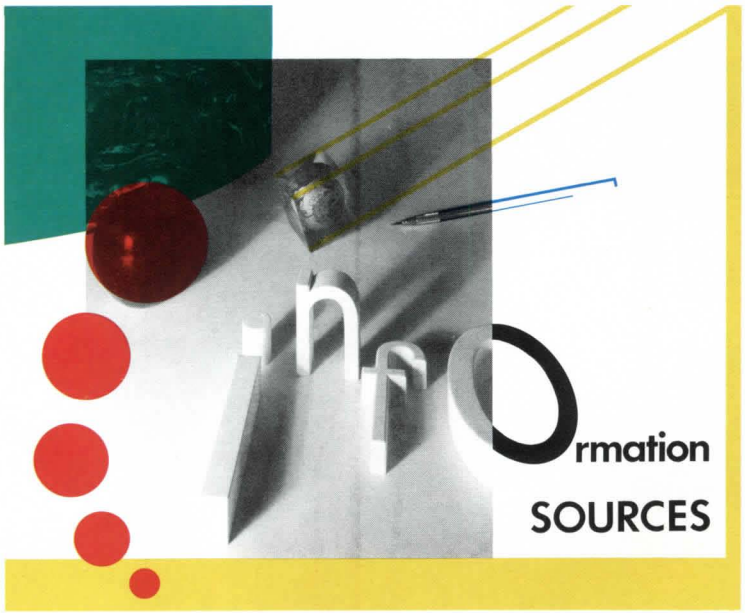

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January: P/A Awards

For the 34th time, the annual P/A Awards issue will delineate the profession's cutting edge—in architectural design, urban design/planning, and research.

P/A in February and Beyond

In the early months of 1987, reports on completed P/A winners, on affordable housing and airports, on precast concrete, computers, and ceiling systems. P/A Reader Poll Reports on career satisfaction and the value of AIA, P/A Practice articles on law, specs, computer applications, and building failures. In June, a special issue on Young Architects; see special announcement in next month's issue.

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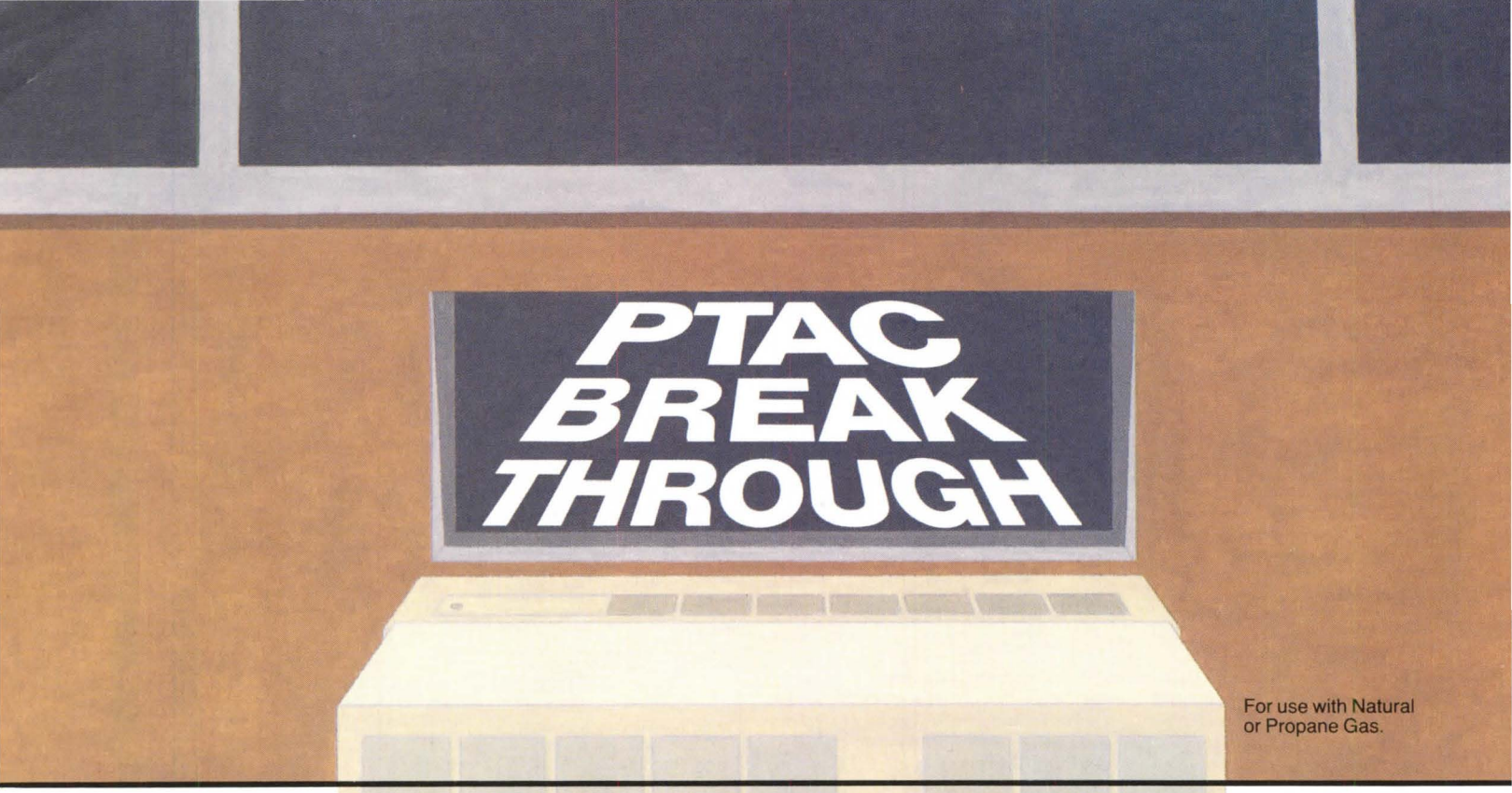

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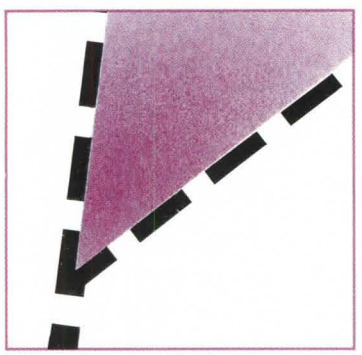

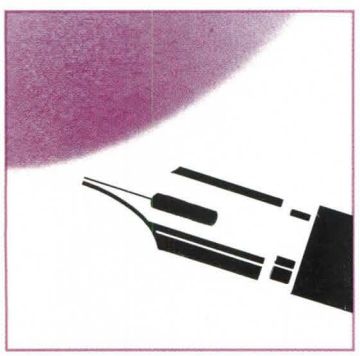

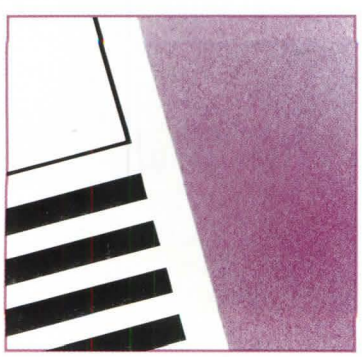

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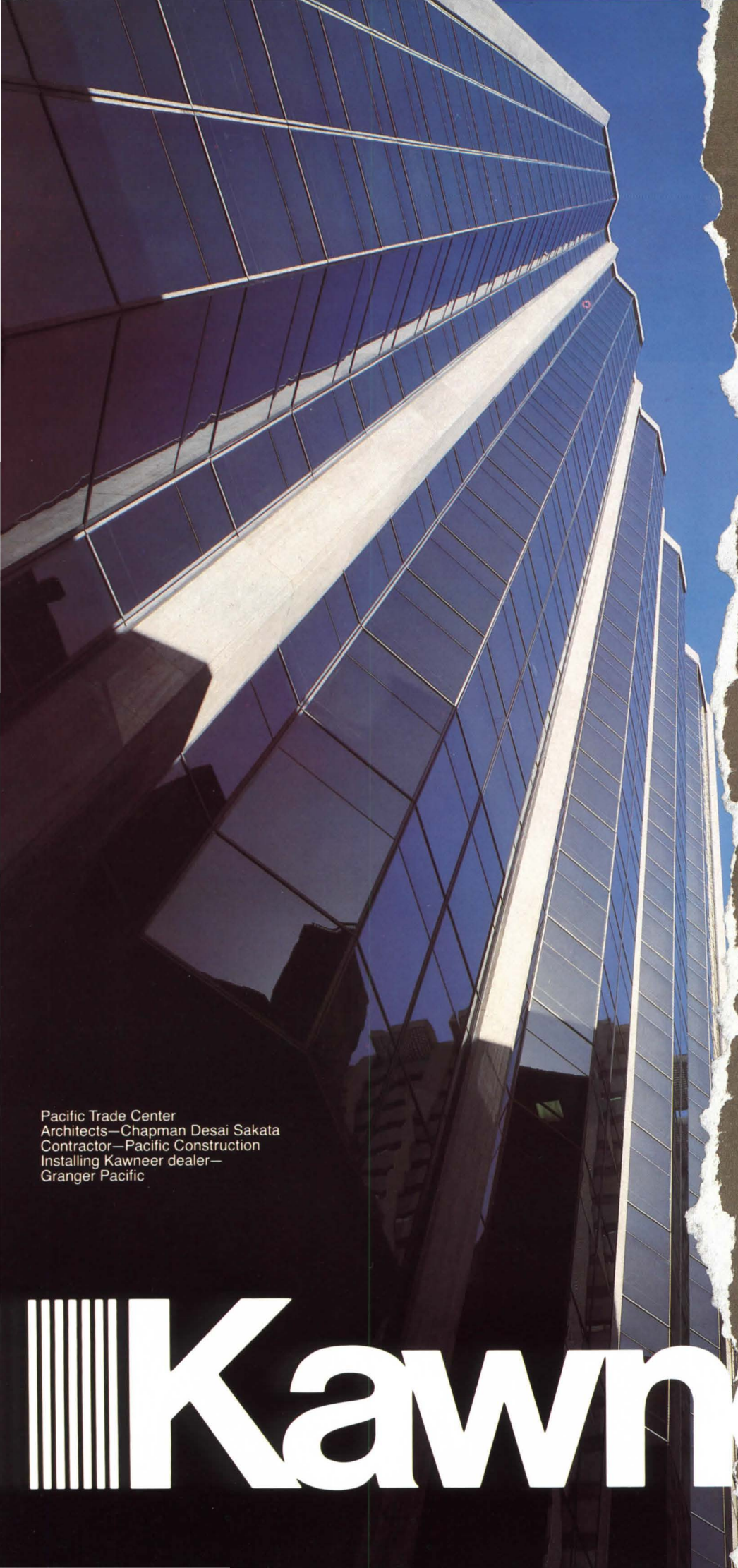

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